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DONALD M. BORCHERT
Editor in Chief

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Encyclopedia of Philosophy, Second Edition

Donald M. Borchert, Editor in Chief

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GADAMER, HANS-GEORG
(1900–2002)

Hans-Georg Gadamer, a Heidelberg philosopher and student of Martin Heidegger, is best known for his hermeneutic philosophy put forward in his *Wahrheit und Methode* (*Truth and Method*, 1960). Widely regarded as the most significant German philosopher after Heidegger, Gadamer wrote on Plato, Georg Wilhelm Friedrich Hegel, Heidegger, Aristotle's practical philosophy, reason in an age of science, aesthetics, poetics, Paul Celan, and other topics.

BIOGRAPHY

Gadamer was born in Marburg and grew up in Breslau. His mother died when he was four. His father was a well-known university research scientist in pharmacological chemistry. In 1919 Gadamer's father was called from the University of Breslau to a research chair at the University of Marburg. Gadamer entered Marburg as a second-year student with interests in literature, art history, and classical philology. But he was soon drawn to the great neo-Kantian philosopher and Platonist, Paul Natorp, under whom he completed his doctoral dissertation in 1922 on pleasure in the Platonic dialogues. In 1923 Gadamer jour-

neyed for the summer semester to Freiburg to hear Heidegger, who was offering bold new interpretations of Aristotle and other philosophers. When Heidegger moved to Marburg in the fall of that year, Gadamer became his assistant and he remained so until 1928. During this time Gadamer also studied with Nicolai Hartmann, took seminars in classical philology under Paul Friedländer and others, and in 1927 was certified in classical philology. In 1928 he completed his habilitation under Heidegger on "Plato's dialectical ethics," based on the *Philebus.*

Gadamer remained another ten years in Marburg waiting for a call to a full-time teaching appointment. After 1933 his chances for a call were practically blotted out by his not being in good standing with the Nazis. But he remained active in the academic life at Marburg, which boasted some of Germany's leading intellectuals—Rudolf Bultmann in theology; Hartmann; Stefan George, the charismatic poet; Richard Hamann, the iconoclastic art historian; and finally, Friedländer and others, who represented the great philological tradition of Ulrich von Wilamowitz-Moellendorff.

In 1938 Gadamer was finally called to a chair in philosophy at Leipzig, where he was able to survive through the war years as a politically unthreatening classical

humanist. Because of his political integrity he was elected rector at Leipzig after the war. In 1947 he managed to escape the stultifying atmosphere of the new communist regime by being called to a position at Frankfurt University. He was at Frankfurt but two years when in 1949 he was called to fill Karl Jaspers's chair at the University of Heidelberg.

Gadamer remained in Heidelberg as chair in philosophy until his retirement in 1968. A gifted lecturer, he concentrated in the 1950s on topics that later became part of *Truth and Method.* At the same time, he worked to revive Hegel studies in Germany, and rebuilt a war-shattered department into one of the strongest in Germany. In 1952, along with Helmut Kuhn, he founded the *Philosophische Rundschau,* a journal dedicated to reviewing current books and discussing major issues in philosophy.

After 1968 Gadamer continued to lecture and offer seminars in Heidelberg as an honored emeritus professor, but now he allowed himself to accept invitations to speak in other countries and to serve as a guest professor at various universities, especially in the United States and Canada. This fed a growing interest in hermeneutics in the United States, an interest manifested in the number of dissertations and books being written on the subject. English translations of Gadamer's works began to appear: *Truth and Method* (1975), *Philosophical Hermeneutics* (1976), and *Hegel's Dialectic* (1976) being among the first.

WORKS

In *Truth and Method* Gadamer's concepts can be logically divided into those within *Truth and Method* and those in the shorter writings after it. The latter category includes further writings defending and defining hermeneutics, writings in modern and ancient philosophy, and in aesthetics and poetics.

In *Truth and Method* Gadamer articulated the most detailed and nuanced account of the "event of understanding" in the history of philosophy. He based much of his thinking on Heidegger, Hegel, and Plato. From Heidegger's *Origin of a Work of Art* he drew strength for a powerful reassertion of the "truth" of art, and from Heidegger's *Being and Time* and later writings he drew concepts that called into question the goal of objectivity in interpretation. From Hegel and Plato he drew emphases on tradition, history, and dialogue. From Wilhelm Dilthey and Heidegger he drew an emphasis on the horizonal character of consciousness and the operativeness of history in all understanding. Understanding, he argues, takes place in a consciousness in which history—that is,

tradition—is always already at work, shaping, predisposing, predefining what the process of understanding involves. His term for this is *wirkungsgeschichtliches Bewußtsein,* "effective historical consciousness," and the encounter with the other, as person or as text, is a matter of *Horizontverschmelzung.*

In *Truth and Method* Gadamer shows the development after Kant of fateful conceptual turns in the course of eighteenth- and nineteenth-century philosophy, philology, and hermeneutics that have led to present presuppositions about understanding and the conditions for its possibility. He traces the dream of scientific objectivity in humanistic and social scientific knowledge in the nineteenth century, especially in Friedrich Daniel Ernst Schleiermacher and Dilthey, and the promising philosophical transformation of this "problematic" of understanding through Heidegger's phenomenological analysis of existential temporality and the historical situatedness of and the participation of history in understanding. He accepts Heidegger's description of the "forestructure" of understanding, adding to it his concept of an "anticipation of completeness" in all understanding. He argues that the process of understanding has the structure of a dialogue and can be likened to a game in that it follows rules and operates in a language that transcends it; thus, he emphasizes the "linguisticality" (*Sprachlichkeit*) of understanding and even ultimately its ontological character: "Being that can be understood is language," he asserted (*Truth and Method,* p. 432). Finally, one of the most distinctive and important of the contributions of *Truth and Method* is its insistence on a moment of "application" in all understanding.

The book's overarching goal, however, was to cause the artwork to be seen in a new way. While the title might lead one to expect it to be concerned with methods in the *Geisteswissenschaften,* Gadamer's professed aim is to defend the claim of artworks to be "true." In Gadamer's view the experience of encountering truth in great works of art demonstrates the limits of a science-oriented concept of understanding; the meaning and power of such artworks elude scientific modes of understanding. Gadamer wrote a good deal in explanation and defense of *Truth and Method.* These writings are now collected in volume two of his collected works.

Gadamer's writings on modern philosophy range through the Continental tradition since Kant and are influenced principally by Plato, who casts a shadow even over his modern writings; by Heidegger, about whom he wrote more than about any other modern philosopher; by Hegel, whose importance in modern philosophy

Gadamer repeatedly defended; and by Edmund Husserl whose phenomenology Gadamer used and treated as a major element in his thought. Most of his essays on ancient philosophy are directly or indirectly connected with Plato. From Plato he draws his model of dialogue, in which partners participate in quest of a truth that transcends the individual seeker. Gadamer's ethical thinking as well as his dialectical hermeneutics go back to Plato's "dialectical ethics" of respect for the other person, of openness, of seeking to strengthen the partner's case in order not merely to win a debate to one's own satisfaction but to move together toward truth, a result that benefits both sides and that both sides affirm.

Art and poetry were a major theme in Gadamer's writings throughout his career. In 1934 Gadamer wrote on "Plato and the Poets," and in the 1940s he was writing essays on Johann Christian Friedrich Hölderlin, Johann Wolfgang von Goethe, Karl Leberecht Immerman, and Rainer Maria Rilke. His articles after *Truth and Method* tend to select more sober and difficult poets such as Stefan George, Gottfried Benn, and Paul Celan. His essays on aesthetics and poetics continue to emphasize the truth of art, the need for dialogical openness, and the priority of the artwork's character of play. At the same time, another issue arises: What about basically nonrepresentational poetry? What about the "no longer beautiful" poetry of the modern (or postmodern) dark lyric? After a number of writings that struggle successfully with the dark lyric, such as *Wer bin ich und wer bist du?* (Who am I and who are you?; 1973), on poet Paul Celan, Gadamer poses the problem in somewhat different terms. For Gadamer it is a "task of philosophy" to develop a context within which one can still recognize and deal with—or "understand"— modern and postmodern art.

Gadamer's essay "The Relevance of the Beautiful" presents a twentieth-century defense of such art. In this essay experience becomes the reference point, even group experiences as one finds them in the historical record. Gadamer includes, not just experiences recorded in artworks or great poetry, which would create a circular argument, but in anthropological records of such things as (1) the role of play in human life, (2) the high experiences of festiveness in our own and other cultures, and (3) the power of participation in symbolic religious rites. In groping for an explanation of the power of art and a defense of its legitimacy, Gadamer offers an analysis of three categories—play, symbol, and festival.

In his essay "The Truth of the Artwork" (1960), Gadamer pointed to a threefold insufficiency of scientific thinking: (1) the insufficiency of scientific thinking, by itself and without recourse to standards outside itself, to grapple with ethical problems such as human rights, abortion, ecology, or planning the future; (2) its incapacity to account for the experience of beauty in art and poetry or to lay down principles for its creation; and (3) its insufficiency to meet, or even account for, the spiritual needs of human beings. All these suggest that a recourse to the absolute priority of scientific presuppositions cannot serve us well in dealing with the encounter with ethical problems, artworks, or the divine. Art, like ethics and the divine, seems to move beyond the competence of the categories of scientific thinking. And they can claim to be "true." This is a major theme both in *Truth and Method* and in later writings.

In "Wort und Bild" (Word and image; 1992) Gadamer takes the final step and attempts to articulate aesthetic categories that apply both to plastic/pictorial arts and arts of the word. Among the several concepts to which he turns are the Greek concept of the fine (*kalon*) and to our experience of the rightness and absoluteness of art.

See also Aristotle; Benn, Gottfried; Bultmann, Rudolf; Dilthey, Wilhelm; Goethe, Johann Wolfgang von; Hartmann, Nicolai; Hegel, Georg Wilhelm Friedrich; Heidegger, Martin; Hermeneutics; Hölderlin, Johann Christian Friedrich; Husserl, Edmund; Jaspers, Karl; Kant, Immanuel; Natorp, Paul; Plato; Rilke, Rainer Maria (René); Schleiermacher, Friedrich Daniel Ernst.

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Richard E. Palmer (1996)

GALEN
(129—c. 216 CE)

Galen (Aelius or Iulius Galenus of Pergamum), a doctor and philosopher, was the son of a rich architect. Born in modern-day Bergama in western Turkey, he was introduced as a student to all the main philosophical theories of classical antiquity. On his own admission, this led him only into a confusion from which he was rescued by considering mathematics, which henceforth provided him with a paradigm for understanding truth and falsehood. From 145, following the appearance of the healing god Asclepius to his father in a dream, he turned to medicine. He sat at the feet of medical teachers in Pergamum, Smyrna, and Alexandria, as part of what is the longest recorded medical education from the ancient world. In 157 he returned to Pergamum as doctor to the gladiators of the high priest, but in 162 he traveled to Rome, the imperial capital. There he quickly established a reputation as a doctor, anatomist, and philosopher, not always to the delight of his many competitors. In 166 he left Rome hurriedly but was recalled in 168 by Emperor Marcus Aurelius to join him and his brother on campaign in northern Italy. After his return to Rome in 169, he seems to have spent the rest of his life in Italy as a physician to the emperor's household although he made at least one visit to Pergamum. The traditional date for his death, c. 200, is based on an early misunderstanding of a comment, preserved by Arabic authors, that divided his life into seventeen years as a student and seventy as a doctor. A date of death around 216 fits better with the internal evidence from his many treatises and would allow him to continue writing major treatises on medicine and pharmacology well into the first decade of the third century, or even later.

Galen was an enormously prolific author, credited with more than 350 treatises on subjects ranging from attic comedy to vivisection, and from logic to pharmacology. Roughly half of these survive today, in whole or in part, mainly in his native Greek but also in Arabic, Hebrew, Persian, and medieval Latin versions. These translations are of great importance, particularly when the originals have been lost, for they frequently deal with philosophical issues that seem to have held little interest for the Byzantine. New discoveries of previously unknown treatises can be expected as major libraries in the Muslim world are opened to scholars and more works of medieval Arabic and Jewish philosophy are published. The recent recovery of new fragments in Arabic of the lost *On Scientific Discovery* suggests that a complete copy of the work Galen thought his greatest contribution to philosophy may eventually be found.

Galen's interest in philosophy can be followed throughout his life, from his very early *On Medical Experience* to his last work, *On My Own Opinions*. He regarded philosophy as essential to the proper practice of medicine: The best doctor was also a philosopher, whether or not he realized it. Conversely, a knowledge of medicine was valuable for philosophers, a conjunction Galen

traced back to Plato whose notions of the body in the *Timaeus* Galen derived from a (unhistorical) friendship with Hippocrates. In turn, Galen visualized Hippocrates as a Platonic philosopher, a claim that contributed to the growing dominance of Hippocrates as the symbol of the medical profession.

Fundamental to medicine was logic, both for structuring accurate diagnosis and for distinguishing between various degrees of certainty. Some suppositions could be proved to be true, others shown to be false, others were merely plausible and could be adopted only provisionally. Still others, such as the nature of god or the eternity of world, were incapable of proof or refutation and were best left to idle sophists. But Galen often muddled these important distinctions, either by treating the merely plausible as if it were true or by choosing as *obvious* and *universally agreed* bases for discussion facts or ideas that themselves were disputed by some of his opponents.

Galen's formal logic, on which he wrote several books, is impressive in its rigor and clarity. The Arabs' attribution to him of the discovery of the fourth syllogism may be right, or it may simply reflect Galen's extension of earlier debates about argument. Throughout his writings he stressed the importance of accuracy and clarity of expression, to avoid confusion, and to allow discussion with those offering different points of view. Ambiguity, on which he wrote an extant tract, was harmful to medicine as well as philosophy, and a sound training in logic he considered necessary for everyone. His demands for a mathematical precision in debate are not, however, fully borne out by his own practice, and his overwhelming powers of rhetoric often obscure his unscrupulous representation of the illogicality of his opponents.

His philosophy and his medicine reinforced each other. Where empirical observation was not enough by itself, logic and understanding of the theories of other philosophers could bridge the gap. Conversely, the facts of medical life exemplified and justified the cosmological and psychological doctrines of philosophers. His discussions of the value of empiricism in relation to understanding the causes of disease, one of the goals of the true doctor, show an awareness of the epistemological difficulties involved and an understanding that an experienced practitioner might reach the correct conclusion without having to go through the necessary chain of causation. He might also be a swifter and safer option than a callow youth, no matter how brilliant the youth's reasoning abilities. Galen's entire approach was eclectic, rejecting the dogmatism of the philosophical schools of his own day in favor of the "twin legs" of reason and experience.

Galen's medicine was based on an Aristotelian physics combined with a Platonic psychology. His universe, made up of the four Aristotelian elements in various combinations or mixtures, had been overseen by a purposeful Creator, or Nature, and worked along the interconnected principles favored by the Aristotelians and Stoics. His explanations for the working of drugs, for instance, involved Aristotelian language and concepts. He was convinced that each part of the body had been designed teleologically, for a particular purpose, and any alteration or imbalance in its basic elements, qualities, or humors resulted in illness. Galen's defense of teleology, as evinced in the human hand and in the elephant's trunk, is arguably superior to that of Aristotle's, and his exposition of what he termed the "natural faculties" is far from the simplistic presentation familiar from later denunciations of Galenism.

Whereas he believed strongly in the existence of the soul, he refused to be drawn to any definitive statement about what the essence of the soul was. The Aristotelian and Stoic notions of an undivided controlling power within the body he vigorously rejected as being inconsistent with the facts of anatomy. His systematic dissections of a variety of animals convinced him that there were three almost independent systems within the body corresponding to the three parts of Plato's soul, as described in the *Republic* and *Timaeus*: the brain and nerves, concerned with thought and sensation; the heart and arteries, responsible for life and energy; and the veins and liver (a more precise rendering of Plato's *belly*), responsible for nutrition and growth. Galen never proclaimed a strict parallelism between the three systems, which was achieved only by later followers such as Avicenna and Averroes, and he devoted much more space to the first two than to the third. This lack of systematization was the result both of his enormous fecundity of ideas and his methods of composition, for most of his books were originally oral presentations, taken down by trained shorthand writers, and not carefully crafted treatises written at leisure. Not surprisingly, they are often repetitive and leave many knots untied.

The heart, for Galen, was the source of natural heat, and the place where a small amount of venous blood, mixed with air, was transformed into vigorous arterial blood. His repetition of the earlier experiments of Erasistratus (c. 304–250 BCE) proved convincingly that the arteries contained blood and not *pneuma* alone, as Erasistratus had argued. But his vitalist predilections con-

vinced him that the movement of arterial blood was not the result of any quasi-mechanical motion of the heart but brought about by the forcible contraction of the arteries controlled by natural powers within their thick coats. Just as most venous blood remained within the veins until it was absorbed as nutriment or excreted, so most arterial blood remained within the arteries. A tiny portion was transformed in the rete mirabile, a vascular plexus at the base of the skull (not found in humans but in some animals Galen dissected), to become psychic pneuma, which was refined still more in the networks of the brain to act as the means of transmission of sensation and the commands of the brain. Contrary to Aristotle and the Stoics, he could find no evidence for the heart as the seat of sensation and thought, especially since he could trace its nerves back to an origin in the innermost cavities of the brain. Galen's experimental dissections of the spinal cord in animals are among the most impressive ever performed, combining a precision of dissection with a careful planning and elucidation of what was to be achieved, and were not superseded until the mid-sixteenth century.

Galen's anatomical conclusions he believed far too important to be left entirely to doctors. In two of his longest treatises, *On the Usefulness of Parts* and *On the Opinions of Hippocrates and Plato*, he explained the consequences of his discoveries in Aristotelian and Platonic terms, respectively. Similarly, his comments on the *Timaeus* stressed the truth of many of Plato's observations and suggested that he must have gained his anatomical knowledge from the great Hippocrates himself. Plato was his favorite philosopher: Galen's writings are permeated with Platonic phraseology, and he wrote summaries of the *Timaeus* and other Platonic dialogues that are partially extant in Arabic.

A man of austere morality—Galen claimed to have read the *Golden Words* of Pythagoras nightly—he wrote extensively on ethics. He advocated a self-control brought about by an extensive philosophical training although he acknowledged that this might be doubly difficult for those who had been badly trained or whose psychic genetic makeup predisposed them to evil. He advocated a very strong interaction between body and soul, for just as overeating and drinking or pleasurable and painful sensations have an obvious effect on behavior, so, in turn, anger or grief can lead to physical illness and even death. Galen contrasts his own equanimity at the loss of most of his library in a fire with his mother's shocking irascibility and with the timorousness of a patient who worried himself to death after dreaming that he had replaced Atlas as

the upholder of the world. Doctor and philosopher should cooperate in the search for health and wholeness.

Anatomy also helped to resolve some philosophical disputes about intentionality. Some actions, Galen showed, were under the direct control of the brain via the nerves and muscles; others were "natural," the result of our genetic makeup, and beyond rational control; others were more complex, such as speech, which required both the will and the modification of "natural" patterns of breathing. Others, such as winking and blinking, appeared to indicate the coexistence of voluntary and involuntary activity in the same organ whereas others, such as a penile erection, he explained by other notions such as sympathy. Only laughter defeated his attempts at explanation. Throughout, Galen sought to use his medical experience to illuminate contemporary philosophical debate, just as he used philosophical debates on physics or causation to explain his decisions as a practitioner.

Contemporary reactions to his philosophy were mixed. A sect of Christians attempted to recast their Christianity to take account of his logical objections to miracles, but others were less polite. Skeptics objected to his reliance on sensory data, and the Aristotelian Alexander of Aphrodisias thought him a great doctor but a poor philosopher, whose profession in *On My Own Opinions* of agnosticism about many philosophical questions was a confession of failure. But his views on creation and some of his Platonic commentaries were cited with respect in the fifth century, and the Christian philosopher Nemesius of Emesa built his Christian anthropology largely on Galen's discoveries. Although much of his philosophy had disappeared in Greek by 1000, the Arabs drew heavily on his work. New fragments of his ethics recovered from Spanish Jewish writers of the twelfth and thirteenth centuries show how much they valued his approach to morality. Renaissance biographers were equally impressed, some even viewing his life as exemplifying the cardinal virtues—a perspective hardly shared by modern scholars. Others hotly debated whether he had become a Christian at the end of his life or not. But after the sixteenth century, Galenic philosophy, like his medicine, was abandoned, not to be studied again in considerable detail until the 1970s.

See also Alexander of Aphrodisias; Aristotle; Ethics; Hippocrates and the Hippocratic Corpus; Logic, History of; Nemesius of Emesa; Philosophy of Medicine; Philosophy of Science, History of; Plato; Pythagoras and Pythagoreanism; Stoicism.

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Vivian Nutton (2005)

GALEN [ADDENDUM]

Galen's influence on medieval Islamic thought in general, and on Arabic philosophy in particular, can hardly be overestimated. Galen himself developed a system of philosophical and medical views that gained tremendous authority in Late Antiquity, notably in Alexandria and the Hellenized East. He emphasized the necessity that physicians be conversant in philosophy, and this idea was thoroughly enshrined, for instance, in the Late Antique medical curriculum in Alexandria. To give just one example, physiological and nosological processes were explained in terms of Aristotelian categories and the four causes. This medical tradition, aptly called "Galenism," shaped the Islamic notion of sciences and medicine to a large extent; it is therefore not surprising that many of the most famous Arabic philosophers such as al-Kindī, al-Rāzī (Rhasis), Ibn Sīnā (Avicenna) and Ibn Rushd (Averroes) were also prominent physicians.

Virtually all the works of Galen's medical and philosophical writings were translated into Arabic, and it is in this language that some of the most interesting philosophical works such as *On Medical Experience* survive. The idea of experience was hotly debated among medical authors in the medieval Islamic period, and treatises such as al-Rāzī's *Doubts concerning Galen* show that Arabic authors engaged critically with him. However, many of Galen's ideas, such as concepts about human physiology, which had already entered Late Antique Greek popular intellectual culture, became commonplace in the Islamic world.

See also al-Kindī, Abū-Yūsuf Ya'qūb ibn Isḥāq; Aristotelianism; Averroes; Avicenna; Experience; Islamic Philosophy.

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Peter E. Pormann (2005)

GALILEO GALILEI
(1564–1642)

Galileo Galilei, the Italian astronomer and physicist, was born at Pisa. Although he created no systematic philosophy, his influence on the trend of modern philosophical thought is very marked. To it may be traced the definitive separation of physical science from philosophy, the abandonment of authority as a criterion of scientific truth, the distinction between objective and subjective qualities in observable phenomena, and the introduction (or reintroduction) of empirical and skeptical elements into philosophical investigations. The seventeenth-century revival of atomism and the removal of occult qualities from the concept of causation owed much to Galileo. His writings marked the beginning of an antimetaphysical movement in philosophy, exemplified in later times by Positivism and operationalism, and they remained relatively free from such concealed ontological assumptions as are to be found in some ostensibly nonmetaphysical systems; for example, in philosophical empiricism, mechanism, and phenomenalism. The events of Galileo's personal life involved him in an active struggle for freedom of thought, and this in turn underlay those scientific and philosophical convictions for which he became a symbol to his contemporaries and followers.

After a meager, conventional preparatory education, Galileo was enrolled in the school of medicine at the University of Pisa in 1581. His interests turned to mathematics about 1583, and he left the university in 1585 without having received a degree. For a time he continued his studies alone, giving lessons at Siena and Florence, and in 1589 secured the chair of mathematics at Pisa. His early investigations in physics, particularly mechanics, set him in sharp opposition to the views prevailing among professors of philosophy, who, as followers of Aristotle, looked with disfavor upon the introduction of mathematics into physics. In 1591 Galileo left Pisa to become professor of mathematics at the University of Padua. Here he continued his mechanical researches, undertook the manufacture of mathematical instruments for sale, and

composed several useful treatises that were circulated in manuscript among his pupils and friends.

In 1604 he disclosed, in a letter to Fra Paolo Sarpi, the mathematical law of freely falling bodies. He had made substantial progress toward a rational mechanics when, in 1609, his attention was diverted from those studies by the invention of the telescope in Holland. Galileo promptly duplicated and improved the device, producing an instrument suitable for astronomical observation, and early in 1610 he published *Sidereus Nuncius* (The starry messenger), in which he described the mountainous character of the moon, the existence of countless previously unobserved stars, and the discovery of four satellites of Jupiter. These discoveries provoked widespread controversy among philosophers and astronomers. Shortly after *Sidereus Nuncius* was published, Galileo resigned his post and returned to Florence as chief mathematician and philosopher to Cosimo II de' Medici, grand duke of Tuscany. Late in 1610, he detected the curious appearance of Saturn (although he could not account for it) and the phases of Venus, and shortly thereafter he noted the phenomenon of sunspots.

Strong philosophical opposition was aroused by his publication in 1612 of *Discourse on Bodies in Water,* in which he ridiculed the Aristotelian theory of the elements, advocated observation and experiment as the chief criteria of physical truth, and gave some support to the views of Democritus. Publication in 1613 of his *Istoria e dimostrazioni intorno alle macchie solari* (Letters on sunspots) aroused theological opposition by its open support of the Copernican theory, which appeared to contradict the Bible by asserting the motion of Earth and the stability of the sun. Toward the end of that year certain philosophers and priests, in the presence of members of the ruling family, attacked Galileo and Copernicanism on religious grounds. Galileo replied in a long letter addressed to his former pupil Benedetto Castelli, who had defended him in his absence. In this letter Galileo contended that biblical passages had no authority in scientific controversies, and that the language of the Bible should instead be interpreted in the light of man's knowledge of natural phenomena, gained through reason and observation.

Early in 1615, Galileo was violently attacked from the pulpit in Florence, and a copy of his earlier letter, together with a denunciation of the Galileists, was sent to the Inquisition at Rome. Rumors spread that the Catholic Church would soon officially condemn the Copernican theory and silence Galileo. He countered by greatly expanding the arguments of his previous letter to Castelli,

and widely circulated the new version in manuscript copies ostensibly addressed to Grand Duchess Christina, the mother of Cosimo de' Medici. At the end of the same year Galileo went personally to Rome in an attempt to stem the anti-Copernican tide. In this he was unsuccessful, for the church officially moved to condemn the views of the motion of Earth and stability of the sun as contrary to the Scriptures. Galileo was instructed not to hold or defend these views, but no action was taken against his person or his previously published books.

After a period of silence, Galileo entered into a polemic with a Jesuit professor at Rome over the nature of comets, and in 1623 he published *The Assayer* (*Il saggiatore*), ridiculing the Aristotelian philosophy and expounding his methodological ideas. This book was dedicated to the new pope, Urban VIII, who as cardinal had been very friendly toward Galileo. In 1624, Galileo visited Rome and obtained permission to write on the Copernican and Ptolemaic systems, provided that the treatment was impartial. The composition of his next book, *Dialogue concerning the Two Chief World Systems,* occupied Galileo intermittently for several years. After great difficulty in getting a license to publish it, he brought it out at Florence in 1632. Five months later the printer was ordered to issue no more copies, and Galileo was summoned to Rome to face the Inquisition. Despite remonstrances of the Tuscan ambassador and of Grand Duke Ferdinand II, he was eventually compelled to appear and stand trial. In June 1633 the book was condemned, and Galileo was sentenced to life imprisonment. He was, however, permitted to reside first at Siena with the archbishop, his friend and former pupil, and then under house arrest at his own villa near Florence. There he managed to compose and smuggle out his most mature work, a treatise on physics known as *Two New Sciences,* which was printed in Holland in 1638. Galileo died four years later.

PHILOSOPHICAL ROOTS

The conditions of Galileo's education and career led to his intimate familiarity with the works of Aristotle. There is little evidence, however, that he ever preferred to read the works of any particular philosopher. His personal library was scanty, and his correspondence is devoid of philosophical references or discussions. In polemic works he refers often to Aristotle, usually with disfavor. His occasional references to Democritus, Socrates, Plato, and Seneca are more favorable but superficial, and appear to express general anti-Aristotelianism rather than allegiance to any other philosopher. Near contemporaries

such as Girolamo Cardano and Bernardino Telesio were dismissed by Galileo with the remark that he had read but little of their work. Although there is extant a Latin treatise in Galileo's handwriting that contains references to scores of ancient and medieval philosophers, this dates from his student days (1584) and is not demonstrably original or representative of his own views.

It is evident that during most of his life Galileo's favorite reading was literary rather than philosophical. He is said to have known Ludovico Ariosto by heart; he lectured on Dante Alighieri, annotated Torquato Tasso, delighted in the rustic dialect writings of Ruzzante (Angelo Beolco), and frequently cited Homer, Vergil, Pulci, and other poets in his works. Nowhere in his writings is there an overt expression of allegiance to any of his philosophical predecessors. However, the question of Galileo's true metaphysical position has been much debated in recent decades. His emphasis on the mathematical element in physics has induced many excellent scholars, led by Alexandre Koyré, to classify him unequivocally as a Platonist. On the other hand, Galileo's insistence on the power of observation to refute any reasoned conclusion has caused others, notably Ludovico Geymonat, to resist this conclusion and even to stress a strong Aristotelian element in Galileo's own work. In opposition to both these views, Edward Strong has questioned the propriety of reading any metaphysical position into Galileo's work and emphasizes his evident preoccupation with methodological considerations, to the exclusion of dogmatic philosophy. Finally, Alistair Crombie has aptly remarked that it is precisely the absence of systematic philosophy in Galileo that has made it possible for adherents of nearly every philosophical school to find some support for their views in his works.

Galileo's anti-Aristotelianism makes its first appearance in his early studies of motion. In order to defend a theory of motion (later abandoned) founded on Archimedean conceptions, he was obliged to demolish several prevailing Aristotelian assertions: that the speed of free fall is proportional to the weight of the falling body and inversely proportional to the density of the medium; that the motion of projectiles depends on some action of the medium; and that motion is impossible in the void. Galileo's attack on Aristotle widened with his adoption of the Copernican astronomy and his abandonment of the distinction between elemental and celestial matter, so essential to Aristotle's world view. In the end he questioned the reliability of Aristotelian logic and asserted that rigorous demonstration was to be found only in mathematics. Thus, it may be argued that Aristotle's physical errors led

Galileo to distrust logical deduction as a basis for physics, and his famous dictum that "the book of nature is written in mathematical characters, without a knowledge of which men cannot understand it" probably represents a methodological canon rather than a metaphysical position.

Galileo's opposition to Aristotle was also to some degree a literary pose rather than a true philosophical position. In later years he often declared himself a better Aristotelian than his contemporary Peripatetic adversaries, and in the opening sections of the *Dialogue* he made extensive use of Aristotelian arguments to secure assent to essential points in the Copernican theory. Perhaps the chief significance of Galileo's anti-Aristotelianism is its intimate relation to his consistent rejection of authority of any kind in matters of science. His unwillingness to accept any intermediary between himself and nature was the motivation of his bold warning to the church against the utilization of scriptural authority in scientific disputes. In short, Aristotle was not so much the philosophical opponent as the historical symbol in Galileo's unremitting battle against authority as a criterion of truth.

SEPARATION OF PHYSICS FROM PHILOSOPHY. Until Galileo's time, physical science (including theoretical astronomy) was regarded as a proper part of philosophy and was so taught in the universities. Aristotle's principles of motion supplied the axioms, and the science was purely deductive. Several of Galileo's predecessors had questioned those principles as being in apparent contradiction with experience; Galileo continued these attacks and undertook experimental investigations of the actual phenomena of motion. In this way he came upon some new results and sought principles from which both the old and new phenomena might be deductively established. If he was not entirely successful in this quest, that was not a matter of deep concern to him. René Descartes later criticized Galileo sharply for his investigation of physical effects without a prior knowledge of their causes, and Cartesian physics was made an integral part of Descartes's systematic philosophy. In the end, however, the example of Galileo, and not that of Descartes, was followed by scientists. Physics became first a distinct branch (the "natural philosophy" of Isaac Newton) and ultimately a separate discipline from philosophy. The philosophical effects of this separation have been enormous. The emphasis on physics that prevailed in philosophy at Galileo's time has vanished; in its place, the theory of knowledge has risen to preeminence in modern philosophy, where from time to time it has threatened to subordinate or even to expel metaphysics. It is very doubtful that this would have come about without the separation of physical researches from philosophical investigations, in which separation Galileo was the pioneer.

Nor was Galileo content merely to remove terrestrial physical phenomena from the realm of speculative philosophy. Telescopic observation suggested to him a direct analogy between terrestrial and celestial matter, a conception that was antagonistic to Aristotle's entire scheme. The mountainous character of the moon's surface refuted the axiom of perfect sphericity of celestial bodies; the appearance and disappearance of sunspots destroyed the axiom of celestial immutability and perfection. Galileo did not hesitate to attribute terrestrial qualities to all celestial bodies, thus laying the basis for physical astronomy, even though this had grave religious implications and challenged the traditional cosmological and cosmogonical assumptions of the Peripatetics, who dominated the philosophical thought of the time.

ABANDONMENT OF AUTHORITY

The age into which Galileo was born was one in which the power of authority was uppermost in every sphere of activity—political, religious, and philosophical. It was therefore virtually impossible to attack that power in one sphere without disturbing it in others. To Galileo it was clear that in matters of scientific investigation, authority as such could not be allowed any weight; observation, experiment, and reason alone could establish physical truth. Accordingly, he disputed the right of philosophers and theologians to exercise control over scientific investigations or even scientific theories. Confronted with almost overwhelming opposition in this dispute, he was compelled to adopt, if not to formulate systematically, an alternative criterion of truth that might have some hope of acceptance. In so doing he avoided the error of such philosophers as Bernardino Telesio and Francis Bacon, who in effect had called for reliance solely upon sensory evidence, for Galileo was well aware of the possibility of illusion or of misinterpretation. It appeared to Galileo that mathematics alone had the kind of certainty that could be completely trusted, and he took the position that only to the extent to which men can detect mathematical regularities in phenomena can they be certain they have reached the truth in physical matters: "Without mathematics, one wanders about in a dark labyrinth."

This dictum of Galileo's is often taken today as the expression of a fundamentally Platonic viewpoint, but there is no evidence that Galileo believed in a world of Platonic forms as distinguished from that of events. He appears to have been concerned with relationships rather

than essences, and it is in this sense that his mathematical conception of the world is to be taken. He expressly stated that the failure of a physicist to describe the real world was not the fault either of that world or of mathematics, but was merely a result of the limited competence of the physicist, analogous to the shortcomings of a merchant or an accountant who had failed to take into account the weights of the containers in computing the value of his merchandise. Galileo held that although we must be satisfied with limited objectives, we may achieve complete certainty with regard to them.

Galileo's battle for free inquiry, independent of the interference of authority, was, in his own time, doomed to defeat. Nevertheless, the practicability of his alternative criterion of truth gained him a substantial number of followers whose intelligent application of his suggestions was eventually beneficial not only to physical science, but to philosophy as well. The systematic search for solutions to physical problems within preestablished limits of inquiry, under the rule that the demands of sense data, reason, and mathematical interpretation must be simultaneously satisfied, led to the development of a body of dependable knowledge of the physical world that philosophers could no longer ignore in their speculations about underlying reality. At the same time, this complex criterion of physical truth gave rise to a more serious examination of epistemological problems that had been relatively neglected in previous ages of untrammeled speculative philosophy. "We must deal with the real world, and not one on paper," Galileo proclaimed in his *Dialogue.*

It should be noted that Galileo did not extend his demands beyond the domain of physical science. In order to reconcile his scientific position with his acceptance of religious authority, he distinguished sharply between the two uses of language, or even the two languages, of faith and science. This position was expounded at length in his *Letter to Christina* (1615, published 1636). Wherever natural phenomena are involved, the language of the Bible is to be interpreted by the findings of science, while the exposition of supernatural texts is to be left to theologians. This concept of duality of language was given an interesting extension in his *Two New Sciences*; the purely mathematical sections are written in Latin, while the physical and more general sections are in Italian. It is reasonable to assume that Galileo's attitude toward the difficult question of why mathematical relations prevail in physics, and indeed toward metaphysical questions in general, was similar to his expressed opinion with regard to supernatural assertions of any kind: that they were outside the domain of science.

OBJECTIVE AND SUBJECTIVE QUALITIES

It is well known that Galileo clearly set forth the distinction, later made into a fundamental principle by the philosophical empiricists, between primary and secondary qualities. In accordance with his conception that only mathematics afforded complete certainty, he believed that to the fundamental particles of matter one must attribute size, shape, number, and rate of motion; but that one is under no compulsion to invest them with color, sound, odor, and the like. This separation of subjective qualities from those capable of mathematical treatment was a decisive step in the removal of man from his traditionally central place in the entire scheme of things. It is also noteworthy that Galileo showed no interest whatever in pursuing an analysis of subjective (or secondary) qualities; he did not (as did Aristotle and Descartes) compose books on the mind, the spirit, or man in general. Thus, Galileo's treatment of this fundamental principle of empiricism is by no means indicative that he subscribed to an empiricist philosophy in the technical sense. His distinction of objective-subjective was simply an integral part of his separation of physics from philosophy; and if it had any metaphysical implications, they were lost to Galileo. The source of inspiration for this fundamental notion was certainly Greek atomism; but if any classifiable system of philosophy is to be found in Galileo's own writings, it is that of naive realism—a recurrent theme in physical science and the philosophy of science from Galileo's time through the nineteenth century.

Highly important philosophically in Galileo's physical investigations was his insistence on the doctrine of relativity of motion. On the one hand, this removed Earth from its privileged position in astronomy, and in this regard was little more than an extension of the Copernican revolution. On the other hand, it began a new revolutionary movement in which the investigation of natural laws as mathematical relationships was to replace traditional inquiries into the natures or essences of physical entities. Thus, the way was opened to a coherent science of dynamics, while the accepted world view based on the doctrine of "natural places" was rendered untenable.

SKEPTICISM AND THE SCIENTIFIC METHOD

It is worth noting briefly that Galileo introduced (or rather reintroduced) into Western philosophy certain traditions of skepticism which had lapsed during the reign of authority. He often said that it was easier for him to determine that something was false than to discover the

truth of any matter, and he openly contended that it was less shameful to be ignorant than to argue on the wrong side. He was accustomed to advise his pupils freely and candidly to confess "I do not know" rather than to offer merely verbal explanations. Thus, among his followers it became once more respectable for a philosopher to acknowledge ignorance. The effects of this were very noticeable in the activities of his disciples and in the Galilean school they created. Establishment of the first great experimental scientific society, the Academy of the Cimento, with its motto of "Test and test again," would scarcely have been possible before Galileo. It was his habit to stress the infinite amount that must remain unknown, no matter how deeply one might penetrate into any subject of inquiry.

METHODOLOGICAL VIEWS. Galileo's philosophical importance is nowhere clearer than in his contributions to the method of scientific investigation. His suggestions and his example in this field laid the basis for procedures in physical science that have enriched epistemology as much as science itself. Yet Galileo's conceptions of scientific method, like his other philosophic views, make their appearance in his books only implicitly and incidentally to other considerations. They are first apparent in his polemic work on floating bodies (1612), in which experiments are designed for and applied to the refutation of verbal explanations and arguments. This book marked a definite epoch in the philosophy of science, inasmuch as it is perhaps the first systematic exposition of physical experiments specifically designed to refute a philosophical position. In classical form, it presents the Peripatetic theory and Galileo's countertheory, with a set of experimental tests to show the falsity of the former and the truth of the latter. Although methodological considerations are not discussed in the abstract, the work is a model of the "experimental philosophy" carried on by the school of Galileo.

The work on sunspots published in the following year is also rich in methodological material; here Galileo destroyed the arguments of his anonymous Jesuit adversary by establishing the analogy of terrestrial phenomena to solar phenomena and by applying mathematical reasoning to the problem of the location of the spots. In this instance the use of experiment was precluded by inaccessibility of the phenomena, but observational data were correctly applied in its stead. It thus constituted a methodological continuation of the book on floating bodies, although the points at issue were in this case strictly scientific and not philosophical, at least in modern terms. Particularly noteworthy are certain semantic critiques directed against arguments based upon purely verbal deductions made by Galileo's adversary in this controversy.

Because of the prohibition against discussion of Copernicanism, ten years elapsed before the publication of Galileo's next acknowledged work, *The Assayer,* which differed markedly from his earlier works. Ostensibly a polemic over the nature of comets, it was in reality a detailed critique of the then prevailing treatment of astronomical phenomena. Instead of adopting a specific theory of comets, Galileo undertook to refute his opponent by showing that all his arguments depended upon assumptions that could not be demonstrated or upon confusions of a linguistic character. It is probable that he was motivated at least in part by a desire to place in the hands of his readers a method by which they might themselves arrive at conclusions that he had been forbidden to advocate. Among the principal themes of this work are the proper and improper use of observation and experiment, the distinction between primary and secondary qualities, the necessity for clarification of language in dealing with physical concepts, and the infinite scope of natural phenomena.

In his ill-fated *Dialogue* of 1632, Galileo developed the last-named theme at length. It was his view that physical truths are boundless in number but perfectly consistent; that human knowledge at any time can comprise but a finite part of this infinite whole; that sense experience, indispensable though it is to a knowledge of the world, can be deceptive or misleading in any given instance. Thus, the concept of physical science as essentially a process of successive approximations is already implicit in the teachings of Galileo. At each stage of inquiry, sense experience must be combined with reasoning and with mathematics to afford a sound basis of deduction. Galileo noted that the method used in proof is rarely the same as that used in making a discovery, and held that unless the proof is mathematical, it lacks absolute certainty.

The *Two New Sciences* of 1638, Galileo's chief contribution to physics, was of less direct philosophical importance. Its indirect importance lies in the fact that it definitively established physics as a distinct discipline on the basis of its own methods of investigation, methods that have persisted virtually unchanged. Of particular importance to later philosophical developments were the introduction in this work of the concept of one-to-one correspondence in the analysis of the arithmetical infinite and Galileo's suggestions relating to the roles of physical and mathematical indivisibles in the explanation of observable phenomena.

In conclusion, it should be observed that a profound difference existed between the methods by which Galileo and his contemporary, Johannes Kepler, applied mathematical reasoning to physical science, particularly to astronomy. Kepler's thought was pervaded by the conviction that numerical relationships determined the structure of the universe in the sense of Pythagorean mysticism. Accordingly he attempted, repeatedly, to deduce that structure from a priori numerical hypotheses. As a result, he was early led into fantastic speculations from which he was sometimes able to extricate himself only after years of labor. Galileo, on the other hand, regarded mathematics as an indispensable practical tool and as the definitive test in the quest for physical certainty; but he was not inclined to follow wherever mathematical deduction might lead. His errors, unlike Kepler's, are usually to be found in attempts to create mathematical proofs for physical laws of which he had previously made certain, in the desire to achieve the unique degree of certainty that he ascribed to mathematical demonstration.

See also Aristotle; Atomism; Copernicus, Nicolas; Dante Alighieri; Descartes, René; Empiricism; Epistemology; Kepler, Johannes; Leucippus and Democritus; Newton, Isaac; Operationalism; Peripatetics; Phenomenalism; Plato; Positivism; Scientific Method; Seneca, Lucius Annaeus; Skepticism, History of; Socrates; Telesio, Bernardino.

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S. Drake (1967)

GALLUPPI, PASQUALE
(1770–1846)

Pasquale Galluppi, the Italian epistemologist and moral philosopher, was born in Tropea, Calabria. He began the study of law in Naples but soon switched to theology and philosophy. At first Galluppi was strongly influenced by Christian Wolff. In 1800 he began to read Étienne Bonnot de Condillac and John Locke, and his first published work, *Sull'analisi e sulla sintesi* (On analysis and synthesis; Naples, 1807), was an attack on sensationalism. From 1807 until 1815 Galluppi studied Immanuel Kant. Although he was strongly attracted by Kantianism, he finally rejected it as "skepticism," and, through an exami-

nation of René Descartes and Locke, he arrived at a position strongly resembling that of the Scottish commonsense school as it had been interpreted by the French eclectics.

The publication in 1819 of the first volume of his *Saggio filosofico sulla critica della conoscenza* (Philosophical essay on the critique of knowledge; 6 vols., Naples, 1819–1823) brought Galluppi widespread recognition. Between 1820 and 1827 he published his best-known works: the *Elementi di filosofia* (4 vols., Messina, 1820–1827), in which he expounded his theories, and the *Lettere filosofiche sulle vicende della filosofia relativamente ai principî delle conoscenze umane da Cartesio sino a Kant inclusivamente* (Philosophical letters on the events in philosophy concerning the principles of human knowledge from Descartes to Kant inclusive; Naples, 1838), a remarkable history of human thought. In October 1831 Galluppi was named professor of philosophy at the University of Naples. He corresponded with Victor Cousin, whose *Fragments philosophiques* he translated into Italian (2 vols., Naples, 1831–1832), and in 1838 he was named foreign correspondent of the Academie des Sciences Morales et Politiques.

Galluppi held that the only method of philosophy is analysis, a regressive movement in which reflective thought goes back over its own development. The starting point is consciousness: The existence of the conscious ego is "an original experimental truth" and an immediate intuition. The conscious ego consists in the immediate apprehension which the existing ego has of itself. This apprehension simultaneously produces apprehension of the object (which is sensation) and apprehension of the subject that perceives the object (which is feeling). Galluppi expressed this originating act in the formula "I feel (*sento*) a me which senses (*sente*) something" outside of me. Consciousness, in other words, is the awareness that the ego has of itself and of a separate, independently existing reality. On the basis of this indisputable testimony of consciousness Galluppi proclaimed the reality of both the ego and things, in opposition to George Berkeley's idealism and David Hume's analyses.

Using the same procedure, and by means of the evidence provided by internal consciousness, Galluppi found in the ego the universal ideas which had been denied by the empiricists: these ideas are proved by inner experience, which affirms the existence of God and, by revealing that the conscious ego can only be the effect of a divine intelligent cause, invariable and absolute, also attests the validity of causal relations. True knowledge, knowledge that is adequate to reality, consists in rear-ranging, by a real synthesis, the objective unities of beings just as they are. The existence of God, proved in the same way that Descartes did, by means of consciousness ("I think, therefore I am; therefore God exists"), proves that the self-evident relationships are valid. (This last argument differs from the Cartesian principle of divine truth.)

Galluppi adhered to the same theory in moral philosophy. In moral philosophy also it is the testimony of consciousness that tells us we are free and that makes us feel the necessity of moral good and thus the presence of a natural moral law: Our duty is affirmed to us by our innermost sense.

See also Analysis, Philosophical; Condillac, Étienne Bonnot de; Consciousness; Cousin, Victor; Descartes, René; Ethics, History of; Hume, David; Kant, Immanuel; Locke, John; Skepticism, History of; Wolff, Christian.

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Eugenio Garin (1967)
Translated by Robert M. Connolly

GAME THEORY

GAMES OF COMPLETE INFORMATION

A game is an abstract, formal description of a strategic interaction. Any strategic interaction involves two or more decision makers (players), each with two or more

ways of acting (strategies), such that the outcome depends on the strategy choices of all the players. Each player has well-defined preferences among all the possible outcomes, enabling corresponding utilities (payoffs) to be assigned. A game makes explicit the rules governing players' interaction, the players' feasible strategies, and their preferences over outcomes. Game theory describes games by means of mathematical concepts (e.g., sets, functions, and relations).

NORMAL FORM. A possible representation of a game is in normal form. A normal form game is completely defined by three elements that constitute the structure of the game: a list of players $i = 1, \dots , n$; for each player i; a finite set of pure strategies S_i; and a payoff function u_i that gives player i's payoff $u_i(s)$ for each n-tuple of strategies $(s_1, \dots , s_n)$, where u_i: $\underset{j=1}{X} S_j \rightarrow R$. A player may choose to play a pure strategy or instead to randomize over his or her pure strategies; a probability distribution over pure strategies is called a mixed strategy and is denoted by σ_i. Each player's randomization is assumed to be statistically independent of that of his or her opponents, and the payoffs to a mixed strategy are the expected values of the corresponding pure strategy payoffs. A different interpretation of mixed strategies, based on the idea that players do not always randomize over their feasible actions, is that the probability distribution σ_i represents other players' uncertainty about what player will do. A mixed strategy is thus thought of as other players' conjecture about a player's plans of action. The conjectures depend on the player's private information, which is left unspecified in the model. A problem with this interpretation is that if there are reasons behind the choices a player makes, they should be included in the model, since they are likely to be payoff relevant.

The two-by-two matrix in Figure 1 depicts the two-player normal form representation of the famous Prisoner's dilemma game, where C stands for *cooperate* and D for *defect*. The numbers in the cell of the matrix denote players' payoffs: the first number is the payoff for the row player, the second for the column player. Each player picks a strategy independently, and the outcome, represented in terms of players' payoffs, is the joint product of these two strategies. Notice that in the game of Figure 1, each player is better off defecting no matter what the other player does. For example, if the column player cooperates, the row player gets a payoff of 3 by defecting and a payoff of 2 by cooperating, while if the column player defects, the row player gains a payoff of 1 by defecting and of 0 by cooperating. When, regardless of what other players do, a strategy yields a player a (strictly) infe-

FIGURE 1

Prisoner's Dilemma	C	D
C	2,2	0,3
D	3,0	1,1

rior payoff than some other strategy, it is called a *dominated strategy*. When a strategy yields the same payoff of another undominated strategy, but it has an inferior payoff against at least one opponent's strategy, it is called a *weakly dominated strategy*.

The game of Figure 1 is one of complete information, in that the players are assumed to know the rules of the game (which include players' strategies) and other players' payoffs. If players are allowed to enter into binding agreements before the game is played, one can say that the game is cooperative. Noncooperative games instead make no allowance for the existence of an enforcement mechanism that would make the terms of the agreement binding on the players. What strategies should rational players choose? What could be rightly called the central dogma of game theory states that rational players will always jointly maximize their expected utilities, or play a Nash equilibrium (compare Nash 1996). Informally, a Nash equilibrium specifies players' actions and beliefs such that (1) each player's action is optimal given his or her beliefs about other players' choices; (2) players' beliefs are correct. Thus, an outcome that is not a Nash equilibrium requires either that a player chooses a suboptimal strategy or that some players misperceive the situation.

More formally, a Nash equilibrium is a vector of strategies $(\sigma^*_1, \dots , \sigma^*_n)$, one for each of the n players in the game, such that each σ^*_i is optimal given (or is a best reply to) σ^*_{-i}. That is

$$u_i(\sigma^*_i, \sigma^*_{-i}) \geq u_i(\sigma_i, \sigma^*_{-i}) \text{ for all mixed strategies of player } i \ \sigma_i$$

Note that optimality is only conditional on a fixed? σ_{-i}, not on all possible σ_{-i}. A strategy that is a best reply to a

FIGURE 2

Matching Pennies	H	T
H	1,–1	–1,1
T	–1,1	1,–1

FIGURE 3

	c	d
a	2,4	0,1
b	0,1	0,1

given combination of the opponents' strategies may fare poorly vis-à-vis another strategy combination.

In a game like the one depicted in Figure 2 the row player gains a payoff of 1 if the toss of two coins results in two heads or two tails and loses 1 otherwise, and vice versa for the column player.

This game has no Nash equilibrium in pure strategies. Nash proved that—provided certain restrictions are imposed on strategy sets and payoff functions—every game has at least one equilibrium in mixed strategies. In a mixed strategy equilibrium, the equilibrium strategy of each player makes the other indifferent between the strategies on which he or she is randomizing. In particular, the game in Figure 2 has a unique Nash equilibrium in which both players randomize between their strategies with probability ½. Then, if the first player plays $\sigma_1 = (\frac{1}{2}$ H, ½ T), his or her expected payoff is $\frac{1}{2} \cdot 1 + \frac{1}{2} \cdot -1 = 0$ regardless of the strategy of the second player.

The players (and the game theorist) can predict that a specific equilibrium will be played just in case they have enough information to infer players' choices. The standard assumptions in game theory are:

CK1. The structure of the game is common knowledge

CK2. The players are rational (i.e., they are expected utility maximizers) and this is common knowledge

The concept of common knowledge was introduced by David K. Lewis (1969) in his study on convention, which is arguably the first major philosophical work in which game theory plays a central role as a modeling tool. Simply put, the idea of common knowledge is that a certain proposition p is common knowledge among two players if both of them know p, both of them know that they know p, and so on ad infinitum. The previous assumptions may allow the players to predict an opponent's strategy. For example, in the prisoner's dilemma

game of Figure 1 rational players would never choose the strictly dominated strategy C. CK1 and CK2, then, allow the players to predict that the opponent will play D. However (compare Bicchieri 1993), the previous CK assumptions do not always guarantee that a prediction of play can be made. For one, even if the game has a unique equilibrium, the set of strategies that, under the assumptions CK1 and CK2, players may choose need not contain the equilibrium strategies only. Moreover, predictability is hampered by another common problem encountered in game theory: multiple Nash equilibria.

Suppose two players have to divide $100 among them. They must restrict their proposals to integers, and each has to independently propose a way to split the sum. If the total proposed by both is equal or less than $100, each gets what he or she proposed, otherwise they get nothing. This game has 101 Nash equilibria. Is there a way to predict which one will be chosen? In real life, many people would go for the fifty-fifty split. It is simple and it seems equitable. In Thomas C. Schelling's (1960) words, it is a focal point. Unfortunately, mere salience is not enough to provide a player with a reason for choice. In this example, only if it is common knowledge that the fifty-fifty split is the salient outcome does it become rational to propose $50. Game theory, however, filters out any social or cultural information regarding strategies, leaving players with the task of coordinating their actions on the sole basis of common knowledge of rationality (and of the structure of the game).

A different approach to the problem of indeterminacy is to start by considering the set of Nash equilibria and ask whether some of them should be eliminated because they are in some sense unreasonable. This is the approach taken by the refinement program (Kohlberg 1990, van Damme 1987). Consider the game in Figure 3:

The game has two Nash equilibria in pure strategies: (*a,c*) and (*b,d*). The equilibrium (*a,c*) is *Pareto dominant*,

since it gives both players a higher payoff than any other equilibrium in the game. However, common knowledge of rationality and of the structure of the game does not force the column player to expect the row player to eliminate the weakly dominated strategy *b*, nor is the row player forced to conclude that the column player will discard *d*. Prudence, however, may suggest that one should never be too sure of the opponents' choices. Even if the players have agreed to play a given equilibrium, some uncertainty remains. If so, one should try to model this uncertainty in the game. R. Selten's (1965) insight was to treat perfect rationality as a limit case. His "trembling hand" metaphor presupposes that deciding and acting are two separate processes, in that even if one decides to take a particular action, one may end up doing something else by mistake. An equilibrium strategy should be optimal not only against the opponents' strategies but also against some small probability $\epsilon > 0$ that the opponents make mistakes. Such an equilibrium is *trembling-hand perfect*.

Is the equilibrium (*b,d*) perfect? If so, *b* must be optimal against *c* being played with probability ϵ and *d* being played with probability $1 - \epsilon$ for some small $\epsilon > 0$. But in this case the expected payoff to *a* is 2ϵ whereas the payoff to *b* is?. Hence for all $\epsilon > 0$, *a* is a better strategy choice. The equilibrium (*b,d*) is not perfect, but (*a,c*) is. Therefore, a prudent player would discard (*b,d*). In this simple game, checking perfection is easy, since only one mistake is possible. With many strategies, there usually are many more possible mistakes to take into account. Similarly, with many players one may need to worry about who is more likely to make a mistake.

EXTENSIVE FORM. A different representation of a game is the *extensive form*. It specifies the following information: a finite set of players $i = 1, \ldots , n$; the order of moves; the players' choices at each move; and what each player knows when he or she has to choose. The order of play is represented by a game tree *T*, which is a finite set of partially ordered nodes $t \in T$ satisfying a precedence relation $<$. A *subgame* is a collection of branches of a game such that they start from the same node and the branches and the node together form a game tree by itself. A tree representation is sequential, because it shows the order in which actions are taken by the players. It is natural to think of sequential-move games as being ones in which players choose their strategies one after the other, and of simultaneous-move games as ones in which players choose their strategies at the same time. What is important, however, is not the temporal order of events per se, but whether players know about other players' actions when they have to choose their own. In the normal form representation, players' information about other players' choices is not represented. This is the reason a normal form game could represent any one of several extensive form games. When the order of play is irrelevant to a game's outcome, then restricting oneself to the normal form is justifiable. When the order of play is relevant, however, the extensive form must be specified.

In an extensive form game the information a player has when he or she is choosing an action is explicitly represented using information sets, which partition the nodes of the tree. If an information set contains more than one node, the player who has to make a choice at that information set will be uncertain as to which node he or she is at. Not knowing at which node one is means that the player does not know which action was chosen by the preceding player. If a game contains information sets that are not singletons, the game is one of *imperfect information*.

A strategy for player *i* is a complete plan of action that specifies an action at every node at which it is *i*'s turn to move. Note that a strategy specifies actions even at nodes that will never be reached if that strategy is played. Consider the game in Figure 4. It is a finite game of perfect information in which player 1 moves first. If he chooses *D* at his first node, the game ends and player 1 nets a payoff of 1, whereas player 2 gets 0. But choosing *D* at the first node is only part of a strategy for player 1. For example, it can be part of a strategy that recommends "play *D* at your first node, and *x* at your last node." Another strategy may instead recommend playing *D* at his first node, and *y* at his last decision node. Though it may seem surprising that a strategy specifies actions even at nodes that will not be reached if that strategy is played, one must remember that a strategy is a full contingent plan of action. For example, the strategy *Dx* recommends playing *D* at the first node, thus effectively ending the game. It is important, however, to be able to have a plan of action in case *D* is not played. Player 1 may, after all, make a mistake and, because of player 2's response, find himself called to play at his last node. In that case, having a plan helps. Note that a strategy cannot be changed during the course of the game. Though a player may conjecture about several scenarios of moves and countermoves before playing the game, at the end of deliberation a strategy must be chosen and followed throughout the game.

The game of Figure 4 has two Nash equilibria in pure strategies:(*Dx,d*) and (*Dy,d*). Is there a way to solve the indeterminacy?

Suppose player 1 were to reach his last node. Since he is by assumption rational, he will choose *x*, which guar-

FIGURE 4
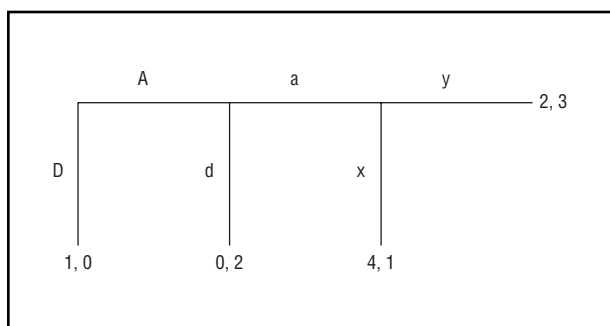
antees him a payoff of 4. Knowing (by assumption) that player 1 is rational, player 2—if she were to reach her decision node—would play *d*, since by playing *a* she would net a lower payoff. Finally, since (by assumption) player 1 knows that player 2 is rational and that she knows that player 1 is rational, he will choose *D* at his first decision node. The equilibrium (*Dy,d*) should therefore be ruled out, since it recommends an irrational move at the last node. In the normal form, both equilibria survive. The reason is simple: Nash equilibrium does not constrain behavior out of equilibrium. In this example, if player 1 plans to choose *D* and player 2 plans to choose *d*, it does not matter what player 1 would do at his last node, since that node will never be reached.

The sequential procedure one has used to conclude that only (*Dx,d*) is a reasonable solution is known as backward induction. In finite games of perfect information with no ties in payoffs, backward induction always identifies a unique equilibrium. The premise of the backward induction argument is that mutual rationality and the structure of the game are common knowledge among the players. It has been argued by Ken Binmore (1987), Cristina Bicchieri (1989, 1993), and Philip J. Reny (1992) that under certain conditions common knowledge of rationality leads to inconsistencies. For example, if player 2 were to reach her decision node, would she keep thinking that player 1 is rational? How would she explain player 1's move? If player 1's move is inconsistent with common knowledge of rationality, player 2 will be unable to predict future play; as a corollary, what constitutes an optimal choice at her node remains undefined. As a consequence of the previous criticisms, the usual premises of backward induction arguments have come to be questioned (compare Pettit and Sugden 1989, Basu 1990, Bonanno 1991). There are a number of further equilibrium refinements for games in extensive form. Their multiplicity makes it impossible to delve into details here. The interested reader can consult Bicchieri (1993, chapter 3).

In games of incomplete information certain elements of the game are not common knowledge among the players. The knowledge and beliefs of the players have to be incorporated into the game-theoretic model, as one usually does in extensive form games, and an appropriate equilibrium concept has to be devised. The approach is based on the seminal work of John C. Harsanyi (1968). In the Bayesian approach adopted by Harsanyi, a player's uncertainty about variables that are relevant for his or her decision ought to be made explicit by means of probability distributions representing his or her beliefs. Moreover, second-order beliefs (beliefs about other players' beliefs) can be represented by further probability distributions, and third-order beliefs about second-order ones, and so on. The flexibility of Harsanyi's model allows one to incorporate all such infinite sequence of higher-order beliefs without an explicit representation of it.

The main idea is that the payoffs associated to each strategy profile depend on certain parameters $\theta_1, \ldots, \theta_n$, one for each player $1, \ldots, n$. Each parameter is drawn from a set $\Theta_i = (a_i, b_i, \ldots)$ associated with each player i. The composition of the sets Θ_i is known, yet the true value of the parameter θ_i is not (at least for one of the players). The parameter θ_i is called *i*'s type and the set Θ_i represents, intuitively, the other player's ignorance about *i*'s characteristics. A type amounts to a specification of certain variables: a player's strategy set, a player's preferences and payoff function, and so on, that make up the private information of a player. Although it is convenient to refer to "the type a_i of player *i*" as if it was a separate individual, one should keep in mind that types represent players' knowledge (and uncertainty about others) only. As mentioned earlier, in a Bayesian approach uncertainties are represented by probability distributions. Hence, each player has an initial probability distribution $\mu_i = (\mu_i (a_{-i}), \mu_i (b_{-i}), \ldots)$ over the types of any other player other than i. Since in a Bayesian game the choices of a player depend on his or her type, the concept of Nash equilibrium has to be generalized accordingly.

Note that all that a player knows, except from the game itself (and the priors), is his own type, and the fact that the other players do not know his own type as well. As their best responses depend on the players' actual types, a player must see himself through his opponents' eyes and plan a best reply against the possible strategies of his opponents for each potential type of his own. Thus, a strategy in a Bayesian game of incomplete information must map each possible type of each player into a plan of

actions. Then, since the other players' types are unknown, each player forms a best reply against the expected strategy of each opponent, where he averages over the (well-specified) reactions of all possible types of an opponent, using his prior probability measure on the type space. Such a profile of type-dependent strategies which are unilaterally unimprovable in expectations over the competing types' strategies forms a Bayesian Nash equilibrium. In other words, a Bayesian Nash equilibrium is a Nash equilibrium "at the interim stage" where each player selects a best response against the average best responses of the competing players.

In the framework provided by Harsanyi (1968) it is possible to reduce a game of incomplete information to one of imperfect information. "Nature" is called to make the first move of the game, as if it was an actual player. Nature's random moves determine the type of each player, with a fixed probability that represents the prior probability attached to the events that player i is of type θ_i. Priors are assumed to be common knowledge, and players observe their own type only. Players then pick their strategies in this extended game, and it is possible to show that the equilibrium of such a game corresponds to the Bayesian Nash equilibrium of the game with incomplete information. In particular, the choice function s_i yields the action $\sigma_i(\theta_i)$ if and only if (iff) that is the action that player i chooses in the game with Nature when she observes her type θ_i.

EPISTEMIC FOUNDATIONS OF GAME THEORY

An important development of game theory is the so-called epistemic approach. In the epistemic approach to game theory strategic reasoning is analyzed on the basis of hypothesis about what players know about the game, about other players' knowledge, and about other players' rationality. Since Robert J. Aumann's (1976) formalization, the idea of common knowledge, and the analysis of what players choose depending on what their beliefs about each other are, began to play an increasingly important role in game theory. In particular, one can evaluate solution concepts by examining the epistemic assumptions and hypotheses from which they can be derived (compare Battigalli and Bonanno 1999). Such epistemic hypotheses are treated formally using the tools provided by interactive epistemology (compare Aumann 1999).

To formalize players' knowledge states, one considers a space set Ω whose elements are possible worlds. An event is then represented by a subset of Ω. For example,

the proposition "it is sunny in Philadelphia" is represented by the set of all possible worlds in which it is sunny in Philadelphia. For each player, there exists an information function that partitions the space set. Intuitively, a player cannot distinguish among worlds belonging to the same cell of his or her information partition. Thus, in a possible world ω, player i knows an event E iff the set E (of possible worlds in which E obtains) includes the cell of his or her information partition containing ω. The intuition behind this is that if a player cannot distinguish among all the worlds in which E is true, then he or she knows that E is the case. It is possible to define a knowledge function K_i for each player i so that, when given E as an argument, it returns as a value the set of those worlds such that, for each one of them, the cell of i's information partition that contains it is a subset of E. That is to say, K_iE is the event that i knows E.

By imposing certain conditions on the K_i's, one can force the epistemic functions to possess certain properties. For example, by requiring that K_iE be a subset of E, one requires that what players know is true, since in every possible world in which K_iE obtains, E obtains as well; similarly, by requiring that K_iK_iE be a subset of K_iE, one establishes that players know what they know, and by requiring that $Ki–KiE$ be a subset of $–K_iE$ that they know what they do not know (where – is the usual set-theoretical operation of complementation). The first condition is often referred to as the truth axiom, the second as the positive introspection axiom, and the third as the negative introspection axiom. Note that this setup has an equivalent formulation in terms of modal logics (compare Fagin et al. 1995, Meyer and van der Hoek 2004). To see the equivalence of the two approaches, consider that modal formulas express propositions whose semantic interpretation is given in terms of Kripke structures of possible worlds. It is then possible to establish a correspondence between formulas of the modal logic and events in the approach described earlier. In a Kripke model, then, an event corresponds to the set of those possible worlds that satisfy the formula expressing the proposition associated to that event.

Knowledge functions can be iterated, thus they can represent mutual and higher-order knowledge, and Aumann (1976) provides a mathematical definition of the idea of common knowledge in the setup sketched earlier. A proposition p is common knowledge between, say, two players i and j iff the set of worlds representing p includes the cells of i's and j's partitions meet that contain p, where the meet of two partitions is the finest common coarsening of them. An application of the definition is the

theorem proved in the same article, in which it is shown that if players have common priors, and their posteriors are common knowledge, then the posteriors are equal, even if the players derived them by conditioning on different information. Or, in other words, that one cannot "agree to disagree." As mentioned earlier, Aumann formalized Lewis's (1969) definition of common knowledge. However, it is currently debated whether Aumann's seminal definition is a faithful rendition of Lewis's informal characterization of common knowledge (compare Vanderschraaf 1998, Cubitt and Sugden 2003, Sillari 2005).

In such a framework it is possible to investigate which strategy profiles are compatible with certain epistemic assumptions about the players. For example, CK1 and CK2 imply that players would never choose strictly dominated strategies. The first contributions in this sense are David G. Pearce (1984) and B. Douglas Bernheim (1984), in which a procedure is devised to eliminate all the players' strategies that are not rationalizable, that is, not supported by internally consistent beliefs about other players' choices and beliefs. In general, it can be proved that certain epistemic conditions are only compatible with the strategy profiles yielded by a certain solution concept, hence providing an epistemic foundation for that solution concept. For example, Aumann and Adam Brandenburger (1995) proved that, for two-person games, mutual knowledge (i.e., first-order knowledge among all the players) of the structure of the game, of rationality, and of the players' chosen strategies implies.

CORRELATED EQUILIBRIUM. So far it has been assumed that players' strategies are independent, as though each player receives a private, independent signal and chooses a (mixed) strategy after having observed his or her own signal. However, signals need not be independent. For example, players can agree to play a certain strategy according to the outcome of some external jointly observed event, for example, a coin toss. If the agreement is self-fulfilling, in that players have no incentive to deviate from it, the resulting strategy profile is an equilibrium in correlated strategies or, in short, a correlated equilibrium (compare Aumann 1974, 1987). For any Nash equilibrium in mixed strategies, a correlation device can be set such that it generates a probability distribution over the possible outcomes of the game yielding such an equilibrium profile. Note, however, that the set of correlated equilibria of a game is much larger than the corresponding set of Nash equilibria. If the correlation signal is common knowledge among the players, one speaks of perfect correlation. However, players may correlate their strategies according to different signals (less

than perfect correlation). The idea is that players have information partitions whose cells include more than one possible outcome, since they ignore which signals are received by other players. To represent the fact that players receive different signals (i.e., they ignore which strategies will be chosen by other players), it is required that in every cell of the information partition of player i his or her strategy does not change. It is then possible to calculate the expected payoff of playing the strategy indicated by the correlation device versus the expected payoff obtained by playing a different strategy. If the players have no incentive to deviate from the indicated strategy, the profile yielded by the correlation device is an equilibrium. Correlation by means of private signals may generate outcomes more efficient than those obtained by playing a Nash equilibrium. An important philosophical application of correlated equilibrium is found by Peter Vanderschraaf (1998, 2001), in which conventions as defined by Lewis (1969) are shown to be correlated equilibria of coordination games.

EVOLUTIONARY GAME THEORY

A Nash equilibrium need not be interpreted as a unique event. If one thinks of it as an observed regularity, one wants to know by what process such an equilibrium is reached and what accounts for its stability. When multiple equilibria are possible, one wants to know why players converged to one in particular and then stayed there. An alternative way of dealing with multiple equilibria is to suppose that the selection process is made by nature.

Evolutionary theories are inspired by population biology (e.g., see Maynard Smith 1982). These theories dispense with the notion of the decision maker, as well as with best responses/optimization, and use in their place a natural selection, a "survival of the fittest" process (with mutations) to model the frequencies with which various strategies are represented in the population over time. In a typical evolutionary model players are preprogrammed for certain strategies and are randomly matched with other players in pairwise repeated encounters. The relative frequency of a strategy in a population is simply the proportion of players in that population who adopt it. The theory focuses on how the strategy profiles of populations of such agents evolve over time, given that the outcomes of current games determine the frequency of different strategies in the future.

As an example, consider the game in Figure 5 and suppose that there are only two possible behavioral types: hawk and dove.

A hawk always fights and escalates contests until it wins or is badly hurt. A dove sticks to displays and retreats if the opponent escalates the conflict; if it fights with another dove, they will settle the contest after a long time. Payoffs are expected changes in fitness due to the outcome of the game. Fitness here means just reproductive success (e.g., the expected number of offspring per time unit).

Suppose injury has a payoff in terms of loss of fitness equal to C, and victory corresponds to a gain in fitness B. If hawk meets hawk, or dove meets dove, each has a 50 percent chance of victory. If a dove meets another dove, the winner gets B and the loser gets nothing, so the average increase in fitness for a dove meeting another dove is $B/2$. A dove meeting a hawk retreats, so his or her fitness is unchanged, whereas the hawk gets a gain in fitness B. If a hawk meets another hawk, they escalate until one wins. The winner has a fitness gain B, the loser a fitness loss C. So the average increase in fitness is $(B − C)/2$. The latter payoff is negative, since one assumes the cost of injury is greater than the gain in fitness obtained by winning the contest. One can also assume that players will be randomly paired in repeated encounters, and in each encounter they will play the stage game of Figure 5.

If the population were to consist predominantly of hawks, selection would favor the few doves, since hawks would meet mostly hawks and end up fighting with an average loss in fitness of $(B − C)/2$, and $0 > (B − C/2)$. In a population dominated by doves, hawks would spread, since every time they meet a dove (which would be most of the time) they would have a fitness gain of B, whereas doves on average would only get $B/2$. Evolutionary game theory wants to know how strategies do on average when games are played repeatedly between individuals who are randomly drawn from a large population. The average payoff to a strategy depends on the composition of the population, so a strategy may do well (in terms of fitness) in an environment and poorly in another. If the frequency of hawks in the population is q and that of doves correspondingly $(1 − q)$, the average increase in fitness for the hawks will be $q(B − C)/2 + (1 − q)B$, and $(1 − q)B/2$ for the doves. The average payoff of a strategy in a given environment determines its future frequency in the population. In this example, the average increase in fitness for the hawks will be equal to that for the doves when the frequency of hawks in the population is $q = B/C$. At that frequency, the proportion of hawks and doves is stable. If the frequency of hawks is less that B/C, then they do better than doves and will consequently spread; if their frequency is larger than B/C, they will do worse than doves and will shrink.

FIGURE 5

dove/hawk	D	H
D	B/2, B/2	0, B
H	B, 0	(B-C)/2, (B-C)/2

Note that if $C > B$ then $(B − C)/2 < 0$, so the game in Figure 5 has two pure-strategy Nash equilibria: (H, D) and (D, H). There is also a mixed strategy equilibrium in which hawk is played with probability $q = B/C$ and dove is played with probability $(1 − q) = C − B/C$. If the game of Figure 5 were played by rational agents who choose which behavior to display, one would be at a loss in predicting their choices. From common knowledge of rationality and of the structure of the game, the players cannot infer that a particular equilibrium will be played. In the hawk-dove example, however, players are not rational and do not choose their strategies. So if an equilibrium is attained it must be the outcome of some process very different from rational deliberation. The process at work is natural selection: High-performing strategies increase in frequency whereas low-performing strategies' frequency diminishes and eventually goes to zero.

One has seen that in a population composed mostly of doves, hawks will thrive, and the opposite would occur in a population composed mainly of hawks. So for example, if hawks dominate the population, a mutant displaying dove behavior can invade the population, since individuals bearing the dove trait will do better than hawks. The main solution concept used in evolutionary game theory is the evolutionarily stable strategy (ESS) introduced by John Maynard Smith and George R. Price (1973). A strategy or behavioral trait is evolutionarily stable if, once it dominates in the population, it does strictly better than any mutant strategy, and hence it cannot be invaded. In the hawk-dove game, neither of the two pure behavioral types is evolutionarily stable, since each can be invaded by the other. One knows, however, that a population in which there is a proportion $q = B/C$ of hawks and $(1 − q) = C − B/C$ of doves is stable. This means that the type of behavior that consists in escalating fights with

probability $q = B/C$ cannot be invaded by any other type, hence it is an ESS. An ESS is a strategy that, when it dominates the population, is a best reply against itself. Therefore, an evolutionarily stable strategy such as $(B/C, C − B/C)$ is a Nash equilibrium. Though every ESS is a Nash equilibrium, the reverse does not hold; in our stage game, there are three Nash equilibria, but only the mixed strategy equilibrium $(B/C, C − B/C)$ is an ESS.

Evolutionary games provide one with a way of explaining how agents that may or may not be rational and—if so—subject to severe information and calculation restrictions, achieve and sustain a Nash equilibrium. Philosophical implications and applications can be found in the works of Brian Skyrms (1990, 1996, 2004). When there exist evolutionarily stable strategies (or states), one knows which equilibrium will obtain, without the need to postulate refinements in the way players interpret off-equilibrium moves. Yet we need to know much more about processes of cultural transmission and to develop adequate ways to represent payoffs, so that the promise of evolutionary games is actually fulfilled.

See also Decision Theory; Philosophy of Biology; Philosophy of Economics.

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GARRIGOU-LAGRANGE, RÉGINALD MARIE
(1877–1964)

Réginald Marie Garrigou-Lagrange notably influenced the revival of Thomism in some European and American philosophical circles. He was born Gontran-Marie Garrigou-Lagrange at Auch, France. His first university studies were in the faculty of medicine at the University of Bordeaux. After two years, however, he chose to embrace the priesthood and on May 20, 1900, made his profession as a Dominican, receiving the name Réginald Marie.

In addition to the regular course of philosophy as a Dominican, he pursued graduate studies at the Sorbonne, where he had the opportunity to attend the lectures of Henri Bergson. In 1909 Garrigou-Lagrange entered into what proved to be a long career as professor at the international university of philosophical and theological studies in Rome, now called the Universitas Studiorum Pontificia S. Thomae Aquinatis in Urbe. He remained in this position until 1959. Although his courses were primarily in the theological faculty, it is significant that throughout his teaching life he lectured each week on the metaphysics of Thomas Aquinas. Garrigou-Lagrange was also a founding member of the Academia Pontificia Academia Romanae S. Thomae Aquinatis.

An accurate view of the philosophical thought of Garrigou-Lagrange must take into account the fact that he was not simply a philosopher; his professional labors as well as his writings are preponderantly theological. However, because his concern was with the teachings of Thomas Aquinas, his work has a philosophical import on two counts. First of all, the Thomistic theological synthesis is characterized by its employment of the speculative resources of human intelligence. In this concentration on theology, then, Garrigou-Lagrange necessarily devoted himself to the exposition of the basic Thomistic philosophical positions. Second, from the beginning of his career Garrigou-Lagrange was faced with a challenge to the relevance and the validity of Thomism, or indeed of any metempirical assertions of the human mind. It is to this challenge that his purely philosophical labors and writings are principally addressed.

His first book, *Le sens commun, la philosophie de l'être et les formules dogmatiques,* is a rejoinder to the position taken by Édouard Le Roy in a series of articles (*Revue de métaphysique et morale,* 1899–1901). Le Roy alleged all expressions of truth by the human mind to be totally relative, mutable, and conditioned. Human thought is simply the expression of de facto acceptations, significant according to that natural and subjective orientation of the human mind which for Le Roy is the *sens commun.* Against this Bergsonian usage, Garrigou-Lagrange used the term *sens commun* to designate the commonly assumed character of the human mind, namely, its extramental orientation toward objectively existent and intelligible reality. He set himself the task of vindicating this realism, of defending the objective validity and transcendental range of human thought.

The basic themes of his position are readily discernible. The human intelligence has "being" as its connatural object. In its attainment of being the human mind surpasses sense knowledge, goes beyond mere phenomena. The first principles of human reason—identity, contradiction, causality, and finality—are not mere subjective thought patterns; they are grounded in being. The human evaluation of the data of experience in virtue of such principles, then, has an ontological validity; the human mind is capable of assertions concerning the real that are objectively true and absolute. Because in its attainment of being the mind goes beyond mere phenomena, the principles of philosophical inquiry have a transcendental validity. Man is able, consequently, to achieve true judgments, not only about the entitative structure of experienced reality, but also about the nonexperienced but necessarily affirmed primary cause of the beings of experience. The connaturally realistic orientation of human intelligence, therefore, provides the capacity for objectively valid metaphysical evaluations of reality and even for a true natural theology.

Garrigou-Lagrange maintained that Thomas presented a philosophy of being that was an effectively enunciated and developed expression of the natural metaphysical orientation of human intelligence in which the *sens commun* has its scientifically articulated realization. Garrigou-Lagrange's principal philosophical contribution, then, was a forceful and clear exposition of the basic Thomistic insights. In his writings there is a clear and honest confrontation of Thomistic realism with both nominalist empiricism and Kantian subjectivism.

An evaluation of the work of Garrigou-Lagrange must place it in relation to the so-called Neo-Scholastic movement. Since his career began well after the early attempts to reassert Thomism, his writings are free of the alien influences present in the work of the restoration's pioneers. His chief concern, the basic critical problem of the validity of human intelligence, is a central issue in all Neo-Scholastic philosophy. In the light of subsequent developments among Neo-Scholastic philosophers, and even among Thomists, concerning the critical problem,

the approach of Garrigou-Lagrange may be designated as somewhat simplified. He strove to set forth directly the positive statements of a philosophy of being against a philosophy of becoming, to manifest the human mind as a faculty of truth, not an amasser or coordinator of data. Later Thomists have sought by more reflective methods to show how being manifests itself in the very process of cognition as the evidential justification of human knowledge. Their efforts are a refinement of the task to which the efforts of Garrigou-Lagrange were directed. His work, then, was a necessary stage in a vital development. Because of his dedication to the thought of Thomas, he directed that development to a more fruitful use of Thomas's understanding of the problems of being and intelligence.

See also Bergson, Henri; Le Roy, Édouard; Thomas Aquinas, St.; Scotism; Thomism.

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GARVE, CHRISTIAN
(1742–1798)

Christian Garve, the German "popular philosopher," was born in Breslau. After studying at Frankfurt an der Oder, Halle, and Leipzig, he became extraordinary professor of philosophy at Leipzig in 1770, but in 1772 he resigned on account of ill health and moved to Breslau. In 1779 Frederick II called him to Charlottenburg, where he remained until his death.

Garve's interests were mainly in practical morality and empirical psychology. He sought useful knowledge and was averse to abstract speculation. He drew inspiration from Duc François de La Rochefoucauld and Claude-Adrien Helvétius, and especially from the British moralists. His translations of Adam Ferguson, Edmund Burke, Alexander Gerard, Adam Smith, and other British authors were important in popularizing British moral philosophy and aesthetics in Germany. He also translated and commented on the moral and political works of Aristotle and Cicero.

In his own writings Garve studied the individual characteristics and inclinations of different men, and their interrelation in society. He explained their differences by a difference in the degree of clarity and vividness of the ideas they possessed. Interest—the participation of an individual in the feelings, ideas, and actions of another—was a central notion in his psychology. It was derived from the "benevolence" and "sympathy" then current in British thought. In Garve's works psychology, sociology, and ethics were interwoven. His goal was that of a social psychologist, moralist, and educator. Immanuel Kant drew from Garve some elements of his moral and religious philosophy.

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GASSENDI, PIERRE
(1592–1655)

Pierre Gassendi, the leading French seventeenth-century skeptical and Epicurean philosopher and scientist, was born at Champtercier, a Provençal village in France. He studied at Digne and Aix-en-Provence and was appointed professor of rhetoric at Digne at the age of twenty-one. In 1614 he received his doctorate in theology at Avignon. He was ordained a priest in 1616 and was appointed professor of philosophy at Aix. From 1617 to 1623 he lectured on Aristotle's philosophy, developing a forceful critique of it. His first published work, *Exercitationes Paradoxica Adversus Aristoteleos* (1624), was intended to be followed by six more parts, of which only the second part, published posthumously, was written. It contains both an attack on Aristotle's thought and portions of Gassendi's mitigated skepticism.

After a year in Digne, during which he performed various ecclesiastical duties, Gassendi visited Paris for a brief period in 1625 and became friendly with such avant-garde thinkers as Francois de La Mothe le Vayer and Marin Mersenne. He continued the astronomical researches that he had begun in Provence, and, with the mathematician Claude Mydorge (1585–1647), observed a lunar eclipse. Gassendi's careful astronomical records from 1618 to 1655 were published after his death. He also engaged in many scientific studies with his patron, Nicolas-Claude Fabri de Pieresc (1580–1637). His discovery of the perihelion of Mercury was an important support for the Copernican theory at the time.

Gassendi returned to Paris in 1628, remained there until August 1629, and then spent nine months in Flanders and Holland, where he met many leading scientists and scholars. He spent the next years partly in Paris and partly in Provence, publishing scientific works on astronomy and physics and presenting skeptical attacks on Herbert of Cherbury and the Rosicrucian Robert Fludd. He undertook an intensive study of Epicurean atomism, a subject in which he had been interested for some time. The results of this study were to form a basic part of his later writings.

In 1634 Gassendi was elected provost of the Cathedral of Digne. In 1641 he was sent to the assembly of the French clergy in Paris and during this visit taught philosophy to the young Molière (1622–1673). Gassendi was appointed to the chair of mathematics at the Royal College (now the Collège de France) in 1645, but because of ill health he was away from his post from 1648 to 1653. He fell ill in 1654 and died the following year.

Except for his early attacks on Aristotelianism, Fludd's Rosicrucianism, and Herbert of Cherbury, Gassendi's philosophical works date from the 1640s onward. In 1641, at the request of Mersenne, Gassendi wrote his objections to René Descartes's *Méditations* ("Fifth Set of Objections"). Descartes's testy answer led Gassendi to expand his criticism into the bulky *Disquisitio Metaphysica*, finished in 1642 and published in Amsterdam in 1644. He published three works on Epicurus and his philosophy between 1647 and 1649: *De Vita et Moribus Epicuri* (1647), *Animadversiones in Decimum Libri Diogenis Laertii, qui est de Vita, Moribus Plascitisque Epicuri* (1649), and *Syntagma Philosophiae Epicuri, cum Refutationibus Dogmatum, Quae Contra Fidem Christianum ab eo Asserta Sunt* (1649). His most important philosophical writings appeared only posthumously, in the 1658 edition of his complete works. His overall treatment of philosophical problems appears in *Syntagma Philosophicum* (*Opera*, volumes 1 and 2) and in the second part of his first work, the *Exercitationes*, which presents his constructive or mitigated skepticism.

EXERCITATIONES

Gassendi's thought developed from a fairly thoroughgoing skepticism, strongly influenced by Sextus Empiricus, Michel Eyquem de Montaigne, Pierre Charron, and Francisco Sanches, to what he called a *via media* between skepticism and dogmatism. The *via media* involved both a fundamental epistemological skepticism and a hypothetical form of Epicurean atomism that was modified to eliminate those aspects of Epicurus's thought that conflicted with Christian doctrine. In the first part of the *Exercitationes* Gassendi, following in the tradition of Francesco Patrizi and Peter Ramus, tried to show all the erroneous or dubious aspects of Aristotelianism. The second part set forth an attack on all those who claimed to have discovered necessary and indubitable knowledge of the real nature of things. Our knowledge of the world, Gassendi insisted, comes only from sensory experience. We are unable to arrive at absolutely true first principles and real or essential definitions, since inductions from experience can never yield certain universal prepositions. No matter how much data are gathered, a negative instance may still turn up in the future. Even if we somehow managed to discover some genuine definitions and first principles, no further scientific knowledge about nature could be gained by employing syllogistic reasoning, since, as the Greek Pyrrhonists had shown, the truth of the premises of a syllogism depends on antecedent knowledge that the conclusion is true. Either the conclu-

sion is part of the evidence of the premises or the syllogism establishes nothing, since it is not known whether the premises are true.

In the concluding section Gassendi launched his strongest attack on the possibility of gaining necessary knowledge about the world. Using the arguments of the ancient skeptics, he tried to show that all that we can know is how things appear, not how they really are in themselves. We can know that honey seems sweet, but we cannot find out if it really is sweet. On the basis of appearances we cannot tell what the real nature of things must be that produces such effects on us. Sense experience varies too much to provide any means for determining what reality is like on the basis of what is perceived. We lack any means of reasoning from experience to what has caused it. We are not even able to establish any criterion of true knowledge. Hence, we can only conclude that nothing can be known about reality. However, in this early work Gassendi insisted that we can develop useful sciences about appearances. As long as we restrict our conclusions to the world of experience, we will neither come in conflict with divine truth, nor accept any dubious dogmatic theory about unperceived reality. Such theories, whether metaphysical or mathematical, are presumptuous conjectures that have no value whatsoever.

OBJECTIONS TO DESCARTES

In his middle period Gassendi challenged those who claimed to have discovered some means of knowing the real nature of things. He employed various skeptical arguments against Renaissance naturalists and against such leading "new philosophers" as Herbert of Cherbury and Descartes. Gassendi's two letters against Herbert's *De Veritate* (in which the latter claimed to have refuted skepticism) used arguments about diversity of experience and disagreements among individuals to counter Herbert's common notions and common consent theory. In the "Fifth Set of Objections" and the *Disquisitio Metaphysica*, Gassendi turned skeptical argumentation against Cartesianism. He tried to show that Descartes's method of doubt illustrated what the skeptics had claimed for centuries. Then Gassendi challenged Descartes's positive dogmatic conclusions. Gassendi contended that the vaunted Cartesian criterion of true knowledge (that of clarity and distinctness) was useless, since people often think that they clearly and distinctly perceive something and then turn out to be wrong. Hence, to employ this criterion, another criterion would be needed to determine when something really is clear and distinct and does not merely appear to be so. In addition, another criterion would be necessary to employ this second criterion, and so forth.

The culmination of Gassendi's attack, which Descartes called the objections of objections, was his posing the possibility that all knowledge, even if it were clear and distinct, might not be about anything outside of our minds. If this could be the case, then all the knowledge purported to be found by Descartes might be imaginary or fictitious. Descartes saw this suggestion as a fundamental challenge to his system and as a denial of the possibility of gaining knowledge about any reality other than our own thoughts. His reply consisted in refusing to take the objection seriously, since if one did, "it follows that there is nothing that we can in any way comprehend, conceive or imagine, that should be accepted as true, that is to say that we have to shut the door completely on reason, and be content to be monkeys, or parrots, and no longer men" (Descartes, *Oeuvres*, C. Adam and P. Tannery, eds. vol. IXA, 212).

MITIGATED SKEPTICISM

In his later writings Gassendi attempted to develop a mitigated skepticism that would show how we could possess worthwhile knowledge about the world of appearances and how a science of this world could be developed, using Epicurean atomism as a hypothetical model.

Gassendi's mature theory about our knowledge of the world appears in his *Syntagma Philosophicum*, published in 1658 after his death. The work is enormous, containing 1,600 folio pages, printed in double columns. It is divided into three general sections, the first dealing with logic and theory of knowledge, the second with the natural world, and the third with ethics. Because of his skepticism, Gassendi did not regard metaphysics as a serious subject and so he omitted it entirely from his book.

At the outset, Gassendi seeks to establish a way to knowledge that is between the doubts of the skeptics and the complete assurances of the dogmatists. Neither the view that we can know nothing nor the view that we can know everything is tenable. The skeptics admit that we can know how nature appears to us. But they deny that we can know more than this. On the contrary, the dogmatists claim that we can know the real nature of things, which are not apparent to us. This, Gassendi contends, is exaggerating the power of the human mind. However, between skepticism and dogmatism there is a third possibility, which has been called constructive or mitigated skepticism, an acceptance of the thesis that although in a fundamental sense we cannot gain certain knowledge of the nature of reality, we can nevertheless gain a type of

knowledge that we need have no reason to doubt and that will suffice to enable us to understand the world.

This limited knowledge is obtained first by accepting what is obvious to us, our sense experience, plus certain obvious conclusions from it, such as that things exist. Signs found in sense experience enable us to know about other matters not immediately obvious to the senses. The ancient Greek skeptics had admitted that, on the basis of the constant conjunctions found in experience, we could judge that certain things temporarily not apparent to us were the case, such as when we see smoke, we can judge that there is a fire. In addition, we are also able to judge, by means of our reasoning ability, that particular sense experiences indicate that the world has certain features, even though we are never able to perceive these features. Thus, we can judge from the appearance of sweat on the skin that it has pores.

Long before the invention of the telescope, Democritus was able to judge from the white color of the Milky Way that it is composed of an innumerable quantity of stars. This type of reasoning, which leads us to knowledge about the world, is based on a careful and cautious evaluation of our sense information by our reason, plus inferences, made from this information, based on careful reasoning and on certain general principles that we have learned from experience. The conclusions we reach in this way about the nature of the world are beyond doubt and are ultimately evaluated in terms of future information gained from experience (as in the case of the Milky Way) and from these conclusions in explaining the course of our experience. We do not discover the absolute truth in this way, but only a faint shadow of it. This faint shadow will turn out to be the most satisfactory scientific explanation that can be given of experience in terms of the hypothesis (confirmed by experience and reasoning) that the world is composed of atoms in motion.

In terms of this theory of knowledge Gassendi examines various logical systems, ancient and modern, to state the best method for attaining limited knowledge. Many of the classical devices, Gassendi finds, are practically useless. The philosophies of Francis Bacon and Descartes have serious defects, Gassendi claims. Our senses can err, and we cannot, no matter what we do, attain real knowledge of the inner nature of things. But a logical method that is based on sense information carefully analyzed on general, unquestionable principles gained from experience and careful reasoning, and constantly checked and verified, can serve as the instrument for attaining what truth is possible.

ATOMISM

According to Gassendi what we can know about the world consists of a modified form of the atomism of Epicurus, modified in terms of the science of the time and the religious principles Gassendi maintained that he accepted. (Whether Gassendi was a sincere Christian has been, and still is, debated among scholars.) After surveying and criticizing the views of various philosophers about the nature of the world, Gassendi offers as the most probable theory (but not as the necessarily true one) the view that the actual components of the universe are indivisible atoms, moving in empty space. The supposed atoms are assumed to have been eternally created by God, to have different shapes, and to be moving at different rates of speed. Gassendi did not want mathematically describable atoms, since he feared this would lead to some sort of mathematical metaphysics. His atoms had features like those of ordinary experience. The atoms collided and presumably the result of all the collisions is the world that we perceive. A mechanical model related to our experience can then allow us to find empirical laws, make predictions, and explain relationships between different kinds of phenomena. In so relating the phenomenal world to the atomic world, there is no longer any need for Aristotelian purposes.

Appealing to the recent findings of scientists such as Evangelista Torricelli (1608–1647) and Blaise Pascal, Gassendi insists that the essential feature of atoms is solidity. In addition, they have the properties of extension, figure, and weight. They are conceived of as having the kinds of configurations found in ordinary experience, like those of wagon wheels and houses, rather than mathematically describable sizes and shapes. Gassendi had a distrust of those who maintained that nature was to be described in mathematical terms, since he felt that they were probably advocating some type of Platonic metaphysical theory about the nature of reality.

God has created the atoms and given them an impulse to move downward. They move at different rates of speed, and for this reason they collide with one another. The collisions change the courses of the atoms, causing still further collisions, and so on. The various changes that take place in the world, both on the apparent and on the nonapparent level, can be accounted for by the movements of the atoms, their collisions, and their combinations. Thus, the real world is conceived as a mechanism made up of small moving parts, the atoms. The qualities and movements of the atoms suffice to account for changes in the real world and the way in which the world appears to us. The qualities that we per-

ceive, the colors, sounds, tastes, smells, and so on (the so-called secondary qualities), are not actually properties of real objects. Instead, they are the ways we perceive various atomic movements when they affect our sense organs.

Gassendi begins to modify his Epicurean theory when he discusses the cause of the movement of the atoms. He accepts the Scholastic thesis that the primary cause of motion is God. The evidence that God exists is the almost universal natural belief in a deity and the conclusion drawn from observing the order in the universe, namely, that there must be an orderer or designer of the world. That there are some atheists is dismissed by Gassendi as similar to the existence of blind people. That a few people lack the normal, natural human faculties and beliefs is no reason to doubt the reliability of the faculties and beliefs of the rest of humankind. Both the senses and our reasoning ability give us an adequate basis for accepting the view that there is a God.

One's conception of God is that of an omniscient and omnipotent being who is all-wise and all-good. He is the author and providential guide and cause of everything that exists and everything that happens in the world. Gassendi specifically rejects Epicurus's view that everything can be explained and accounted for solely in terms of the atoms and their motions. Where, he asks, do the atoms come from, and what makes them move? Furthermore, if the world were produced only by "the fortuitous concourse of atoms," why is it that the atoms never, by themselves, make a house, or a temple, or a book? Each of these seems to require a designer to organize the atoms in a specific way, and so does the universe in general.

Turning from physical events to mental ones, Gassendi attempts to give an atomic explanation of the nature of the soul. First, he exhibits his vast erudition by examining the opinions of many different ancient philosophers on the subject. Then he offers the theory that seemed most probable to him; namely, that the animal soul is a material object. Though we cannot see the soul, reason convinces us that it must exist. The various processes that occur in living beings, such as nutrition, sensation, and movement, could not take place were there not a soul. But what is the soul like? It is a tenuous material substance existing in the body. It is like a subtle fire, giving life to corporeal things somewhat as fire warms objects.

The human soul, however, is more complex than the animal soul, being composed of two parts. The first is the irrational soul, which is material and is like the soul of any other living thing. It accounts for the vegetative and sensitive processes that exist in man. This part of the

human soul comes to us from our parents. Besides this, we possess another feature of our souls, the rational element that, Gassendi insists, contrary to Epicurus's view, is not corporeal and is not derived from other human beings, but only from God. The rational part of our souls, which is responsible for our higher intellectual activities, is also immortal. Epicurus had argued for the mortality of the soul, but Gassendi strongly insists that only the animal soul is mortal. As evidence for his belief in the immortality of the rational soul, Gassendi contends that the fact that it is immaterial suffices to show that it is immortal. Furthermore, the universal agreement of humankind on this point is offered as another proof, as well as the view that the divine and just government of the world would seem to require human immortality for a proper system of rewards and punishments to function.

Gassendi apparently believed that there was no conflict between his atomism and his views about man and God. Hence, Catholicism could be compatible with a strictly material account of the natural world. And although Gassendi was a heliocentrist he tried to present his astronomical views in such a way that they did not conflict with those of the church in its condemnation of Galileo Galilei.

Gassendi's atomism was as complete a scientific theory as any other offered in the first half of the seventeenth century. It rivaled Descartes's. However, as science developed later on, Gassendi's picture was replaced by that of Isaac Newton and others. No important discoveries are attributed to Gassendi's great scientific program.

HUMAN PSYCHOLOGY

In his discussion of human psychology Gassendi presents a theory to explain how the various mental processes take place. This section culminates with an examination of the sources of all of our knowledge, which, to some extent, anticipates the views that appear in John Locke's *An Essay concerning Human Understanding* (1690).

The faculties of sensation and imagination are common to humans and animals. Gassendi even asserts that sensation occurs to some extent in plants and minerals. Sensation occurs by means of a physical process involving material particles affecting a sense organ and causing a sensation, which is a physical event in the brain. The faculty of the imagination, which includes the memory as well, operates on traces or remains of the physical sense impressions. These traces are conceived of as waves in the brain that are actuated by other motions in the body and then cause further movements in the brain, giving rise to sensations or feelings similar to the original sensation

that caused the wave. Much of the account offered by Gassendi is close to that presented by his contemporary, the materialistic philosopher Thomas Hobbes.

The imagination has three functions: apprehension, judgment, and reasoning. We can apprehend, as a result of the wave motions, the exact experiences and sensations that have occurred. Because of movements inside and outside us, the various waves can be agitated at later times, so that we can now be aware of what we experienced yesterday. Also, different features of different experiences can be apprehended at the same time, giving rise to apprehensions of objects that have never, as such, been experienced. Thus, for example, our apprehension of a centaur results from our previous sense experience of a horse and a man, plus the simultaneous activation of part of the remaining wave that came from each of them. Judging and reasoning, which Gassendi insists takes place in both humans and beasts, involves comparing apprehensions and associating them together according to their relations in actual experience. The faculties of judgment and reasoning put various apprehensions into an ordered sequence based on the experienced sequences of sensations, plus the natural instinct that makes us expect certain consequences to follow from what we have experienced.

Up to this point the detailed psychological theory that Gassendi presents is much like that later developed by the British empiricists from Locke to John Stuart Mill. But Gassendi also insists that there is another mental faculty that exists in humans, but not in other animals, that of intelligence or understanding, which belongs to our rational souls. By means of intelligence we are able to know things that cannot be experienced in sensation, such as God, space, and time. By this faculty we are also able to know the abstract essences of things, which transcend the powers of the imagination. Thus, for example, the imagination can know what "man" is, in terms of the sensations received. But, the essence of man, what it is that makes him what he is, can be known only by the intelligence. Lastly, this highest mental faculty is capable of self-consciousness. It can reflect on its operations and those of the imagination and make us aware that we see, we think, and so on.

In terms of this theory of the nature of the soul Gassendi next offers his opinion about the origin of our ideas. He repudiates completely the theory of Descartes and of Herbert of Cherbury that we possess innate ideas. Instead, Gassendi insists on the principle accepted by Aristotle and Epicurus, that there is nothing in the understanding that was not first in the senses. At the outset, the mind is a tabula rasa, a blank tablet. All the particular ideas that the mind ever knows, such as that of the sun, either come directly from sense experience or result from combinations of elements furnished by the senses. General or abstract ideas are formed by the intelligence from the collection of sense materials. In this case the sense information is necessary, but not sufficient to account for general ideas, such as that of "man." The intelligence goes beyond the actual sense-data in forming a unique idea from all the particular sensations. With regard to ideas of incorporeal things, which cannot be known by the senses, sense experience and the imagination furnish the occasion for the understanding to gain this knowledge. Because of certain experiences the understanding thinks, reflects, abstracts, and arrives at ideas, such as that of God. The senses provide some of the basic materials for these ideas and provide the context in which the understanding reasons to reach a conception of an incorporeal being.

Thus, all ideas either come from the senses or result from intellectual activities that are either caused or occasioned by sense information. However, in the cases of abstract ideas and ideas of incorporeal things, the actual content does not derive from any particular sense experiences. General principles, such as "The whole is greater than the part," are formed by induction from various particular experiences. When all of our experiences exhibit the same characteristics, we reach a general conclusion, which then becomes the basis of all further reasoning.

ETHICS AND RELIGION

The last part of *Syntagma* deals with ethics. Gassendi's theory is only a slightly modified version of Epicurus's hedonism. Gassendi holds that every pleasure, considered in itself, is a good and that all things that are considered good have value only in terms of the pleasure they produce. A completely pleasurable life is one without pains and troubles. Ultimately, for Gassendi, such a life can be achieved only by God. We can mitigate the pains in our lives as much as possible and thus attain a relatively good life.

A major problem in interpreting Gassendi's contribution is that of assessing his intentions and actual beliefs. There has been great debate whether Gassendi was really a Christian. He has been seen both as the founder of modern materialism, a leading skeptic and libertine, and as a serious Christian trying to find a *via media* between his faith and the new science. There have been long debates, especially in French literature, about the so-called Le cas Gassendi. He was a close associate of

some of the leading French freethinkers and took part in retreats with them where they boasted of being able to speak freely on all subjects. Gassendi was also a close friend of some leading church figures such as Mersenne. Gassendi and Mersenne shared similar views about science and its foundations. They agreed that science could not refute skepticism and each offered a form of mitigated skepticism as a way of carrying on useful science without metaphysics. Nobody ever questioned Mersenne's religious sincerity, and he remained in closest touch with Gassendi. No charges were ever made at the time about any heretical opinion or activity on the part of Gassendi.

Arguments about how to evaluate Gassendi still go on. Researches into his few theological writings go one direction, his materialism points another way, and his associations with leading figures of the time, ranging from Hobbes to Pascal, allow for many interpretations. Gassendi was a priest all his life and he was friendly with the most orthodox and the most unorthodox figures of his time. His philosophical system represented a cautious and careful attempt to explain the world in keeping with both the results of the new science and the official views of the Catholic Church. He may have seen, as few others of his time did, the importance of the values of his religious tradition, of the classical heritage, and of the new science, and at the same time fully appreciated what the skeptics had shown about man's fallible nature. Unlike Montaigne, Charron, and La Mothe Le Vayer (all of whom he admired), he did not wish to destroy the fruits of human efforts along with man's presumptuous and dubious claims. More like Sanches, he wanted to find a constructive resolution to the skeptical crisis of the Renaissance, but not in the form of the new dogmatisms of Herbert of Cherbury or Descartes. Living within a major religious tradition, he tried to show that by discarding Aristotelianism and by accepting the wisdom of the skeptics along with certain elements of Epicureanism, faith and the new scientific discoveries could coexist.

Gassendi adapted various features of the philosophy of Epicurus to the state of knowledge of his day, and he modified certain portions of Epicurus's theory that were not in keeping with the Christian religion. The result was a semiskeptical, semiempirical theory that portrayed the world in terms of an atomic structure. Gassendi's philosophy remained important throughout the seventeenth century and was the chief modern alternative to Descartes's. It began to lose its appeal and importance after the development of Newton's scientific theories. Many of the basic elements of later English philosophy

appear in Gassendi's views, and he probably had great influence on such thinkers as Hobbes and Locke.

INFLUENCE AND SIGNIFICANCE

Gassendi was one of the foremost philosophers and scientists of the early seventeenth century. He was the most important rival and critic of Descartes, and he had a crucial role in the revival of the ideas of the ancient Greek skeptics and atomists. Gassendi began his intellectual career as a skeptic; a staunch follower of Sextus Empiricus and Montaigne. Gradually, he mitigated his skepticism in the face of the scientific revolution of the time, in which he played a major role, and he adopted more and more of a materialistic explanation of the world based on the ancient theory of Epicurus. Though a prominent Catholic priest of his day, Gassendi developed one of the first completely mechanistic and materialistic theories of modern times.

Gassendi's ideas had much influence in the seventeenth century. Although he published his work in huge Latin tomes, a French abridgement was made in the latter part of the century and many portions of his work appeared in English. His ideas were being taught in Jesuit schools in France, English universities, and even newly founded institutions in North America. Because of the close similarity between Gassendi's skeptical empiricism and some of the major portions of Locke's *Essay concerning Human Understanding*, there has been a good deal of discussion about whether Locke was influenced by Gassendi or used some of his works. It has been discovered that one of Gassendi's main works on Epicurus appeared in English in 1659 in Thomas Stanley's *History of Philosophy*, a work that Locke knew. Locke had also met a few of Gassendi's disciples in France, so it is possible that some influence occurred.

Gassendi's atomism never connected itself with basic scientific findings, so that modern atomism had to start elsewhere. There has been more interest in Gassendi in recent years. Many conferences were held for his 400th birthday in 1992, with explorations of many aspects of his thought and activities, and his scientific researches are proving important in the history of botany, geology, and other fields. There is growing interest in his critique of Cartesian philosophy and he is now being seen as a genuinely original thinker of the first rank.

See also Aristotelianism; Aristotle; Atomism; Bacon, Francis; Charron, Pierre; Common Consent Arguments for the Existence of God; Descartes, René; Epicureanism and the Epicurean School; Epicurus; Fludd,

Robert; Galileo Galilei; Herbert of Cherbury; Hobbes, Thomas; La Mothe Le Vayer, François de; Locke, John; Materialism; Mersenne, Marin; Mill, John Stuart; Montaigne, Michel Eyquem de; Newton, Isaac; Pascal, Blaise; Patrizi, Francesco; Pyrrho; Ramus, Peter; Renaissance; Sanches, Francisco; Sextus Empiricus; Skepticism, History of.

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Richard Popkin (1967, 2005)

GAUGE THEORY

Gauge theory is concerned with the problem of comparing physical states at different space-time locations. To get a feel for the problem, it is best to begin with a simple example. Quantum chromodynamics is the theory of the force that binds quarks together. An initial presentation of the theory might begin by stating that the *color force* (a fanciful name having nothing to do with visual colors) comes in three *color charges*—red, blue, and green, and their *anticharges*—anti-red, anti-blue, and anti-green. Every quark has one of these charges, and a stable collection of quarks must have no net color. Thus, a stable three-quark object, such as a proton, can be formed from a red, a blue, and a green quark (red + green + blue = white, which is colorless), or a stable two-quark object, such as a pion, can be formed from a red quark and an anti-red quark. This would explain why quarks are never seen in isolation. Just as electric charge comes in two forms, positive and negative, color charges come in six species. The interaction between any pair of quarks will depend on their charges.

Note an immediate consequence of the little story just told. It suggests that given any two arbitrarily specified quarks, no matter where they happen to be, there is a fact about what color charge they have, and, a fortiori, a

fact about whether their color charges are the same or different. Most metaphysical accounts of properties have the same consequence. If there is a universal corresponding to the color charge red, for example, then there is a fundamental fact about any pair of quarks whether they both instantiate this universal or not. Or if one prefers a theory of tropes, then there is still a fundamental metaphysical fact about whether the trope that is part of one quark is qualitatively identical to the trope that is part of the other. These metaphysical facts would obtain no matter where the two quarks were located even if they were located in different space-times.

Gauge theory rejects this metaphysics. It is correct, according to gauge theory, that there is a variety of color charges possible for each quark and that the structure of these physical possibilities is that of a genus with six species (speaking roughly). But there is no natural identification between the particular color states available to one quark and the particular color states available to a distantly located quark. Here an analogy will help.

Consider the surface of a sphere. At any point on the sphere, there is a set of directions one can move in. And the generic structure of that set at any one point is exactly the same as the structure of the set at any other point: Wherever you are, you have a full 360 degrees of different directions available. But there is no fact about whether a particular direction at one point on the sphere is *the same* or *different* from a particular direction at another point on the sphere. One could, for example, lay down a circle with degree markings from zero to 360 at the North Pole and lay down an identical circle somewhere on the equator. But there is no further sensible constraint that the two circles be *oriented the same way* or that the zero-degree direction at the North Pole *point the same way* as the zero-degree direction at the equator. One cannot sensibly ask of two arrows, one at the North Pole and the other at the equator, whether they point the same way or not.

Having placed the circle of degrees at the North Pole in one orientation, one is still free to place the circle at the equator at any orientation one likes. Such an arbitrary choice of orientation for the degree numbers is called *picking a gauge*, that is, fixing on a convention for assigning numbers to different directions at different points. Once one has picked a gauge, one can talk about an arrow at the North Pole and one at the equator pointing the same way (e.g., both pointing at thirty-seven degrees), but since the gauge itself was an arbitrary choice, the *sameness* carries no ontological weight.

When considering distant points on the sphere, it is obvious that there is no sameness or difference of direction: The set of directions one can go in at one point are, as it were, specifically different from the set of directions one can go at another. And one might then be tempted to simply index any direction by the point it is attached to: There are a set of North Pole directions and a set of Eiffel Tower directions, and so on, with none of these being intrinsically comparable to any other. But the situation is not so simple. Suppose a person is standing at the North Pole holding a rod out in a certain direction and is told to walk forward *keeping the rod pointed the same way*, that is, the person is to walk forward *without letting the rod twist*. This is a sensible demand, and a physically meaningful one: If the rod is allowed to twist as the person walks, the force will be felt in the hands. But *twisting* is just *changing direction*. So if there is a fact about whether the rod is twisting, there must be a fact about whether it is changing direction even though at every moment the person is located at a different point on the surface of the earth.

There is a nice mathematical object that handles this situation. The set of directions one can go in at any given point of the sphere is called its *tangent space*. The tangent spaces are all generically identical (360 degrees around) but specifically different: Each tangent space is *glued to* a point on the surface of the sphere. The mathematical object that will now be introduced is called a *connection* on the tangent spaces, and what it allows, intuitively, is for one to make comparisons between directions in the tangent space at one point with directions in tangents spaces at points infinitesimally nearby. So, as one moves continuously from one point to another on the sphere, the connection will determine whether the direction of the rod is changing or not. There are no absolute comparisons of *distant* directions, but there are comparisons of *nearby* ones mediated by the connection. More precisely, the connection provides a notion of *parallel transport*, that is, of *carrying* a direction from one tangent space to another without twisting *along a specified path*. It does not underwrite any absolute comparison of directions in different tangent spaces.

This is the sort of structure used in the gauge theories of physics. There are various charge states available to a quark at one location, and a similarly structured set of charge states available to a quark at another location, but no absolute comparison between the two: There is no fact about whether the states of the quarks are the same or different. How, then, can there be any *forces* associated with the color charges? In the case of the electric force, it is critical to know whether two particles have the same or different charge: Like charges repel and unlike charges attract. How can one say, as was said above, that a stable

collection of quarks must have no net color if there is no fact about exactly which color charge each quark has?

It is not enough to say that in a proton or a pion the quarks are nearby so there is a way of comparing their charges: Nearby is evidently not a mathematically precise term. The story is rather this. In modern particle theory, every force is mediated by a set of particles. The electromagnetic force is mediated by the photon, and the color force is mediated by particles called *gluons*. Furthermore, unlike the case of the photon, which carries no electric charge, the gluons themselves carry the color charge. And the very same remarks about the impossibility of absolute judgments about *which* charge a quark carries can be made about which charge a gluon carries. For heuristic purposes, it helps to think of gluons as carrying two charges: a color and an anticolor.

Now, suppose there is a bound state of two quarks, as in a pion. The quarks are only bound to each other through the mediating effect of a gluon. Originally, it was said that the pion as a whole must have no color, so the quarks can be, for example, one red and the other anti-red. But the gauge freedom, the freedom to identify different states at different points as the red state or the blue state means that there must be an equally valid description according to which the one quark is blue and the other anti-red. This seems to violate the demand that the pion have no net color.

Here, the gluon comes to the rescue. When gauge is changed, it must be done in a locally smooth way, and this means that not only do the color charges ascribed to the quarks change, but the color charges ascribed to the mediating gluon will change, too. So, while in one choice of gauge the pion will be described as a red quark bound to an anti-red quark by (say) a mediating blue/anti-blue gluon, in another choice of gauge, the very same pion will be described as a blue quark bound to an anti-red quark by a mediating red/anti-blue gluon. In each case there is no net color charge even though the particular charges ascribed to the constituents change. Evidently, while there is a *gauge freedom* involved in ascribing charges to particles—free enough so that any particle can be ascribed any charge—there are global constraints on the choice of gauge, and changing the gauge for one particle will have to have consequences for the charges ascribed to others. Because the gauge can be changed in different ways at different points, this is called a *local gauge freedom*.

The key point is this: The gauge freedom is wide enough that there is no objective, gauge-independent fact even about whether two particles have either same or different color charge. So no metaphysics that tries to asso-

ciate the color charges with universals or tropes in the usual way can succeed. This result is of particular significance for David Armstrong's project of justifying belief in universals by appeal to scientific accounts of the world. The fundamental structures employed by the best scientific theories simply do not correspond to the ontology of substance/universal that Armstrong proposes.

Gauge theories provide a novel approach to the fundamental ontological problem of sameness and difference. A metaphysics of universals or tropes entails that there be certain absolute facts about whether two individuals have similar or different qualities or properties, facts that obtain independently of where the individuals are located or even whether they are located in the same space-time at all. According to gauge theories, comparisons of *properties* are always mediated by a gauge connection. This means both that comparisons between individuals that inhabit disconnected space-time cannot be made at all and that even within a single space-time, ascription of charges to individuals always requires a somewhat arbitrary global choice of a gauge. The gauge connection itself is objective, but the particular charges assigned to individuals are not. This is an ontological structure that does not fit neatly in any traditional metaphysical category.

See also Metaphysics; Relativity Theory.

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Tim Maudlin (2005)

GAUNILO
(fl. 11th century)

Soon after St. Anselm circulated his *Proslogion*, it was the target of a vigorous rejoinder by an otherwise unknown Benedictine monk named Gaunilo. Although Guanilo's "Reply on Behalf of the Fool" raises a number of objections to the ontological argument, by far the best known is the Lost Island *reductio*, an argument intended to be exactly parallel to Anselm's that generates an obviously absurd conclusion. Gaunilo proposes that instead of "that than which nothing greater can be thought" we consider "that island than which no greater can be thought" (2001, p. 31). We understand what that expression means, so

(following Anselm's reasoning in the ontological argument) the greatest conceivable island exists in our understanding. But (again following Anselm's reasoning) that island must exist in reality as well; for if it did not, we could imagine a greater island—namely, one that existed in reality—and the greatest conceivable island would not be the greatest conceivable island after all. Surely, though, it is absurd to suppose that the greatest conceivable island actually exists in reality.

In order to defend himself against Gaunilo's criticism, Anselm would have to show why Gaunilo's argument about the island is not in fact analogous to his own argument about that than which nothing greater can be thought. Yet although his "reply to Guanilo" asserts more than once that the island example fails, he does not explain why it fails. The usual reply given on Anselm's behalf (and indeed often attributed to Anselm himself) is that the notion of a greatest conceivable island is incoherent; however great an island might be, one could always conceive of a greater. (For a reading of the argument that endorses a response of this sort, see Klima 2000.)

Gaunilo's reply does have its defenders, however, most notably Nicholas Wolterstorff, who argues that Anselm "realized the 'tellingness' of [Gaunilo's] points. … The sign of his realization, however, is not concession; Anselm does not concede. The sign is rather bluster" (Wolterstorff 1993, 87).

See also Anselm, St.; Ontological Argument for the Existence of God.

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Thomas Williams (2005)

GAY, JOHN
(1699–1745)

John Gay, the English moral philosopher, was a fellow of Sidney Sussex College, Cambridge, and later vicar of Wilshampstead, Bedfordshire. His short "Dissertation concerning the Fundamental Principle of Virtue or Morality" was first published as a preface to Edmund Law's translation of William King's Latin *Essay on the Origin of Evil* (1731). (Law was bishop of Carlisle and King was archbishop of Dublin.) The "Dissertation" is one of the seminal works in the history of English utilitarianism. In the eighteenth century its influence may be found in the works of the theological utilitarians, Abraham Tucker (*The Light of Nature Pursued,* 7 vols., 1768–1778) and William Paley (*Principles of Moral and Political Philosophy,* 1785). David Hartley said that Gay's assertion of the importance of psychological association in human nature was the origin of his *Observations on Man* (1749).

Gay hoped to eradicate confusion in moral philosophy and to harmonize the competing theories about the criterion of virtue. In his survey of candidates for the criterion of virtue, Gay noticed acting agreeably to nature; acting agreeably to reason; conformity to the fitness of things; conformity with truth; promoting the common good; and conformity to the will of God. In opposition to the claim that a criterion of virtue can be stated, Gay noticed the protagonists of the moral sense who claim that our judgments of virtue and vice are but the instinctive determinations of a moral sense. Gay set himself the task of showing that all of the above-mentioned criteria of virtue are compatible and not inconsistent with our having a moral sense.

Gay insisted upon the difference between a definition and a criterion, claiming that one must know what a thing is before one can measure it. Therefore, he first defined virtue as conformity to a rule of life. He expanded on the concept of "rule of life" by saying that it is a rule directing the actions of all rational creatures with respect to each other's happiness and that the rule must be understood to be obligatory for everyone in all cases.

Gay next turned to the question, What is it that can oblige everyone in all cases to follow a rule of life? He argued that a full and complete obligation can only arise from the authority of God, because only God can in all cases make a man happy or miserable. Gay then said that the criterion of virtue is the will of God. But what rule of life does God will that we follow? Attending to God's nature, we find him supremely happy. From God's goodness we infer that he has designed men to be happy and that he has willed the means to human happiness. Therefore, a person should always behave so as to be a means to the happiness of humankind. Arguing from the will of

God, Gay thus arrived at a criterion of virtue once removed.

The above account covers what might be called the first part of Gay's system. In it he found the clues for harmonizing the several criteria of virtue he had collected from earlier writers. He found conformity to the will of God to be the fundamental criterion of virtue, but the other criteria are necessary to explicate this one. Thus the criterion of the will of God with respect to virtue is whatever promotes the happiness of humankind or the common good. Gay defined things that are fitting and agreeable to nature as those things or actions which may be used to bring about the happiness of humankind. He complained about earlier writers who left the phrases "fitness of things" or "agreeableness to nature" empty of meaning by not seeing that they must be used in relation to some end, namely, the happiness of humankind.

To account for agreeableness to reason as a criterion of virtue, Gay included under his notion of reason not only reason—that is, the foreseeing of the inconveniences of certain things and actions by contemplating their natures—but also experience, or the perceiving of these inconveniences when they happen. Reason in this extended sense is the criterion of the fitness and unfitness of things and actions, as they contribute to human happiness. Gay added that when reason conforms to things as they really are, we say that we have the "reason" of things, or the "truth" of things. Thus, he fit in conformity with truth as yet another criterion of virtue. But while he succeeded in fitting all these criteria into an account of virtue, he also warned that some are more remote criteria than others.

Gay brought the moral sense into his account of virtue by denying that it is innate, or that it operates instinctively. Men must acquire the moral sense, notably by learning to be pleased by those actions which promote human happiness and to be displeased by those which do the contrary. Gay allowed that once it is learned, the operation of the moral sense may be habitual. He also allowed that much of humankind may learn what virtue is by example and observation, without being able to reason out their judgments.

Gay also explained why a person may be virtuous. Curiously enough, he made little of man's obligation to obey the will of God. Rather he appealed to the universality of man's inclination to seek pleasure and to avoid pain; and he equated a person's happiness with his being pleased. There are two motives, then, for virtuous behavior. First, when I see that my own happiness depends on the happiness of others, I will seek to promote their happiness in the hope that they will in turn promote mine. Second, since esteem and merit are associated with virtue, I may behave virtuously in order to enjoy the pleasure of being esteemed. Similarly, I will esteem those who promote my happiness, in order to encourage them.

See also Ethics, History of; Hartley, David; Paley, William; Virtue and Vice.

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Elmer Sprague (1967)

GEHLEN, ARNOLD
(1904–1976)

The German social psychologist Arnold Gehlen was born in Leipzig. In 1934 he succeeded his teacher Hans Driesch as professor of philosophy at the University of Leipzig. He went to Königsberg in 1938 and from 1940 to 1944 was at the University of Vienna. In 1948 he became professor of sociology and psychology at the Hochschule für Verwaltungswissenschaften at Speyer. After 1962 he was at the Technische Hochschule in Aachen. He died in Hamburg.

Gehlen, a leading representative of the movement known as philosophical anthropology, sought to reinterpret the concepts of mind and intelligence in biological and sociological terms. His eclectic thought has partial affinities with the pragmatism of G. H. Mead and F. C. S. Schiller, with the integrationalism of Rudolf von Ihering, Maurice Hauriou, and Carl Schmitt, and with the cultural criticism of Oswald Spengler, Hans Freyer, and Martin Heidegger. At the same time, he rejects ontology and metaphysics. He rejects the traditional dualisms of soul and body, mind and matter, theory and practice. He emphasizes the predominant role of collective, or institutional, values as against those of individuals. He discards rationalism and regards present-day civilization as one of late-period decline.

METHOD AND TASK OF PHILOSOPHY

Gehlen rejects the experimental methods of the natural sciences as leading to materialism and rejects the "understanding" approach of the advocates of the *Geisteswis-*

senschaften, because it employs contemporary intellectual standards in the analysis of heterogeneous situations. The method of philosophy, Gehlen claims, is the intuitive or phenomenological method that he himself uses to interpret the significance of sociocultural institutions. According to Gehlen the task of philosophy differs from that of science. Disregarding the factual inferences of the sciences as irrelevant, philosophers should "unravel" (*freilegen*) the realities that are their proper concern. These realities, or "categories," are the basic qualities of man and of institutions that remain intact after the fullest cultural, social, and historical analyses. Gehlen conceives of such a study of reality as empirical and thus envisages no complete system of categories.

MAN'S NATURE AND POWER

Gehlen defines man as an "acting, anticipatory, nondetermined, self-delimiting being—a product of culture." Like other philosophical anthropologists, Gehlen views man, compared with other animals, as a vulnerable, deficient being, lacking the powerful instincts and natural weapons of survival of other animals. Man's fabled power of thought is an artificial substitute for his weak instincts. He is reduced to dependence on technical means for his survival. For survival and to liberate himself from anxiety he has had to develop tools and techniques including language, myth, and magic, and has had to create a common, habitual, and stable cultural environment.

This cultural environment is perpetuated in institutions, the historically evolved realities of state, family, law, economy, and so forth. To be "legitimate" an institution need not be useful but must be derived from man's nature as expressed in the cultic, nonutilitarian experiences of ecstasy, trance, and asceticism. Institutions are comprehensive and abstract structures that, through their principle of order, impart autonomy to the individuals participating in the collective *entente secrète*. The utility of social and cultural institutions is a secondary by-product of their development. Gehlen contrasts unreflective, spontaneous, self-sacrificing action, which he describes as noble (*vornehm und edel*), with self-interested and utilitarian action (including its sublimated forms in art, philosophy, and literature), which he designates as base (*gemein*).

THEORY OF TRUTH

Like certain pragmatists, Gehlen stressed action as the determinant of valid thought. While defining truth in terms of inner coherence and correspondence with facts, Gehlen also distinguished another aspect of truth, which he calls "inner truth." "Essentially irrational, non-scien-

tific and not directly controllable experience has *its* truth: that is certainty. And it has *its* form of acting: non-experimental action based on tradition, instinct, habit and conviction" (*Der Mensch*, p. 330). These illogical, ethical certainties are valid without rational or experimental justification—as a matter of mere "appositeness" or inner sanity. Rational knowledge (*Wissenschaft*) cannot take over the function of the *idées directrices* of society that are the product of *Urphantasie*, the divinity and energy of the animal component of man.

PESSIMISM

Gehlen's analysis of his age was unrelievedly somber. His times, according to Gehlen, were marked both by the dissolution of institutions and a shift in individual and social consciousness from irrational certainty to an anarchic intellectualization. This change took place against a historical background in which organic agrarian society was giving way to organized industrial society. The cultural rupture transforms social organisms into "colonies of parasites" riddled with subjectivism, mechanization, a turn toward abstract and mathematical methods in art and science (desensualization), and experimental thinking.

Rising living standards, far from representing progress, create new urges for limitless satisfactions. Such changes lead away from ethical obligation deriving from man's nature to goal-directed efficiency deriving from man's method. These changes entail making the spiritual sphere political and robbing the political sphere of its religious aura. Since science is esoteric, the mass of the people are condemned to be primitive. The eclipse of the nation-state and the trend toward supranational organization and peace will leave a legacy of unresolved conflicts that may lead to a complete loss of individual freedom. Only two very unlikely circumstances could reverse the trend: an unexpected return to legitimate, nonrational values that are not amenable to conscious volition or the rise of a creative personality to provide a new kind of institutional leadership.

According to Gehlen, the philosopher's task in such a world situation is to point to signs of decline and to emphasize the "legitimate" elements in national heritages as expressed in the institutions of state, church, and law. Although present-day society is increasingly alienated from these heritages, they alone represent society's legitimate "reality." Reality has therefore to be sought in the archaic forms of the past.

See also Action; Driesch, Hans Adolf Eduard; Experimentation and Instrumentation; Geisteswissenschaften;

Heidegger, Martin; Mead, George Herbert; Philosophical Anthropology; Schiller, Ferdinand Canning Scott; Spengler, Oswald.

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GEISTESWISSENSCHAFTEN

Geisteswissenschaften, a term commonly used in German to denote disciplines referred to as "the humanities" in English, emerged in the course of a nineteenth-centry discussion about the proper designation for those disciplines whose topics and methodologies were different from those of the newly predominant natural sciences (*Naturwissenschaften*) such as physics, biology, and chemistry. A compound word, its second component— "the word *Wissenschaften*" or "sciences"—indicates that these disciplines are indeed legitimate sciences, but sciences of a different kind than the natural sciences. The assumption underlying the discussion out of which the term emerged is that there are valid scientific methods for studying topics such as literature, art, and history, but that the objects of these disciplines and their appropriate methods were significantly different from the objects and quantitative methods appropriate of modern natural science. Originally conceived as one side of a binary opposition between the realms of "nature" and those things that could not be subsumed under that heading, it uses the term "*Geist*" to provide a positive description of the general domain that is the proper field of study for those disciplines.

Many scholars have noted that the plural form of the term was used in 1849 in J. Schiel's German translation of John Stuart Mill's *Logic* as a translation for Mill's phrase "the moral sciences" and count that as the origin of the term *Geisteswissenschaften*. However, earlier uses of similar terms have been documented (see, e.g., Diemer) and the term *Geist* as a central term for historical and cultural manifestations of human mentality had become common in German romantic philosophy (Herder and Hamann), and German Idealism (especially Hegel) well before 1850.

The clearest formulation of the notion of *Geisteswissenschaften* as a group of disciplines united by a common method was presented by Wilhelm Dilthey in his *Einleitung in die Geisteswissenschaften* (1883). In this work, he identifies the common topic of these sciences as historical social reality that cannot be captured through the natural sciences. They find their ultimate basis in the structures of human experience, which is essentially historically and contextually situated. Hence the *Geisteswissenschaften* seek to do more than merely to explain, instead they seek to understand the expressions of human experience by situating them into broader personal, social, and historical contexts that provide insight into their "sense." For Dilthey, then, the fundamental disci-

plines for all of these others were anthropology and psychology, with psychology understood as a descriptive science aimed at understanding the structures of human experience.

During the late nineteenth and the first half of the twentieth centuries these fields included not only what would traditionally fall under the concept of the humanities in English, such as philosophy, history, philology, and the histories of art and music, but also traditional faculties such as law and theology whose methodologies were not consistent with those of the natural sciences. It also came to include areas that were just beginning to emerge as special disciplines such as political science and sociology, which at the time were paradigms of the *Geisteswissenschaften*. Hence in the second half of the nineteenth century and the beginning of the twentieth century, the term *Geisteswissenschaften* was in competition with the term "*Kulturwissenschaften*" or "cultural sciences" as another way of capturing the difference between all of the fields that were distinct from natural sciences, a term that was championed above all by members of the Southwest German school of Neokantianism such as Wilhelm Windelband (1915) and Heinrich Rickert (1986) for all of the areas Dilthey called *Geisteswissenschaften*. They stressed the unique and specific nature of the objects that these (idiographic) sciences seek to understand as opposed to the general laws that were the object of the (nomothetic) natural sciences.

During the first half of the twentieth century, Dilthey's preferred terminology predominated, but toward the end of the twentieth century, the social sciences have come to be generally grouped together under the heading of "*Sozialwissenschaften*" or "*Gesellschaftswissenschaften*," two different German words for "social sciences," as they have increasingly adopted the quantitative methodologies associated with the natural sciences. From the outset, questions about the status of psychology as a scientific discipline have played a pivotal role in the discussion of the nature and limits of the *Geisteswissenschaften*. At the end of the twentieth century, however, it too was increasingly grouped together with social sciences based on shared quantitative research methods; the notion of the *Geisteswissenschaften* became closer once again to what in English would be called the humanities. Law, economics, and the social sciences are becoming less commonly subsumed under the heading of the *Geisteswissenschaften* and an increasing number of departments concentrating on history, literature, art, and related fields often choose to refer to themselves as *Kulturwissenschaften* instead of as *Geisteswissenschaften* as

they combine methodologies from both the humanities and the social sciences into their studies.

See also Dilthey, Wilhelm; Hamann, Johann Georg; Hegel, Georg Wilhelm Friedrich; Herder, Johann Gottfried; Historicism; Idealism; Mill, John Stuart; Neo-Kantianism; Rickert, Heinrich; Windelband, Wilhelm.

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GENERAL WILL, THE

The idea of the general will (*volonté générale*) forms the core of Jean-Jacques Rousseau's political philosophy. Others had introduced the term before him, and his use influenced many others, including Immanuel Kant and Georg Wilhelm Friedrich Hegel, but the general will is most closely associated with Rousseau's *Social Contract* (1762/1997). In that work, Rousseau argued that "the general will alone can direct the forces of the State according to … the common good" (II.1.1, p. 57) and that political rule is only legitimate when based on a social contract that establishes the general will as sovereign. This led Rousseau to hold that laws must be authorized by the people as a whole, since "only the general will obligates particulars, and there can never be any assurance

that a particular will conforms to the general will until it has been submitted to the free suffrage of the people" (II.7.7, p. 70). The general will, as Rousseau understood it, is impartial in that it "must issue from all in order to apply to all" (II.4.5, p. 62).

Prior to Rousseau, the term "general will" was introduced into seventeenth-century theological disputes by Antoine Arnauld and then discussed by Blaise Pascal and Nicolas Malebranche, among others. The issue was whether God has a *general will* to grant all people salvation, and if so, how it is possible and just for particular individuals to be condemned to hell. In the early eighteenth century, authors such as Pierre Bayle and the Baron de Montesquieu began to use the term in a secular context. In defending the separation of governmental powers, Montesquieu associated the legislative function with the general will and judicial power with a particular will. When Denis Diderot published an entry on "natural law" in his *Encyclopédie* in 1755, the general will held a central place. He wrote that only humanity, and not any individual, can "determine the nature of justice and injustice. … Private wills are suspect; they may be either good or bad. But the general will is always good" (1755/1992, pp. 19–20). He continued, "The general will is in each person a pure expression of the understanding, which in the silence of the passions calculates what every individual may demand from his fellow-man, and what his fellow-man has a right to demand of him" (pp. 20–21).

While clearly influenced by Diderot, Rousseau rejected his colleague's cosmopolitanism and focused instead on the general will of a society. Rousseau held that "each individual may, as a man, have a particular will contrary to or different from the general will he has as a Citizen" (I.7.7, p. 52). A person's private will directs him toward his own particular interests, while the general will aims at the common good of society. In addition, Rousseau introduced the crucial contrast between the general will and the will of all: "From the preceding it follows that the general will is always upright and always tends to the public utility: but it does not follow from it that the people's deliberations are always equally upright. … There is often a considerable difference between the will of all and the general will" (II.3.1–2, pp. 59–60). A simple aggregation of private wills may generate the will of all, but the general will requires a mutual adjustment of interests in light of what individuals can reasonably demand of one another.

There is no infallible procedure by which to determine the general will. Rousseau argued that the general will can only act when all the people are gathered together in the "people's assembly" to vote on whether a proposed law "does or does not conform to the general will, which is theirs" (IV.2.8, p. 124). However, when their private wills distort their assessment of the common good, individuals may be mistaken about the content of the general will. It is even possible for the majority to be mistaken, and Rousseau was especially concerned about two sources of corruption, not to the general will itself, but to a society's ability to identify it. The first was the existence of factions, which Rousseau believed would lead individuals to elevate their shared private interests above the general will. The second was large inequalities in wealth, which could allow the wealthy to replace the judgment of the poor with their own: "No citizen [should] be so very rich that he can buy another, and none so poor that he is compelled to sell himself" (II.11.2, p. 78).

Rousseau held that outside of society, individuals have "natural freedom," since they need not limit their ability to act on their private wills. However, because private wills may conflict, individuals may still be dependent on the private wills of others and therefore lack freedom. It is only when a society is guided by the general will that individuals are freed from their dependence on private wills and are able to achieve "civic freedom." Their natural freedom is then limited, since they may no longer act on their private wills when these conflict with the general will. However, since others are similarly constrained, no one is dependent on anyone's private will.

For example, it is only under the general will that mere possession is transformed into property, with the result that no one may take what is not theirs. Furthermore, in a passage that strongly prefigured the work of Kant, Rousseau wrote that being freed from the dictates of one's own private will also represents a kind of moral freedom, "which alone makes man truly the master of himself; for the impulsion of mere appetite is slavery, and obedience to the law one has prescribed to oneself is freedom" (I.8.3, p. 54). Understanding that freedom involves independence from arbitrary private wills and that such dependency can only be avoided by the general will helps to explain Rousseau's comment "Whoever refuses to obey the general will shall be constrained to do so by the entire body: which means nothing other than that he shall be forced to be free" (I.7.8, p. 53). For Rousseau, this merely meant that individuals should be constrained in their unconditional pursuit of self-interest by principles of justice, which make them independent of anyone's private will.

Beginning with Hegel, but especially in the twentieth century, many critics saw in Rousseau the origins of the

Reign of Terror of the French Revolution or an endorsement of unconstrained majority rule. For example, in 1945 Bertrand Russell wrote that Rousseau was "the inventor of the political philosophy of pseudo-democratic dictatorships" and that "Hitler is an outcome of Rousseau" (pp. 684, 685). Such interpretations, because they neglect the contrast between the general will and the will of all, typically reveal more about the ideological fears and commitments of the commentators than about Rousseau. In contrast, the final decades of the twentieth century brought a revitalization of liberal political philosophy, much of it under the influence of John Rawls, and with it came a renewed interest in the general will. Rawls's project can be understood as an attempt to reconcile the two elements that Rousseau identified as the central commitments of the general will: "If one inquires into precisely what the greatest good of all consists in, which ought to be the end of every system of legislation, one will find that it comes down to these two principal objects, *freedom* and *equality*" (II.11.1, p. 78).

See also Freedom; Justice; Liberty; Political Philosophy, History of; Rousseau, Jean-Jacques.

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GENERICS

Generics are noun phrases (NPs) and sentences of certain types; the phenomena exhibited by these NPs and sentences are known as "genericity." Two rather different phenomena are embraced by this term, and they both are of interest to philosophers.

THE FIRST PHENOMENON: REFERENCE TO A GENUS (OR KIND)

An example of the first phenomenon, reference to a genus, is the sentence *The black-capped chickadee winters in central Alberta*, which refers to the genus, or kind, *The Black-Capped Chickadee*. The sentence may also do other things, such as make claims concerning individual black-capped chickadees and the things they do. But the way it accomplishes these other tasks is to employ its NP subject term to refer to the kind and then make a predication about this kind. There are various tests that one might employ to show that NPs like this really do refer to kinds. For instance, note that predicates like *is (not) extinct* are true only of kinds and not of individual instances of a kind. It makes no sense to assert that *Tweety is extinct* (as opposed to being dead). But it does make sense to say *The black-capped chickadee is not extinct*, thereby showing that in this sentence at least, *the black-capped chickadee* refers to a genus. Of course, not every occurrence of *the black-capped chickadee* refers to a kind. For example, it does not do so in *The black-capped chickadee in the far cage needs more seed*; here *the black-capped chickadee* refers to an individual instance.

A fundamental question concerning this type of genericity is the following: What types of expressions can refer to genera? As the previous example shows, definite NPs can do this in certain sentences. And since the sentence *Black-capped chickadees winter in central Alberta* has the same force as the previous example, most theorists take these "bare plural" NPs also to refer to kinds, at least in this sort of sentence. Another type of NP that is of the same nature contains mass terms ("bare singular" NPs they are sometimes called) such as *gold, furniture*, and *information*. The subjects of sentences like *Gold is a yellowish metal* refer to a kind. There is at least one case in English of a bare singular count NP that designates a kind: In *Man evolved from the great apes*, the NP *man* (as opposed to the common noun *man*, as it occurs in … *is a man*) refers to a kind. And there are some proper names of kinds also, such as *Ursa arctos horribilis is common in the mountains of Alberta*. On the other hand, indefinite NPs do not refer to kinds (with an exception to be men-

tioned just below): *A grizzly bear is common in the mountains of Alberta* seems nonsensical; the indefinite NP in *A black-capped chickadee winters in central Alberta* refers to some individual instance of the kind. The same is true for quantified NPs: The subject NPs in *Every/Most/Some/All/Each/Few black-capped chickadee(s) winter(s) in central Alberta* quantify over individual instances of the kind, and do not designate the kind. (Actually, there can be reference to kinds using indefinite NPs and quantified NPs, but then these NPs are given a *taxonomic* interpretation. We can say *All dinosaurs are extinct*, meaning thereby that every species of dinosaur is extinct; similarly, we can say *A whale has been labeled as endangered*, meaning thereby that a species of whale, perhaps the Blue Whale, has been labeled as endangered.)

Another fundamental question concerning this type of genericity is the following: What are the truth makers for such sentences? Some of these predications seem clearly to predicate a property *directly* of a kind—in cases such as *The dodo is extinct*. But consider the (true) generic sentence *Man landed on the moon in 1969*. In such cases the truth maker would seem to be the initial person who satisfies the predicate; then this property is attributed or projected to the kind. But of course not every property that is true of an individual person becomes true of mankind. For this type of *indirect reference to a kind*, it seems that the property in question must be "important" enough: For sentences like *Man pole-vaulted 6 meters in 1985* do not seem true, even though Sergey Bubka of Ukraine did so in Paris in 1985 (and he was the first person to have done so).

We can also sometimes use an individual exemplar of a kind as the truth-maker for things we (or other agents) do, as in *We photographed the grizzly in Alberta last summer*, when in fact it was only a few of the instances of *Ursa arctos horribilis* that were photographed. These and other types of indirect reference to kinds are discussed by Krifka et al. (1995). The fact that predicates that are primarily true of ordinary individuals are somehow projected to be true of kinds raises questions of both a logical nature (about the resulting "type mismatch") and a metaphysical nature (about the relation between kinds and their exemplars).

Yet a further fundamental question concerns what kinds there are. The examples thus far surveyed have been of "natural kinds," but clearly there are kinds of artifacts: *Schockley invented the transistor in 1957* employs *the transistor* as designating a kind. And *The Coke bottle has a narrow neck* employs *The Coke bottle* in this way also; yet *The green bottle has a narrow neck* seems not so much false as

nonsensical, unless *the green bottle* is taken to designate a particular bottle. Intuitively, there just is no such kind as The Green Bottle. Of course, with sufficient background contextual buildup one can make *The green bottle* be, for instance, the salvation of all those stricken with some new disease. Considerations like these have suggested to some that the notion of kind that is relevant to genericity in this first sense is "conventional" or "social."

THE SECOND PHENOMENON: GENERIC CHARACTERIZATION

An example of the second phenomenon, generic characterization, is the sentence *Lions have manes*, which predicates the property of having a mane "generically" to lions. By this it is meant that it is *generally* true (plus some qualifications to be discussed below) that lions have manes. As we know, only male lions have manes, so this predication is not universally true of lions. This feature is usually described by saying that generic characterizations *allow for exceptions* while they nonetheless remain true. It is this feature of genericity that has aroused the interest of logically oriented philosophers of language; for, given this portrayal of generic characterization, some radically new logical techniques will be required in order to employ these sentences in arguments.

Note that this second notion of genericity is a feature of entire sentences, whereas the first notion was a feature of NPs. But to complicate matters, the two phenomena can occur together, as in *The rutabaga contains vitamins A and C*, where *The rutabaga* exemplifies genericity of the first sort and the sentence as a whole exemplifies genericity of the second sort. (There might be some rutabagas that are missing either vitamin A or C, yet the original sentence would be true.)

Generic characterizing sentences express regularities about specimens of a kind: some regularities concern properties that are exemplified by the typical member (such as in the rutabaga sentence), whereas others express regularities of action that an object engages in (such as in "habitual" sentences like *Mary plays tennis after lunch*, which again is true despite the existence of days where Mary must work after lunch). It is this ability to express regularities in the face of exceptions that explains why all languages allow the expression of generic characterization. People notice regularities in nature and form "folk laws" to codify these regularities and predict what the future might bring. Despite the existence of exceptions, they are intellectually satisfying and practically useful because the objects *typically* or *usually* or *normally* or

nomically perform those actions. And such regularities commonly have exceptions.

Most writers in the genericity literature have argued that it is wrong to view these characterizing generic sentences as "really false but acceptable despite the exceptions because they are close enough to being universally true." For, they claim, most of our knowledge of the world is encoded in these generic sentences, so this is not a useful attitude. And if it were correct, then we would expect that sentences with fewer exceptions are more acceptable. But this is not borne out by examples, as we will see shortly.

These writers also have tended to shun the view that generics are *neither* true nor false but are instead directions or rules. For, this would make most of our knowledge become neither true nor false but instead directions to guide our belief formation ability. Further, since generics would not have a truth value, they could not be embedded inside propositional attitudes or joined into longer generic statements. But *John knows that rutabagas contain vitamin A* and *It is common that countries that do not honor women's rights also do not honor general human rights* are in fact either true or false.

Consider this list of (true) characterizing generic sentences:

1. Snakes are reptiles.

2. Telephone books are thick books.

3. Guppies give live birth.

4. Italians are good skiers.

5. Crocodiles live to an old age.

6. Frenchmen eat horsemeat.

7. Unicorns have one horn.

Obviously these call for different proportions of the subject terms satisfying the predicate. In (1) it is all; in (2) most; in (3) some subset of the females; in (4) some small percentage, but a greater percentage than in other countries (or maybe the very best of the Italian skiers are often better than the very best from other countries); in (5) it is strikingly few, since of the hundreds born to one female at a time, most are eaten within a few weeks of birth; in (6) there need be only a very small percentage—somehow the culturally determined views of North America make it striking that it happens at all; and in (7) no unicorns have one horn. Such examples show that there is no univocal quantifier that will serve in all characterizing sentences.

Even attempts to employ vague, probabilistic quantifiers such as *most* or *generally* or *in a significant number of cases* are misguided. Consider such false characterizing sentences as the following:

8. Leukemia patients are children

9. Prime numbers are odd.

These false sentences would become true if prefixed by *In a significant number of cases*. Indeed, the actual number of cases has nothing to do with the truth of the characterizing generic sentence as opposed to what evidence we might have for the sentence's truth. We might use the preponderance of thick telephone books in the world as our evidence for the truth of (2); but we will be prepared to retract it when we discover other relevant background facts, as perhaps happens with (9). This is often put as "characterizing sentences are inherently intensional." A sentence like *Members of this club help one another in emergencies* can be true despite there never having been any emergency. What is required for its truth is intensional: the preparedness to act in certain ways in certain situations. This intensionality is often claimed to thwart any attempt to use an extensional quantifier in the analysis of characterizing generics.

TWO RELATED AREAS

The feature of allowing for exceptions while nonetheless remaining true raises interesting issues in logic. This general topic is called *nonmonotonic reasoning* in the artificial-intelligence literature. Although these researchers do not explicitly aim to provide a semantics for characterizing generic sentences, nonetheless results of their research might be pressed into service for this purpose (Pelletier and Asher, 1997).

The issue of how children can learn that some occurrences of NPs are universal, others existential, and still others generic has been investigated both from the point of view of English-speaking children learning language (Hollinger et al. 2002) and comparatively between English-speaking children and Mandarin-speaking children (Gelman and Tardif 1998). It seems that children learn the difference by the age of four and that there is a difference in the frequency of generic vs. nongeneric NPs and sentences encountered by English and Mandarin children.

PHILOSOPHICAL CONSIDERATIONS

Genericity has been seen by some as requiring an ontology of (abstract?) kinds, individuals, and (momentary) stages of individuals. Furthermore, it seems to some that the semantics of generics presumes that these kinds are

conventional in some way. And the issues surrounding natural laws that admit of exceptions has been seen by some as endorsing a kind of scientific antirealism. All of these considerations raise deep questions of the relation between semantic models of natural language and reality. Some have claimed that the relationship should be modest and that these ontological conclusions pertain only to the metaphysical presuppositions of natural language— a natural-language metaphysics, in the phrase of Bach (1986)—but not necessarily to reality. This is the deepest issue in philosophy of language.

See also Conventionalism; Non-Monotonic Logic; Plurals and Plurality; Propositional Attitudes: Issues in Semantics; Realism.

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Francis Jeffry Pelletier (2005)

GENETICS AND REPRODUCTIVE TECHNOLOGIES

Modern genetics and technological aids to human reproduction, like other advances in science and technology, have created ethical problems heretofore unencountered. Biomedical developments have also posed new conceptual, epistemological, and metaphysical problems. This entry addresses these philosophical concerns as well as the more widely discussed ethical implications of contemporary genetics and reproductive technologies. One conceptual and ethical link between these two fields is the prospect of "designing our descendants." This prospect has been viewed by some as a boon to humankind (Fletcher 1974) and by others as a fearsome possibility to be avoided at all costs (Ramsey 1970).

The Human Genome Initiative, a "big science" project launched by the U.S. government to map and sequence the entire human genome, has heightened concerns about the privacy and confidentiality of genetic information, the uses to which such information might be put, and the possibility of stigmatizing individuals or groups because of their genetic constitution. The knowledge the Human Genome Project can yield is massive in contrast to previous efforts to acquire information about human genetics.

The contemporary science of genetics provides, not only an understanding of heritable traits, but also the capability to diagnose the probability or certainty of transmitting to offspring genetic conditions such as sickle-cell anemia. Tay-Sachs disease, or cystic fibrosis. The ability to identify and locate specific genes that render a person likely to manifest heritable conditions, such as Huntington's disease and certain forms of cancer, raises profound questions about the wisdom and desirability of learning about future contingencies when no cure exists and preventive measures are of uncertain efficacy.

A conceptual question is prompted by the rapid advances in genetics: What constitutes genetic disease? The traditional concept of disease relies on the ability of medical scientists to identify deviations from the normal physiological functioning of an organism. Asymptomatic diseases, such as hypertension, can be detected by diagnostic instruments even though the individual feels no symptoms of illness. With the discovery of genes that render an individual with a family history highly likely to develop a particular disease later in life, how should the

individual who carries the gene be characterized? Does the person in whom the gene is found have a genetic disease or not? The individual has no symptoms and the disease may never express itself. Yet merely being susceptible opens the possibility of harm to the interests of such individuals, making them vulnerable to actions by others such as insurance companies who seek to deny insurance on grounds of a preexisting condition or employers who refuse to hire workers with a known propensity for illness.

Beyond the problems posed by diagnosis and prediction in genetics are those of intervention: Is gene therapy intrinsically different from traditional medical therapy? Even if gene therapy by means of manipulating somatic cells poses no special problem, what about altering germline cells, a procedure that would affect future generations? If genetic manipulation to correct defects is ethically permissible, what, if anything, would be wrong with alterations intended to provide genetic enhancement? Are efforts to improve human intelligence, appearance, or other attributes by genetic means essentially different from the traditional methods of education, physical or mental training, or behavior modification (President's Commission for the Study of Ethical Problems 1982)?

Attempts to improve the quality of the human gene pool, or "positive eugenics," have generally been viewed with disfavor, especially after the policies in Nazi Germany promoting racial hygiene (Proctor 1988). Yet eugenic practices remain at the level of individual choice. The recipients of donated sperm are typically given information about physical and other personal characteristics of donors, allowing them to choose sperm from a donor whose traits they hope to replicate in the child. The prospect of genetic enhancement using the techniques of recombinant DNA manipulation can allow for more precision and wider applications than older approaches such as selective sperm banking.

Knowledge that one carries a gene for a heritable disease can pose a profound dilemma for the individual. An early form of this dilemma arose when carrier screening was the only way to determine whether a couple would pass on a genetic disease to their offspring. A couple then had to decide whether to take the chance that a child would be born with the heritable condition. With the advent of various forms of prenatal diagnosis (amniocentesis, chorionic villus sampling, blood tests), the presence of some genetic diseases in a fetus can be detected. The ethical question in such cases is whether to abort an afflicted fetus. In the case of both carrier screening and prenatal diagnosis, trained genetics counselors have uni-

formly taken a nondirective approach. The norm in genetics counseling has generally been to provide unbiased information to enable individuals or couples to make an informed decision whether to initiate a pregnancy or to abort a fetus found to have a genetic disease (Lappe 1971, President's Commission for the Study of Ethical Problems 1983).

As the science of genetics yields an increasing amount of information, individuals are faced with making decisions about prophylactic medical interventions. For example, a woman who learns that she carries a gene for an inherited form of breast cancer may contemplate bilateral mastectomy before any clinical signs appear. The epistemological problem posed by such scenarios is a familiar philosophical one: decision making under risk and uncertainty. If the woman decides to undergo a major, disfiguring operation, she does so with the knowledge that she might escape the disease entirely. But if she forgoes the preventive step, she runs the risk of developing a dread disease that may be curable if detected early but that also has a high mortality rate.

The knowledge by individuals or couples that they are at risk for transmitting a genetic disease to offspring is one indication for embarking on the use of reproductive technologies. The couple may elect to use donated sperm or ova. A far more common indication for the use of reproductive technologies, however, is infertility or subfertility on the part of one or both members of a couple. Methods include in vitro fertilization (IVF)—fertilizing a human ovum outside the womb—the use of sperm or ova contributed by third parties or the womb of a woman not intended to be the rearing parent (surrogacy); cryopreservation (freezing) of fertilized ova, which are termed *preembryos*; and embryo splitting.

Frequently discussed ethical issues include concerns about destruction of the traditional family when third parties are used as gamete donors or surrogates (Macklin 1991); worries about the effect on children who learn that they were born as a result of these techniques; and the opposite worry about harmful effects of struggling to maintain family secrets. Prior to the first IVF birth in 1978, fears were expressed that IVF would produce a higher than normal incidence of birth defects, but scientific evidence gathered over the years has shown this concern to be unwarranted. The objection that being created with the aid of gametes from a third party can harm the interests of children is countered by the metaphysical observation that these are children who would never have existed but for the use of these techniques.

Different religions are opposed to the use of some or all of these reproductive technologies. The Roman Catholic Church has urged prohibition of virtually all forms of assisted reproduction (Congregation for the Doctrine of the Faith 1987). The church's opposition is based on the fact that these techniques separate the procreative and unitive functions of marriage. Some authorities in Orthodox Judaism allow insemination from non-Jewish sperm donors but prohibit donation from Jews, in order to prevent consanguinity; others oppose all third-party donations out of fear of consanguinity and also by analogy with adultery. Islamic law prohibits the use of sperm or eggs from anyone other than the married couple on grounds that the results are similar to adultery (Serour 1992). Since the identity of gamete donors is normally kept confidential, a secular concern is that a brother and sister may unwittingly mate or marry, unaware that they have a genetic parent in common.

Possibly the most intriguing philosophical issues posed by reproductive technologies are those that arise from the newfound ability to separate the genetic from the gestational procreative functions. IVF permits an ovum from one woman to be fertilized and the resulting embryo implanted in a different woman. This creates the entirely novel situation of two different "mothers": the genetic mother, who supplies the egg; and the gestational mother, who undergoes pregnancy and childbirth. Apart from the emotional or other psychological consequences that may result from such arrangements, the separation of the woman's procreative role into two distinct biological functions requires a conceptual decision of whether the individual who performs each function properly deserves the appellation "mother" (Macklin 1991).

A variation on this conceptual theme stems from research that demonstrates the capability of transplanting ovaries from an aborted fetus into an adult woman who lacks ovaries of her own. The woman into whom the ovaries are transplanted is a mother in the traditional sense of one who is pregnant and gives birth to the child. Is it appropriate to construe the aborted fetus as the "genetic mother"? The conceptual oddity of this construal suggests that "mother" is a concept laden with connotations that do not permit its expansion to include aborted fetuses. Although the aborted fetus is without question the source of the genetic material from which the new life was created, it is semantically odd to conclude that the aborted fetus is the genetic mother.

A persistent quandary relates to the status of extracorporeal embryos. The product of IVF is termed a *preembryo,* partly because of its early developmental stage but also because it is unimplanted. The ability to freeze embryos indefinitely and thaw them for use later poses both conceptual and ethical questions. When disputes arise concerning the ownership of embryos, should the embryos be construed as "people" or as "property" (Annas 1989, Robertson 1990)? Should anyone other than the couple who contributed the gametes have the authority to destroy frozen embryos? If it is permissible to destroy embryos that are not intended for implantation, is it permissible to do experiments on the embryos? Controversy exists over the splitting of embryos, a technique sometimes called cloning (Robertson 1994). One objection holds that such deliberate duplication destroys genetic individuality and thus devalues the uniqueness of each individual.

Genetics and reproductive technologies pose new philosophical questions about the scope and limits of such familiar concepts as disease, individuality, parent, mother, and the family. The importance accorded to human reproduction and lineage throughout history is a reminder that such questions are not merely abstract concerns of philosophers but deeply rooted in the lives of individuals and communities.

See also Abortion; Bioethics; Distant Peoples and Future Generations; Evolutionary Theory; Human Genome Project; Informed Consent.

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Ruth Macklin (1996)

GENETICS AND REPRODUCTIVE TECHNOLOGIES [ADDENDUM]

Philosophical scholarship on genetics and reproductive technologies typically follows the development of these scientific fields closely, providing critical analysis of the major assumptions and implications of their emerging claims, often in advance of their realization. This addendum reviews three discussions that have become particularly prominent in the literature since Ruth Macklin's original entry appeared in 1996: debates over the design and interpretation of human genetic variation research, the prospect of human reproductive cloning, and the potential limits of human genetic modification.

HUMAN GENETIC VARIATION RESEARCH

The principal outcome of the Human Genome Project was a set of research tools for human genetic variation research. With improved genomic maps and DNA sequencing technologies, geneticists have been able to launch a new generation of projects comparing human genomes to better understand our similarities, differences, and patterns of relationship at the molecular level. These comparisons are critical to the development of successful medical applications of genomic research, as well as to the interests of anthropologists and paleontologists interested in the evolution, differentiation, and global migrations of our species (Risch et. al. 2002). On the other hand, these comparisons also raise two sets of important philosophical issues:

First, how should scientists define and identify the relevant comparison groups within our species? The initial attempt to use genomic tools in a large scale study of human variation, the so-called Human Genome Diversity Project, followed the accepted practice of physical anthropologists and epidemiologists of describing its target groups in ethnic, linguistic, and geographical terms, and was called to task by both biologists and social scientists for using socially constructed categories that would obfuscate rather than illuminate underlying patterns of gene flow within our species (Gannet 2001, Reardon 2005). Rather than reifying various human political histories by looking for "ethnic-affiliation markers" in human DNA, some suggested a random global sampling strategy blinded to social identifiers (National Research Council 1998). The U.S. National Institutes of Health followed this approach in developing a major genetic variation research resource—a databank of known single nucleotide variants in human DNA—and was in turn called to task by public health and pharmacogenomic researchers for omitting "phenotypic data" about the distribution of the DNA variants across different populations (Altshuler and Clark 2005).

As a result, the subsequent international effort to a variation-measuring "haplotype map" of the human genome intentionally collected samples from groups defined by their "continents of origin" (International Hapmap Consortium 2003). Critics charge that this strategy returns population genomics to a set of outmoded racial categories that human scientists of all stripes have repudiated as biomedically meaningless and socially pernicious (Duster 2005). Claims that, nevertheless, research framed in this way has identified patterns of genetic variation that cluster along racial lines, and that these variations may be the key to "population specific" public health interventions or even "race-based medicine," have only lent fuel to this conceptual debate.

The second issue follows from the first. Assuming that, for the foreseeable future, the definition of comparison groups in population genomics will be informed by socially constructed criteria at some level of resolution (either familial, tribal, ethnic, racial, or regional), how should the interests of group members be protected? Outside of groups with clear political sovereignty, like Native American nations, most targets of genetic analysis have ambiguous moral standing. Is it ethically important for scientists to attempt to discuss their plans with groups at the collective level before recruiting individual group members into genetic variation studies? Some argue strongly that a principle of "respect for community" needs to supplement our traditionally individualistic principles of research ethics in these contexts, if only

because individuals gain so much of their identity through their community memberships and their genetic lineages (Weijer 1999). Others argue that, at least for genetic studies, extensive efforts at community engagement are disingenuous and guaranteed to fail, given the mismatch between genetic populations and the politically defined communities available for consultation (Juengst 1998).

HUMAN REPRODUCTIVE CLONING

Philosophical questions about the nature of human identity have been raised from quite another angle, meanwhile, by the successful cloning of a sheep in 1997 (McGee 2000). In that case, the nucleus of a mammary gland cell from an adult ewe was transplanted into an enucleated egg, and, after 280 attempts, coaxed into developing into a genomic twin of the gland cell's donor. If the technique that produced Dolly, the ewe, could be used effectively with humans, it would open up the prospect of adding reproductive cloning to the repertoire of techniques available to those seeking to procreative assistance. This prospect has prompted questions about the personal identity and moral status of the resulting "delayed twin," but these seem easily answered by our experience with natural twins who also have identical genomes: Clearly, the cloned individual would be a distinct person with full moral standing, due full protection against exploitation or abuse by his or her progenitors.

However, anticipating parental expectations for cloned offspring raises more difficult questions. How similar might the cloned offspring be to the progenitor, and what impact should the foreknowledge (or assumption) of such similarities have on the rearing of the offspring? Should progenitors of clones assume special responsibilities to anticipate the health and behavioral challenges their delayed twins may face, or do they, instead, acquire unusual obligations to refrain as much as possible from prejudicing the life experience of their offspring? These questions are animating new work on the nature and ethics of parenting, procreative liberty, and the limits of genetic determinism. They have also given new energy to "natural law" arguments against reproductive technologies in general, by providing a case in which the slippery technological slope seems to lead us to a form of reproduction—asexual reproduction—that contradicts an element of human nature that has been fundamental to our species' identity to date (Lauritzen 2001).

Behind all of these concerns looms a follow-up question that links this discussion to back to the role of genetic lineage in human identity. Given the psychologi-

cal complexities of cloning and their potential impact on the offspring, is the value of sheer genetic continuity important enough to ever warrant the inclusion of this option on the menus of fertility medicine? Some argue that prospective parents who feel the need for genetic connections with their offspring simply mistakenly essentialistic, and should be re-educated accordingly (Post 1997). Others, however, suggest that the interest in extending the limits of procreative liberty to defend technologies like cloning reflects something important about the role of lineage in human identity which philosophy has yet to fully unravel (Roberts 1995).

HUMAN GENETIC MODIFICATION

The philosophical status of intergenerational genetic connections also lies at the heart of a new generation of attempts to define the appropriate limits of human genetic modification. The provisional boundaries of such a practice were established in the 1980s to provide a window for human gene therapy research. On one axis, a line was drawn between using genetic interventions to treat disease, and using it to attempt to "enhance" human traits to achieve nonmedical goals. On the other genetic interventions that only affected somatic cells were distinguished from those that might lead to intergenerational transmission of modifications, through the "germ-line." Both distinctions have come under recent philosophical critique. The line between treatment and enhancement appears difficult to maintain as a conceptual matter and its moral implications diverge significantly between its personal, parental, professional and public policy applications (Parens 1998). Meanwhile, it begins to appear that the price to pay for successful somatic cell gene therapy will be the development of tools for safe and effective germ-line interventions, and in that light the arguments in favor of abandoning that boundary in the service of medicine are gaining strength (Chapman and Frankel 2003).

Animating these debates is another argument over the importance of our genetic inheritance. Those who strive to preserve the "common genetic heritage of humankind" and protect the rights of future generations to "inherit an untampered genome" argue that our genetic inheritance forms the limits of our "species integrity", the violation of which risks literally de-humanizing ourselves and our offspring (Annas, Andrews, Isasi 2002; Fukuyama 2002). On this view, the contours of human nature, and thus the foundations of human moral status, are defined by the pool of genes—and their variants—that humans have collected over the course of our

evolution, and any manipulation of that legacy risks distorting or corrupting the human identity of our offspring.

This view is difficult to reconcile with what population genetics, developmental biology and gene transfer research itself teach us about the fluidity of the human genome and its relatively remote role in the human traits we prize most (Robert and Baylis 2003, DeGrazia 2005). Like the interest in race-based genomic medicine and concerns about the moral status of clones, it accepts a level of genetic essentialism that seems more indebted to Aristotle than to James Watson and Francis Crick. Nevertheless, all these views enjoy wide acceptance in both academic and public circles, which is intriguing. Perhaps this convergence signals the next challenge that genetics offers philosophy: to help clarify the role of genetic histories—the genes we inherit, the lineages we belong to, the peoples we spring from—in our identities as human beings and our experience of the human condition. If philosophical anthropology examines what it means to be a human individual, what genetics seems to call for now is a *philosophical genealogy*: the study of what it means to be a human descendant (Juengst 2004).

See also Aristotle; Distant Peoples and Future Generations; Human Genome Project; Medical Ethics; Natural Law.

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Eric Juengst (2005)

GENOVESI, ANTONIO
(1713–1769)

The Italian philosopher and economist Antonio Genovesi (the name was originally Genovese), was born in Castiglione, Salerno. After studying literature and rhetoric and then philosophy, he attended the lectures of the aged Giambattista Vico. In 1741 he began to teach metaphysics at the University of Naples as extraordinary professor. In 1743 he published the first volume of his *Elementa Metaphysicae Mathematicum in Modum Adornata* (5 vols., Naples, 1743–1745), for which he was accused of rationalism and atheism. In 1745 he began to teach ethics. In that year he published his *Elementa Artis Logico-criticae* and an important historical introduction to the Neapolitan edition of Pieter van Musschenbroek's *Elementa Physicae*. In the same year his *Universae Christianae Theologiae Elementa* was accused of heterodoxy; it was not published until after his death (Venice, 1771). Discouraged, Genovesi turned to other, less philosophical studies. He was offered the new chair of civil economy

(economics), the first in Europe, by the University of Naples and began his lectures in 1754 (*Delle lezioni di commercio ossia di economia civile,* Naples, 1765–1767). The problems of practical philosophy which occupied his final years are discussed in *Diceosina o sia filosofia del giusto e dell'onesto* (2 vols., Naples, 1766–1777).

In Genovesi's judgment, modern philosophy began when Francis Bacon and Galileo Galilei freed Europe from abstract and sterile inquiry. "Dialectics and metaphysics," he proclaimed, "are the Don Quixote of the Republic of Letters." According to him, it is impossible to know true reality, substance, that which "underlies" the phenomena that we can observe. (He asked, "Who lifts the skirt of nature to see that which ὑπάρχει [underlies]?") Although his thought had some similarities to George Berkeley's idealism and Gottfried Wilhelm Leibniz's monadism, as time went on his interest turned from logic and metaphysics and was oriented toward the moral disciplines, particularly toward economics, which he considered as affecting "our present comfort and tranquility." He sought to determine in a rational system "the primary, simple, and universal laws" of economics. He arranged in a similar framework the *Discorso sopra il vero fine delle lettere e delle scienze* (Naples, 1753), in which he argued against all inquiries "that remain exclusively in the shadow of the school, and never transgress into the acquisition of something useful for mankind."

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Eugenio Garin (1967)
Bibliography updated by Tamra Frei (2005)

GENTILE, GIOVANNI
(1875–1944)

Giovanni Gentile was one of the major figures in the resurgence of Hegelian idealism in Italy at the beginning of the twentieth century. His "actual idealism," or "actualism," represents the subjective extreme of the idealist tradition in that the present activity of reflective awareness (*l'atto del pensiero, pensiero pensante*) is regarded as the absolute foundation on which all else depends. The act of thinking is the "pure act" that creates the world of human experience.

LIFE AND WORKS

Gentile was born on May 30, 1875, at Castelvetrano in Sicily. He began his university education as a student of Italian literature under Alessandro d'Ancona at Pisa in 1893, but was quickly drawn into the study of philosophy by Donato Jaja, a pupil of the Neapolitan Hegelian, Bertrando Spaventa. Of the two main threads that run through all of Gentile's work, one—his concern with the theory and practice of education—is rooted directly in his own temperament and his strongly felt vocation as a teacher; but the other—his almost chauvinistic interest in the Italian philosophical tradition and its relation to the general European tradition—reflects the lifelong influence of Spaventa on his mind. His degree thesis, *Rosmini e Gioberti* (Pisa, 1898), in which he emphasized points of contact and agreement between the native Catholic thinkers and the German Idealists, was meant to illustrate Spaventa's thesis regarding "the circulation of European philosophy."

His second book was a critical examination of Karl Marx (*La filosofia di Marx,* Pisa, 1899) from an orthodox Hegelian standpoint. While writing it, Gentile became acquainted with Benedetto Croce, who was similarly occupied at the time. Thus began a friendly alliance that lasted more than twenty years. Gentile was the younger by nine years, but it seems clear that in these early formative years it was he who influenced the development of Croce's philosophy rather than vice versa, as most of their contemporaries assumed. Gentile was always more of a Hegelian than Croce ever became, and was more exclusively interested in the traditional problems of philosophy.

In 1900 Gentile wrote his important essay "The Concept of Education" ("Il concetto scientifico della pedagogia") and began his long campaign for the reform of the Italian school system. He became *Privatdocent* at Naples in 1903 and professor of the history of philosophy at Palermo in 1906. But the "reform of the Hegelian dialectic" and the "method of immanence" that led to actual idealism (in a paper of 1912) were worked out amid controversies with Modernists and polemics for religious instruction in elementary schools; and Gentile's philosophy was first fully expounded in the two-volume work *Sommario di pedagogia come scienza filosofica* (Summary of Educational Theory; 2 vols., Bari, 1913–1914).

In 1914 Gentile succeeded to Jaja's chair at Pisa, where he wrote the one book through which he is internationally known, *Teoria generale della spirito come atto puro* (The General Theory of the Spirit as Pure Act; Pisa, 1916). In 1917 he moved to the University of Rome; and the first volume of his *Sistema di logica come teoria del conoscere* (System of Logic as Theory of Knowing; Pisa, 1917), the most systematic statement of his view, appeared. The second volume followed at Bari in 1923.

In 1922 Gentile became minister of education in Benito Mussolini's first Cabinet, and in this capacity he reformed and reorganized the whole Italian school system. After his resignation in 1924 he became the first president of the National Fascist Institute of Culture; he remained for the rest of his life the most prominent publicist of the regime and the self-styled "philosopher of fascism." Gentile continued until his death to lecture at Rome, but in the fascist period his only important philosophical work was the *Filosofia dell'arte* (Milan, 1931). He was directing editor of the *Enciclopedia italiana* from its inception in 1925 to its completion in 1937. After the fall of Mussolini in 1943, Gentile went into retirement and wrote a short but important book on the genesis and structure of society that was published only after his death (*Genesi e struttura della società,* Florence, 1946). Subsequently persuaded to return to public life as a supporter of the Fascist Social Republic set up by the Germans, Gentile was assassinated by Italian communist partisans at Florence on April 15, 1944.

CONCEPTION OF PHILOSOPHY

Gentile justifies his "theory of the spirit as pure act" in two ways. First, he strives to show that it is the logical outcome of the whole movement of Western philosophical thought since René Descartes; and, second, that the "method of pure immanence," when we arrive at it, pro-

vides an adequate and coherent way of explicating our actual experience. It is impossible to give more than the briefest indication of the line of his historical argument, although it bulks very large in most of his systematic works.

In any case, the significance of his theory emerges more clearly through an examination of his analysis of actual experience. The claim that actual idealism is the logical outcome of the main tradition of modern philosophy is interesting chiefly because it throws light on Gentile's conception of the essential problem of philosophy and the conditions for its solution. Philosophy for him, as for Johann Gottlieb Fichte, was *Wissenschaftslehre,* the science of knowledge, the science that, without presupposing anything itself, provides an a priori ground for the presuppositions actually made in other sciences. Descartes's method of universal doubt can quite naturally be viewed as the first approach to this problem, and George Berkeley's doctrine that *esse est percipi* is a vital step toward its solution. However, the genesis of actual idealism begins with Immanuel Kant; and although Gentile arrived at his view through the progressive elaboration of a "reform of the Hegelian dialectic" that had been initiated by Spaventa, he remains fundamentally a Kantian in his determination to confine philosophical speculation to the task of exhibiting the logical structure of actual experience. He is at one with Kant and Fichte in his resolute rejection of any "dogmatic metaphysics" that posits or presupposes a reality transcending actual consciousness.

THEORY OF SELF-CONSTITUTION

There is a temptation to say at once that it is a mistake to conceive of the task of philosophy in this way, as the exhibition of the logical structure of actual experience, and that the ideal of a "philosophy without presuppositions" is a chimera. The most primitive postulate of ordinary common sense is that a physical world exists prior to and independent of our consciousness of it. However, Gentile's theory is not meant to be taken as a denial of this assumption, but as a thesis about logical priority. The temporal preexistence of the object of awareness is itself something that we take ourselves to be aware of, and in this sense the commonsense assumption is a product of our attempt to organize our experience in thought. Actual idealism must properly be judged as a theory about this process of rational organization or "concrete logic."

The most primitive level of the process for which we have ordinary words is sensation. We normally distin-

guish the objective cause of a sensation from the subjective feeling (pleasant or unpleasant) that it arouses in us. According to Gentile, this is a mistake. The sensation as a whole is our act of self-awareness, and the pleasure or pain is an aspect of this whole, not a reaction of the self to an object. He agrees emphatically that there cannot be any actual consciousness without the distinction of the subject of the awareness from the object of which it is aware. But he holds that since what has to be understood is the integral unity of the self, it is a mistake to look for the cause of experience within the content of experience. At the ideal limit, pure sensation can be thought of as an encounter with something absolutely other than the self; but it can also be thought of as a spontaneous activity of self-affirmation. Gentile does in fact employ "sensation" in both ways. Spontaneous self-affirmation is in his view the ideal aim of the artist, and loss of self in the contemplation of an absolute object is the typical concern of religious experience. But actual experience is always a synthesis, so that pure art and pure religion are nowhere to be found; and the actual understanding of any type of artistic or religious experience will involve restoring the suppressed aspects of the synthesis, that is to say, discovering the philosophy behind it.

Actual sensation is a process of self-constitution (*autoctisi*) in which the subject preserves its own past and relates it to present sensation. Language is abstractly the instrument and concretely the form through which this is done. It is neither the clothing nor the vehicle, but the embodiment of our thought. But we are able to think of it abstractly, as an inheritance shared by all who are able to use it, because the thought embodied in it has universal import. Thus the self that comes to consciousness when we express our thoughts in language is a spiritual universe, a system of meanings in which all other thinking beings can share. This is the absolute subject of experience, the transcendental Ego whose being (like the God of Aristotle and St. Thomas Aquinas) is "pure act." The abstract form that Kant called the "transcendental unity of apperception" is given concrete existence, or brought to life, so to speak, in Gentile's conception of the "pure act" of "self-founding." My reflective awareness is on the one hand exactly what is essential to my existence as an independent personality; but on the other hand, so far as I achieve reflective awareness, I enter the world of thought in which nothing belongs, or can belong, to me personally. When I claim to think something, I must be able to communicate my thought; I must be able to show others the path by which I arrived at it so that, insofar as they can follow in my footsteps, they can share it. Reflective awareness is already communication, for my own thought is a dialogue within myself. The obvious fact that humans are social animals and that the peculiarly human institution of language is a collaborative production has its absolute or philosophical ground in the fact that the founding of the self is the founding of a transcendental society.

When we understand the fundamental concept of self-constitution in this way, Gentile's thesis about the unity of thought and action, which was the chief bone of contention between him and Croce, falls naturally into place and is easily understood. There appears to be a contrast between thought and action because in cognitive thinking we presuppose the reality we are concerned about, whereas our action is directed toward the creation of some object. However, all thinking and acting is in reality part of the same activity of self-conquest in which nothing is absolutely presupposed theoretically, and some things must be accepted (or presupposed) practically, if there is to be a line between the self and the not-self, the conquering subject and the nature or world that is to be conquered: "the spiritual act is never a self-creation that must be contemplated and watched over afterward; it is always simultaneously a self-creation that is self-awareness and vice versa" (*Opere* I, 84). The establishment of truth is the self-establishment of the transcendental Ego; and the establishment of the Ego is the establishment of an ideal community that Gentile, like G. W. F. Hegel, calls "the State."

The State is on the one side that complex of social institutions, cultural traditions, and ethical values that appears to the individual as the actual fabric of his own moral personality; on the other side it is all the ideals that have still to be striven for and achieved in the actual world in which he lives. Gentile often insists on this latter Mazzinian side of his doctrine, but in practice he tended to subordinate it to his conservative Hegelian faith in the rationality of the actual social structure. In his fascist apologias it often seems as if whatever is done in the name of the existing State must be patiently, even joyfully, accepted and endured as a condition for any further advance—an attitude that is more reminiscent of Thomas Hobbes than of Giuseppe Mazzini. There can be no question that this attitude is false to the spirit of his doctrine.

GENTILE'S LOGIC AND THE FORMS OF VALUE

The unity of theory and practice means that in Gentile's work "logic"—the concrete logic of the self-concept—becomes inseparable if not indistinguishable from ethics,

and philosophy itself is seen as the critical self-awareness of actual political life. His major theoretical problem was to show how the nonpolitical values of human experience could be integrated into his view. This problem came to Gentile in the form that Hegel gave it when he made art and religion the moments of the final triad of the Absolute Idea, subordinate only to philosophy itself. Gentile solved it by regarding art and religion as the moments of his own Absolute, the act of thought. Thus art and religion, instead of being ultimate, become primitive; they are the essential moments of all experience. They have their joint origin, as has been shown, in the opposite aspects of the sensation or "self-feeling" in which consciousness originates. As distinct modes of experience they are attempts to achieve the impossible by aesthetically recapturing or mystically losing oneself in that ideal point of origin.

Thus the seeming independence of aesthetic and religious values arises from the one-sided consciousness of the artist or worshiper. In reality the self-willed artist is dedicated to the production of an object of universal value and significance; art is not just the release of feeling, but the disciplined expression of it. And the proclaiming of the glory of God or the doing of his will is the work of a human voice or the task of a human hand. The "private" world of the artist and the "other" world of the believer get their meaning and fulfill their function in the actual society of the transcendental Ego. When we view the artist's work, we must strive to comprehend the ideal to which he has devoted his skill; and when we seek to interpret a religious doctrine, we must express its meaning for humanity and in terms of our own actual lives. It thus becomes the task of the critic to interpret the work of art or the religious doctrine philosophically. Gentile wrote a number of books and essays—mainly but not exclusively about literary artists—in which he endeavored to do just this; and on the religious side he maintained that his "humanistic conception of the world" was a philosophical expression of the Christian revelation.

In the concrete logic of the act of thought, the moment of spontaneous self-expression is prior to the consciousness of the object, which necessarily appears as a limit upon the self. Hence, in the progressive development of consciousness, which is the subject of Gentile's philosophy of education, an aesthetic phase of free, spontaneous play is succeeded by a religious phase that it is the main task of the elementary school to establish and govern. On this basis a properly philosophical conception of the world, a sense of the autonomous moral responsibil-

ity of the self-conscious citizen, should then be built up in secondary education.

ABSTRACT LOGIC. It should by now be clear that actual idealism can be interpreted as primarily a theory about the logical structure of our experience of values. But this theory does contain within it a theory about the ordinary logic of factual propositions. Formal logic, whether mathematical or conceptual, is the logic of presupposition, the logic of "nature," the abstract logic of any object that any actual concrete consciousness may assume as its content. Gentile thought of this *logo astratto* as being essentially static and unchanging. Benedict de Spinoza's system was for him the perfect philosophical expression and reductio ad absurdum of it; and his own conception of natural science was strictly Kantian. "Nature" was for him an a priori concept with a fixed logical structure, not an idea that evolves in the dialectic of actual research. But this is only a reflection of his own personal background and interests. The "idea of nature" has a history, and a full development of the theory of mind as pure act would seem to require that the history of science be incorporated as an essential aspect or complement of the history of theoretical philosophy.

Gentile's own use of the category of the *logo astratto* in the sphere of practical philosophy was quite fluid and dialectical. In ethics, for example, it appears as the nature that we must conquer and subdue, but it appears also as the abstract law to which we must submit. When we remember that the transcendental Ego itself, the *logo concreto,* is both the organic unity of all prior achievement and the ideal of a perfect harmony still to be achieved, this becomes quite easy to understand. The concrete self-concept has its abstract content under each aspect—there is sinful nature and there is the law in virtue of which we are aware of it as sinful; the act of self-constitution is the resolution of the conflict that produced the two opposed abstractions.

NEGATIVE VALUES. Finally, Gentile holds that error, pain, and sin are in some sense "unreal." This doctrine follows logically from the fact that they belong to the category of the *logo astratto.* They are things that we are conscious of, and they have already been overcome or surpassed in the very consciousness of them. It is quite easy to exhibit, as a mere matter of logic, how "truth" is the concrete category of which "error" is only the abstract content. For to be actually aware that some proposition is or may be an error is to hold that a proposition about that proposition is true—namely, the proposition that it is or may be an error.

In the case of sin, something more than a logical relationship of propositions is involved. If I say, "I am a sinner," I am setting myself up as a supposedly just judge of my own conduct; but I do not thereby cease to be a sinner. Rather, the question is posed of how a single self is to be constituted out of this divided consciousness. This is the key to the only defensible interpretation of Gentile's doctrine, which then asserts that when I truly say, "I am a sinner," I must be on the road to redemption and that the test of whether I do actually think I am a sinner is my consciousness of repentance.

Gentile's view that "pleasure" is the concrete and "pain" or "grief" the abstract category is more difficult to interpret. If I am conscious of being in pain, I have certainly "overcome" the pain; that is, isolated it and objectified it as a fact. But to argue that because of this it is not really I who am in pain is sheer sophistry. It is certainly true that the consciousness of pain is a complex activity (including, for example, the active seeking of a remedy or a distraction), while the pain in itself is an abstract element. But pain is "unreal" only in the sense in which art and religion are unreal. That is to say, there cannot be a pure pain-consciousness, for this is just the point at which consciousness disappears.

GENTILE'S INFLUENCE

Actual Idealism was the dominant philosophy in Italian state schools and universities throughout the last twenty years of Gentile's life. In this period his students, like Hegel's, split into two main parties. There was first the "right," led by Armando Carlini, who emphasized the Christian origin and Augustinian character of much of Gentile's thought, and identified the transcendental Ego with the God of Catholic theology. After Gentile's death this group joined with the religious existentialists to form the contemporary movement known as Christian Spiritualism.

On the other side, a group of younger disciples, led by Ugo Spirito, formed the Gentilian "left," which from the first devoted itself to social problems and provided much of the economic and political theory of the fascist corporate state. Since World War II this group has been aligned with the political left and has shown some affinities with orthodox Marxism. But in the current work of both groups it is the mystical spirit of Gentile's philosophy rather than the logical structure that has survived. Outside of Italy, Gentile's influence can be seen most notably in the work of R. G. Collingwood.

See also Absolute, The; Berkeley, George; Collingwood, Robin George; Croce, Benedetto; Descartes, René; Fichte, Johann Gottlieb; Hegel, Georg Wilhelm Friedrich; Hegelianism; Hobbes, Thomas; Idealism; Kant, Immanuel; Marx, Karl; Marxist Philosophy; Philosophy of Education, Ethical and Political Issues in; Philosophy of Education, History of; Spaventa, Bertrando; Spinoza, Benedict (Baruch) de; Spirito, Ugo; Thinking; Thomas Aquinas, St.

Bibliography

The Gentile Foundation was established in Rome in 1947, with the *Giornale critico della filosofia italiana* (founded by Gentile in 1920) as its official organ. The foundation is issuing the definitive edition of Gentile's *Complete Works* in 55 volumes. Three of his books have been translated into English: *The Theory of Mind as Pure Act* (London: Macmillan, 1922); *The Reform of Education,* lectures to the schoolteachers of Trieste (New York: Harcourt Brace, 1922); and *Genesis and Structure of Society* (Urbana: University of Illinois Press, 1960). This last includes a complete bibliography and critical survey of everything by or about Gentile in English.

For critical studies of Gentile, see the following: H. S. Harris, *The Social Philosophy of Giovanni Gentile* (Urbana: University of Illinois Press, 1960) surveys the whole range of Gentile's practical philosophy, including his "philosophy of fascism," which has been largely ignored above. R. W. Holmes, *The Idealism of Giovanni Gentile* (New York: Macmillan, 1937) is a detailed and critical study of the *System of Logic* and a work of fundamental importance. P. Romanell, *The Philosophy of Giovanni Gentile* (New York: S.F. Vanni, 1938) provides a general survey.

H. S. Harris (1967)

GEOMETRY

Until 1800, mathematics was divided into two great branches: *geometry* and *arithmetic.* Both were commonly regarded as the more obviously secure repositories of human knowledge. At this stage, geometry could be suitably defined as "the science which investigates the properties and relations of magnitudes in space, as lines, surfaces, and solids" (*Oxford English Dictionary*). However, with the enormous enrichment of mathematics in the nineteenth century, the scope of geometry was greatly expanded and diversified, its content disrupted, and its epistemic standing called into question.

The word "geometry" comes from a Greek word that literally means measurement of the earth and was originally applied to the art of land surveying. But around 500 BCE or even earlier, the spatial properties and relations

that had been codified by land surveyors in Mesopotamia and Egypt became in Greece the starting-point of inquiries of a more abstract sort that soon took leave of their down-to-earth origins. In this guise, geometry appeared to Plato as a testimony of the other-worldly origin of the human soul (*Meno*) and was included by him as a compulsory item in the curriculum for would-be philosopher-kings (*Republic*, VII, 526c–528d). For more than twenty centuries, philosophers regarded the geometry created by Greek mathematicians from Eudoxus, through Euclid, to Archimedes and Apollonius as the standard of indubitable truth and cogent reasoning. As a result of later developments, geometry, with the rest of mathematics, came to be seen as a capital example of the loss of certainty that currently pervades most areas of civilized life (Kline 1980). In more than one sense, this enhances, rather than diminishes its philosophical significance.

This entry is divided into three sections. The first section touches on some philosophically noteworthy aspects of ancient geometry. The second section deals briefly with geometry and philosophy from 1600 to 1800. And the third section describes those episodes in the history of geometry since 1800 that had the greatest impact on twentieth-century philosophy.

TOPICS IN ANCIENT GEOMETRY

GEOMETRY IN THE MIDDLE EAST. According to Herodotus (2.109), the Greeks learned land surveying (*geōmētriē*) from the Egyptians, who used it to reassess taxes on properties partially washed away by the Nile. It appears that this art was first cultivated in the Middle East to cope with the consequences of floods in southern Mesopotamia. Archaeological evidence from both regions displays applications of the so-called theorem of Pythagoras, and a clay tablet now at Yale University (YBC 7289) gives the length of the diagonal of a unit square as 1.41421296, the same approximation to $\sqrt{2}$ that Ptolemy used some 2,000 years later. The Old Babylonian scribe who calculated it probably knew that he could improve on this figure, but it is highly unlikely that he suspected that no algorithm could ever yield a perfectly accurate one. No extant document from ancient Egypt or Mesopotamia contains the general statement of a geometric theorem or anything that even remotely resembles a geometric proof.

PYTHAGOREANS AND IRRATIONALS. Thales of Miletus, "the first to philosophize," supposedly was also the first to prove a geometric theorem (namely, that a trian-

gle with two equal sides also has two equal angles). The earliest proofs probably consisted of diagrams that plainly displayed the relations they were meant to prove (see Plato, *Meno*, 80d–86c). But Greek geometers soon produced purely discursive proofs (like the one given later in this paragraph). The Pythagoreans, intellectually and politically active in southern Italy throughout the fifth century BCE, worked intensely on mathematical problems, as they thought that numbers (i.e., the positive integers) are the principles of everything. This suggestive belief was supported by their discovery that musical chords are associated with simple numerical proportions. It broke down, however, when a member of the school, possibly Hippasus of Metapontum, showed that there are geometric magnitudes of the same kind whose relative sizes cannot be conveyed by numbers. Presumably, this was first demonstrated for the diagonal and the side of the regular pentagon; but it is proved more easily for the diagonal and the side of a square by the following argument transmitted in an appendix to Euclid's *Elements*.

Take the side of the square as the unit of length. Then, by Pythagoras's theorem, the length of the diagonal equals $\sqrt{2}$. But there are no two integers a and b such that $(a/b)^2 = 2$. For suppose there are. Then, by simplification of the fraction a/b we should find two integers p and q, with no common divisor, such that $(p/q)^2 = 2$. Then $p^2 = 2q^2$ and p is an even number, equal to $2n$, say. (For the square of an odd number, say $2n + 1$, is always odd, that is, $4n^2 + 4n + 1$). But then $2q^2 = p^2 = 4n^2$, and $q^2 = 2n^2$, so that q is also even. But this is impossible, for we assumed that p and q do not have a common divisor. Therefore, one cannot find two integers a and b, no matter how large, such that the diagonal of a square exactly equals $a \times 1/b$ of its side. Awareness of the existence of incommensurable lengths cut short dreams of grasping nature through numbers and opened a chasm between arithmetic and geometry.

EUDOXUS'S THEORY OF PROPORTIONS. Eudoxus of Cnidos (c. 390–c. 337 BCE) invented a method for representing the visible motion of each planet in the sky (including Sun and Moon) as the resultant of the combined uniform rotations of several geocentric spheres. Eudoxus's planetary models are the earliest extant example of geometrical representation of natural processes for the sake of predicting their future evolution. Their moderate predictive success may have motivated Plato's change of mind from his early view that real planetary motions are essentially irregular and unpredictable (*Republic* VII, 529d7–530b4) to his later commendation of mathematical astronomy as an efficient servant of

theology (*Laws* VII, 822a4–c5; X, 897c4–9; XII, 966d6–967d2) and his endorsement of Eudoxus's program as the proper way of "saving the phenomena" of the sky (Simplicius, 7.492.30–35). Eudoxus also originated the method of exhaustion employed by Archimedes for calculating volumes enclosed by curved surfaces, which was the first step toward the creation of the integral calculus. But Eudoxus's chief contribution to geometry was his theory of proportions, preserved in book 5 of Euclid's *Elements*. With it, geometry recovered the computational powers it had lost when separated from arithmetic, and the road was opened for rigorously conceiving and handling physical quantities of all sorts.

Two magnitudes *a* and *b* are said to have a ratio *a:b* to one another if there are integers *m* and *n* such that $m \times a > b$ and $n \times b > a$. (The assumption that any two lengths have a ratio to one another is known as the Archimedean postulate.) Eudoxus produced definitions by virtue of which ratios can be added and multiplied, yielding new ratios, and any two ratios *a:b* and *c:d* satisfy *trichotomy*, that is, either *a:b = c:d*, or *a:b > c:d*, or *c:d > a:b*. In this last case, there will always be an integer *n* such that *n(a:b) > c:d*. Thus, it is natural to regard all Eudoxean ratios as magnitudes that have ratios to one another. This paves the way for setting up equations that combine magnitudes of very different kinds, for example, masses, distances, and times, or volumes, temperatures, and pressures (as represented by their respective ratios with the appropriate units). However, it is not apparent that anyone saw this before the seventeenth century.

EUCLID'S *ELEMENTS*. In this, the most famous of mathematical textbooks, Euclid (c. 325–c. 265 BCE) organized the results and displayed the methods of fourth-century-BCE Greek geometry. It is usually taken for granted that the book is patterned after Aristotle's conception of a true science (*epistēmē*). This must consist of a collection of universal statements (theorems) obtained by deductive inference from self-evident premises (axioms) and definitions using a few self-explanatory terms (primitives). However, Euclid's book, though prima facie it may seem to prove every theorem from five postulates and a short list of so-called common notions, often resorts to unspoken assumptions. Moreover, Euclid's deductions do not all fit into the narrow frame of Aristotle's logic, and use forms of inference first codified by George Boole (1815–1864), Augustus De Morgan (1806–1871), and Charles Sanders Peirce (1839–1914). Also, his primary definitions (e.g., "A *straight* is a line which lies evenly with the points in itself") would have to be further supplemented by axioms to be of use in deductions. It seems

more likely, therefore, that Aristotle based his idea of a true science on his own grasp of what contemporary geometricians were doing (textbooks similar to Euclid's had been around since Aristotle was a student in Plato's Academy) but did not set a paradigm that they or their successors actually followed.

EUCLID'S POSTULATES. The first three postulates are not statements, but requests to allow certain constructions. The third—"to describe a circle with any center and any radius"—would require an infinite drawing board, which is not self-evidently available. The fifth is a conditional existential statement: "If a straight line falling on two straight lines makes the interior angles on the same side less than two right angles, the two straight lines, *if produced indefinitely*, intersect on that side on which are the angles less than the two right angles." Obviously, the condition here printed in italics can only be met on an endless plane. So in the finite world of Aristotelian and medieval cosmology, this postulate is vacuously true, and its existential consequent may be false (there may well not be any such intersection). Still, if Euclid's other postulates and the Archimedean postulate are true, denial of the consequent implies that a quadrangle with three right angles has an acute angle at the remaining corner, so there can be no rectangles. It also implies that polygons with the same shape also have the same size, in which case Aristotle's suggestion (*Physics* 207b29–34) that all geometrical theorems can be demonstrated in his bounded cosmos by suitably scaling down the diagrams employed would simply be wrong.

These seemingly counterintuitive implications kept geometers throughout the centuries trying to prove the fifth postulate from other principles until, shortly after 1820, Nikolay Lobachevsky and Janos Bolyai dared to deny it and independently published essentially the same system of non-Euclidean geometry. It might be a sign of Euclid's genius that he did not gloss over the fact that this assumption (without which the theorem of Pythagoras will not stand) is not self-evident.

GEOMETRY AND PHILOSOPHY AT THE ONSET OF MODERNITY

NATURE GEOMETRIZED. Aristotle taught that natural science, to adequately grasp its proper subject, must employ terms that connote the peculiar matter of each thing, for example, "snub," which only applies to fleshy noses, rather than "concave," which connotes merely a geometric shape (*Metaphysics* E, 1, 1025b30–1026a7; *Physics* II, 2, 194a2–27). Still, he agreed (*Metaphysics* Λ, 8)

with the purely geometric description of astronomical phenomena proposed by Eudoxus, presumably because he believed that ether, the stuff that the heavens are made of, can change only by rotation about the center of the Earth, and this is properly described in geometric terms. Anyway, Aristotle's strictures on science did not deter Archimedes (c. 287–212 BCE) from dealing mathematically with the equilibrium and the flotation of bodies. In the meantime, astronomers from Apollonius (third cent. BCE) and Hipparchus (second cent. BCE), through Ptolemy (second cent. CE), to Copernicus (1473–1543) developed ever more complex geometric models of planetary motion, involving diverse circular motions about different centers (none of which coincides with that of the Earth).

After Galileo Galilei's telescope showed that there are mountains on the Moon and fleeting spots on the Sun, the distinction between celestial and terrestrial physics became pointless, and each took cues from the other. Thus Johannes Kepler (1571–1630) sought to explain the motion of planets (including the Earth) by *forces* exerted on them from the Sun, while Galileo (1564–1642) proposed a chronogeometrical model of free fall on the surface of the Earth, which he conceived as uniformly accelerated rectilinear motion. Lasting success was finally achieved by Isaac Newton (1642–1727), by dint of his mathematical genius and his consummate command of geometry. In the course of these efforts, Kepler (1609) had the words "God is always doing geometry" printed on the front page of his masterpiece, and Galileo wrote that the book of nature "is written in mathematical language, and its characters are triangles, circles and other geometrical figures, without which we cannot understand a word of it" (1623, sec. 6). René Descartes's contention that extension is the one and only clearly and distinctly conceivable attribute of bodies surely called for a comprehensive and thoroughgoing geometrization of physics and might have led to it had geometry been ripe enough to deal with its strenuous demands.

DESCARTES'S REVOLUTION IN GEOMETRY. Except for his first law of motion (the principle of inertia) and his work on the refraction of light, Descartes's direct contribution to physics, subjected to unsparing criticism by Christian Huygens, Gottfried Wilhelm Leibniz, and Isaac Newton, failed to gain admission into the classical canon. But modern mathematical physics would not have been possible without Descartes's *indirect* contribution to it, through his two great inventions in geometry: *coordinates* (independently introduced also by Pierre Fermat) and the *algebra of lengths*.

Coordinates are quantitative labels employed for identifying points in space. By means of them the relations among the points can be quantitatively represented and investigated. Nowadays geometric coordinates are drawn from the field of real numbers $\mathbb{R}$, which we regard as a natural extension of $\mathbb{Q}$, the field of rationals, which, in turn, is constructed from the familiar integers. But this understanding of these matters was still far off in Descartes's time (although his geometric algebra was a decisive step toward it). To avoid anachronism, one must regard Descartes's original coordinates as oriented lengths or, more exactly, as Eudoxean ratios between such lengths and a conventionally chosen unit length. To assign so-called Cartesian coordinates to a point P in space, one takes the three distances x, y, and z from P to three mutually perpendicular planes (listed in a conventional order, the same for all points), and prefixes to each a plus sign or a minus sign, according to the side of the respective plane that faces P (again by convention). The Cartesian coordinates of P then form an ordered triple of oriented lengths, say $\langle +x, -y, -z \rangle$. (There are other ways of defining coordinates: Oblique coordinates depend on three planes not at right angles to each other. Polar coordinates label a point P by its absolute distance from a fixed point O, the angle made by OP with a fixed plane Γ through O, and the angle made by the perpendicular projection of OP on Γ with a fixed line through O on that same plane.)

In Euclid's *Elements* (1956), segments are added to segments in an obvious way to obtain new segments; multiplying a segment s by an integer n amounts to adding n copies of s end to end; a straight segment or a length is never multiplied by another one. Until not too long ago, it was usually understood that such multiplications do occur in Euclid's book, but then the product of such a multiplication had to be an *area*. Descartes followed Euclid on the addition of lengths and defined the multiplication of a length a by a length b so as to yield still another length ab. Here is how. Draw two straight lines from a point O. Mark points F and H on one line so that OF has unit length and OH has length a. Mark point G on the second line so that OG has length b. Draw the straight line segment FG. Let the parallel to FG through H cut the second line at K. Clearly, then, $OH/OF = OK/OG$. Therefore, $OG \times OH = OK \times OF$; in other words, OK has length ab (Figure 1).

By this procedure, entirely based on elementary geometrical knowledge available to Euclid, Descartes and his successors were able to represent all geometrical relations by equations or inequalities between given and unknown

FIGURE 1
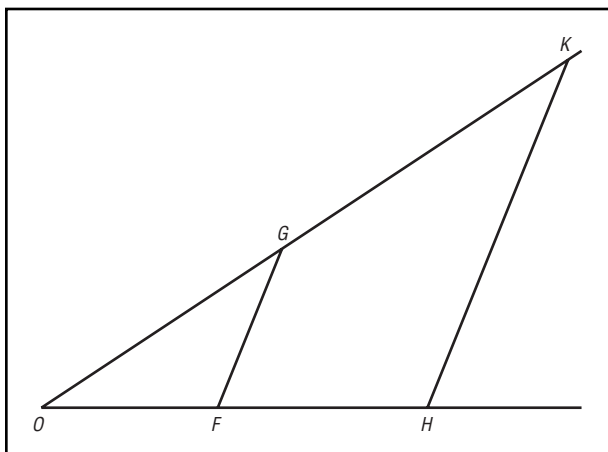
quantities, and to solve geometrical problems algebraically. In the algebra all such quantities were handled in the same way as the positive integers and they were therefore called *numbers*. Newton explains: "By a number we do not understand a multitude of units, but rather the abstract ratio of any quantity to another quantity of the same kind, which is taken as a unit. There are three varieties of number: integers, rationals and irrationals" (1707, p. 2). Eventually, they were called *real* numbers, to distinguish them from the imaginary ones, that is, the multiples of $\sqrt{-1}$, which also turned up as solutions of algebraic equations.

The method of coordinates soon suggested the idea of a space with *n* dimensions, whose points would be labeled by *n* quantities. In particular, if $\langle x, y \rangle$ denotes an arbitrary point on a plane, a straight line on that plane can now be defined as the set of points satisfying the linear equation $y = ax + b$, and a circle with radius *r* and center at $\langle 0, 0 \rangle$ as the set of points satisfying the quadratic equation $x^2 + y^2 = r^2$. These two equations take care of all points on the plane that can be constructed with a ruler and a compass, which were the only points contemplated by Euclid. But after Descartes, mathematicians felt free to consider any curve defined by an algebraic equation or indeed by a convergent series, such as $y = \sin x$, or $y = e^x$ (where *e* is the base of the natural logarithms). Even though Euclid never countenanced the plethora of points obtainable in such ways and it does not follow from his postulates, what we normally call "Euclidean space" comprises them all.

KANT'S PHILOSOPHY OF GEOMETRY. The overwhelming success of geometry in physics and astronomy induced some seventeenth-century philosophers to fol-low its example in ethics and metaphysics. The foremost instance of this is Benedict de Spinoza's *Ethica ordine geometrico demonstrata* (Ethics demonstrated in geometric order; 1677), but John Locke too believed that "if men would in the same method, and with the same indifferency, search after moral as they do mathematical truths," then "a great part of morality might be made out with that clearness, that could leave, to a considering man, no more reason to doubt, than he could have to doubt of the truth of propositions in mathematics, which have been demonstrated to him" (1690, IV.iii.20, xii.8).

Immanuel Kant, however, thought otherwise. Invidiously comparing geometry, as a science that "excels all others in certainty and distinctness," with metaphysics, which "has only just started out on the path to these goals" (1902–, 2: 168), he recommended, in 1763, that the latter stop imitating the former, in order to progress along that path. He soon went further. In his Latin dissertation of 1770, Kant taught that confusion and stagnation in metaphysics were due to the contamination of the human intellect with the sensuous notions of time and space. By thoroughly avoiding them, metaphysics will escape the temptations of materialism and determinism and become a secure science of God, freedom, and immortality. Yet in the *Critique of Pure Reason* (1781), Kant likened the purified understanding he advocated in 1770 to a bird that, tired by the resistance of the air, sets out to fly in a vacuum. In his mature view, the basic concepts of human thought—one and many, reality and negation, substance and cause—are not obtained from sensuous experience, but they can refer to objects only when applied to it, under the conditions of human sensibility, namely, space and time.

This decisive turnabout in the history of philosophy is closely related to Kant's reflections on geometry and its use in physics. In 1746 Kant spoke of a general or "supreme" geometry, adapted to a space with any number of dimensions. That the space we live in has only three dimensions is due to the empirical fact that all material particles are linked by forces governed by Newton's inverse-square law (1902–, 1: 34). But in 1768 he made a discovery that, he thought, put an end to all such explanations of space and spatial structure from the physical relations between bodies in space. No description of a shoe in terms of its different parts and the relations between them will allow us to tell a left shoe from the matching right shoe; the difference between the two shoes can be grasped only by considering their respective orientation in the space that embraces them. Kant understood this to imply that the bodily structure of bodies

depends on that of space as a whole, which therefore is presupposed by them, rather than being only an expression of their interactions.

Kant was then faced with the following dilemma: Either (a) space itself is a substance, of which bodies are modes (a position that, according to Kant, results in Spinoza's unchristian and immoral deification of space), or (b) space must be thought of as possessing a novel, hitherto unheard of manner of existence (which implies a corresponding adjustment of the ontological standing of bodies as such). About 1769 Kant lighted on alternative (b), which he described around 1791 as one of the two hinges on which metaphysics must turn (the other one being the reality of freedom). He claims that "*space is not something objective and real*, neither a substance, nor an accident, nor a relation; it is rather a subjective and ideal scheme, so to speak—which issues from the nature of the mind according to a stable law—for coordinating everything that is sensed externally" (1902–, 2: 403). Or, in mantra form, *space is one of the forms of human sensibility* (time is the other one). As a consequence of this, things are bodies only insofar as they are actual or potential objects of our sense perception, but not as they are in themselves. (Indeed, Kant figured out in the early 1770s that the standard assumption that things in themselves are spatial would make it impossible to solve the contradictions regarding the limit of the physical world and the divisibility of its content, which he later set forth in the first two items of the Antinomy of pure reason.)

Kant's conception of space is the key to his philosophy of geometry (and is in turn reinforced by it). The epistemological problem of geometry lies in explaining how it can furnish us with precise quantitative information about things we have never met in real life and which anyway we could not measure accurately, for example, the exact size of the angles of a trillion-sided regular polygon. Plato proposed that this knowledge is remembered from another life in which we had direct access to the intelligible "form" of things. The fact that geometry contains such knowledge nourished similar hopes for metaphysics and ethics, which, however, were crushed by Kant's approach. In his view, geometry rests on our natural awareness of the conditions under which alone the manifold appearances displayed through our external senses "can be ordered into certain relations" (1787, B 34) and thus shaped into corporeal phenomena. Such awareness is not intellectual but intuitive, as we may gather from the example of the pair of shoes, described above, and also from the fact that geometrical proofs proceed by the "construction of concepts." Kant explains this expression

somewhat intriguingly as follows: "To *construct* a concept means to exhibit a priori the intuition that corresponds to it: the construction of a concept therefore requires a *non-empirical* intuition which … as intuition is a *particular* object, but nevertheless, as the construction of a concept (a general idea), must convey universal validity for all possible intuitions that belong under the same concept" (1781/1787, A 713/B 742).

Anyone not put off by these opaque notions could well regard them as a proper explanation of the amazing success of geometry in physics. For, if geometry spells out the ordering that is required for us to grasp external phenomena, then it is no wonder that all external phenomena comply in every detail with the teachings of geometry. Soon, however, innovations in geometry moved the ground from under Kant's position and made it untenable. Before we turn to them, it should be emphasized that among these innovations, the best known one—the derivation of a consistent geometry from the denial of Euclid's fifth postulate—does not challenge Kant's view but somehow corroborates it. For Kant, geometry provides information, conveyed by what he called *synthetic* propositions, and this implies that any of its unproven principles can be denied without self-contradiction.

FROM GAUSS TO HILBERT AND BEYOND

NON-EUCLIDEAN GEOMETRY. The fact that Euclid's fifth postulate is not self-evident prompted several mathematicians to try to prove it. John Wallis (1616–1703) succeeded in inferring it from the assumption that for any given figure there is another one, similar to it, of any arbitrary size. This assumption is neither necessarily true nor empirically obvious, but it does provide a perspicuous characterization of Euclidean space.

Girolamo Saccheri (1733[1986]) sought to prove the postulate indirectly. He devised a quadrilateral thus constructed on a plane: Draw straight lines *m* and *n* through points *P* and *Q*, making right angles with the segment *PQ*. Mark points *A* and *B* on *m* so that *AP* = *PB*. Mark points *C* and *D* on *n* so that *CA* and *DB* are both perpendicular to *m* (See Figure 2).

If one assumes the Archimedean postulate (which Saccheri tacitly does), the fifth postulate will hold if and only if ∠ACQ and ∠BDQ are right angles. Saccheri assumed that these angles are obtuse and easily proved that, if so, two points can be joined by more than one line, which he considered absurd. He then assumed that both

FIGURE 2
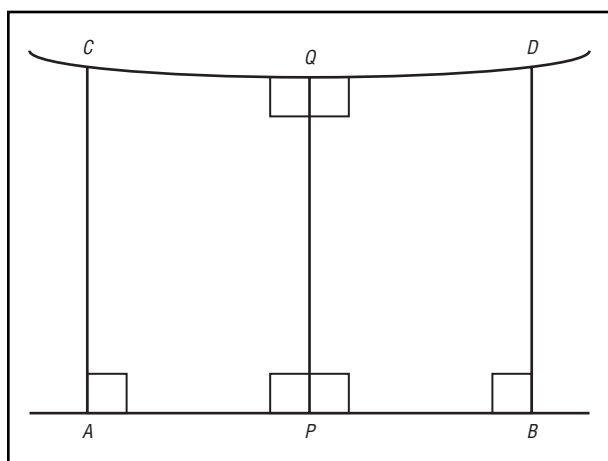
angles are acute and derived from this hypothesis many surprising propositions that did not appear to be contradictory, until at last he reached one he pronounced "repugnant to the nature of the straight line."

The consequences that Saccheri drew from the acute-angle hypothesis reappeared in the nineteenth century in the private papers of Carl F. Gauss (1777–1855) and in independent publications by Nikolay I. Lobachevsky (1793–1856) and Janos Bolyai (1802–1860). These authors treated these consequences as theorems of an alternative system of geometry, based on the straightforward denial of Euclid's fifth postulate (with the others retained). This system has received various names, but by priority of publication, it should be called *Lobachevskian geometry*. In this geometry, the three interior angles of a triangle add up to less than two right angles, the difference being proportional to the area of the triangle. Therefore, similar triangles are congruent. Consider again the segment *PQ* perpendicular to straight line *m* at *P*. By the denial of the fifth postulate, there is a set *S* of straight lines through *Q* that form an acute angle with *PQ* on one or the other side of it and yet do not meet *m* on that side (let alone on the side where they form an obtuse angle with *PQ*). Let α be the smallest of these angles. By symmetry, there are two lines in *S* that form angle α on either side of *PQ*. In Lobachevsky's terminology (independently adopted also by both Gauss and Bolyai), these two lines are called the *parallels* of *m* through *Q*, and α is the *angle of parallelism* for *PQ*. The size of α decreases as *PQ* grows. On any Lobachevskian plane, there is a unique length *h* such that the angle of parallelism for any segment of length *h* equals 45°. The length *h* provides an absolute standard of length for that plane. Kant's friend Johann Heinrich Lambert, who around 1766 worked on this sub-

ject along lines similar to Saccheri's, said there was "something alluring about this consequence which readily arouses the desire that the [acute angle] hypothesis be true!" (1786/1895, p. 162). Note that if, in the case discussed, *PQ* = *h*, the two parallels to *m* through *Q* are mutually perpendicular. Lambert thought this was an intolerable paradox.

The absence of contradiction in a long series of theorems inferred from the denial of the fifth postulate does not, of course, imply that Lobachevskian geometry is consistent. Lobachevsky proposed an argument for proving that his geometry is at least as tenable as Euclidean geometry. He showed that there is a logically formal correspondence between the equations of Lobachevskian trigonometry and the familiar equations of spherical trigonometry. By virtue of it, any contradiction derived from the former will be matched by one flowing from the latter. Such a contradiction would entail that the said standard trigonometric equations are false, and this in turn would entail the falsehood of the Euclidean principles from which these equations follow.

Lobachevsky also tried to ascertain whether his own geometry or Euclid's is true of physical space. He used astronomical data to calculate the sum of the internal angles of the triangle formed by three stars and concluded that the difference between the result obtained in a Lobachevskian space and the Euclidean value was well within the margin of observational error. Decades would pass before Hermann Lotze (1879, p. 774) pointed out that all such attempts are vain, for if astronomical measurements do not agree with Euclidean geometry, the disagreement can still be accounted for by a deviation of stellar light from its supposedly rectilinear trajectory.

GROUPS AND INVARIANTS. Shortly before Lobachevsky's earliest publication on his geometry, Jean-Victor Poncelet's *Treatise on the Projective Properties of Figures* (1822) started a way of doing geometry that seemed more intuitive and tame but which ultimately was much more radical and would have deeper consequences than the denial of Euclid's fifth postulate. It is based on adding to each straight line *m* a "point at infinity" that *m* shares with every straight line parallel to it and treating all such "points" as belonging to a single "plane." This assumption enormously simplified the statement and the proof of geometric theorems concerning relations of incidence, collinearity, and coplanarity among points, lines, and planes. Metric features like distance and metric relations like congruence were totally ignored. Natural (initially tacit) assumptions regarding the neighborhood relations

between the points at infinity and the standard points implied that ordinary space differed drastically from the new *projective space* in which it was now embedded. For example, a left shoe traveling indefinitely in a fixed direction would, after crossing the plane at infinity, return to its original location from the opposite side, in the guise of a right shoe. In this way, projective geometry disposed of Kant's claim about the irreducible difference between the two kinds of shoes, its ontological implications, and its intuitive roots.

Projective geometry grew in scope and sophistication at the hands of August Moebius (1790–1868), Julius Plücker (1801–1868), Karl Georg Christian von Staudt (1798–1867), Arthur Cayley (1821–1895), and others. Different sorts of numerical coordinates were introduced as sheer labeling devices, for in this metric-free context they plainly did not represent distances. The use of coordinates consisting of complex numbers made it possible to introduce more points, in addition to the familiar real points (those labeled by real numbers). These "complex points" are linked to real points and among themselves by relations of collinearity (if their coordinates satisfy the same linear equations) and vicinity (by dint of the neighborhood relations between real and nonreal numbers on the complex plane). The beautiful vistas opened by such developments inspired further flights of mathematical freedom leading to the creation of still other branches of geometry.

Moved by the confusing variety of geometrical methods and approaches, Felix Klein formulated his celebrated Erlangen Program, in which he seeks to unify all forms of geometry under a single overarching point of view. This is provided by the notion of *transformation group* and the related notion of *invariant*.

Let S be a set of points. A *transformation* (or *permutation*) T of S assigns to each point p of S one and only one point $T(p)$ of S, in such a way that every point of S equals $T(p)$ for some p. In other words, a transformation of S is a one-to-one mapping of S onto itself. We say that $T(p)$ is the *value* of T at p. T is said to *send p to $T(p)$*. If M is a subset of S, T is said to *send M to the set* $T(M) = \{T(p): p \in M\}$. For every transformation T, there is an *inverse transformation* T^{-1} that, for each p in S, sends $T(p)$ back to p. The identity transformation Id_S sends every p in S to itself. Given two transformations T_1 and T_2, their *product* T_2T_1 is the transformation that sends each p in S to the value of T_2 at $T_1(p)$. The product of transformations is clearly *associative*, that is, $(T_3T_2)T_1 = T_3(T_2T_1)$ for any three transformations T_1, T_2, and T_3. A set G is a *group of transformations* of S if every element of G is a transfor-

mation of S and G contains (1) the product of any two of its elements, (2) the inverse of every one of its elements, and (3) the identity transformation Id_S. Any subset of G that meets conditions (1) through (3) is said to be a *subgroup* of G.

Given a group G of transformations of a set S, let R be an *n*-adic predicate ($n \geq 1$) such that, for any points p_1, … , p_n in S and any transformation T in G, $R(p_1, … , p_n)$ implies that $R(T(p_1), … , T(p_n))$. We say then that R is an *invariant* of group G or that R is *G-invariant*. Likewise, a function f on S^n is said to be *G-invariant* if, for every *n*-tuple $\langle p_1, … , p_n \rangle$ of elements of S, $f(p_1, … , p_n) = f(T(p_1), … , T(p_n))$. G is said to *preserve* its invariants.

Klein's Erlangen Program for systematically ordering geometries is based on the following simple idea: Each geometry is the study of the invariants of a group, and the relations of inclusion between groups and their subgroups determine a hierarchy of geometries. Starting from the group of all possible transformations of an arbitrary set, whose sole invariant is the cardinality of the set, one descends, through multiple branches, right down to the trivial group, which is a subgroup of every group and preserves every property and relation, for it only comprises the identity transformation. In particular, projective geometry studies the invariants of the group of collineations, that is, the set of transformations that send straight lines to straight lines. This is a subgroup of the group of continuous transformations, whose invariants are the *topological* properties of projective space. Drawing on work by Arthur Cayley (1859), Klein (1871, 1873) found a way of defining different real-valued functions on point pairs that behaved, on well-defined regions of projective space, precisely like the distance functions of, respectively, Lobachevskian geometry (which he called *hyperbolic*), Euclidean geometry (which he called *parabolic*), and a third geometry (which he called *elliptic*). Each of these functions was an invariant of a certain subgroup of the said group, comprising the collineations that map a specific quadric surface onto itself.

Klein's result led Russell (1897) to assert that the general "form of externality" is disclosed to us a priori in projective geometry, but its metric structure—which Russell wrongheadedly claimed can *only* be Lobachevskian, Euclidean, or elliptic—must be determined a posteriori by experiment. Poincaré took another view of this matter: If geometry is nothing but the study of a group, "one may say that the truth of the geometry of Euclid is not incompatible with the truth of the geometry of Lobachevsky, for the existence of a group is not incompatible with that of another group" (1887, p. 290). Euclidean geometry has

seemed preferable only because the rotations and translations of the Euclidean group reflect, to a comfortable approximation, the motions of ordinary hard bodies in our environment.

RIEMANNIAN MANIFOLDS. In his lecture "On the Hypotheses Which Lie at the Foundation of Geometry" (1867), Bernhard Riemann took an approach to geometry that did not fit into Klein's Erlangen Program. He noted that traditional geometry rested on assumptions summed up in Pythagoras's theorem (by which the distance between a point with Cartesian coordinates $\langle x, y, z \rangle$ and the origin $\langle 0, 0, 0 \rangle$ equals the positive square root of $x^2 + y^2 + z^2$). These assumptions had been corroborated by using light rays to line up things and rigid bodies to measure the length of lines, and therefore were bound to break down on very small scales, where such physical objects are not available, and perhaps also on very large scales, where the errors of observation generated by using such instruments might become intolerable.

Riemann therefore proposed to proceed from more general assumptions toward a more flexible geometry that physicists could later resort to when they needed it. He took his cue from Carl Friedrich Gauss's work on the intrinsic geometry of surfaces (1828), which he extended to general spaces of n-dimensions (*n-manifolds*, for short). Though Riemann supposedly addressed his lecture to humanists (hence its meager use of mathematical symbolism), the meaning and reach of the lecture first became clear through its further elaboration by other outstanding mathematicians (e.g., Elwin Bruno Christoffel, Friedrich Schur, Wilhelm Killing, Élie Cartan, Hermann Weyl), and a whole century would pass before it was satisfactorily explained to undergraduate students (Spivak 1979). The following rough sketch of Riemann's breakthrough owes much to the light shed on it by such later developments.

An n-manifold M is furnished with coordinate systems or *charts*, by which different regions or *patches* of M are mapped continuously and one-to-one onto subsets of $\mathbb{R}^n$ (the set of all n-tuples of real numbers, endowed with the neighborhood relations it inherits from the real-number field $\mathbb{R}$). Two charts defined on overlapping patches are said to be *compatible* if the coordinate transformation between them is a smooth function from one open subset of $\mathbb{R}^n$ onto another (possibly the same) one. An *atlas* of M is a collection of compatible charts for M such that every point of M lies on the patch of at least one chart. Any atlas A of M determines a corresponding maximal atlas A_{max} comprising every conceivable chart of M

compatible with those in A. The way the charts of A_{max} combine with each other in coordinate transformations reflects the overlapping and intertwining of the patches on which they are defined and thus specifies the global topology, the shape, of M. (In the realm of 2-manifolds, or surfaces, the atlas of a pretzel differs from that of a donut or a bun.) The lengths of curves drawn in M (which are best thought of as continuous mappings of an open interval of $\mathbb{R}$ into M) can then be defined in an endless variety of ways by rules that assign to each point p of M an appropriate function on the coordinate differentials at p, in a manner that varies smoothly from point to point.

Riemann was aware that this approach gave the mathematician enormous freedom, and he proposed restricting the admissible functions, for the time being, to quadratic functions on coordinate differentials, which, on a small neighborhood of each point of M, would yield a definition of length in optimal agreement with the n-dimensional version of the Pythagorean theorem. To conform to the standard concept of length, he also required his quadratic functions to be positive-definite, that is, to take their values only among the nonnegative real numbers. This requirement was subsequently relaxed in the spacetime geometries of the theory of relativity, which, for this reason, are often called *semi-Riemannian*.

From the standpoint of twentieth-century mathematics, the characterization of an n-manifold M by means of an atlas of the kind described makes it possible to assign an n-dimensional real vector space to each point p of M, the *tangent space* at p (thus called by analogy with the plane tangent to a smooth surface at any point of it). A Riemannian metric on M assigns to each p of M a tensor of rank 2, that is, a bilinear function on its tangent space, that varies smoothly from point to point. Riemann's quadratic functions on the coordinate differentials at each point can be naturally obtained as appropriate representations, relative to one or another locally defined coordinate system, of such coordinate independent objects.

A given Riemannian metric μ on M determines a smoothly varying assignment, to each p of M, of a tensor of rank 4, that is, a quadrilinear function on its tangent space. Such an assignment is in effect a *field of tensors* (one at each point), but, for short, this assignment is called the *Riemann tensor* of the Riemannian manifold $\langle M, \mu \rangle$. This is a natural generalization to n-manifolds of the analytically defined yet fairly intuitive concept of the Gaussian curvature of a surface (a real-valued function that is positive and constant on a sphere, variable but

always positive on an ovoid, alternatively positive and negative on the surface of a saddle, and equal to 0 on a plane or a cylinder), and is therefore also called the *curvature tensor*, a term that mathematicians wield nonchalantly but that among philosophers has been a source of endless worries.

On this same analogy, *n*-manifolds of constant 0 curvature are said to be *flat*. In particular, Euclidean space is a flat 3-manifold, while Lobachevskian space is a 3-manifold of constant negative curvature, and Klein's elliptic space is a 3-manifold of constant positive curvature. But a generic Riemannian manifold ⟨*M*, μ⟩ has variable curvature, and therefore the only group of transformations of *M* that will preserve the metric μ is the trivial group consisting only of the identity transformation. Already for this reason, Riemannian geometry obviously cannot fall under the Erlangen Program. Another excluding reason is the fact that a geometric inquiry that considers general spaces of endlessly different shapes cannot be characterized by a group of transformations of one of these spaces onto itself. Still, there are Riemannian manifolds endowed with interesting symmetries, and group theory has been the tool of choice for studying them.

HILBERT'S *FOUNDATIONS*. Euclid's putative program for logically inferring the truths of geometry from a sufficient list of unproven premises was fondly imitated by scientists and philosophers in the seventeenth century, but it was first properly carried out by Moritz Pasch (1882). He gathered what he regarded as the empirical foundation of geometry into a few undefined concepts concerning the shape, size, and reciprocal position of bodies and a few axioms that linked these concepts among themselves and with other concepts defined in terms of them. Pasch's axioms "state what has been observed in certain very simple diagrams" (p. 43). All other geometric statements should be proved from the axioms by the strictest deductive methods.

Pasch dealt with projective geometry. The first rigorous axiomatization of Euclidean geometry was given in David Hilbert's *Foundations of Geometry* (1899), a book that had a major influence on twentieth-century mathematics and philosophy. Hilbert invited the reader to consider three arbitrary sets of objects, which he called points, straights, and planes; three undefined relations of *incidence* between a point and a straight line, between a straight line and a plane, and among three points; and two undefined relations of *congruence* between two pairs of points (*segments*,) and between two equivalence classes of point triples (*angles*). Hilbert linked these objects and

relations through nineteen axioms, which—when supplemented with the "axiom of completeness" added in the second edition—are sufficient for characterizing the said objects and relations up to isomorphism. This means that if we have two threefold collections of points, straights, and planes having the prescribed relations of incidence and congruence in agreement with Hilbert's twenty axioms, there will always be a one-one mapping of the points, straights, and planes of one collection respectively onto the points, straights, and planes of the second that preserves all five sorts of relations. Such a structure-preserving mapping between structured sets is called an *isomorphism*. Evidently it can hold between two systems of intuitively very dissimilar objects.

Hilbert availed himself of this feature of axiomatic theories for studying the independence of some axioms from the rest. To prove such independence, he proposed actual instances (*models*) of the structure determined by all the axioms but one, plus the negation of the omitted one. Gottlob Frege complained that the geometric axioms retained in these exercises could be applied to Hilbert's far-fetched models only by tampering with the natural meaning of words. Hilbert replied, on December 29, 1899, "Every theory is only a scaffolding or schema of concepts together with their necessary mutual relations, and the basic elements can be conceived in any way you wish. If I take for my points any system of things, for example, the system *love*, *law*, *chimney-sweep*, … and I just assume all my axioms as relations between these things, my theorems, for example, the theorem of Pythagoras, also hold of these things.… This feature of theories can never be a shortcoming and is in any case inevitable" (Frege 1967, p. 412). Hilbert's declaration of independence from sense experience and ordinary usage concisely expresses the modern view of mathematics as a universal "science of patterns" (Resnik 1997), in which geometry is barely distinguishable from its other branches, except on historical grounds.

THE GEOMETRY OF THE UNIVERSE. This approach to pure geometry and mathematics gives physicists enormous freedom to choose the abstract structures they judge most suitable for representing (modeling) the phenomena under inquiry. Yet, as Albert Einstein (1921) pointed out, so long as physics remains unable to provide, from microphysical principles, an exact theoretical construction of the instruments it uses for measuring distances and times, it will continue to need a practical geometry, which must be suggested and corroborated by experience.

According to Einstein, the stability of sharp spectral lines justifies the postulate that any two ideal clocks, once running beside each other at the same rate, will always do so, no matter where and when they are brought together again for comparison. Under this postulate, and for spatiotemporal regions sufficiently small that gravity is practically homogeneous in them, experience has amply vindicated the validity of the flat semi-Riemannian geometry that Hermann Minkowski (1909) initially proposed for the whole world. For broader regions, Einstein's theory of general relativity assumes a semi-Riemannian spacetime geometry whose variable curvature reflects the variations in gravity.

By solving Einstein's equations of the gravitational field under cosmologically plausible special symmetry requirements, Alexander Friedmann (1922, 1924) produced big-bang models of the universe. These big-bang models were ready at hand to explain the systematic recession of the galaxies away from us when discovered by Vesto Slipher and Edwin Hubble before 1930 and the current low temperature of the background thermal radiation when discovered by Arno Penzias and Robert Wilson in 1964. It is worth emphasizing that the explanation of these phenomena from the Einstein field equations is purely geometrical—a consequence of the shape of the universe under the postulated symmetry requirements. Purely geometric arguments also support the proof by Stephen Hawking and Roger Penrose (1970) that, under physically very plausible assumptions, a generic relativistic space-time most likely contains black holes.

See also Aristotle; Black Holes; Boole, George; Copernicus, Nicolas; De Morgan, Augustus; Descartes, René; Einstein, Albert; Frege, Gottlob; Galileo Galilei; Hilbert, David; Kant, Immanuel; Kepler, Johannes; Leibniz, Gottfried Wilhelm; Locke, John; Lotze, Rudolf Hermann; Mathematics, Foundations of; Newton, Isaac; Peirce, Charles Sanders; Plato; Poincaré, Jules Henri; Pythagoras and Pythagoreanism; Russell, Bertrand Arthur William; Space; Spinoza, Benedict (Baruch) de; Thales of Miletus; Weyl, (Claus Hugo) Hermann.

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Roberto Torretti (2005)

GERARD, ALEXANDER
(1728–1795)

Alexander Gerard was professor of moral philosophy and divinity at the University of Aberdeen and a leading member of the Aberdeen Philosophical Club along with James Beattie and, most importantly, Thomas Reid. He is known primarily for his *Essay on Taste* (1759/1963), which was awarded a prize by the Edinburgh Society for the Encouragement of Arts, Sciences, Manufacture, and Agriculture. Gerard returned to the subject with *An Essay on Genius* (1774/1966). In addition to the primary influence of Reid, the work of David Hume is a principal influence, though, like Reid, Gerard disagrees fundamentally with what he takes to be Hume's skepticism.

Although Gerard writes in the tradition of eighteenth-century theories of taste, it is questionable whether he should be regarded as a taste theorist in a

strict sense. Gerard is responding to the theories of criticism of Francis Hutcheson and Hume who set the context of discussion in terms of taste and sentiment, but Gerard follows Reid in taking a more realist position regarding the qualities that produce a perception of beauty and relies more directly on rules and principles that are derived by induction. Thus, Gerard defends a position that is moving rapidly away from an essential dependence on taste.

Gerard depends on two fundamental principles. The first is a faculty of imagination. Imagination combines reflective ideas supplied by fancy. Gerard's faculty psychology posits internal senses that are "*reflexive,*" that is, they refer to the workings of the mind rather than to external objects. However, whereas for Hutcheson an internal, reflexive sense is a direct intuition of beauty and virtue, Gerard, following Reid, treats internal senses as active principles of perception. Internal senses correspond to the qualities that they respond to. For example, there are senses of novelty, sublimity, beauty, imitation, harmony, ridicule, and virtue. The second fundamental principle, following Joseph Addison's *Spectator* essays (particularly no. 418), identifies the pleasures of the imagination as depending on mental activity. The faculty of imagination exercises the mind; and, when that exercise falls within a moderate range, it is experienced as pleasurable. If it is either too languid and easy or too excited and difficult, discomfort (or simply indifference) results. These two principles combine to explain judgments of taste.

The subordination of taste to imagination seems clear; for example in *Essay on Taste*, Gerard writes "Taste, therefore, though itself a species of sensation, is in respect of its principles, justly reduced to imagination" (1759/1963, p. 144); and later, "Taste, in most of its forms at least, [is] a derivative and secondary power. We can trace it up to simpler principles, by pointing out the mental process that produces it, or enumerating the qualities by the combination of which it is formed. These are found, on inquiry, to be no other than certain exertions of *imagination*" (1759/1963, p. 151). Gerard goes on to explain each of the aesthetic predicates in terms of the kind of pleasurable mental activity that they produce: "The sources of all the sentiments of taste ly [sic] in the mind. The qualities of objects affect, in a certain manner, some principles of human nature, which by their operation, either singly or several in conjunction, produce gratification or disgust. … Simplicity, for instance, occasions easiness of conception; novelty or variety, an effort to conceive; amplitude, an expansion of soul" (1759/1963, p. 260).

Gerard holds that sentiment can be judged false because the qualities of taste can be figured out empirically. If I perceive something as grand that lacks the necessary qualities of extensiveness and amplitude, I am mistaken in my sentiment just as I would be if I experienced motion in violation of its actual occurrence. Therefore, for Gerard, there can be only a limited appeal to sentiment: "the qualities of an object, which gratify us, are more fixed and definite than the sensation which they excite" (1759/1963, p. 288). Gerard is clearly committed to what he understands as a "scientific"—that is, Newtonian—model, but at bottom he is siding with Reid against Hume by holding that aesthetic properties must be really in the object and that principles of common sense are sufficient to provide standards of judgment when disagreement arises.

For both Reid and Gerard, active judgment is logically prior to sensory experience in the aesthetic process. The function of sensory experience is to supply the material; the aesthetic operation comes about only when the mind is actively engaged. For example, Gerard writes, "For all the objects that affect taste, and excite its sentiments, are certain forms or pictures made by fancy, certain parts or qualities of things which it combines into complex modes" (1759/1963, p. 157). "In order, therefore, to form an able critic, taste must be attended with a philosophical genius, which may subject these materials to a regular induction, reduce them into classes, and determine the general rules which govern them" (1759/1963, p. 171). That engagement is critical and judgmental. Gerard's theory points toward Archibald Alison's *Essay on the Nature and Principles of Taste* (1790) in that Alison, too, reduces taste to a form of mental activity. But when Gerard says that "The sources of all the sentiments of taste lie in the mind" (1759/1963, p. 290), his purpose is to deny Hume's division between external sense and passions and to side with Reid's dualism between mind and body. Gerard's theory of taste marks the beginning, therefore, of a break with the theories of taste that run from The Third Earl of Shaftesbury (Anthony Ashley Cooper) through Addison and Hutcheson to Hume.

See also Aesthetics, Problems of; Alison, Archibald; Beattie, James; Hume, David; Hutcheson, Francis; Newton, Isaac; Reid, Thomas; Shaftesbury, Third Earl of (Anthony Ashley Cooper).

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Dabney Townsend (2005)

GERBERT OF AURILLAC
(c. 938–1003)

Gerbert of Aurillac, an educational reformer and pope (Silvester II) of the eleventh century, was born in Auvergne about 938, became a monk of St. Gérard d'Aurillac, and was educated there and in Catalonia. He later visited Rome, where Pope John XIII (965–972) introduced him to Emperor Otto I. Gerbert shortly left Otto's court to study at Rheims, where he later became master of the schools. His fame led Otto II to make him abbot of Bobbio about 980, but in 983 Gerbert returned to Rheims, where he engaged in political and antipapal controversies. In 991 he became archbishop, and after many vicissitudes he was transferred to Ravenna in 998. His old friend and patron Otto III secured his election as Pope Silvester II in 999; as pope he established the church in Hungary and strongly asserted papal claims. He died in 1003.

Despite the intrigues and restlessness of his later public life, Gerbert was—and was recognized as—the most learned, versatile, and influential master of his age. Rheims during his first stay (c. 966–980) became a principal center of the educational revival that was beginning to inspire the cathedral schools of France and that from them passed to the universities. Fulbert, founder of the school of Chartres, was Gerbert's pupil.

Gerbert's greatest achievement was to give new life to the skeleton of the ancient *trivium* and *quadrivium*. In rhetoric he restored the careful study of Terence and Vergil, the satirists Horace and Persius, Lucan, and the critics Seneca and Quintilian; in dialectic, which he reestablished as the goal of a literary education, he developed what was to become the classical syllabus of the *Isagoge* of Porphyry, the *Categories* and *De Interpretatione* of Aristotle, the *Topics* of Cicero, and the whole dialectical corpus of Boethius. He rescued the *quadrivium* from its bookish decadence and injected a real, practical orientation. In mathematics, his forte, Gerbert revived the ancient Greek tradition and replaced clumsy Roman numerals with the Indian numerals 1 through 9; he produced a simplified abacus, with instructions for its use; and he wrote at length on methods of multiplication and division. In astronomy he taught by means of a sphere showing the movements of the planets.

It is uncertain how much these innovations were the result of his early experiences in Spain and his contacts there with Arabic science and thought. Save for a short disputation on human reason, in which he showed an attraction toward the Platonic Ideas, he wrote no philosophical work. His only authentic scientific writings are mathematical. His letters, some of which contain discussions of mathematics, illustrate his political activity and the events of his age. In his later life he had little influence on the intellectual and spiritual life of his age. His earlier work as a teacher, however, marked an epoch.

See also Aristotle; Boethius, Anicius Manlius Severinus; Mathematics, Foundations of; Philosophy of Education, History of; Porphyry; Seneca, Lucius Annaeus.

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David Knowles (1967)

GERSHON, LEVI BEN

See *Gersonides*

GERSON, JEAN DE
(1363–1429)

Jean de Gerson was one of the most influential French intellectuals of the early fifteenth century. He studied under Pierre d'Ailly and received his doctorate in theology in 1392. He was elected the chancellor of the University of Paris in 1395. He used this key position for intense intellectual involvement in ecclesiastical politics. He was part of the University of Paris delegation to the Council of Constance and played an important role in the discussions there. After the council, he fell from political favor. Returning to France in 1419, he lived in Lyon for the rest of his life in relative obscurity. He was then engaged mainly in literary work, producing, for example, the well-known defense of Joan d'Arc.

During Gerson's lifetime, the emphasis in university work turned from research to teaching and social influence. The saying "everything necessary has already been written" was often used at the time, and accordingly university teaching was often directly based on canonical sources. Gerson was an active figure in developing the university away from "idle speculations" and toward applying learning for the larger world. His own philosophical work cannot be described as highly original. But he was very productive and very influential through his writings on popular topics.

In political philosophy, Gerson was close to his master Pierre d'Ailly. They worked in close cooperation on many issues. As *conciliarists*, they understood the church as a political society. Thus, they thought that a general council of the church would have the power to solve the papal schism, like in any political society the ruler may rightly be deposed if he fails to promote the welfare of the society. Gerson cannot be said to have promoted individual rights because he did not understand the welfare of society in terms of the welfare of the individual.

Gerson has been called both an opponent and a proponent of the nominalist movement of his time. In many contexts, he relied on nominalist positions. He was, however, an opponent of the idea that natural reason could solve metaphysical problems. Also, he acted with the Renaissance humanists against the increasing role of logic and natural reason in the theological faculties. This was a time in which the English tradition in nominalist logico-semantical work was gaining ground in continental universities, especially among the Scotists and the Ockhamists. Later on, achievements in this field were to prove crucial in the formation of what is today known as modern science. Gerson's opposition to this increasing emphasis on logico-semantical analysis in the theological faculties was not so much due to a disagreement about philosophical issues so much as a preference for what he saw as more applicable and experientially grounded knowledge.

Instead of speculative theology, Gerson encouraged mystical theology, and indeed many of his best known writings are from this field. His approach is that it is the duty of every person to acquire experiential knowledge of God. This did not mean a rejection of philosophical learning. Rather, Gerson sought for mutual support between devotion and learning. In his anthropological writings, he presents a threefold division both of cognitive potencies—simple understanding, reason, and sensitivity (*intelligentia simplex*, *ratio*, and *sensualitas*)—and of affective potencies—conscience, rational desire, sensitive desire (*synderesis*, *appetitus rationalis*, and *appetitus sensualis*). These divisions accord with neoplatonic models, but Gerson's special emphasis is upon the reciprocal relations between the affective and the cognitive powers. They must work together so that knowledge and love both contribute to the approach to God. In this way, the *unio mystica* can be achieved. Gerson says very little about that experience itself, claiming that it is known only through experience and cannot be described.

Gerson was a typical fifteenth-century Renaissance intellectual. He was deeply religious and committed his efforts to public affairs, concentrating on the papal schism and his duties at the University of Paris. Apart from the writings on mysticism, his philosophical views

are best understood in terms of the ecclesiastical situation and his position in the university politics of the time.

See also Ailly, Pierre d'; Bonaventure, St.; Luther, Martin; Platonism and the Platonic Tradition; Pseudo-Dionysius; Ruysbroeck, Jan van; Scotism; Thomism.

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Mikko Yrjönsuuri (2005)

GERSONIDES

(1288–1344)

Gersonides, or Levi ben Gershon, also known by his acronym, "RaLBaG," was a French Jewish philosopher, biblical exegete, mathematician, and astronomer. He was born at Bagnols and died at Perpignan. He was the inventor of two astronomical instruments, the Jacob's staff ("baculus") and an improved camera obscura. Gersonides' literary contributions include biblical commentaries of a philosophical and moral tone, supercommentaries to Averroes's treatises on Aristotle, and his philosophical masterwork, *Milhamot Adonai* (Wars of the lord). Because of his knowledge of Averroes, Gersonides was exposed to a more authentic version of Aristotle than was available to his predecessors and was thus motivated to reexamine certain problems that he felt had previously been treated inadequately or incorrectly. These problems, corresponding to the six sections of the "Wars," are (1) the nature and immortality of the soul, (2) prophecy, (3) the nature of God's knowledge, (4) divine providence, (5) miracles and the structure of the universe, and (6) the creation of the world. Methodologically, he recognized the authority of the four roots of knowledge (as first formulated by Saadya Gaon), namely, reason, sensory perception, divine revelation, and rabbinic tradition, in that order of priority, although he seldom cited the last specifically.

The work begins with a detailed analysis of Aristotle's doctrine of the soul according to the interpretations of Alexander of Aphrodisias, Themistius, and Averroes. In agreement with Alexander, Gersonides maintained that the material or hylic intellect is a capacity inherent in the sensitive soul. Under the agency of the Active Intellect, the last of the separate intelligences, the material intellect is transformed, through the acquisition of ideas, into an actual or acquired intellect. Opposing the nominalism of Alexander and Maimonides, Gersonides maintained the reality of the ideational content of the acquired intellect. It is this acquired intellect that survives independently after the death of the individual.

Gersonides' account of the nature of God's knowledge is related to his theory of divine attributes. Maimonides' theory of homonymy, according to which attributes in general and the term *knowing* in particular refer to entirely different concepts when applied to God and man, allowed Maimonides to maintain both God's absolute omniscience and human free will. Rejecting this as absurd, Gersonides reaffirmed, in agreement with the Muslim philosophers Avicenna and Averroes, that attributes are to be treated as ambiguous terms, applied in a primary sense to God but in a derivative sense to man. Furthermore, the attributes imply no plurality in God's nature since they are subjects of discourse and not of essence, just as the terms *redness* and *color* imply no plurality in the concept "red."

Since God's knowledge is similar in nature to man's, he cannot know the contingent and consequently knows the particulars only insofar as they are ordered. This amounts to a virtual restriction of divine knowledge to the universals. Since men are endowed with free will, this restriction normally precludes special providence for individuals. However, some individuals enjoy special providence; this consists in a knowledge, received from the Active Intellect, of stellar configurations that determine events on earth. Modern scholarship has not generally noted that this explanation of special providence for the intellectual elite was foreshadowed in one of the two discussions of the problem in Maimonides' *Guide for the Perplexed* (III.51).

The communication of astrological information to the human intellect by the Active Intellect is known as prophecy. The prophet, to the extent of his ability, interprets the general information received, in the light of the particular circumstances with which he is concerned,

Gersonides' tendency to deny God's direct involvement in terrestrial affairs is further illustrated by his theory that the capacity for miracles was implanted in nature so that miracles do not represent any specific divine concern.

In his discussion of the origin of the world, Gersonides agreed with Maimonides that it was indeed created but, in opposition to him, maintained that *ex nihilo nihil fit.* Rather, he posited an absolutely formless matter (not eternal in time since time did not exist before the creation of the world) out of which the world was formed. Gersonides found this dualism useful in ascribing the origin of evil to matter.

See also Alexander of Aphrodisias; Aristotle; Averroes; Avicenna; Jewish Averroism; Jewish Philosophy; Maimonides; Saadya; Themistius.

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Frank Talmage (1967)

GERSONIDES [ADDENDUM]

The intensive and fruitful research conducted on Gersonides since the 1960s has increasingly led to a recognition of his exceptional stature as a philosopher-scientist. It is also appreciated now that the multifarious aspects of Gersonides' thought constitute a coherent unity that must be studied as such. Contrary to Maimonides, whom he venerated, Gersonides believed in the human power to discover God's blueprint for creation, namely through empirical study of nature and through the interpretation of God's revelation (the Scriptures). This belief triggered his various scientific activities, most of which have been the subject of recent research.

Following notably Charles Touati's French monograph on Gersonides' philosophy, many detailed studies have been devoted to specific issues. Several parts of the *Wars of the Lord* have been translated into English and French, followed by a full English translation by Seymour Feldman. The great significance and originality of the largely unpublished astronomical part of Gersonides' *Wars* (often referred to as his *Astronomy*) have been brought to light, notably by Bernard R. Goldstein. In addition, J. L. Mancha has shown that the Latin translation of the *Astronomy* had been realized with the collaboration of Gersonides himself at the papal court in Avignon, testifying to the importance ascribed to it there. (For these and all other bibliographical references see Kellner's "Bibliographia gersonideana.")

Scholars realize now that Gersonides' numerous super-commentaries on Averroes's commentaries on Aristotle's treatises are crucial for an adequate understanding of Gersonides' thought and its evolution. Recent scholarship (R. Glasner) established that Gersonides was the first to teach Averroes's commentaries—in their Hebrew versions—in the Jewish community of southern France. Recent editions of Gersonides' commentary of the Pentateuch unearthed new material, revealing that Gersonides was more interested in Jewish law than had previously been thought. More generally, the great importance of the biblical commentaries for the understanding of Gersonides' thought has become better appreciated.

Scholars—notably Ruth Glasner—point to the originality of Gersonides' thinking about natural philosophy and its central place in his work. The originality of Gersonides' work in logic has also been highlighted, notably by Charles Manekin. Other studies, especially by Sara Klein-Braslavy, emphasize the importance of Gersonides' scientific methodology. Gersonides depended essentially on literature available in Hebrew; the question why his work bears next to no trace of a familiarity with Latin philosophy—even though Gersonides is known to have had contacts with Christians—has been much, albeit inconclusively, discussed in recent research.

See also Aristotle; Averroes; Maimonides; Revelation; Scientific Method.

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Gad Freudenthal (2005)

GESTALT THEORY

The Gestalt movement in psychology began early in the twentieth century; its founders were the German psychologists Max Wertheimer, Wolfgang Köhler, and Kurt Koffka. A Gestalt is essentially an organized whole whose parts belong together, as opposed to being simply juxtaposed or randomly distributed. As Wertheimer put it, "What happens to a part of the whole is determined by intrinsic laws inherent in this whole." The Gestalt theorists believed this principle to be of wide application and to be relevant to the psychology of perception in particular.

HISTORY

As early as 1890 Christian von Ehrenfels had pointed out that to appreciate a melody we need to be aware not of single tones in isolation but of a succession of tones

FIGURE 1
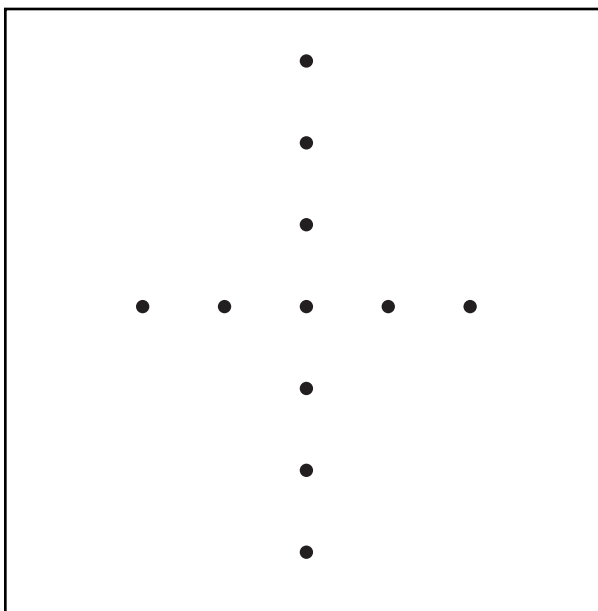
which combine in a particular way. If notes of the same pitch as those of the original melody are presented in a different temporal order, there will be a completely different effect, whereas the same melody played in a different key is immediately recognizable, even though the notes are different in pitch from the original ones. The melody as a whole was said by von Ehrenfels to have a *Gestaltqualität* independent of the qualities of the separate notes. Wertheimer, Köhler, and Koffka were concerned to apply the concept of Gestalt over a wide area and thus give a new direction to psychological research.

A central feature in their view was the doctrine of isomorphism, which asserts that our experiences have the same structure as the brain processes which underlie them. Thus, if the stimulus is a nearly complete circle which the subject sees as a complete circle the doctrine of isomorphism would assert that there must be some pattern in the brain that is isomorphic with the complete circle, as opposed to the incomplete one. The detailed neurological hypotheses which they put forward are of questionable value, but the general principle is still of interest, as is Köhler's demonstration that there are Gestalten in physical nature, for example, the soap bubble, whose spherical shape is the necessary result of the total forces in operation at any one time (see Koffka, *Principles of Gestalt Psychology,* p. 14).

The following are some typical examples of the Gestalt principle as applied to vision: Figure 1 appears as a cross; if, however, we consider the effect on the retina of

FIGURE 2A

FIGURE 2B
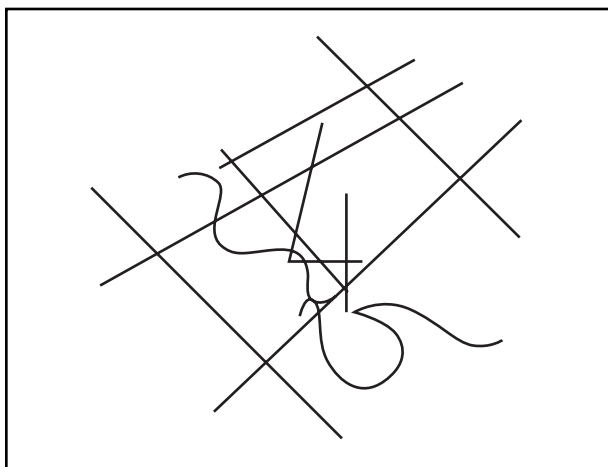
the eye of each of the dots in isolation, there is nothing to account for the way in which they are organized. Implicit in traditional thinking, according to Köhler and Koffka, is the so-called constancy hypothesis—the hypothesis that stimulation of a particular point on the retina has a constant effect regardless of the total pattern of stimulation. Yet if the constancy hypothesis were true, it would be hard to explain the obvious recognizability of the "4" in Figure 2a and its camouflage in Figure 2b, since the same retinal points are being stimulated in both cases. Similarly one cannot explain how a person who moves from twenty yards away to ten yards away continues to look approximately the same size, since the retinal stimulation must by the laws of optics be quite different. Indeed there are many characteristics of the perceived world (what Koffka terms the "behavioral," as opposed to the "geographical," environment) which do not bear a one-one relationship to anything in the pattern of stimulation. Thus, in Figure 3 we see the lines as four pairs, but the "togetherness" of each pair has no direct counterpart in the system of stimuli; and in Edgar Rubin's famous example (Figure 4), whether we see the white as "figure" and the black as "ground" or vice versa, there is no direct counterpart to the "thinglike" character of the figure and the absence of this character in the ground.

This thinglike character, the character of "productivity," which occurs in some causal transactions, the character of "being mine," which belongs to, say, my hand in contrast to an object on which my hand is resting, the character of anger present in someone's face—these are some of the many features which are present in the behavioral environment, even though they are necessarily absent from the world of physics because there is nothing in the stimulus situation directly corresponding to them.
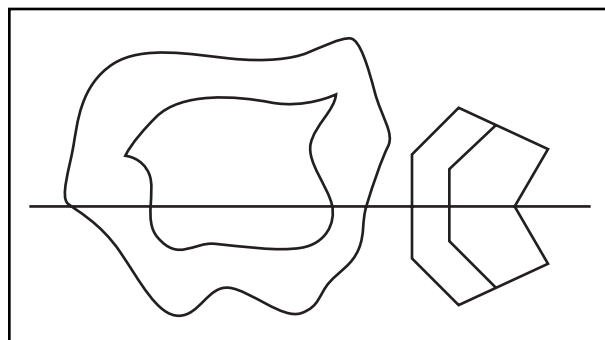
On the Gestalt view what is all-important is the way in which the immediate, or "proximal," stimuli (for example, light waves or sound waves) combine in space and time; when these combinations are of a certain kind, certain perceptual organizations will arise (for example, two parts of a diagram will be seen as belonging together), and laws can be framed in terms of which such organizations can be predicted. Details of these laws have been set out by David Katz; they include the law of proximity, which states that, other things being equal, in a total stimulus situation those elements which are closest to each other tend to form groups, and the law of closed forms, which states that, other things being equal, lines which enclose a surface tend to be seen as a unit.

A law of a more general kind is that of *Prägnanz.* As formulated by Koffka (*Principles of Gestalt Psychology*, p. 110), this law states: "Psychological organisation will always be as 'good' as the prevailing conditions allow. In this definition the term 'good' is undefined. It embraces such properties as regularity and symmetry, simplicity and others." In other words, when the stimuli are of a certain kind, there are forces within the organism that operate in the direction of maximum simplicity; hence, we tend to see "good" figures—squares and circles, for example—rather than less regular ones. The word *Prägnanz* is of course ultimately connected with the Latin *impregnare.* The suggestion here, however, is not that of something being fertilized or made pregnant but rather of something being stamped or pressed into a particular shape (compare the word *prägen,* which is used primarily to refer to the minting of coins). Certain types of configurations, one might say, are particularly impressive; they carry a certain stamp or they strike us in particular ways.

Contrary to what has sometimes been said, the Gestalt psychologists did not dispute that past experience can influence perception; this is made plain by Katz in *Gestalt Psychology* (pp. 28–29). Their criticism was

FIGURE 3

FIGURE 4
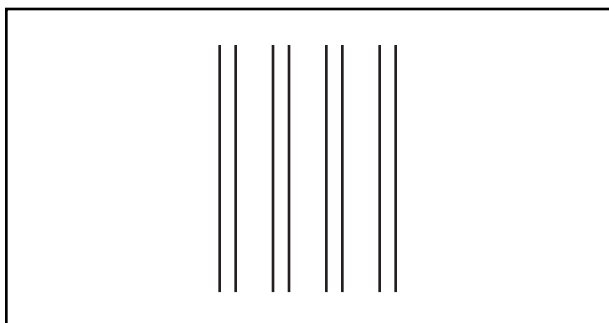
directed against the view of perception that invoked past experience as a deus ex machina when observed results did not fit the constancy hypothesis. Thus a penny, unless its flat surface is directly in front of us, might be expected from the laws of optics to look elliptical. Since it does not, one can preserve the view that the "basic datum" is an ellipse by postulating a rapid process of inference based on past experience. On this view we *infer* that the penny is round because of our alleged previous experience of round pennies. According to the Gestalt psychologists, however, not only is there nothing in introspection to suggest such an inference; they would also have questioned whether in fact it is particularly common in ordinary life for pennies to have their flat surfaces directly in front of the observer—a condition that their opponents' theory seems to require. In contrast, their view was that when the proximal stimuli combine in a certain way a particular perceptual organization is forced upon us; thus a circle is a "good" figure, and hence the "internal forces" will operate in the direction of a circle rather than an ellipse.

Interesting experimental studies include those of Wertheimer ("Experimentelle Studien über das Sehen von Bewegung," in *Zeitschrift für Psychologie*) on the perception of movement, those of Köhler (*The Mentality of Apes*) on problem solving in apes, those of Wertheimer (*Productive Thinking*) and K. Duncker ("On Problem Solving") on problem solving in humans, that of Katz (*The World of Colour*) on the perception of color, that of Rubin (*Synsoplevede Figurer*) on the figure-ground distinction, those of Kurt Lewin (*Principles of Topological Psychology*), who has attempted to apply Gestalt principles to the study of social situations, and those of Albert Michotte (*La perception de la causalité*)—although he was not a member of the original group—on the conditions in which we receive an impression of causality. A recent interesting development is the attempt to relate figural goodness to the amount of information (in the mathe-

matical sense) needed to specify a particular pattern or figure (see especially Fred Attneave, *Applications of Information Theory to Psychology,* p. 82). The problem of perceptual Gestalten has arisen in an acute form in the programming of computers to carry out pattern recognition (see, for instance, Kirsch, "Computer Interpretation of English Text and Picture Patterns").
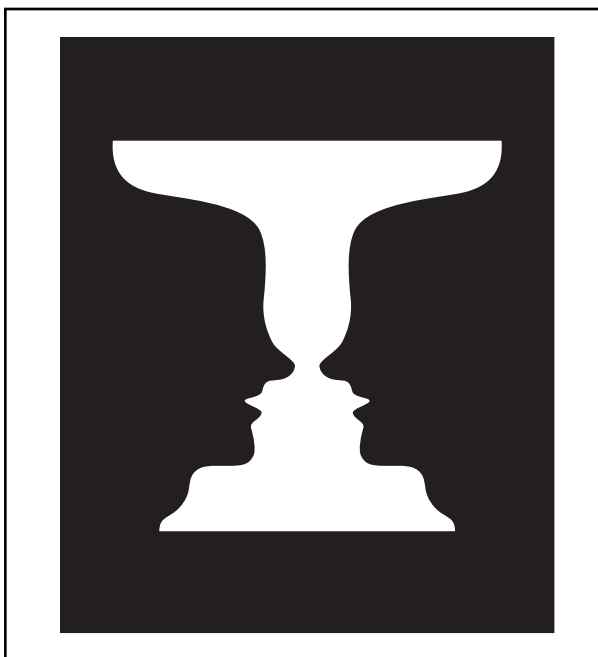
SCIENCE AND COMMON SENSE

The advance of science continually brings in its train a challenge to our commonsense beliefs about the world. At one time or another in the history of scientific thought it has been held, for example, that sense perception is unreliable, that the things around us are not really colored, that the floor on which we walk is not really solid, and that no two events are ever exactly simultaneous. In contrast with many other scientific systems, Gestalt theory involves the attempt to call us away from such paradoxes back to common sense; it invites us to consider the world as we in fact experience it, not as we might expect to experience it in the light of the latest scientific developments.

It does not, of course, follow, that philosophical paradoxes can be disposed of simply by pointing out that experience is in fact of such-and-such a kind. Thus, it is no argument against John Locke's account of substance or David Hume's account of causality to point out that

the behavioral environment is found by experience to consist of things in causal interaction, any more than it is an argument against the distinction between primary and secondary qualities to point out that we are aware of greenness as being in the grass and not in our heads. Similarly, a philosopher who wishes to defend the sense-datum terminology cannot be refuted simply by an appeal to Rubin's claim that what we perceive is organized into figure and ground and is not just "a mosaic of sense data." As a corrective against those who mistake the point of philosophical arguments, it may be helpful on occasions to make explicit exactly what we are aware of at the commonsense level, but this does not prove the philosophical arguments to be wrong.

Despite the emphasis on naive judgment, however, the Gestalt program does not involve an uncritical return to naive realism. Rather, its claim is that the gulf between what common sense tells us and what science tells us is not, after all, as great as might be supposed; the world of nature is *gestaltet* no less than are our experiences. Moreover, although in some of their discussions Köhler and Koffka speak in traditional terms about "the relation between mind and matter," their views do not fit easily into the traditional categories of interactionism, epiphenomenalism, and parallelism; indeed, like many modern philosophers, they are critical of a starting point which forces us to decide between theories couched in these terms.

POSITIVISM AND BEHAVIORISM

The prevailing scientific attitude of the time, which Koffka called "positivism," was mistaken, on the Gestalt view, because it allowed no place for the categories of meaning and value. The important fact for psychology is that the behavioral environment is organized—it is intelligible. Thus we are making *sense* out of a person's facial expression when we say that he is angry. Similarly, if a person listens to music, he is sometimes aware that a chord with the leading note (the seventh of the scale) at the top *requires* to be followed by the tonic chord of the original key; the cadence has its special meaning only if the second chord follows the first. This remains true even though such "requiredness," as Köhler terms it in *The Place of Value in a World of Facts,* can play no part in the world of physics. As physical science advances we are enabled to make continually more refined statements about the geographical environment; but in so doing, on the Gestalt view, we are in danger of losing sight of facts—those of the behavioral environment—which for the psychologist are of special interest. Koffka agreed that vitalism is "no

solution but a mere re-naming of the problem"; but by taking seriously the concept of Gestalt one can, he held, be antimechanistic without being obscurantist.

There is also an attack on the allegedly "scientific" creed of behaviorism, whose development was almost contemporary with that of Gestalt theory. The term *behaviorism,* as Köhler understands it, implies a denial that there can be "a science of direct experience," either because there is no such thing as direct experience or because if it exists, it is not accessible to public scrutiny. In reply Köhler points out that no scientist can even begin to experiment unless he starts from his own experienced world. He also points out that one has as little or as much justification to be skeptical about the world of experience as one has to be skeptical about the world of physics; there is no good reason why the behaviorist should choose to ignore the world of experience while taking the world of physics on trust.

ISOMORPHISM

It is far from clear whether the doctrine of isomorphism constitutes a radically new discovery, as the Gestalt theorists supposed, or whether it is a somewhat high-sounding way of asserting the obvious. Most modern psychologists, if asked, would doubtless express the hope that complete explanations of perception and learning will eventually be found in terms of brain processes. If, therefore, the contribution of Gestalt theory is to be distinctive, clearly some more far-reaching claim must be involved.

Koffka expressly pointed out that Gestalt theory does not stand or fall with the correctness of a particular theory about perceived movement. According to Koffka its more general objective is to contribute to "the integration of value, life, and mind. … The Gestalt concept … cuts across the division of realms of existence, being applicable in each of them." That is, there are Gestalten in nature (for example, the soap bubble); there are Gestalten in the living brain; and there are Gestalten in our conscious experience. In traditional discussions about the relation between mind and body, according to Köhler, it was "tacitly assumed that only *microscopic* events in the cortex can be the correlates of mental life." In contrast, the doctrine of isomorphism invites us, in Koffka's words, to "think of the physiological processes not as molecular but as molar phenomena. … If they are molar, their molar properties will be the same as those of the conscious processes which they are supposed to underlie." As has already been pointed out, this is not just an answer within the context

of traditional mind-body dualism; it is an attempt to look at this whole family of problems afresh.

The distinction between the geographical and behavioral environments gives rise to difficulties of its own. One very reasonably asks, in the first place, what kind of duality is involved. Clearly, there are not two environments in the same sense that there are—or might be—two rooms in a country cottage. If a child specialist recommended a change of environment for a child, it would make no sense to reply "very well; we will change him from the geographical to the behavioral environment." One is reminded in this connection of Arthur Eddington's claim—which in fact involves the same kind of difficulty—that he is writing simultaneously at two tables. Second, if we take the idea of two environments at its face value, we are tempted to ascribe some kind of superior status or "reality" to one or the other. It is the geographical environment, according to Koffka, whose contents are "real": "The pen with which I am writing is a unit in my behavioural environment and so is the *real* pen in the geographical" (italics added). What is "real," however, does not apparently coincide with what is "given"; "every *datum* is a behavioural datum; physical reality is not a datum but a constructum." The suggestion that each of us somehow "constructs" a physical world out of his immediate experiences implies a phenomenalist view which in the last resort leads inevitably to solipsism. Clearly this was not Koffka's intention, but he gave no indication how such a conclusion can be avoided.

The important point, according to Köhler and Koffka, is that the concept of Gestalt cuts across these two different kinds of reality. In the words of Köhler, "Any actual consciousness is in every case not only blindly coupled to its corresponding psychophysical processes, but is akin to it in essential structural properties." The difficulty here is that *anything* can be regarded as "structurally akin" to anything else, provided enough rules are given. Many maps are structurally akin to landscapes in that they involve the same geometrical shapes; but if one is allowed sufficient rules for specifying what represents what, a map of England (as we now call it) could function without any misrepresentation as a map of France. What Köhler needs to argue for is some relatively clear-cut and uncomplicated structural relationship. Thus, it may well be that the shape of the areas stimulated in the cortex has something in common with the shape which we observe in an object, although it is hard to see how there can be any close parallel in the case of color, since, when *X* is looking at a green object, *Y* does not find anything green in *X*'s cortex. One must suppose that the use of the term

psychophysical (instead of *physical*) to describe processes in the brain is intended to emphasize these relatively close structural similarities.

KNOWLEDGE OF OTHER MINDS

In reply to the charge of solipsism, Köhler and Koffka could point out that they both discuss the problem of knowledge of other minds at some length. The main feature of philosophical interest in these discussions is that structural similarities are pointed out between behavior which is noticed by others and so-called inner states, which are discriminated only by the person himself. A person's wincing may have precisely the same temporal properties as his twinges of pain, and the sound of his rising voice may have the same movement properties as his inner feelings of rising anger. Koffka pointed out that a character in a Mickey Mouse cartoon can quite well look exuberant or dejected; and if we can directly observe such exuberance or dejection in these cases, there seems to be no reason why we should not directly observe it in our friends. Similarly, Michotte has argued that visual experiences of live movement are structurally similar to kinesthetic and other experiences that we have when we make an effort. These considerations are not, of course, sufficient to remove all possible skeptical doubts; but they at least make clear the conditions in which we can justifiably say of a person that, for example, he is angry, dejected, or making an effort.

"SEEING" AND INFERENCE

Koffka suggested that the word *see* should be used in a "purely phenomenological" sense, that is, in such a way that the words which follow are a simple description of our experience. Thus, if we look at a table that is partly covered by a book, we are not aware of any gap or hole in the table in the area where the book is; and Koffka therefore wanted to say that what we *see* is a complete table. On his view it is necessary to describe our experience without being influenced by considerations of what we might expect to see on the basis of scientific knowledge—in this case, by our knowledge about the characteristics of the light waves striking the retina.

In ordinary usage, when we say that we or someone else saw something, this is normally not just the report of a visual experience; there is also an implicit claim to correctness. If the person is in fact deceived, then one is wrong to use the word *saw*, just as one would be wrong to say that a person has "proved" something if his argument contains a fallacy. One might therefore express Koffka's difficulty by saying that, as our knowledge of physics

increases, claims to *correctness* will force us further and further away from naive description. "Why," he asked rhetorically, "are we so hopelessly stupid as to call the colour of our table-cloth on the candle-lit dinner table white, when Helmholtz told us that it was yellow?" According to Koffka's proposed usage we actually see a white tablecloth, the evidence of the physicists notwithstanding.

This "purely phenomenological" sense of "see," however, is unnecessary. We already possess the expression "seeing-as" for situations where we do not wish to make claims to correctness. On this usage, we *see* the tablecloth *as* white even though we might have expected to see it as yellow. Similarly, a person who is exposed to an ambiguous diagram may *see* it *as* two-dimensional, even though on another occasion he sees it as three-dimensional. Unless one is an extreme skeptic and asserts that claims to correctness are never appropriate when visual perception is involved, it is surely useful to have a terminology which enables us to make such claims on some occasions and to withhold them on others.

Moreover, Koffka's proposed usage, if adopted consistently, carries the paradoxical consequence that we can never be sure or unsure about what we see, nor can we be right or wrong. If we look more carefully at something, or if others give us a verbal description or point to a contour line, we may, of course, see something new; but we were still neither right nor wrong about what we saw before.

There is the further paradoxical consequence that no two people can ever see the same thing. Köhler is apparently prepared to accept this, since he expressly tells us that no two scientific investigators ever see the same galvanometer. Moreover, if everything that we see (in Koffka's sense) is, by definition, part of the behavioral environment, this has the effect of turning the behavioral environment into a home for every erroneous perception which has been made. It is as bad as having to postulate false facts to ensure that false propositions refer to something. In general, the distinction between the geographical and behavioral environments involves many points of interest, but in philosophizing in this area, Koffka in particular was not successful in avoiding paradoxical consequences.

As far as psychology is concerned, the work of the Gestalt theorists has led to the discovery of a large number of new facts, particularly in the sphere of perception, and to a reinterpretation of facts which were already known. On the basis of the laws of structural organization, predictions can be made about what will be perceived when the proximal stimuli are of a particular kind,

and these predictions normally work. The neurological explanations are inadequate by present standards, but even in this area the Gestalt theorists have at least called attention to problems which require to be solved, and, in particular, they have taken seriously the challenge presented by our ability to perceive spatial and temporal relationships.

On the broader theoretical issues, traditionally the province of philosophy, their main contribution has been to indicate the need for a change of emphasis. In the light of advancing scientific knowledge, it appeared to be the case that what we thought we were perceiving was not what we were really perceiving at all ("the grass is not really green," "the white tablecloth seen in candlelight is really yellow," and so on). For the Gestalt theorists, however, as for some modern philosophers, such claims were paradoxical and confused. Whatever physics tells us, the starting point, on the Gestalt theorists' view, must necessarily be the world as perceived by common sense; this is the world to which organisms respond, and it is therefore of special importance for the psychologist; moreover, if we ourselves did not perceive it in certain ways, physics could not even begin. This is to say, in effect, that language descriptive of ordinary experience can never be reduced to the language of physics—a thesis that has been held in many forms but which has seldom been defended in such a sustained and systematic way.

See also Behaviorism; Eddington, Arthur Stanley; Ehrenfels, Christian Freiherr Von; Hume, David; Koffka, Kurt; Köhler, Wolfgang; Locke, John; Perception; Phenomenological Psychology; Positivism; Psychology.

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T. R. Miles (1967)

GEULINCX, ARNOLD
(1624–1669)

Arnold (or Aernout) Geulincx, the Flemish metaphysician and moralist, was born in Antwerp. He studied philosophy and theology at Louvain and in 1646 was made professor of philosophy, a position he held for twelve years. Although information about his life at Louvain is limited and his important works date from a later period, it appears that as a student he was influenced by the Cartesian Guillaume Philippi, that in his teaching, as later, he attacked scholastic physics from a Cartesian point of view, and that he was also attracted by the doctrines of Cornelis Jansen.

In 1658, on charges that were not made public but that may have been prompted by his criticisms of scholasticism and accepted religious practices, he was deprived of his professorship and left Louvain for Leiden. At the same time, he renounced Roman Catholicism and became a Calvinist. Arriving in Leiden in distressed circumstances, he was assisted by the Cartesian Abraham van der Heyden (Heidanus) and set to work on a study of fevers, which he presented for the doctorate in medicine. Despite his precarious situation at first, Geulincx succeeded in publishing treatises on logic and method (*Logica Fundamentis Suis … Restituta,* Leiden, 1662, and *Methodus Inveniendi Argumenta,* Leiden, 1663) and the first part of his most accomplished work, the "Ethics" (*De Virtute et Primis Ejus Proprietatibus,* Leiden, 1665). He was appointed professor extraordinary of philosophy at

the university in 1665 and remained in Leiden until his untimely death, in 1669. Six years later the complete "Ethics" was published, under the title *Γνωθι σεαυτον, Sive … Ethica* (Leiden, 1675). His "Physics," taken from manuscripts used in his classes, appeared in 1688 (*Physica Vera,* Leiden); commentaries on René Descartes's *Principles of Philosophy* in 1690 and 1691 (*Annotata Praecurrentia, Annotata Majora,* Dordrecht); and the very important "Metaphysics," published apparently from a student's copy, in 1691 (*Metaphysica Vera et ad Mentem Peripateticam,* Amsterdam).

OCCASIONALISM

Geulincx is best known for his occasionalist theory of causation and his denial of the substantiality of particular created things. Following Descartes's order of procedure in his "Metaphysics," he considered at the outset the possibility and the limits of doubt and found that our first knowledge is of the self as a thinking thing. Consideration of the various states of the self or mind led him to formulate a principle, which he took to be self-evident though obscured by prejudices, that expresses a necessary condition implicit in our conception of an action: that something cannot be done unless there is knowledge of how it is done, or, as specifically related to activities of the self, that a person does not do what he does not know how to do (*impossibile est, ut is faciat, qui nescit quomodo fiat; quod nescis quomodo fiat, id non facis*).

The principle had far-reaching consequences in Geulincx's moral philosophy as well as in his metaphysics. Concerning the self, he contended that actions involving movements of the body cannot in truth be attributed to the self and that the mind or soul is not, as it is often supposed to be, the true cause of movements of the body. Not only are we unaware of changes in the brain, nerves, and muscles requisite for, say, moving the arm, but even if we know of these changes from a study of physiology, our knowledge is based on ex post facto observation of sequences of volitions and physiological happenings, not on awareness of a supposed mental activity producing these movements. Though we have, Geulincx maintained, immediate knowledge and understanding of internal actions—that is, of acts not involving bodily movements and consisting solely of changes in a state of mind—we are not in like manner cognizant of how movements are initiated in the body or how external actions come about. Accordingly the influence of the human mind is limited to its own states, and the mind is not the master of—that is, the true cause of movements in—the body.

The principle was also invoked against the assumption that bodies, or corporeal things, are capable of acting, either on minds or on other corporeal things. It is assumed, for instance, that a fire acts on a man's body and, affecting sense organs, nerves, and brain, produces sensations of light and heat in his mind. It is also assumed that in cases of impact one body striking another sets the second body in motion. But how, Geulincx asked, can a body produce these effects? To bring them about, according to his principle, it would have to know how. Yet admittedly a body is inanimate and, lacking consciousness, lacks the knowledge that on reflection we see is a necessary condition of acting. Bodies are *res brutae.* To suppose that they have the distinctively spiritual characteristic of acting is a signal instance of confusion involving the self-contradictory notion of corporeal action or causation. Arguing against the possibility of genuine corporeal causation as such, Geulincx, like the occasionalists Géraud de Cordemoy and Nicolas Malebranche, took it to be true a fortiori that bodies cannot act on minds. (There is no evidence that Geulincx was influenced by, or that he in turn influenced, the other occasionalists.)

Though the human mind does not act on the body and bodies do not act on the mind or on other bodies, changes obviously do take place, and in these changes we discern patterns or constant conjunctions of events. According to Geulincx, the agent responsible for these changes is God, and the patterns we observe are due to laws that God enacts and in accordance with which he operates. Explicating his theory of supernatural causation in the case of volitions and bodily movements, Geulincx iterated two analogies, the second of which was the subject of an important controversy among German historians in the nineteenth century. (1) When a child wants his cradle to move, it often happens that the cradle moves, not as a result of his willing it, but because the mother or nurse in attendance wills that it move. (2) Two clocks that are synchronized sound the hour in unison, not because one influences the other, but because they are fashioned in such a way that they keep the same time. The second illustration has been cited to show that Geulincx, like Gottfried Wilhelm Leibniz, conceived of a preestablished harmony between mind and body and that he was the unacknowledged source of Leibniz's famous analogy of concurrent clocks and, by implication, of Leibniz's view of the relation between mind and body.

Against this interpretation it can be argued convincingly (as was done by Eduard Zeller) that in Geulincx's view, God's actions, though in accordance with rules, are immediate or direct in the sense that there is nothing in

mind or body comparable to the internal natures which, according to Leibniz, account for their successive states and mediate the will of God and the course of events. It is not the case, however, that the actions of Geulincx's God are ad hoc or, as Leibniz accused the occasionalists, that Geulincx's God is a deus ex machina. The rules of his action are fixed, and he simply applies them, with no special volitions required, in particular circumstances.

SUBSTANCE

Geulincx's views about substance were roughly midway between Descartes's and Benedict (Baruch) de Spinoza's. In the Synopsis of the *Meditations,* Descartes, drawing a distinction between body taken generally (*in genere sumptum*) and the human body, suggested that the former, like a person's mind, is a substance or pure substance (*puram … substantiam*), whereas the latter, insofar as it is a particular body differing from other bodies, is not. Following Descartes's lead, Geulincx contrasted body in itself (*corpus ipsum, corpus simpliciter dictum*), which he identified with extension, and particular bodies, which he claimed are modes of body (*aliquid ipsius corporis simpliciter dicti, modi corporis*). Body in itself is simple, unique, individual, infinite, and indivisible. Particular bodies are limitations of, or abstractions from, body in itself. They are not, he explained, constituent parts, nor are they figments of the mind (*entia rationis*); rather, they are related to body in itself as the superficies, or surface, of a particular body is related to that particular body. In another analogy, as the country is not a collection of fields, orchards, and meadows but the land on which these divisions are imposed, so corporeal nature is not an aggregate of particular bodies but the matter or extension common to them all and specified in various ways. The analogy also explains Geulincx's conception of mind. Like Spinoza (though independently), he held that individual minds are themselves not substances but modes of mind (*modi mentis*) or of infinite thinking substance, which he identified with God. We are, he said, both from God and in God (*ex Deo et in Deo*). To the extent to which we can transcend the distorting forms of our limited understandings and see the eternal truths in ourselves as they are in the mind of God, we lose our status as limited beings and are one with God. Geulincx's reflections on problems about substance paralleled Spinoza's. However, he preserved the Cartesian distinction between thinking substance and extended substance, or matter.

ETHICS

In the letter prefaced to the first part of his "Ethics," Geulincx implied that his moral philosophy rounds out the system conceived by Descartes, who, though he proposed a provisional code of morality in the *Discourse,* did not bring this branch of the tree of knowledge to fruition. In Geulincx's view the subject matter of ethics is virtue, and virtue is located not in deeds but in a determination of the will—that is, in love of right reason or, since reason as prescriptive comprises laws imposed by God, in devotion to divine law. Though virtue is one and simple, there are four aspects, and these cardinal virtues are distinguished from and contrasted with the traditional cardinal virtues, which refer to actions or accomplishments, not to the locus of morality—namely, the condition of the will. (1) *Diligence* is attention to the voice of reason. Its issue is wisdom and prudence in conduct. (2) *Obedience* involves compliance with the dictates of reason. Though we are free to will in conformity to divine law or not, in the end we cannot but do what God wills. By obeying his prescriptions we attain freedom in the highest degree: We will what we can do and do not will what we cannot do, and our volitions are effective. (3) *Justice,* also, is a determination of the will: to will no more and no less than reason dictates. (4) *Humility* consists in knowledge, and denial, of self (*contemptio sui*) in the love of reason and of God. Contrasted with the virtuous man is the egoist, whose end in life is happiness. He is the slave of his passions and the creature of circumstance, whereas the virtuous man, not seeking happiness and resigned to what happens to him, is in a position to attain it.

See also Cartesianism; Cordemoy, Géraud de; Descartes, René; Ethics, History of; Leibniz, Gottfried Wilhelm; Malebranche, Nicolas; Spinoza, Benedict (Baruch) de.

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Willis Doney (1967)

GEULINCX, ARNOLD [ADDENDUM]

LIFE AND WORKS

Arnold Geulincx was born in Antwerp, Belgium, in 1624. In 1641 he matriculated at University of Louvain, where he became a professor of philosophy in 1646. For reasons that never became clear but were probably of a religious nature (at Louvain there was much sensitivity over Jansenism), he was suspended from his duties and consequently dismissed in 1657/1658. He moved to Leiden, The Netherlands, and converted to Calvinism. After taking a degree in medicine he obtained permission to lecture on philosophy, but his position was regularized only in 1662, when he was appointed reader in logic. He became professor *extra ordinem* in 1665. In 1667 he died from the plague. Most of his works, dealing with logic, moral philosophy, physics, and metaphysics, were published posthumously.

LOGIC

Although the main merits of Geulincx's works on logic seem to be their elegance and precision, Karl Dürr (1939–1940, 1965) and Gabriël Nuchelmans (1983, 1984, 1986) show that he made some important steps toward a logic of propositions. According to him words like *est* and *non* are signs (*notæ*) by which to indicate the mental act performed with respect to a particular content. Every denial is the negation of an affirmative claim, and that means that an affirmation has been present to the mind (*affirmatio inclusa*). Accordingly, "Peter is not learned" must be interpreted as "It is not the case that Peter is learned" or also as "The sentence 'Peter is learned' is false."

Speaking of compound conditional sentences, Geulincx defines an antecedent as a statement that says that the whole of that which some other statement (the consequent) says to be the case, is indeed the case. Consequence is a form of containment (*continentia*): Between two statements A and B there obtains a relation of consequence if A says the dictum of B. Both the theory of containment and the theorem that every A implies the statement "A is true" are corollaries of Geulincx's idea that by making a statement one commits oneself to the truth of that statement and of everything entailed by that statement. For example, if one says "I am standing," this must be taken as an affirmation of whatever is entailed by that statement, such as, for example, "I am capable of standing." Accordingly, "I am standing" serves as the antecedent of any number of other statements to the truth of which one commits oneself.

METAPHYSICS

According to Geulincx metaphysics is first philosophy or first science. It deals with the human subject, body, and God, each of which is the basis of a separate science: *autologia*, *somatologia* and *theologia*. The autologia basically consists in an exploration of the Cartesian *cogito*, which, however, Geulincx does not see as the basic principle of his philosophy but rather as a way to gain access to the realm of necessary truths. In fact, the more fundamental principle is the axiom that one can truly be said to make or do something only if one knows how it is made or done (*quod nescis quomodo fiat, id non facis*). This axiom allows Geulincx to claim that one is a passive spectator of the world, one's only activities being to will and think, albeit in a purely immanent way. Indeed, the world cannot be the cause of one's seeing and perceiving, given the fact that, since it can neither think nor know anything, it cannot be active. The only true cause is God and the only truly causal relation is that between God and the world. In fact, all philosophy should start with the concept of God, and the only reason why one has to start with the cogito is that the Fall has obscured one's faculties.

The result of Geulincx's analysis is that God is Being *simpliciter* as well as Mind *simpliciter*. This implies not only that all reality is ultimately mental but also that whatever is neither God nor part of God is nothing but an appearance. In fact, there are only two things that really exist, namely, Mind, which is the creator, and Body, which is the created. One's mind is part of the Divine mind (*mentis quid*). One's body is part of a phenomenal world. Particular three-dimensional bodies can be understood as limitations of the archetypal Extension that was produced in the act of creation. However, that there is a world, extended in three dimensions, can be known through the sensations God causes one to have. Finally, since contingent facts cannot be accounted for by principles of metaphysics (which explain only what is necessary), physics makes use of hypotheses, which must consist of clear and distinct ideas that together with the principles of metaphysics must be sufficient to explain all phenomena.

MORAL PHILOSOPHY

Like his metaphysics, Geulincx's moral philosophy is based on a corollary of his fundamental axiom, namely, that where there is no possibility to act there can be no will either (*ubi nihil vales, ibi etiam nihil velis*). In whatever way one acts, it is God that makes one act in that particular way. Accordingly, virtue is not to act in a particular way but to internally yield to God's will. Morality lies in the intention, not in the act. As a result, the cardinal virtues are dispositions: diligence, obedience, justice, and above all humility. On the contrary, passions are like sense impressions. Although they belong to human nature, they are relevant only insofar as they prevent one from developing the right attitude toward God's will. The most dangerous passion in this respect is self-love. In any case, the reward of virtue is that, freed from self-love, one enjoys peace and tranquility in this life.

RELATIONS TO OTHER THINKERS

Although much in Geulincx's philosophy goes back to René Descartes, it would probably be wrong to call him a Cartesian. For not only are the various parts of his philosophy differently connected (his metaphysics is crowned by his moral philosophy, not by his physics, which is comparatively independent), his metaphysics is, as has been shown by Brian Cooney (1972, 1978), basically an attempt to provide a metaphysical account of Divine Creation.

Accordingly, his philosophy has more affinity with Nicolas Malebranche's, with whom Geulincx shares a basically occasionalist interpretation of causality. Also, there is some similarity (although no affinity at all) with Benedict (Baruch) de Spinoza's philosophy, except, of course, that Spinoza rejects the idea of creation. In fact, Geulincx's starting point is fundamentally different. Whereas Spinoza argues that on the basis of Cartesian metaphysics it is impossible to account for creation, Geulincx takes creation to be a fact and attempts to make sense of it in terms of Cartesian metaphysics. However, the only way to do this is, he believes, to assume that creation consists in producing a world of appearance.

Not only Geulincx's metaphysics but also his physics is different from Descartes's, not because it would involve different concepts but because the status of their concepts is interpreted in a different way: Geulincx's concepts are hypotheses that, even if they are clear and distinct, are not automatically and necessarily true. This doctrine, which involves an interplay of empirical and metaphysical principles, has often been associated with Immanuel Kant's theory of judgment (Cassirer 1971–1973), but this is a bit far fetched. The best characterization seems to be that he is a Christian philosopher trying to find his way in the world of post-Aristotelian philosophy and availing himself of the language and concepts of his contemporaries to provide an intelligible account of the mysteries of faith.

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GEWIRTH, ALAN
(1912–2004)

Alan Gewirth was a twentieth-century moral philosopher best known for his attempt to complete the Kantian project and show that rationality requires morality. Gewirth took his BA at Columbia University in 1934, studying with John Herman Randall and Richard McKeon. After two years of graduate study at Columbia, he spend the academic year 1936–1937 on a Sage Fellowship at Cornell University and then followed McKeon to the University of Chicago as his research and teaching assistant. In June 1942 Gewirth was drafted into the army, and, without seeing combat, moved up the ranks from private to captain in four years. After World War II, he returned to Columbia and received his PhD in philosophy in 1948. From 1947 on, he was a regular member of the faculty at the University of Chicago, eventually becoming the Edward Carson Waller Distinguished Service Professor in the Philosophy Department in a career that lasted more than sixty years. He also taught as visiting professor at Harvard University, the University of Michigan, John Hopkins University, and the University of Santa Barbara.

Early in his career Gewirth did important work on Descartes's theory of knowledge; later he did notable scholarly studies of the medieval political philosopher, Marsilius of Padua, published as his *Marsilius of Padua and Medieval Political Philosophy* (1951) and a published a translation from the Latin of Marsilius's *Defensor Pacis* (1956) with a lengthy introduction. Gewirth is best known, however, for his attempt to develop a stringently rational foundation for morality in his *Reason and Moral-*

ity (1978). The central argument of this book begins with a claim that every rational agent must accept, which is that he or she prudentially ought to have freedom and well-being. Gewirth argues that when the logical implications of this claim are fully worked out, particularly when the claim is universalized, it follows that every rational agent must also accept the claim that all prospective, purposive agents *morally* ought to have freedom and well-being, although, of course, purposive agents may not act on this claim—that is, they may not act morally.

Most of the critical reaction to Gewirth's work has focused on this particular argument. Two book of critical responses, along with replies from Gewirth, have been published. key issue concerns whether the universalization of a rationally inescapable claim that "I prudentially ought to have freedom and well-being" leads to the claim that "we all morally ought to have freedom and well-being" or to the claim of universal ethical egoism that "we all prudentially ought to have (or pursue) freedom and well-being." Gewirth claims the former; many of his critics claim the latter. Yet even some of those who reject Gewirth's argument for morality, for example, Christine Korsgaard and myself have been inspired by him to develop somewhat different arguments that attempt to establish just the same conclusion that Gewirth wanted to establish—that morality is rationally required.

In *The Community of Rights* (1996), Gewirth hoped to add to enhance his defense of morality by establishing against libertarians that rights—especially the human rights that equally belong to all humans as such—are positive as well as negative, and that they therefore warrant serious and active governmental concern for protecting and promoting the freedom and well-being of all humans, especially those who are most deprived. To this end, Gewirth employs two independent arguments. The first appeals to a definition of freedom, but, unfortunately, not to a definition of freedom that libertarians are required to endorse. The second is dialectical, but this argument parallels and depends crucially on Gewirth's earlier argument for morality.

In his last completed book, *Self-Fulfillment* (1998), Gewirth develops an interesting notion of self-fulfillment that is either compatible with or required by his conception of morality. A new book manuscript, *Human Rights and Global Justice*, which focused on questions of international justice, remained unfinished at his death.

See also Descartes, René; Ethics and Morality; Justice; Marsilius of Padua; Metaethics; Rationalism in Ethics (Practical-Reason Approaches).

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James Sterba (2005)

GEYSER, JOSEPH
(1869–1948)

Joseph Geyser, the German critical realist philosopher, was born in Erkelenz, in the Rhineland. He received a doctorate in philosophy from the University of Bonn in 1898. He became an extraordinary professor at the University of Münster in 1904 and a full professor there in 1911. In 1917 Geyser was called to Freiburg, and in 1924 he succeeded Clemens Baeumker, the distinguished historian of ancient and medieval philosophy, at the University of Munich.

From his youth, Geyser opposed what he regarded as two basic tendencies in recent philosophy, an intellectualism strongly tinged with historical relativism and an overly abstract, idealistic Kantianism. He devoted himself to recalling philosophy to the asking of questions that are largely independent of any temporary situation and to the answering of these questions in an objective, critically realist manner. This attitude, but not Geyser's attachment to Thomistic tradition, was shared by the realist Oswald Külpe and the philosopher of nature Erich Becher. Above all, Geyser was totally devoted to the *philosophia perennis* (Gottfried Wilhelm Leibniz), and through it he related himself to the older European intellectual traditions. Phi-

losophy, he strongly believed, is not a constant new beginning. For Geyser, philosophy, in the words of the early Middle Ages, is like a dwarf perched on the shoulders of a great past in order to see farther. Classical philosophy, in the thought of Plato and Aristotle, was already approaching great truths, insights that have claims on the present as part of a constantly self-renewing stream of thought, a stream that has both enriched and been enriched by the Christian worldview.

Geyser held that answers to philosophical questions must be based on direct contact with a real actuality, understood in the Aristotelian sense, as an entity independent of consciousness, and not on the creative activity of an idealistic, theoretical thought. Only thus can we stand on firm ground. Philosophy is in this view a kind of middle position between the reality of experience and the ideality of a creative reconstruction of the forms of existence. Geyser sensitively expounded this basic attitude in his short but deeply probing book, *Eidologie oder Philosophie als Formerkenntnis* (Eidology, or philosophy as knowledge of form; Münster, 1921). In this programmatic work, whose basic ideas were to guide Geyser's thought from then on, philosophy is presented as a progressive penetration into the realm of possible essences of being insofar as they offer themselves to experience.

Geyser's inclusive *Lehrbuch der allgemeinen Psychologie* (Münster, 1908; 3rd ed., 2 vols., Münster, 1920) had already been written from this point of view, which also formed the basis of Geyser's acute critique of Neo-Kantianism and Edmund Husserl's phenomenology in *Grundlegung der Logik und Erkenntnistheorie* (Foundations of logic and epistemology; Münster, 1919) and *Auf dem Kampffeld der Logik* (On the battlefield of logic; Freiburg, 1926), as well as of his later exposition of ontology and metaphysics. In all of these works we see Geyser as a relentless logician who was honest and strict with himself and an epistemologist capable of critical observations.

We can now examine how Geyser deals with modern problems. Geyser's *Psychologie* combined philosophical and modern empirical psychology, for he found it impossible to separate philosophy from psychology without damage to both disciplines. This open attitude permitted him to develop a method for recording mental life in all its unconscious, organic, and even ontological aspects. Nevertheless, Geyser fought against and tried to refute psychologism, the claim that even logical phenomena depend on psychological structures of experience. He developed an unambiguous distinction between actual psychological events and the logical, objective analysis of

meaning (in the manner of Heinrich Rickert). With equal intellectual vigor he gave a firm basis to his logical objectivism bound to being and distinguished it from both epistemological idealism and the phenomenological theory of constitution.

Objectivism meant for Geyser that logical laws are not only inner relations of thought but that they also have a real ontological character and that they stand the test of analysis. According to Geyser, philosophy should therefore explain how man is capable of grasping the ideal logical order in reality itself. Here we come face to face with ultimate realities, which reveal themselves to the human intellect only after suitable deductive rational preparation. Nevertheless, Geyser attains a knowledge of essence akin to that of phenomenology. But one could say that his phenomenology is Aristotelian and realistic, and Geyser can be credited with showing a connection, through Bernhard Bolzano, between the thought of Husserl and that of Aristotle. Geyser's epistemology is logically rational and tied to reality, and it stresses discursive, genetic methods. Only as a last resort could Geyser justify to his intellectual conscience an encounter with pure immediate insights.

The same rational and empirically bound method is evident in Geyser's views on causation, which provoked a many-sided controversy. These views are of particular relevance to contemporary discussions of the bases of natural science. The principle of universal causation, further seen as the law of causation, has always been considered to be the solid foundation of any given truth that can be discovered by analysis. In this sense it was one of the most essential supports of one of the traditional proofs of the existence of God. It was assumed to be evident and analytically a priori provable that the contingent world must have a supercontingent cause in God. Geyser investigated the distinctions between the ground of knowledge, the principle of contradiction, and the principle of sufficient reason. In *Philosophia Perennis, Festgabe Joseph Geyser,* Kurt Huber gives an exact summary of Geyser's critical investigations. In the same book Aloys Wenzel points out that Geyser was the first philosopher to further develop Arthur Schopenhauer's investigation of the principle of sufficient reason. Geyser showed further, in *Das Prinzip vom zureichenden Grunde* (The principle of sufficient reason; Ratisbon, 1929) and *Das Gesetz der Ursache* (The law of cause; Freiburg, 1933), that only through experience can we discover the meaning of causality. Everything has its sufficient reason, including being: "Everything that comes into being does so through a cause." Such a notion is originally given to us in the mental experience of causation in willing. The notion contains a synthetic feature, but it nevertheless remains completely unconditional although it is not given to intuition as an analytic law of thought. The questions of whether the principle of causation is a priori, and of how it is related to matters of experience, is significant for any possible further epistemological and metaphysical construction that is in accord with experience. Controversy with Thomistic philosophers resulted from this statement.

Geyser's position was also clearly expressed in his metaphysics. He was committed to an inductive metaphysics, not to a purely speculative metaphysics derived from intellectual immediacy. He thus distinguished his own thought from metaphysics as practiced by such Neo-Thomists as Gallus M. Manser and Antonin-Dalmace Sertillanges.

Similarly, when Geyser, like Francisco Suárez, ascribed a concrete, individual spiritual essence to human existence, he did not do so primarily in the Thomistic sense of a universal spiritual essence which achieves individuality by being united with matter. In the foreground of Geyser's thought is the empirically unique real event. It is thus not surprising to learn that Geyser, although he recognized a rational metaphysical knowledge of God by analogy, critically denied any intuitive insight into God's existence. (Here he differentiated his thought from Max Scheler's philosophy of religion, which he criticized in *Max Schelers Phänomenologie der Religion,* Freiburg, 1929). It also shows why Geyser rejected any ontological proof of God, that is, any knowledge of God reached by even the concept of the most perfect being discovered by an a priori encounter with essence. Rather, he felt that the existence of God is to be discovered a posteriori by an interpretation of the "united facts of experience." Geyser's thought found its completion in a rationally founded metaphysical knowledge of God.

Geyser was one of the most inclusive systematic thinkers of modern times. Nicolai Hartmann, another great systematizer, once said that he had learned more from Geyser's criticisms of his ontology than from those of any other contemporary. Few recent philosophers can call such a consistently thought-out and complete worldview their own. Geyser's worldview was developed within and into an inner unity with his Christian conviction; this firmness of attitude toward the world was also expressed in his whole steady personality, which endured the unhappy experience of his homeland during the last years of his life under the perspective of hope.

See also Aristotle; Bolzano, Bernard; Critical Realism; Hartmann, Nicolai; Husserl, Edmund; Leibniz, Gottfried Wilhelm; Neo-Kantianism; Objectivity in Ethics; Plato; Rickert, Heinrich; Scheler, Max; Schopenhauer, Arthur; Suárez, Francisco.

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GHAZĀLĪ, ABU HAMID MUHAMMAD

See *al-Ghazālī, Muhammad*

GIBBON, EDWARD
(1737–1794)

Edward Gibbon, the English historian and man of letters, was born at Putney, Surrey, of a well-to-do family. Frail and constantly ill, the child owed the preservation of his life to an aunt, Miss Catherine Porten, who also acted as his teacher. After instruction by a series of tutors and much reading on his own, he entered Magdalen College, Oxford, at the age of fifteen, with, as he later confessed, "a stock of erudition which might have puzzled a doctor, and a degree of ignorance of which a schoolboy would have been ashamed." Fourteen months at college, "the most idle and unprofitable of my whole life," ended with self-conversion to Roman Catholicism. His irate father immediately packed him off to Lausanne, Switzerland, under the care of Daniel Pavillard, a Calvinist minister who soon led him back to Protestantism. Thereafter, he developed a decidedly skeptical bent. During his five years' stay in Switzerland, Gibbon learned French, Italian, and Greek, and read all the Latin classics. He also fell in love with Suzanne Curchod. When his father refused consent to their marriage, "I sighed as a lover, I obeyed as a son." Mlle. Curchod later married Jacques Necker, distinguished French financier and statesman, and became famous as a *salonnière.* Gibbon never married.

Gibbon's first publication was *Essai sur l'étude de la littérature* (1761). A later manuscript fragment of a "History of the Swiss Revolution," also in French, was shown to David Hume, who approved of the project but chided the author: "Why do you compose in French, and carry faggots into the wood?" Thereafter, Gibbon composed all his major works in English. For more than two years (1759–1762), Gibbon was a captain in the Hampshire militia, and a surprisingly good one. In 1763, with the end of the Seven Years' War, he returned to the Continent, visiting Paris, Lausanne, and finally Rome. He records that it was on October 15, 1764, while musing amid the ruins of the Capitol, that the idea of writing about the decline and fall of the city—later extended to the empire—first occurred to him.

Returning to England in 1765, he became a man of letters and man about town. In 1774 he was elected to Dr. Johnson's Literary Club, where he became the intimate friend of Adam Smith. In the same year he obtained a seat in parliament, where he earned the distinction of never making a speech. He was, however, hard at work on his great history, the first quarto volume of *The History of the Decline and Fall of the Roman Empire,* which appeared in 1776. A letter of congratulation from the dying Hume "overpaid the labour of ten years," but warned that a clamor would arise. It did, and Gibbon responded three years later with a *Vindication.* The sixth and last volume of the history was published in 1788. At least fifty British replies and refutations were published before Gibbon's death, and literally hundreds have been published in many languages since. At his death, Gibbon left behind six drafts of an autobiography, which were pieced together and published in his *Miscellaneous Works* in two volumes by Lord Sheffield (London, 1796).

THE HISTORY OF THE "DECLINE AND FALL OF THE ROMAN EMPIRE"

Received as a masterpiece on first publication, Gibbon's history is still regarded as such, and has never been superseded. Certain misinterpretations of facts, to be sure, have been detected and many additional facts have come to light; some prejudices have been revealed and some misjudgments have become apparent, "but in the main things he is still our master, above and beyond 'date'"—so acknowledged J. B. Bury in the modern standard edition of the work.

It is the famous fifteenth and sixteenth chapters of the first volume, however, that entitle Gibbon to an honored place in the history of philosophy. These are the two chapters that stirred up violent controversy in 1776, and they are still controversial. The problem that Gibbon set himself was to explain the progress of primitive Christianity and its influence upon the ultimate fall of the Roman Empire. Writing *en philosophe,* Gibbon comes to the conclusion that the fall of Rome represents "the triumph of barbarism and religion." He ironically dismisses the most commonly accepted causes of the triumph of Christianity, namely, the convincing historical evidence of the doctrine itself and the ruling providence of its great Author. He notes that through the course of time prejudice and passion have distorted and rendered ambiguous the meaning of the doctrine, while the providence of Deity remains inscrutable to man. The former cause, therefore, is unhistorical, while the latter is unphilosophical. Ruling out supernaturalism as a cause, Gibbon consequently confines himself in the fifteenth chapter to an analysis and discussion of the secondary causes of the rapid growth of the Christian church—causes that can be tested both by historical fact and by philosophical and psychological analysis.

With cool detachment of philosophical and historical inquiry, he examines the early history of the church in the same spirit that he would examine any period of secular history in which no assertions of supernaturalism had been made. He discusses five secondary causes of the rise of Christianity: (1) The inflexible zeal of the Christians was inherited in part from the Jews, who alone had broken the religious harmony of the ancient world, which was based upon mutual toleration of all creeds, and had insisted that theirs was the one and only true religion. The Christians turned this defensive zeal into both the proselytizing of all ranks of people and the persecution of all varieties of idolatry.

(2) Belief in immortality, uncertain and disputed among the ancient philosophers and not to be found in the law of Moses, gradually began to be accepted by the Jews after their servitude to Egyptians and Babylonians. Early Christians, contemptuous of their present existence and convinced of their immortality, believed in the near approach of the end of the world, which was to be preceded by the Second Coming of Christ. At this time, believers and unbelievers alike would receive judgment—the former, eternal bliss; the latter, eternal damnation. As for the tortures which awaited sinners and deluded philosophers, Gibbon finds it proper "to draw a veil over the rest of this infernal description."

(3) The early history of the church is replete with claims to miraculous powers and to divine inspiration. Such forms of superstition and "enthusiasm" made constant progress, until they became part of church tradition. But it remains the scholarly duty of the historian to examine such claims and to reject all pretensions to inspiration that are unacceptable in the light of reason. If the age of miracles once existed, all reasonable men, in contrast to the credulous and the fanatical, agree that at some time it either suddenly or gradually terminated.

(4) The pure and austere morals of the early Christians were enhanced by two laudable human motives: repentance for past sins and the desire for perfection. Converted sinners became saints, disdainfully rejecting the natural human propensities for pleasure and action in favor of the monkish virtues of humility, meekness, and patience. A state of celibacy came to be exalted as the nearest approach to divine perfection, and sensual pleasure was inexorably replaced by spiritual pride. Passive obedience to civil authority led to a refusal to partake in any form of civil administration or military defense of the empire, even when it became evident that such disregard of the public welfare guaranteed the triumph of barbarism. In sum, the morals, and the errors, of the primitive Christians were in reality the excess of their virtues.

(5) Though immune to both the business and the pleasure of the world, the primitive Christians took keen interest in the government of the church, an enthusiasm that gave rise to much religious contention. At first, the bishops were regarded as the equals of the people, but gradually took upon themselves arbitrary power, ultimately proclaiming themselves vice-regents of Christ. Thence arose the rigid distinction between clergy and laity. The early communion of goods among the Christians was soon relaxed, and the clergy adopted the tithe from the original Jewish code. Further clerical controls included excommunication, which involved not only spiritual but also temporal punishment. As to the actual numbers of Christians, nothing definite can be con-

cluded, the figures of the Fathers being at complete variance with those of the pagan historians, and neither providing accuracy. Seneca, the two Plinys, Tacitus, Plutarch, Galen, Epictetus, Marcus Antonius, great sages all, have little or nothing to say about the "perfection" of Christianity. Alleged miracles for the benefit of the church passed unnoticed.

In the sixteenth chapter, Gibbon examines the question of the persecutions of the primitive Christians by some of the Roman emperors. The blame, he indicates, rests chiefly upon the intolerant zeal of the Christians themselves, which drove the emperors reluctantly toward persecution. Even so, there were frequent peaceful intervals, and the detailed accounts of the sufferings of the "martyrs" were largely the inventions of later ecclesiastical writers. Gibbon estimates that no more than two thousand Christians were executed during the period of the most vigorous persecution, and suggests a comparison with the hundreds of thousands of Protestants executed during the relatively brief period of the Reformation, the latter figure far exceeding all martyrdoms over the course of many centuries of early Christian persecution.

GIBBON'S SOURCES

Among the many influences upon Gibbon's method and philosophy, the following should be mentioned: first, John Locke's commonsense approach to philosophy and religion; second, the rationalism of the deists; third, the philosophy of history presented in Baron de Montesquieu's treatise *Considérations sur les causes de la grandeur et de la décadence des Romains* (1734); fourth, the philosophical skepticism of Hume. From Hume he also learned the necessity of investigating the causes of historical events, and from Hume and Voltaire, the importance of cultural, social, and political history. The *Decline and Fall* has gone through multitudinous complete editions and condensations, both in English and in translation, and will continue to be read, not only as a great history, but also as a great piece of literature.

See also Epictetus; Galen; Hume, David; Johnson, Samuel; Locke, John; Montesquieu, Baron de; Philosophy of History; Plutarch of Chaeronea; Seneca, Lucius Annaeus; Smith, Adam; Voltaire, François-Marie Arouet de.

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Ernest Campbell Mossner (1967)

GIBBS, JOSIAH
(1839–1903)

Josiah Gibbs, a theoretical physicist, was born and died in New Haven, Connecticut, and, aside from a few years studying physics in Europe, spent his academic career at Yale. He is one of the few distinguished American theoretical physicists prior to the twentieth century. Gibbs made advances in vector analysis, and he made major contributions to thermodynamics including an insightful diagrammatic method, work on equilibrium and stability, the definition of free energy, and his famous phase rule regarding coexistent phases of a substance. In a vital contribution to thermodynamics Gibbs extended this theory to deal with the rules that describe how chemical interactions are to be integrated with the other thermodynamic processes. He is the inventor of the notion of chemical potential, the key concept of chemical thermodynamics.

For philosophers it is Gibbs's work in statistical mechanics that is of great interest. This work is contained in his elegant *Elementary Principles in Statistical Mechanics* (1902). James Clerk Maxwell and Ludwig Boltzmann had previously developed a method for calculating equilibrium values by taking them to be averages over functions of the microscopic phase of the system using a time invariant probability distribution over a constant energy subspace of the phase space of the system. This technique reappears in Gibbs in the form of his "microcanonical ensembles."

But Gibbs introduced other ensembles as well. Most important of these is the canonical ensemble that intro-

duces a time invariant probability distribution over the phase space that allows for different energies. For systems with a large number of degrees of freedom (a large number of molecules in a gas, for example), this probability distribution is highly concentrated about one specific energy. In these cases, averages calculated using the canonical distribution and those calculated using the microcanonical distribution will converge in the limit of an infinite number of degrees of freedom. Because calculations done using the canonical ensemble are much easier than those using the microcanonical, most practical statistical mechanics is done in the framework of Gibbs's canonical ensembles. Gibbs also developed the grand canonical ensemble whose use becomes necessary when chemical changes are part of the thermodynamic processes.

By showing how these ensembles and the features of them vary as constraints on the system are varied, Gibbs was able to show "analogies" between features of the ensembles and averages of features calculated with their probability distributions and standard thermodynamic quantities such as temperature and entropy. He is cautious in making any explicit "identification" of the latter with the former, possibly in part because of the known difficulties faced by standard statistical-kinetic reasoning at that time in correctly predicting such quantities as specific heats.

With the association of thermodynamic and statistical mechanical quantities, it is easy to understand the microcanonical ensemble as appropriate for a system energetically isolated from the rest of the world, and the canonical as appropriate for a system in perfect thermal contact with an infinite heat bath of constant temperature.

Gibbs's treatment of nonequilibrium is the source of one standard approach to that problem, but remains controversial to this day. Gibbs's ensembles can be thought of as a vast collection of systems identically prepared at the macroscopic level. Find the ensemble for such a collection of systems; now, change a constraint on the system (say by removing a partition in a box of gas): How will the ensemble, appropriate for equilibrium before the change of constraint, evolve? Will it evolve to the ensemble appropriate for equilibrium in the new constraint condition? This is what is most desirable because people want to show that, in some appropriate sense, the systems in the ensemble at a later time will be found, in general, to be ever closer to the equilibrium condition. But provably the Gibbs's ensemble cannot so evolve (Liouville's Theorem).

But, Gibbs argues, the ensemble may evolve in such a way as to approach the new equilibrium ensemble in a "coarse grained" sense. He uses the analogy of a glass mostly filled with water but partly filled with insoluble black ink. Stir the fluid. If one looks closely enough, the fluid always consists of pure water or pure ink, because the ink is insoluble. But looked at "coarsely," the fluid approaches a uniformly gray color. Gibbs was not able to show that such "mixing" would actually occur, but modern extensions of ergodic theory have been able to prove mixing theorems that hold under certain physical conditions. And idealized systems (such as molecules as "hard sphere in a box") have been shown to be mixing. It remains controversial, however, as to whether this model of an ensemble evolving in a coarse-grained sense is the appropriate one for characterizing the actual approach to equilibrium of nonequilibrium systems.

Gibbs is aware that "mixing" ought to be a time symmetric feature of his ensembles, given that it is driven by a time symmetric underlying dynamics of the molecules. But applying mixing in the past time direction would lead, incorrectly, to predict antithermodynamic behavior for systems. His solution is to argue that one ought to apply statistical inferences only into the unknown future, and that applying them to infer the a past that is already known is illegitimate. Paul and Tatiana Ehrenfest, in their important 1910 survey of statistical mechanics, called Gibbs's argument "incomprehensible." But it was later taken up and developed by Satosi Watanabe and Erwin Schrödinger. It also remains a subject of contemporary controversy in discussions of the relationship between the intuitive asymmetry of time and entropic features of the world.

See also Boltzmann, Ludwig; Philosophy of Statistical Mechanics.

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GILBERT OF POITIERS
(c. 1076–1154)

Gilbert of Poitiers (Gilbertus Porreta, Gilbert de la Porrée), the twelfth-century theologian and metaphysician, was born at Poitiers about 1076 and received his first schooling there. Next he went to study under Bernard of Chartres, and later (but before 1117) he devoted himself to theology under Anselm at Laon. He seems to have succeeded Bernard as chancellor at Chartres between 1126 and 1137 and, after a short period as a master in Paris, was elevated in 1142 to the bishopric of Poitiers. He died greatly esteemed in 1154, although in the 1140s he had been made to feel the hostility of other theologians, principally Bernard of Clairvaux, who brought him to trial to account for his opinions at Paris in 1147 and at Rheims in 1148.

Gilbert wrote much and acquired great fame for his scriptural and Boethian commentaries. The former were the fruit of his years at Laon and included major expositions of the Psalms and of the Epistles of St. Paul, as well as other biblical commentaries that have, with greater or lesser certainty, been ascribed to him. But the commentaries upon Boethius's four *opuscula sacra* (and especially that upon the *De Trinitate*) proved controversial. Although Gilbert was never officially condemned for theological error, after his trial in 1148 he appended a new preface to these commentaries professing his orthodoxy. In addition, the treatise *De Discretione Animae, Spiritus et Mentis* is now confidently ascribed to Gilbert. Highly uncertain, however, is Gilbert's authorship of the *Liber Sex Principiorum.* The six *principia* are the last six Aristotelian categories (place, time, situation, habit, action, and passion), which the writer of this treatise considered to be accessory forms (*formae assistentes*) or extrinsic circumstances of a substance. The first four categories, on the other hand, are either substance itself or necessarily inherent forms of a substance. This work enjoyed great authority in the Middle Ages as a completion of Aristotle's own *Categoriae.*

An understanding of Gilbert's authentic philosophical teaching must be based principally upon his Boethian commentaries and upon the literature inspired by his trial. Gilbert's doctrine of being and of the process of knowledge departs from a key distinction between substance and subsistence. A substance is an actually existing individual being that supports (*substat*) a number of accidents. Some beings, however—genera and species, for example—have no need of accidents and are more accurately described as subsistences than as substances. Forms or Ideas in themselves are subsistences and do not come into contact with matter. Only copies (*exempla*) descend into matter. The human mind arrives at the knowledge of the eternal Ideas by first "collecting" from concrete, individual things their substantial similarity, that is, their created or "native" forms (*formae nativae*), to which Gilbert attributed universality. By perceiving the similarity of forms within a group, the mind arrives at the concept of species and then, by the same process, it arrives at the concept of genus. Finally, transcending all created forms, it attains the primary forms, which are in God. Thus, Gilbert inquired why concrete forms agree with one another, and he focused his attention upon the *intellectus* of the universal which is abstracted from singulars. He based his theory of knowledge upon the Platonic doctrine of Ideas but also employed the Boethian-Aristotelian doctrine of abstraction.

The divine work of creation involved the production of forms, which are images of the divine Ideas, and the uniting of these forms to matter. Gilbert described the created being as a compound of the *id quod est* ("what it is") and the *id quo est* ("that by which it is"). Socrates is a man (*id quod est*), but he is what he is by virtue of his humanity and corporeity (*id quo est*). The origin of this distinction is the grammatical rule that, *in naturalibus,* every name signifies both a substance and a quality. But whereas all created being is compound, the divine being is absolutely simple. In God, essence (*id quod est*) and divinity (*id quo est*) coincide. Nonetheless, Gilbert applied the distinction to God, describing divinity as the form in God by which he is God. Gilbert's opponents, such as Bernard of Clairvaux, would not accept this separation of God and his divinity; they maintained that divinity is God, and not that by which he is. Gilbert's position was a difficult one to maintain, but he had no desire to compromise the divine simplicity or unity, and his writings support his claim that he had not established a real distinction between God and his divinity.

In a similar manner, Gilbert's application of logical and grammatical principles to the problem of the Incarnation of Christ aroused suspicions. Gilbert was reluctant to say that the divine nature became flesh, preferring to say that a person, Christ, took a human nature. Other logicians of the day were similarly concerned to test various traditional formulations of the divine Incarnation in the light of Boethian concepts. If Gilbert slipped in his analysis of the person and natures of Christ, he did not intend to deny Christ's divinity or his humanity.

Gilbert's school of disciples survived as a strong force in the twelfth century and included John of Salisbury,

Otto of Freising, Alan of Lille, Nicholas of Amiens, Radulphus Ardens, and John Beleth. It blended at times with the dialectical tradition stemming from Abelard, and, by its investigation of the character of essences, the school of Gilbert perhaps helped to prepare the way for the influx of Avicennian philosophy.

See also Abelard, Peter; Anselm, St.; Bernard of Chartres; Bernard of Clairveaux, St.; Boethius, Anicius Manlius Severinus; Ideas; John of Salisbury.

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David Luscombe (1967)

GILES OF ROME
(c. 1247–1316)

Giles of Rome, the scholastic philosopher whose real name was Aegidius Colonna Romanus, was born in Rome. Giles entered the Augustinian order of hermits in 1265 and subsequently studied at the University of Paris, where from 1268 to 1272 he was probably the pupil of Thomas Aquinas, who was then lecturing at the university as Dominican regent master. In 1277 the bishop of Paris made his far-reaching condemnation of 219 theses, mainly of Aristotelian origin but also including a number of Thomist propositions. Among these were Thomas's doctrine that each being contains only one substantial form, as opposed to the traditional Augustinian belief in a plurality of forms. Giles, a young scholar, joined in the ensuing controversy with the publication of a sharply worded defense of the Thomist view, the *Liber Contra Gradus et Pluralitatem Formarum.* He attacked the Augustinian doctrine as being contrary to both reason and faith. Upon his refusal of Bishop Tempier's demand for a retraction, Giles left Paris, perhaps for a cooling-off period, but returned in 1285 to take the first Augustinian chair in theology and to receive his license to teach. He remained a professor until 1292, when he was appointed prior general of his order. In 1295 Pope Boniface VIII appointed him archbishop of Bourges, in which office he remained until his death. In 1287 his teachings had become the official doctrine of the Augustinian order, although neither of the other great Augustinian thinkers of the fourteenth century, Thomas of Strasbourg and Gregory of Rimini (each a general of the order) followed his teachings.

METAPHYSICS

Giles's philosophical position still remains something of an enigma. The older view that he was strictly a disciple of Thomas has gradually been modified. While it is true that he reached substantially the same conclusions as Thomas on two of the burning issues of the day, the unity

of the substantial form and the distinction between essence and existence, neither of these seems to have been from Thomist premises and, in the case of the second issue, the conclusion did not even lead to the same doctrine. In particular, Giles seems to have been influenced to a far greater degree than Thomas by Neoplatonism, and especially Proclus, on whose *Liber de Causis* he commented in 1280. This affinity would explain his own treatment of the relation of essence to existence. Thomas had never made a real distinction between the two but had regarded them rather as a composition in which *esse* is the actuality of *essentia,* which is itself the source of a being's actuality; or put another way, a being is what it is in virtue of the actuality (*esse*) that derives from its form (*essentia*). For Giles, on the other hand, *esse* and *essentia* were distinct things (*res*) from the outset. He therefore treated as real what for Thomas were abstractions, an attitude confirmed in his Commentary on the *Liber de Causis,* where he thought in terms of a universe of intelligible beings. To attain intelligible knowledge, it suffices for the image of an object to act directly upon the possible intellect, which under the influence of the active intellect is able to conceive it as an intelligible species. This led Giles to the characteristically Platonic conclusion "that the same quiddity considered in things is particular, considered in the mind is universal."

SCIENTIFIC CONTRIBUTIONS

Although knowledge of Giles's scientific outlook is even less comprehensive than that of his philosophical system, his treatment, often Neoplatonic, of time, movement, gravity, quantity, the intensification and remission of forms, and matter is known to us. Giles made his most original and important contribution to later scholastic scientific discussion concerning the nature of quantity. He posited a twofold quantity (*duplex quantitas*) that corresponds to the modern distinction between mass and volume. On the one hand, a body contains a constant quantity of matter, which limits its possibilities of development; for instance, a barleycorn cannot become a mountain. On the other hand, the same quantity of matter can undergo various changes in dimension, and according to its volume it will be denser or rarer in structure—as with, say, water or air. Giles took this distinction to infer that mass and volume were thus two independent quantities.

Giles also distinguished sharply between form and matter in the structure of a material substance—the so-called problem of the *mixtum.* This raised the question of what happened to the forms of the four material ele-ments—fire, earth, air, and water—which composed any material substance when they were combined with form of that substance, for example, wood. Did they continue to exist separately, or were they absorbed into the substantial form? This was one of the earliest scientific problems to exercise the Scholastics, and while Giles based himself upon what Thomas had already said, he also went further. He accepted Thomas's solution that the forms of the material elements, once included in a material substance, no longer remained formally and actually in being but, rather, virtually as part of the qualities of the substance. To this, however, he added the distinction between the material and formal qualities. The former (*ex parte materiae*) remained the same through all changes in the substance; the forms, on the other hand, could not remain numerically the same. Another aspect of Giles's *mixtum* theory was of a hierarchy (*ordo realis*) among substantial forms, in which each higher form virtually contained the lower forms, the higher form being able to do more perfectly whatever the lower form could do.

Giles was also the first among the high Scholastics to state explicitly the problem of the increased speed of a falling body, namely, that this was not caused by the approach of its destination but rather by the growing distance from its starting point. Again, concerning a falling body in a vacuum, a problem which was to exercise successive generations of fourteenth-century thinkers, Giles was the first to pose it directly, taking a standpoint different from that of Thomas. In his Commentary on Aristotle's *Physics,* Giles posed other original questions about movement: Whether the sole cause of why movement took place in time, and not instantaneously, was resistance to the mover from the medium in which it moved, and whether in a vacuum movement itself would be composed of a succession of instants which in themselves did not constitute time. To both Giles answered in the affirmative. Thus the difference between movement in a medium and movement in a vacuum was that in the first case it was successive as opposed to instantaneous, owing to the resistance encountered; in a vacuum, on the other hand, it was *motus discretus in tempore discreto.* There can be little doubt from what is already known of his scientific speculation that Giles was the forerunner of the scientific inquiry so characteristic of the fourteenth century.

POLITICAL PHILOSOPHY

Giles had been tutor to the future Philip IV (the Fair) of France, to whom he dedicated his *De Regimine Principium.* This work, stressing the Aristotelian view of a ruler, was based upon the *Ethics* and *Politics.* But with the out-

break of the struggle between Philip IV and Pope Boniface VIII in 1296, Giles took the pope's side. His *De Potestate Ecclesiastica* (probably written c. 1302) stated, in the most extreme form yet, the Augustinian view of society, in which the spiritual power is superior to the temporal and only the faithful can possess the just and righteous lordship derived from the universal lordship of the church. Lordship is a gift from God, and justice is submission to God through the church; hence, sin deprives the sinner of all right of lordship. Giles here sowed the seeds of the doctrine of dominion and grace that was to be developed by Richard FitzRalph and then turned against the church by John Wyclyf.

See also Aristotelianism; Aristotle; Augustinianism; Gregory of Rimini; Liber de Causis; Neoplatonism; Proclus; Thomas Aquinas, St.; Thomism; Wyclyf, John.

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Gordon Leff (1967)

GILSON, ÉTIENNE HENRY
(1884–1978)

Étienne Henry Gilson, the French neo-Thomist philosopher, was born in Paris. His higher education was acquired at the University of Paris. In 1907 he received his agrégé and in 1913, after several years of teaching, his doctorate, publishing both his minor and major theses, *Index scolastico-cartésien* and *La liberté chez Descartes et la théologie.* The years 1914–1916 saw Gilson serving France as an officer on the battlefield. Captured at Verdun, he was a prisoner of war from 1916 to 1918. He spent two years as professor of philosophy at the University of Strasbourg and in 1921 became professor of the history of medieval philosophy at the Sorbonne, in which position he served until 1932, when he accepted the chair of the history of medieval philosophy at the Collège de France, where he taught until 1951. Gilson cooperated with members of the Congregation of Priests of St. Basil of Toronto, at their invitation, to found, in 1929, the Institute of Medieval Studies, in association with Saint Michael's College in the University of Toronto. He was a professor and director of studies at the institute from its foundation until 1956.

Numerous leading universities conferred honorary degrees on Gilson, and many invited him to deliver prominent lectureships, among them the Gifford Lectures at the University of Aberdeen (1930–1931), published as *The Spirit of Medieval Philosophy*; the William James Lectures at Harvard (1936–1937), published as *The Unity of Philosophical Experience*; the Richard Lectures at the University of Virginia (1937), published as *Reason and Revelation in the Middle Ages*; the Mahlon Powell Lectures at the University of Indiana (1940), published as *God and Philosophy*; and the A. W. Mellon Lectures in the fine arts (1955), published as *Painting and Reality*. Gilson founded and directed the famous *Études de philosophie médiévale* and the *Archives d'histoire doctrinale et littéraire du moyen âge* and was a director of *Medieval Studies,* the annual publication of the Pontifical Institute of Medieval Studies. Among the many academies and societies of which he was a member was the select French Academy, to which he was elected in 1947.

PHILOSOPHICAL POSITION

Gilson's main thoughts may best be appreciated in company with two parts of his own intellectual history. (1) The great Jewish scholar Lucien Lévy-Bruhl advised Gilson to study the relation between René Descartes and Scholasticism. From this research Gilson learned to read St. Thomas Aquinas and to recognize that the metaphysical conclusions of Descartes made sense only in the context of Thomas's metaphysics. (2) Further study of Thomas and other medieval thinkers from St. Augustine through William of Ockham proved for Gilson that there was no common philosophy employed within the theologies but, rather, there were different authentic philosophies.

To do the choosing, demonstrating, and judging that he considered one of the proper tasks of philosophy, Gilson gradually developed his personal philosophical position. The only philosopher, Gilson maintained, who made him clearly realize the full metaphysical implications of the major problems was Thomas, a fact that in no way lessened Gilson's intellectual freedom, for he always wanted to be free to agree with somebody when he thought that what was said was right. For him what characterized Thomism is the decision to locate the act of existence in the heart of the real as an act that can be grasped only by or in the essence whose act it is, as an act, therefore, that has primacy not over and above being but within being. Thus, Thomism as an authentic existentialism is opposed equally to the "Thomistic" essentialists, who deposit a dead essence in the mind as a quiddity

without preserving its contact with the act of being, and to such existentialisms as those of Søren Kierkegaard, Martin Heidegger, Karl Jaspers, and Jean-Paul Sartre, which, although divergent from one another, commonly deal with existence only as an object of a possible phenomenology of human existence and are phenomenologies still in search of ontologies.

Gilson's personal commitment to the existentialism of Thomism was related to one of his most central philosophical doctrines—namely, the reality and philosophical validity of what he terms *Christian philosophy.* In *The Spirit of Medieval Philosophy* and in many other books and articles Gilson demonstrated that the Christian religion and its theologies have had the capacity to produce metaphysical conclusions and to transform philosophy itself. Several of its philosophical ideas the Greek philosophers never knew—for example, the existence of a unique God, the infinite, simple, supremely free Creator of the universe, as an all-powerful efficient cause, as well as the existence of man as a substantial composite of soul and body, free, made in God's image. Regarding the philosophical problem of how a speculation can be rational and philosophical if it is connected with religious beliefs, history as such is incompetent to answer, but philosophy provides the answer. History shows that the alliance of the two distinct orders of thought has produced positive philosophical results. Although Gilson recognizes, with Thomas and other medieval theologians, the distinction of philosophy and theology, he opposes their separation as practiced by Descartes and by numerous neo-Scholastics from the sixteenth century to the present day, for whom philosophy became no more than temporary and successively different alliances with any sort of currently fashionable philosophical position that could be reconciled with revelation.

As Gilson saw it, in the medieval theologians what could be philosophically demonstrated received in theological works the full benefit of rational demonstration. Such philosophical demonstrations were part of sacred doctrine and were also philosophy because they were reached by the human intellect through its own light. In the case of Thomas, who represents for Gilson the best in Christian philosophy, the philosophy is that of a theologian with the order of development required for theological ends; hence, one cannot release Thomistic philosophy from its theological moorings without running the risk of not knowing its origin and end, of altering its nature, and even of not grasping its meaning. Apart from the historical fact of the nonseparation of philosophy and theology, Gilson was convinced that the very nature of philosophy

does not demand that the philosophy of Thomas be extracted from the world of faith and the influence of revelation. Philosophy has been and can be authentically philosophy and Christian at one and the same time, for the orientation of Christian philosophy—to knowledge about God and man—entails no a priori exclusion of any area of philosophical research because nothing in the universe is irrelevant to knowledge about God and man.

This central theme in Gilson's philosophy—the nature and validity of Christian philosophy—has exasperated so-called Thomists seeking to develop a Thomism separate from theology; to rationalists it has seemed not to be philosophy at all. Gilson tirelessly represented the historical evidence and philosophical reasons to identify and justify Christian philosophy as the use that the Christian makes of philosophical reason when he associates religious faith and philosophical reflection. Rhetorically, Gilson asked why those who profess the Christian faith and its doctrines should see themselves excluded from philosophy simply because they prefer to philosophize about what they believe.

Other influential aspects of Gilson's philosophical doctrines concern education, social and political philosophy, the philosophy of art, and the history of modern and contemporary philosophy. In *Painting and Reality,* Gilson interprets the evolution of the art of painting, especially its most recent phases, in the light of his existential metaphysics. Because artistic beauty is made, not found, Gilson opposes mere imitation as artistic beauty; the function of any work of art *qua* art is solely to cause in us the contemplative pleasure of enjoying it. In a masterful defense Gilson analyzes the history of art from Leonardo da Vinci to the mid-twentieth century, demonstrates that representation is not of the essence of art, and argues for the legitimacy of abstraction and the necessity to sacrifice all elements of reality that do not contribute to the plastic structure of a work.

See also Art, Representation in; Augustine, St.; Descartes, René; Existentialism; Heidegger, Martin; History and Historiography of Philosophy; Jaspers, Karl; Kierkegaard, Søren Aabye; Leonardo da Vinci; Lévy-Bruhl, Lucien; Medieval Philosophy; Sartre, Jean-Paul; Thomas Aquinas, St.; Thomism; William of Ockham.

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GIOBERTI, VINCENZO
(1801–1852)

Vincenzo Gioberti, the Italian philosopher, ecclesiastical polemicist, and statesman, was born in Turin. As a statesman he upheld federalism as the goal of the movement for Italian unity. Gioberti's *Del primato morale e civile degli Italiani* (Brussels, 1843) is one of the great documents of the Risorgimento. His most famous polemical work is *Il gesuita moderno* (5 vols., Lausanne, 1846–1847), attacking the allegedly reactionary influence of the Jesuits on church policy. Throughout his intensely active career, philosophy remained his dominant interest. A long political exile (1833–1845) provided the occasion for the composition of his most important philosophical works: *Teorica del sovrannaturale* (Brussels, 1838), *Introduzione allo studio della filosofia* (Brussels, 1840), and *Degli errori filosofici di Antonio Rosmini* (Brussels, 1841; 2nd enl. ed., 3 vols., 1843–1844).

"PROTOLOGIA"

In 1841 and 1842 Gioberti gave a course of lectures (published as *Cours de philosophie,* Milan, 1947). The second part of these lectures, "Protologie ou science première," was the first sketch of a subject of which many of Gioberti's works can be considered fragmentary studies.

The term *protologia* may derive from the title of a work by Ermenegildo Pini (1739–1825) that was published in 1803. Gioberti envisaged *protologia* as "the science of the creative act and of the ideal formula which expresses it completely." Its complement is *deuterologia,* the theory of the sciences constructed by reflection on the basis of being as it is intuited. *Protologia* has three divisions: theology, logic, and cosmology, which includes psychology. The division arises out of the three elements of the ideal formula, "Being creates the existent." *Protologia* escapes the subject-object dichotomy; it studies neither the subject nor the object but the intelligible principle that relates the two.

ONTOLOGISM

Because of his constant affirmation that being-in-itself is constitutively present to the human intellect, Gioberti's philosophical position is generally described as ontologism. Being is present to the intellect as thought, not as a sensible property of mind itself; that is, the being which is present to the mind is not merely the being of the mind but being itself. Gioberti rejected what he called sensism, by which he meant the view that the being present to the human mind is simply its own being apprehended by the senses. Gioberti asserted that the activity of the human mind "concreates" its object in conjunction with the presence of being. The being constitutively present to the human mind is not merely possible being but real being, and indeed the most real being. This being is indeterminate, not in the sense that it lacks all distinction but in the sense that all distinctions are so related and fused that the human mind does not immediately succeed in discerning them. For this reason the original intuition of being can make known the existent only in conjunction with sensible experience. Sensible experience makes the existent present, but the existent is known by virtue of being. The existent is not, however, a part, determination, or moment of being but a creation of being. Existents are present in being as elements of its creative possibility, not as its modes or qualities (on this point Gioberti thought that he was in disagreement with Benedict Spinoza). The act of thought renders the existent present, and since this act is being and is act only insofar as it is being, it concreates the existent. The act of judgment, which is the pure form of knowledge, has a particular form for thus establishing any particular existent. Its ideal form, or "ideal formula," informs every judgment independently of its particular concern. This ideal formula, "Being creates the existent," is the presence of the pure form of the judgment in its pure possibility.

LANGUAGE

Ontologism shows that thought is a creative act. The object of thought comes into being through the operation of thought in the word. In this view Gioberti was strongly influenced by Giambattista Vico, and like Vico he studied the problem of language as the general theory of the word. Language is the specific manner in which the concreative operation of thought and being is effected in the human matrix. The concreative act, to be actual and effective, must reflect the human condition—it must be psychologized, but not in the manner which Gioberti opposed as "sensism." Gioberti advocated a transcendent psychologism in which the transcendental operation is the transaction of a concrete existent subject. Language is transcendental in that it reflects the constitutive presence of being in accordance with the structure of the human mind while enabling the mind to transcend its own existential limits and achieve universal significance. In this process of transcendence the ideal formula is specified according to the form not only of the object but also of the subject. Language places knowledge beyond the subject-object split. It reduces the being mentioned in the ideal formula to the effective principle of concrete science.

The transcendental operation of language seems to be widely distributed throughout the numerical range of human subjectivity. Gioberti suggested that it is a transaction of particular groups and ultimately of the nation. This view was important in *Del primato morale e civile degli Italiani* and was given an aristocratic cast in the claim that within the nation the transcendental operation is the work only of an elite.

"PALINGENESIS"

Language constitutes the first movement of the life of the spirit, a movement implicit in the ideal formula, "Being creates existence." It is thus at the focus of the genesis of existence and the real as object. The pure form of human thought moves from the immediate givenness of the existent to its ideal ground. In experience we encounter the end product of the movement expressed in the ideal formula. Thought must return the existent thus encountered to its ground in being. Its movement is therefore a *palingenesis*—a return of existence to being.

Mimesis is the mode of existence of that which is encountered in experience. It is a state, but not a radical or irremediable one, of alienation. *Methexis* is the state of the thinking subject, the intelligence whose constitutive principle is the intelligible, that is being. *Methexis* is the

link that ends the alienation between being and existence in *palingenesis.*

Gioberti did not mean by *palingenesis* a dissolution of the distinctions of existence into the indeterminacy of ideal being. Rather, through *palingenesis* the being of the existent qua existent (that is, in its distinctness) is ideally grounded in being. Thus, being itself needs the movement of *mimesis* down into the world in order that it may come into its own actuality, or distinctness, through *methexis.* Hence, being is not absolutely transcendent. It reaches its actuality in the word and thus belongs inalienably to the region of culture and history. Gioberti's theory of language thus contains in germ a theory of culture and history. Culture and cultures are the historical forms of *palingenesis.*

THEOLOGY, POLITICS, AND ETHICS

The *palingenesis* of being is the central operation of the spirit and determines the actual form of the world. The fact that this one process can be studied from two points of view provided Gioberti with a basis for a correlative distinction and unity of theology and philosophy. Theology possesses a certain superiority deriving chiefly from its object, God. Supernatural theology does not, however, take possession of the internal, or constitutive, word of God; it must make use of analogies drawn from philosophy. Supernatural revelation makes use of the "natural revelation" of the word. Philosophy is therefore superior to theology in that it provides the interpretative categories of theology.

Palingenesis takes on deontological status as the supreme norm of action. In this aspect it is the axiological principle of both the moral and the political orders. In both morals and politics, in conscience and in law, the essential process is the return of existence to being. Similarly, Gioberti held that the church is the historical and institutional form of the *palingenesis* of being under the dispensation of revelation.

Gioberti's thought is still influential in two of the leading strands of contemporary Italian thought, Gentilean actual idealism and Christian spiritualism.

See also Being; Cosmology; Deontological Ethics; Language; Ontology; Psychologism; Vico, Giambattista.

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A. Robert Caponigri (1967)

GIVEN, THE

GLANVILL, JOSEPH
(1636–1680)

Joseph Glanvill was a skeptic, a prominent defender of the experimental research of the early Royal Society, a liberal rationalistic Anglican theologian and preacher, and a staunch and influential believer in witchcraft. He studied at Cambridge, where he came under the influence of Henry More. On first learning of René Descartes's work Glanvill became an advocate of Cartesianism but was quickly led to cast doubt on it as a metaphysical theory because of More's objections. He then treated Cartesianism as a working hypothesis and began analyzing how much certitude anyone could have about what is going on in the world. He came into contact with John Wilkins, the bishop of Chester, and began developing his case in terms of the categories employed by him.

Glanvill's first work, *The Vanity of Dogmatizing* (1661), was soon revised into the larger *Scepsis Scientifica* (1665), and began with a most laudatory "Address to the Royal Society," which led to Glanvill being elected as a fellow.

GLANVILL AND SKEPTICISM

Glanvill saw the skeptical problem as one that could not be so easily set aside. He saw the reliability of one's faculties as central for avoiding any ultimate and overwhelming skepticism. But Glanvill saw that the kind of certainty one would need to be absolutely sure of one's faculties ("infallible certainty," in which one is assured, "'tis impossible things should be otherwise than we conceive them or affirm them") is unattainable—"for it may not be absolutely impossible, but that our Faculties may be so construed, as always to deceive us in the things we judg most certain and assured."

One may not be able to attain infallible certitude, but one can attain indubitable certitude that one's faculties are true. This is indubitable in two senses: first, that one finds that one has to believe them, and, second, that one has no reason or cause for doubting them. One has to believe one's faculties are reliable if one is to have any rational life at all, even though one has no evidence that one's faculties are, in fact, reliable.

Glanvill carried this on to base acceptance of historical data (and especially that of scripture) on the indubitable principle that "Mankind cannot be supposed to combine to deceive, in things wherein they can have no design or interest to do it." So, skepticism can be set aside in mathematics, science, history, and theology, because one has no actual reason to doubt the results in these areas. One has to believe various findings and act with confidence. But, having said this, Glanvill immediately made clear that he had not offered or provided any way of eliminating ultimate skepticism.

For Glanvill, reasons for doubting had to be reasonable. Descartes's reasons for doubting he dismissed as hyperbolic or metaphysical. No reasonable person would entertain them. On the contrary, there can be reasonable doubts about many things, but this does not prevent one from having a degree of certitude about other matters. Glanvill insisted that human beings are basically in a state of ignorance due to the original Fall. They cannot know the springs and principles by which the world is operating. They can only hypothesize about this and recognize that any hypothesis could be false. There is a reasonable basis for doubting in that one never has sufficient evidence or knowledge and one cannot be sure that things cannot be otherwise than one conceives them.

Glanvill introduced what was to be an important point in later scientific thought, namely, that one can never find necessary connections between events. Any causal hypothesis that one works out is always open to question and doubt, since one does not understand the inner workings of Nature. One can find concomitances of events (what David Hume later called constant conjunctions) but not necessary connections. Because of this analysis of one's causal reason, Glanvill has often been considered a precursor of Hume, although there is no evidence that Hume ever read any of his work.

REASON AND RELIGION

Glanvill's discussion of the relation of reason and religion is perhaps his most original contribution—that of offering a rational-skeptical fideism as a way of living with irremediable skepticism. Glanvill made the acceptance of the reliability of one's faculties a genuine act of faith. "The belief of our Reason is an Exercise of Faith, and Faith is an Act of Reason." He had preceded this by stating that "Reason is certain and infallible," which turns out to be based on one's knowledge "that first Principles are certain, and that our Senses do not deceive us, because God that bestowed them upon us, is True and Good."

Glanvill was not emulating Descartes in making true knowledge depend on the proof that God is not a deceiver. Rather, Glanvill was offering a kind of rational fideism. Faith, and faith alone, is the basis for one's belief in reason. One believes in reason because one believes in God's veracity. One does not try to prove that God is truthful; one believes this. Thus, faith in God gives one faith in reason, which in turn "justifies" one's belief that God is no deceiver.

Glanvill saw that the ultimate guarantee of one's certitude depends not on what one can prove, but on what one can believe. One can believe that God is truthful, and hence believe in the reliability of one's faculties. The first belief is reasonable, since one has no reason to doubt of it. This, then, enables one to avoid ultimate skepticism, by avoiding the fundamental skeptical problem of proving one's first principles.

Glanvill's rational fideism grows out of seeing the conditions requisite for certain and unquestionable reasoning (namely, that God is reliable), and is in sharp contrast to the irrational fideism being offered in the late seventeenth century by Pierre Bayle and Pierre Jurieu. Glanvill posed the possibility that rationality could be based on faith, and in terms of what human beings consider reasonable, accepting such faith is an exercise of reason. Using this rational fideism, Glanvill tried to show the reasonableness of religious belief and of Latitudinarian Christianity.

Glanvill provided an epistemology for a "mitigated" skepticism, which could delineate the kind of certitude that the new scientists could find. Instead of basing the "new science" on dogmatic metaphysical principles, he offered an undogmatic semiskepticism sufficient to encourage the nondogmatic inquiries of the scientists of the Royal Society, while opposing the dogmatism of Descartes, Thomas Hobbes, and Benedict (Baruch) de Spinoza.

Glanvill's belief in witches comes from his critique of the materialism of Hobbes and others. The question of whether evil spirits exist, Glanvill pointed out, is a factual question, not a metaphysical one and has to be answered by examining the empirical evidence. Glanvill compiled ample testimonials to convince any "reasonable" person that (1) it is possible that evil spirits or witches exist, (2) it is probable that they do, and (3) that the acknowledgment of their existence allows for the best explanation of various observed phenomena. Glanvill pointed out that various societies have laws against practicing witchcraft, so it seems likely that there is something of this sort that could be practiced. The possible existence of witches is also part of a larger and more significant question—that of the existence of spirits. If demonic or evil spirits cannot exist, then how can one be sure that good spirits—angels or God—can exist? To deny the possibility of the existence of witches is to deny the possibility of any sort of spiritual or divine world.

GLANVILL'S CARTESIANISM

Glanvill offered a nondogmatic, or deontologized, Cartesianism as the best scientific model of explanation for natural phenomena. In his continuation of Francis Bacon's *New Atlantis* Glanvill had his sage present Cartesianism as "the neatest Mechanical System of things that had appear'd in the world," though it was not certain or all encompassing. The sages could also accept the preexistence of the soul and the existence of spiritual agents, whose manner of operating may not be known or even knowable to one.

Glanvill was an eclectic philosopher, taking his views in part from More, Descartes, Bacon, Anne Conway, and the members of the Royal Society. Glanvill's world of natural science, spirits, and Christianity, based on the "plausible" testimony of historical documents, is one way these kinds of knowledge could be brought into harmony. Glanvill paid the price of having this all rest on a basically ineliminable skepticism. If one could find solace and comfort in a faith in a nondeceiving Deity, then a nice,

harmonious world of science and religion could be accepted.

See also Cartesianism; Fideism; Skepticism, History of.

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GNOSTICISM

"Gnosticism" (from the Greek *gnosis*, "knowledge") designates a broad variety of religious teachings that were rife in the Hellenized Near East of the first centuries CE and purported to offer knowledge of the otherwise hidden truth of total reality as the indispensable key to man's salvation. Most of the schools or sects in question were ostensibly Christian by the time our earliest witnesses, the Church Fathers, were familiar with them, and in consequence the whole movement was long regarded as essentially an aberration from Christian doctrine. However, although Gnosticism provided the first chapter in the history of Christian heresies, the Christian veneer of the systems playing that role is often thin to the point of transparency; and clearly non-Christian writings have come to light that by all criteria of content must be classed as Gnostic as well. The details of the literary evidence point to highly syncretistic origins, in which Jew-

ish, Iranian, Babylonian, Egyptian, and other Oriental traditions were blended with one another and with Greek concepts in an extremely free manner. The results were as readily made to represent an alleged esoteric truth of the Christian message as to constitute a superior (Mani) or even hostile (Mandaeans) alternative to it.

This syncretism, pertaining mainly to the outer shell, does not preclude—in fact it tends to mask—a highly original inner unity of thought distinct from all the disparate historical elements employed in its representation. Massively mythological though this representation usually is, the substance thus expressed has philosophical significance as embodying a fundamental choice—the radical antithesis to the classical Greek choice—in the realms of universal theory and human practice at once. The powerful Gnostic impulse to elaborate its basic vision into grandly constructed, quasi-rational systems of thought where everything proceeds from an absolute beginning makes Gnosticism a landmark in the history of the speculative system as such; and it is the identity of that basic vision that defines what is Gnostic and alone justifies the classing of systems of such considerable diversity under one heading.

GNOSTIC TEACHERS AND SCHOOLS

A number of gnostic teachers and writers are known by name (mainly those listed as heresiarchs in the patristic refutations), but much of the surviving literature is anonymous or pseudepigraphic, in keeping with the revelatory style in which it is cast. Historical individuals whose thought is documented by either critical accounts or direct fragments of their works include the Samaritan Simon Magus and his spiritual descendants Menander, Saturninus, Cerinthus, and Cerdon (first and second centuries); the Alexandrians Carpocrates, Basilides and his son Isidore, and, foremost, Valentinus with his illustrious disciples Ptolemaeus, Heracleon, Theodotus, and Marcus (second century); the Pontian Marcion and the Syrian Bardesanes (second century); and the Persian-Babylonian Mani (third century). Major sects whose doctrines are well documented but not identified by individual authors or founders are, in the Christian camp, the Barbeliotes, Sethites, and Ophites (the last actually a cluster of sects); in the Hellenistic-pagan camp, the Hermetic religion (perhaps merely a literature and not an actual sect); in the Semitic East, the anti-Christian Mandaeans. Towering over the known thinkers are Valentinus, Marcion, and Mani; and Valentinianism and Manichaeism respectively represent the culminations of the two main alternative types of Gnostic speculation. The last two are here con-

sidered merely for their part in and exemplification of the wider context.

SOURCES

With the exception of that of the Mandaeans, Gnostic literature was denied direct tradition under the dominion of Christianity and Islam after the eclipse of the Gnostic communities themselves. Thus, until fairly recently, information was supplied almost solely by the abundant indirect sources. These were, in the main, the antiheretical works of the Church Fathers (Greek, Latin, and Syriac, from Irenaeus in the second century to Theodore bar Konai in the eighth century) with their diligent reports, summaries, and excerpts, and still later Islamic histories and compendia. However, for some time an impressive series of manuscript discoveries has been adding vastly to our store of original texts: Coptic-Gnostic papyrus codices from Egypt, belonging to the Christian branch of Gnosticism—the find in 1945 of a whole library at Nag Hammadi is revolutionizing the state of documentation in the area hitherto principally covered by the patristic testimony—Manichaean fragments in Persian, Turkish, and Chinese from Turfan in central Asia and in Coptic from Egypt, and the sacred writings of the Mandaeans of Iraq.

The Mandaeans are the one case of a Gnostic community surviving to the present with an unbroken written tradition of their voluminous Aramaic literature; it came to the attention of Western scholars in the nineteenth century, after it had escaped that of the Church Fathers in antiquity (probably because of the Fathers' predominantly Greek orientation). In all the other cases, the new original sources generally bear out, while greatly enriching, the testimony of the older indirect evidence. The following account, based on the entire, extremely varied material, is synoptic and selective, placing its emphases according to a conception of the whole as a system.

GNOSTIC DUALISM

A radically dualistic mood dominates the Gnostic attitude and unites its widely diversified expressions, whether doctrinal, poetical, or ethical. The dualism is between man and world, and between the world and God. In either case, it is a dualism of antithetical, not complementary, terms; and it is basically one: that of man and world mirrors on the plane of experience the primordial one of God and world and is, in Gnostic theory, deduced from it. The interpreter may hold conversely that the transcendent doctrine of a world-God opposition

sprang from the immanent experience of a disunion of man and world, that is, it reflects a human condition of alienation. In the three-term configuration, man and God belong in essence together against the world but are in fact separated by the world, which in the Gnostic view is the alienating, divisive agency.

The object of Gnostic speculation is to derive these basic polarities—the existing state of things—by way of genetic myths from the first things and through such genealogy to point the way to their eventual resolution. The myth, a conscious symbolical construction, is thus predictive by being genetic, eschatological by being explanatory. Accordingly, the typical Gnostic system starts with a doctrine of divine transcendence in its original purity; traces the genesis of the world from some primordial disruption of this blessed state, a loss of divine integrity that leads to the emergence of lower powers who become the makers and rulers of this world; then, as a crucial episode in the drama, it recounts the creation and early fate of man, in whom the further conflict becomes centered; the final theme—in fact, the implied theme throughout—is man's salvation, which is more than man's, since it involves the overcoming and eventual dissolving of the cosmic system and is thus the instrument of reintegration for the impaired godhead itself, the self-saving of God.

GOD AND THE DIVINE REALM. The transcendence of the supreme deity is stressed to the utmost degree in all Gnostic theology. Topologically, he is transmundane, dwelling in his own realm entirely outside the physical universe, at immeasurable distance from man's terrestrial abode; ontologically, he is acosmic, even anticosmic: To this world and whatever belongs to it he is the essentially "other" and "alien" (Marcion), the "alien Life" (Mandaeans), the "depth" or "abyss" (Valentinians), even "the not-being" (Basilides); epistemologically, because of the transcendence and otherness of his being, and because nature neither reveals nor even indicates him, he is naturally unknown, ineffable, defying predication, surpassing comprehension, and strictly unknowable. Some positive attributes and metaphors do apply to him: Light, Life, Spirit, Father, the Good—but not Creator, Ruler, Judge. Significantly, in some systems one of his secret names is Man. Mainly, the discourse about him must move in negations, and historically Gnosticism is one of the fountainheads of negative theology.

However, the Absolute is not alone but is surrounded by an aura of eternal, graded expressions of his infinitude, partial aspects of his perfection, hypostatized into quasi-personal beings (aeons) with highly abstract names (mostly of mental properties) and together forming the hierarchy of the divine realm, the pleroma (Plenitude). The emanation of this inner manifold from the primal ground, a kind of self-differentiation of the Absolute, is sometimes described in terms of subtle spiritual dialectics, more often in rather naturalistic (for instance, sexual), terms. Among the tenuously mythological entities that thus arise (such as Mind, Grace, Word, Knowledge, Life) are two more concrete ones with definite roles in the further evolution of the transcendental drama: Man as an eternal, divine, precosmic principle (sometimes even identified with the First Being himself) and Wisdom (Sophia), usually the last and youngest of the aeons. Extensive speculation about the diversity within the pleroma is the mark of advanced systems, but some degree of manifold on the upper reaches of being is requisite for all Gnostic metaphysics because it provides the condition for divine fallibility on which the movement into creation and alienation depends.

LOWER POWERS AND THE CREATOR. In the genuine Gnostic systems the downward movement starts from an internal crisis in the divine realm itself, whereas in those under Iranian influence it is occasioned by the action of dark forces from without, thus presupposing the very dualism that the typical speculation lets evolve from the one monistic root. We shall mainly follow this latter, more prevalent type, which is free from Iranian influence. Here, the protagonist of crisis and fall is most often the female aeon Sophia (or such equivalents as Thought and Conception) who, from some overstepping of bounds—assertion of self-will, creative presumption, even excessive desire to know the unknowable Father—is drawn into a history of passion and error that leads her outside the blessed pleroma. (In another family of systems, Primal Man assumes the role of the sinking part of divinity.) Although the upper powers immediately set about healing this breach in the divine order, the downward trend set in motion by the original lapse must take its course, and the counterplay of these two trends henceforth governs the process. There ensues, in a development too complex and too variously elaborated to recount here, a train of ever lower hypostases descended from the erring Sophia, episodically broken by certain archetypal salvations.

The Demiurge. Early in the descending series—and marked with all the deforming effects of the Fall whose fruit he is—appears the Demiurge, the monstrous and benighted archon (lord) of the nether powers. This widespread Gnostic figure, telling symbol of the Gnostic hos-

tility toward the world, is clearly a polemical caricature of the Old Testament God, and the identity is made explicit by frequent transference to him of well-known utterances and actions of God from the biblical text. Pride, ignorance, and malevolence of the Creator are recurring themes in Gnostic tales, as are his humbling and outwitting by the higher powers bent on thwarting his designs. However, over the whole range of Gnostic mythologizing the archon's image varies, and there are milder versions in which he is more misguided than evil and thus open to correction and remorse, even to final redemption. He is always a problematical and never a venerable figure.

Finding himself in the void or chaos outside the pleroma, possessed of the power inherited from his mother but ignorant of the divine worlds above him, he believes himself to be the only God and engages in creations chiefly designed to satisfy his ambition, vanity, and lust for dominion. Prominent among the host of lower powers that issue from him are six further archons whom he installs in six successive heavens; he occupies the seventh above them. Thus originate the cosmic order and its system of rule, the universe of Babylonian astrology with its seven planetary spheres and the almighty planetary deities. An eighth region beyond them (corresponding to the sphere of the fixed stars) is occupied by the mother Sophia, still exiled from the pleroma, who has no part in the creation and government of the world but intervenes in both for the purposes of salvation. The Valentinian version, the subtlest of all, depicts the Demiurge as trying vainly to imitate the perfect order of the aeons with his physical one, and their eternity with the counterfeit substitute of time—thus adding to the parody of the biblical Creator that of the Platonic Demiurge. However, the chief instance of illicit and bungling imitation is the creation of man.

The remaining part of creation is the joint work of the seven archons. Indeed, the early systems (such as that of Simon Magus) simply name the seven as the creators of the world; and the preeminence of one of them, growing into a kind of monotheism of cosmic (lower) divinity, seems to be characteristic of the mature stage of Gnostic speculation. There, an episode, told with almost identical words in the cosmogonies of many different schools, rings in the next act in the drama of creation: The First Archon (the Demiurge), exulting in his works with the Scriptural proclamation "I am God and there is none other than I," draws the retort from on high, "Thou art mistaken! Above thee is First Man."

CREATION OF EARTHLY MAN. Some such divulgence of superior godhead (here meant as no more than a humbling of the Creator's pride, elsewhere serving some other purpose in the divine strategy), and especially the appearance of a divine form with it, inspire the archons with the audacious plan to equal the upper perfection in a work of their own—to create terrestrial man—an effect not foreseen in the divine move. Letting them say on this occasion, "Come, let us make a man after the image we have seen," the Gnostics turned to account the puzzling plural of Genesis 1:26, and the resulting *imago Dei* character of created man, far from being a straight metaphysical honor, assumes an ambiguous, if not sinister, meaning. The motive for the archons' resolve is either simple envy and ambition, or the more calculating one of entrapping divine substance in their lower world by the lure of a seemingly congenial receptacle that will become its most secure bond. The imitation, presumptuous and blundering, is nevertheless effective. Although the mere creature of the archons—the body and a natural soul compounded from their several psychic powers—is not viable by itself, it becomes so through the injection of a spiritual element from beyond.

For this presence of transcendent spirit (pneuma) in psychophysical man—in itself a paradoxical, unnatural fact and the fulcrum of the whole soteriological drama—Gnostic speculation offers various explanations, their chief difference being whether the presence marks a success of the nether powers or a stratagem of the upper ones. In the first alternative, the causality operative on the divine side admits in turn the several variations of being a victim of violence (Mani), of deception, or of its own downward inclination (Poimandres). In the other alternative (the Valentinians), the divine seed is secretly deposited in the creature of the unknowing Demiurge in order to turn his work into an unintended vehicle of salvation. However, this variant is no more optimistic than the first, since the soteriological stratagem merely makes the best of a basic evil, of these divine portions' having become divorced from their source in the first place. In any case, the pneuma's innerworldly existence is a state of exile, the result of primeval divine tragedy; and its immersion in soul and body is the terminal form of that exile. For the archons, on the other hand, the incorporation of this transcendent element into their system is a condition of the system's existence, and its retention therefore becomes to them a matter of survival—their work's and their own. Hence, they must resist at all cost the spirit's extrication from the cosmic involvement, which the upper powers seek for the regaining of divine wholeness. The means of this extrication is knowledge.

HISTORY OF MAN. The process of conveying the saving knowledge to the world-imprisoned hostage of Light begins with Adam himself and runs through the history of humankind in a constant counterplay with the archontic powers. Human history is thus eschatological from the beginning. In the light of this scheme, the Scriptural account of early man, especially the Paradise story, is boldly recast, with all value signs reversed. The most significant of these reversals concerns the serpent, which, as the first bringer of knowledge in defiance of the Creator's mandate of ignorance, becomes the general symbol of the acosmic spiritual principle that works for the awakening of its captive kin in the world. The revelatory line thus started, and continued through the generations, ends in Christ (or may go beyond him to further revelations of the truth). Hence the cult of the serpent in a major group of Gnostic sects, the Ophites (from the Greek *ophis*, serpent). In the same spirit of reversal, Cain, Esau, and other rejected figures of the Old Testament became to certain sects (Cainites, Carpocratians, Perates) bearers of the pneumatic heritage, forming a secret lineage of gnosis and persecuted by the world god for this reason; their opposites, such as Abel and Jacob, his favorites, represent the unenlightened majority. Independently of the intention to scandalize that is evident here, the Gnostic scheme called for a prophetology in succession of the Adamitic revelation, for which Iranian tradition offered the idea of an eternal Messenger who moves through history in ever new incarnations. These messengers were variously identified with names from the religious past; in the final consolidation by Mani we find them reduced to four: Buddha, Zoroaster, Jesus, Mani. The significant omission of Moses from this list requires a comment on the anti-Judaism among the Gnostics.

The this-worldly spirit of the Hebrew religion combined with historical circumstance to make the Old Testament a prominent target of Gnostic dislike, to varying degrees. The extreme of hostility, even contempt, is found in Marcion, for whom this admittedly authentic revelation of the Creator and Lord of this world shares all the blemishes of its source: It is as opposed to the gospel of salvation as its divine author is to the God that saves and as this world, his work, is to the nonmundane realm beyond. Simon Magus and others are hardly less intransigent. A more qualified view is taken by the Valentinians: The law is at least partly prefigurative of the higher truth, and the prophets, although mainly inspired by the Demiurge, are sometimes (and unbeknown to him) used by his mother, Sophia, for her own messages, which thus are interspersed in the inferior bulk. There are other shades of opinion, but rejection of the whole body of Hebrew Scripture, joined with irreverent exegetical use, is by far the rule; and on this issue, and on the related one of the identity or nonidentity of the God of Moses with the Father of Jesus Christ, the main battle was fought between the church and the heretics.

COSMOS AND HUMAN NATURE. The material universe, the domain of the archons, is like a vast prison whose innermost dungeon is the earth, the scene of man's life. Around and above it, the cosmic spheres are ranged like concentric enclosing shells. Their number is usually seven, with a surrounding eighth that does not belong to the archontic realm proper but is intermediate between the cosmos and the upper world of the pleroma. There was, however, a tendency to multiply structures and to make the scheme more and more extensive: Basilides counted no fewer than 365 heavens. The religious significance of this cosmic architecture lies in the idea that everything that intervenes between here and the beyond serves to separate man from God, not merely by spatial distance but through active demonic force. Thus, the vastness and multiplicity of the cosmic system express the degree to which man is removed from God.

The spheres are the seats of the archons, whose ruling set of seven are the planetary gods of the Babylonian pantheon, now significantly renamed with synonyms for the Hebrew God—another sign of the latter's degradation. The archons collectively rule the world that they (or their overlord) made, and each individually in his sphere is a warder of the cosmic prison. Their tyrannical world rule, called Fate (*heimarmene*), is physically the law of nature, morally the law of justice, as exemplified in the Mosaic law, which issued from the Demiurge or the angels and, with its threat of retribution, aims at the enslavement of man as much as the first does with its force of necessity. As guardian of his sphere, each archon bars the passage to the souls that seek to ascend after death, in order to prevent their escape from the world and their return to God.

Man, the main object of these vast dispositions, is composed of flesh, soul, and spirit. Reduced to ultimate principles, his origin is twofold: mundane and extramundane. Both the body and the soul are products of the cosmic powers, who shaped the body in the image of the divine Primal Man and animated it with their own psychical forces: These are the appetites and passions of natural man, each stemming from and corresponding to one of the cosmic spheres, and all together making up the astral soul of man, his psyche. Through his body and his soul man is a part of the world and is subjected to

heimarmene. Enclosed in the soul is the spirit, or pneuma (also called the spark), a portion of the divine substance from beyond that has fallen into the world; the archons created man for the express purpose of keeping it captive here.

Thus, as in the macrocosm man is enclosed by the seven spheres, so in the human microcosm the pneuma is enclosed by the seven soul vestments originating from them. These psychical envelopments are considered impairments and fetters of the transmundane spirit, and its incarnation in the outer, material body merely completes the complex imprisonment. The resulting human constitution is, then, comparable to an onion with so many layers, on the model of the cosmos itself but with the order reversed; what is outermost and uppermost in the cosmos is innermost in man, and the innermost or nethermost stratum of the cosmic order, Earth, is the outer bodily garment of man. Only the innermost or pneumatic man is the true man, and he is not of this world, as his original in the total order, the deity, is external to the cosmos as a whole. In its unredeemed state the spirit, so far from its source and immersed in soul and flesh, is unconscious of itself, benumbed, asleep, or intoxicated by the poison of the world—in brief, it is ignorant. Its awakening and liberation are effected through knowledge.

ESCHATOLOGY: SALVATION THROUGH GNOSIS. The nature of Gnostic dualism determines the general concept of salvation, and the stratifications of cosmos and man condition its details. Its basic premise is that the transcendent God is as alien to this world as the pneumatic self is in the midst of it. The goal of Gnostic striving is the release of the inner man from the bonds of the world and his return to his native realm of light. The necessary condition for this is that he know about the transmundane God and about himself, that is, about his divine origin as well as his present situation, and hence, also about the nature of the world that determines his situation. Such knowledge is withheld from him by precisely the selfsame situation that requires it, for ignorance is the essence of mundane existence, just as it was the principle of the world's coming into being. In particular, the transcendent God is unknown in the world and cannot be discovered from it; therefore, revelation is needed. The necessity for revelation is inherent in the innercosmic condition; and its occurrence alters this condition in its decisive respect, that of ignorance.

Revelation, or the "call," is thus already a part of salvation. Its bringer is a messenger from the world of Light who penetrates the barriers of the spheres, outwits the archons, awakens the spirit from its earthly slumber, and imparts to it the saving knowledge from without. The mission of this transcendent savior begins even before the creation of the world, since the fall of the divine element preceded creation, and the archetypal redemption indeed takes place in the precosmic stage. It is the incompleteness of this initial restoration, whether of Sophia or of Mani's Primal Man, that leads to the genesis of the world and the protraction of the saving process throughout its history. The fact that in the discharge of his task the eternal messenger must himself assume the lot of incarnation and cosmic exile, and the further fact that, at least in the Iranian variety of the myth, he is in a sense identical with those he calls—the once lost parts of his divine self—give rise to the moving idea of the "saved savior" (*salvator salvandus*).

The knowledge revealed by the messengers, for short "knowledge of God," comprises the whole content of the Gnostic myth, with everything it has to teach about God, man, and world, including the history of the beginnings which alone offers the key to the secrets of existence; that is, the revelation contains the elements of a theoretical system. On the practical side, however, it is more particularly "knowledge of the way"—of the soul's way out of the world—comprising the sacramental and magical preparations for its future ascent and the secret names and formulas that force the passage through each sphere. Equipped with this gnosis, the soul after death travels upward, leaving behind at each sphere the psychical vestments contributed by that sphere; thus the spirit, stripped of all foreign accretions, reaches the God beyond the world and reunites with the divine substance. (The most circumstantial description of this ascent is found in the "Poimandres," the first treatise of the Hermetic corpus.) On the scale of the total divine drama, the individual ascent is part of the restoration of the deity's own wholeness, impaired by the events of the beginning. Only through the loss suffered then did the deity become involved in the destiny of the world, and only to retrieve his own does he intervene, through his envoys, in cosmic history. With the completion of this ingathering, the cosmos, deprived of its elements of light, will come to an end.

MORALITY. In this life the pneumatics, as the possessors of gnosis called themselves, are set apart from the mass of humankind. The immediate illumination that makes the individual sovereign in the sphere of knowledge (hence the great variety of Gnostic doctrines) also inspires superior rules of conduct. Generally, the pneumatic morality

is determined by hostility toward the world and contempt for all mundane ties. From this principle, however, two contrary conclusions could be drawn, and both found their extreme partisans: the ascetic and the libertine. The ascetic deduces from the possession of gnosis the obligation to avoid further contamination by the world and therefore to reduce the world's use to a minimum; the libertine derives from the same possession the privilege of unrestrained freedom. The libertine conclusion, more startling and more devious, is argued thus: The law, since it represents the will of the Demiurge and is one form of his tyranny, does not obligate the pneuma, which is "saved in its nature" and can be neither sullied by actions (which in themselves are morally neutral) nor frightened by the threat of archontic retribution which can affect only the body and the psyche).

Thus the pneumatic, since he is free from the power of fate, is also free from the yoke of the moral law, and all things are permitted to him. This freedom, however, is more than merely permissive; its practice is bidden by metaphysical interest. Through intentional violation of the demiurgical norm (for which the mythological vilification of the Demiurge prepares) the pneumatic thwarts the design of the archons and thus paradoxically contributes to the work of salvation. From the motive of defiance it is then only one step further to the teaching of the Cainites and Carpocratians that there is a positive duty to perform every kind of action, to leave no deed undone, no possibility of freedom unrealized, in order to render nature its due and exhaust its powers; only in this way can final release from the cycle of reincarnations be obtained. Gnostic libertinism thus spans the whole scale from mere negative license to positive Faustian obligation—at which point it loses again some of the contrast to its ascetic alternative.

The latter alternative, too, betrays the common root in Gnosticism from which both opposites spring. Although more obvious in the libertine choice, the element of defiance shows in the ascetic one as well; as much as it may serve purification or other perfectionist ends normally associated with asceticism, it often has the declared purpose of obstructing the cause of the Creator, even just to spite him, by refusing to use his works (a kind of metaphysical strike). This obstructive aspect is especially clear in the abstention from sexual intercourse and marriage when, as in Marcion and Mani, its purpose is not to help replenish the world of the Demiurge and further disperse in it the captive light—thereby prolonging its exile and making its ingathering more difficult. Indeed, according to Mani, the reproductive scheme was

instituted by the archons with precisely this end in view. Asceticism is thus a matter less of ethics than of metaphysical alignment, and its common ground with libertinism is the determination not to play the Creator's game. The one repudiates allegiance to nature through abstention; the other, through excess. Both are lives outside the mundane norm. Freedom by use and freedom by nonuse are thus alternative expressions of the same acosmism.

ACOSMISM. Acosmism, the real basis of the Gnostic position, contains the seeds of nihilism; the very extremism of divine transcendence has nihilistic implications. As the totally other, alien, and unknown, the Gnostic God has more of the *nihil* than of the *ens* in his concept. For all purposes of man's relation to the reality that surrounds him, this hidden God is a negative term; no law emanates from him—none for nature, and thus none for human action as a part of the natural order. His only relation to the world is the negative one of saving from the world. Antinomianism follows naturally, even if not inevitably, from these premises.

TWO TYPES OF GNOSTIC DUALISM. This entry has kept mainly to the Syrian-Egyptian stream of Gnostic speculation, to which the majority of systems, especially the Christian ones, belong. There is, however, another, Iranian line of speculation that culminates in Mani.

Both types, being Gnostic, were evolved to explain the same facts of a dislocated metaphysical situation—both are dualistic concerning their common theme: the existing rift between God and world, world and man, spirit and flesh. The Iranian type, in a Gnostic adaptation of Zoroastrian doctrine, starts from a dualism of two opposed principles and then must explain how the original Darkness came to engulf elements of the Light—it describes the world drama as a war with changing fortunes; and the divine fate, of which man's fate is a part and the world an unwilled by-product, is explained in terms of mixing and unmixing, captivity and liberation. Here the knightly male figure of First Man, the warrior, assumes the role of the exposed and suffering part of divinity.

The Syrian speculation, with the female Sophia in that role, undertakes the more ambitious task of deriving dualism itself, and the ensuing predicament of the divine in the system of creation, from the one and undivided source of being. It does this by means of a genealogy of personified divine states evolving from one another that describes the progressive darkening of the original Light

in categories of guilt, error, and failure. This devolution within the divine being ends in the decadence of complete self-alienation that is this world. Both dramas start with a disturbance in the heights; in both, the existence of the world marks a discomfiture of the divine and a necessary, in itself undesirable, means of its eventual restitution; in both, the salvation of man is that of the deity itself. The difference lies in whether the tragedy is forced upon the deity from without by the trespass of an independent Darkness, which thus has the first initiative (the deity itself being in perfect tranquility), or is motivated from within itself, with Darkness and Matter the products of its passion, which they hypostatize in external terms. To divine defeat and sacrifice in the first case correspond divine guilt and error in the second; to compassion for the victimized Light, spiritual contempt for demiurgical blindness; to eventual divine liberation, reformation through enlightenment.

The Manichaean and Valentinian systems respectively exemplify the two types. The Iranian type, with its high-minded story of battle, defeat, and recovery, lends itself to more concrete and gripping dramatization. However, only the subtler Syrian type, by according metaphysical status to knowledge and ignorance as modes of the divine life and therefore as universal, cosmogonic categories, can do full justice to the redemptional claim made on behalf of knowledge in all Gnostic religion. Valentinian speculation inferred that the human individual event of pneumatic knowledge reverses the precosmic universal event of divine ignorance and is in its redeeming effect of the same ontological order. Thus the actualization of knowledge in the person is at the same time an act in the general ground of being.

See also Mani and Manichaeism; Valentinus and Valentinianism.

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GOBINEAU, COMTE JOSEPH ARTHUR DE
(1816–1882)

Comte Joseph Arthur de Gobineau was a French philosopher, historian, novelist, and diplomat. Gobineau's diplomatic duties during the Second Empire carried him to Switzerland, Persia, Greece, and Brazil, where he produced a number of historical and ethnographic works of considerable merit. He is best known for his *Essai sur l'inégalité des races humaines* (4 vols., Paris, 1853–1855; Vol. 1 translated into English by Adrian Collins as *The Inequality of Human Races,* London, 1915). This work is usually considered an important contribution to nineteenth-century racist thought; but Gobineau's racism was a by-product of his attempt to account for the decline of the European aristocracy in terms of the more general problem of the decline and fall of civilizations.

Gobineau presented his work as an essay in positivistic social theory; in the preface to the second edition (1884), he argued that Henry Thomas Buckle and Charles Darwin had merely proceeded along lines originally marked out by himself. Superficially, then, Gobineau's work resembled those positivistic theories of culture in which his century abounded. However, it differed from them in its categorical rejection of the doctrine of "progress." His work was profoundly pessimistic, and in the end Gobineau predicted the ineluctable decay, not only of Western civilization, but of the whole of humanity. Thus, Gobineau's racism differed from the later racism of the imperialist period. He was neither a nationalist nor a proponent of the idea of "the white man's burden." He was, rather, an apologist for a class that had come to feel that since it no longer had a genuine social role to fill, society itself was no longer possible.

Gobineau held that the human species was originally divided into three races as a result of environmental conditioning. The Negro race is dominated by "desire" and the need to gratify desire, and hence is the natural enemy of civilization. Driven by the need for sensual gratification alone, the Negro lacks both speculative and technical capability. The yellow race is the antitype of the Negroid, lacking in physical vigor but possessing a natural talent for technical accomplishment that allows it to create pseudo civilizations but prohibits it from developing any genuine science. The white race is superior to the other two because it combines energy and intelligence in just the right proportions. The white race has a genuine "love of life," but it is able to control and direct that love to culturally creative ends. The white man is a speculative thinker, which allows him to create both a science of nature and a science of politics. This makes of the white man the natural conqueror of the other two races. Whatever these other races have accomplished in the way of civilizational growth they owe to the superaddition of white blood, Gobineau held.

By the same token, however, racial intermixture results in the debilitation of the white race. Unlike the Darwinists, who saw survival itself as evidence of fitness, Gobineau held that in every racial mixture it is the weaker strain that predominates. In the long run, then, racial intermixture must result not so much in the elevation of inferior breeds as the mongrelization of the entire species. Thus envisaged, the white race is caught on the horns of a dilemma. Its inherent excellence drives it forth to world conquest, but that very conquest leads to its decline. Gobineau's theory of civilization, in short, was not so much an attempt to explain the facts of history as to justify his own overriding sense of *senescens saeculum,* a product of the breakdown of the social class to which he belonged.

Obviously, such a theory could not serve as a rationalization for imperialistic expansion, for if Gobineau were right, it would be better for the white race to cease expanding and seal itself off from contact with all other races. But Gobineau was valuable to the reactionary groups of his time even though he opposed imperialism, for he was an ardent enemy of liberalism. His theory explicitly designated the social egalitarianism of the radicals as an instrument of further mongrelization. The city of Paris, where the races mixed in perfect equality, proved his point, he wrote, because there "tradition is respected not at all."

As for nationalism, Gobineau regarded this phenomenon as another evidence of the breakdown of racial solidarity. He dreamed of an international aristocracy of blood to which the purest elements of all nations belong. His book *La renaissance* (Paris, 1877; translated into English by P. V. Cohen as *The Renaissance,* New York, 1913) was intended to demonstrate that as long as the white race had retained its internationalist sense of caste and eschewed expansion and intermixture, it had remained creative and productive. Neither libertarian nor expansionist, the aristocracy of the Renaissance, as represented by such figures as Cesare Borgia, Michelangelo, and Raphael, was able to produce masterpieces of art and politics. The problem of race did not intrude itself into Gobineau's handling of the Renaissance, because in *La renaissance* he was dealing with a preliberal, amoral, and creative example of the white race's power. But this book

does contain an implicit criticism of his own age, dominated, in his opinion, by weak-willed liberals and traditionless mongrels.

See also Buckle, Henry Thomas; Darwin, Charles Robert; Racism.

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GOD, ARGUMENTS FOR THE EXISTENCE OF

See *Common Consent Arguments for the Existence of God*; *Cosmological Argument for the Existence of God*; *Degrees of Perfection, Argument for the Existence of God*; *Moral Arguments for the Existence of God*; *Ontological Argument for the Existence of God*; *Religious Experience, Argument for the Existence of God*; and *Teleological Argument for the Existence of God*

GOD, CONCEPTS OF

It is very difficult—perhaps impossible—to give a definition of "God" that will cover all usages of the word and of

equivalent words in other languages. Even to define God generally as "a superhuman or supernatural being that controls the world" is inadequate. "Superhuman" is contradicted by the worship of divinized Roman emperors, "supernatural" by Benedict Spinoza's equation of God with Nature, and "control" by the Epicurean denial that the gods influence the lives of men. Therefore, while the above definition satisfies a wide range of usages, it is not universally applicable.

This entry will deal with five problems: the transcendence and immanence of God, his relation to the world, his chief attributes, the extent to which he is "personal," and the ways by which he can be known. In discussing these problems it will be necessary to consult the data provided by both religion and philosophy. But purely religious data (in contrast with theological speculations based on them) will be mentioned only when they are relevant to philosophical understanding.

TRANSCENDENCE AND IMMANENCE

In Judaism and Christianity, God is unquestionably transcendent. He is "wholly other" than the world he made. In Judaism his transcendence was emphasized by, among other things, the prohibition of idols, the explicit teaching of Isaiah 40:12–26, the sacredness of the Tetragrammaton, and the speculations of Philo who, in a typical passage, speaks of God Platonically as "the pure and unsullied Mind of the universe, transcending virtue, transcending knowledge, transcending the good itself." The New Testament, in confirming the Old Testament, repudiates the claims of Hellenistic *gnosis* by affirming that "no one has ever seen God" (John 1:18) and that all our knowledge of him is like a confused reflection in a mirror (1 Cor. 13:12). Among later Christian thinkers this biblical attitude was reinforced partly by the influence of Neoplatonism and partly by the experience of the mystics (especially Dionysius the Pseudo-Areopagite). Hence, in the *Summa Contra Gentiles* (I, 14), Thomas Aquinas says that "the divine substance exceeds by its immensity every form which our intellect attains," so that while we can know *that* God is (*quod sit*) we cannot know his essence or *what* he is (*quid sit*). In recent times divine transcendence has been stressed by Søren Kierkegaard and Karl Barth, as opposed to Hegelian attempts to obtain a rational and synoptic understanding of ultimate reality. From a phenomenological point of view, Rudolf Otto, in his *Das Heilige* (Marburg, 1917), defined the object of worship as a *mysterium tremendum et fascinans* that is revealed to a suprarational faculty of the soul.

Christian theologians claim that this transcendent God can be spoken of either negatively by the *via negativa* or *via remotionis* (the apophatic way) or positively (by the cataphatic way). According to the negative way, we deny qualities to God by the use of such adjectives as "*incorporeal*" and "*uncreated*." Thus we come to know him by knowing what he is not. But we also speak positively of God (for example, by predicating goodness or wisdom of him). Thomas denied that positive predicates are definable in terms of negative ones. He also denied that they simply point to God as an indeterminate cause of finite properties. In his view, they refer to God in a positive manner through an "analogy of proportionality." Thus goodness exists in God in a "supereminent" form, proportionate to his infinite mode of being. Through this theory of analogical predication, Thomas hoped to steer a middle course between the anthropomorphism of univocal predication, on the one hand, and the agnosticism of equivocal predication on the other.

According to the main tradition of Christian thought, God is also immanent. Augustine held that the light of God's presence in the human mind enables it to recognize eternal truth. Thomas, while rejecting the Augustinian theory of illumination, affirmed God's omnipresence unambiguously. "God is in all things, not, indeed, as part of their essence, or as a quality, but in the manner that an efficient cause is present to that on which it acts. Hence God is in all things, and intimately" (*Summa Theologiae* Ia, 8, 1). Similarly, the mystics affirm that the transcendent God is present (even when unrecognized) at the "ground" or "apex" of the soul. But some philosophers have *identified* God's substance either partly or wholly with the world. The clearest exponent of this concept in Western thought is Spinoza, whose identification of God with Nature a paradigm of pantheism. Such later philosophers as Edward Caird and Sir Henry Jones, who equated the Christian God with the Hegelian Absolute, approximated pantheism in varying degrees. Many modern theologians, such as Barth and Rudolf Bultmann, who have followed Kierkegaard in reaffirming God's transcendence, have either denied or ignored his immanence. Paul Tillich is a notable exception. While he spoke of God "existentially" as the transcendent Object of our "ultimate concern," he also held that we could not know God without "participating" in him.

GOD AND THE WORLD

The degree to which God is transcendent or immanent depends on the view that is taken of his relation to the world. At least five views are possible.

GOD AS FINAL CAUSE. God can be viewed as a final, though not efficient, cause of the world. This view was held by Aristotle. According to him, God is the world's "prime mover." God "moves" the world in the sense that he educes form from its material structure by inspiring it, through a series of subordinate movers or "intelligences," to love him as its end or goal. Yet Aristotle expressly denied a creation of the world; he considered matter to be ungenerated and eternal.

WORLD AS EMANATION FROM GOD. The world may be regarded as in some way an emanation from, or self-expression of, God. This view has taken three main forms.

According to Plotinus, the One, or "first god," is beyond all thought and being. The One's simplicity would be violated if the world were a part of it. Its unchangeability would be violated if it were to create the world by an act of will. Therefore Plotinus propounded his theory of "emanation." Mind, Soul, and the material world flow from the One (as rays flow from the sun) without impairing its self-sufficiency.

According to Spinoza, the world *is* God (the only substance) under his attributes of thought and extension. Everything follows from his essence by a logical necessity. "Things could not have been produced by God in any other manner or order than that in which they were produced. All things must have followed of necessity from a given nature of God, and they were determined for existence or action in a certain way by the necessity of the divine nature" (*Ethics* I, prop. 33). Critics of Spinoza have continually pointed out that on these premises it is very hard to account for, first, the individuality which human persons *seem* to have; second, their apparent freedom, which Spinoza elsewhere attempts to analyze; and third, the fact of evil, especially in its moral forms.

The same type of relation between God and the world was posited by G. W. F. Hegel. Unlike Plotinus, he regarded God or the Absolute as in its essence a self-diversifying unity. Unlike Spinoza, he conceived of God's self-expression as a dynamic process that is discoverable in historical events. Hegel's thought is not free from ambiguity. He sometimes speaks of God as an independently existing entity. But his final and distinctive view is that the Absolute Spirit does not exist apart from the human spirits in which it is progressively evolved.

WORLD AS PREEXISTENT MATTER SET IN ORDER. The third way of relating God to the world was stated by Plato in his *Timaeus*. According to this dialogue (29E–30), God is bounded on the one hand by the world of Forms

and on the other by preexistent matter. His task is to impose the Forms on matter, and so construct a rationally ordered whole. Being wholly good, and therefore free from jealousy, he wished everything to be like himself. Since an intelligent being is superior to an unintelligent one, and since intelligence cannot be present in anything that is devoid of soul, "he put intelligence in soul, and soul in body, that he might be the creator of a work which was by nature best." (In the *Republic* 597, Plato implies that God creates the Forms, but this was not his usual view.)

CREATION EX NIHILO. In contrast with all the previous views, Christian theists since Augustine have held the doctrine of creation out of nothing. This phrase is meant to exclude both the idea that the world is a necessary emanation from God's nature and the idea that matter preexists his creative act. God brings the whole world into being by an undetermined choice. He does not need the world to complete his nature, for he is wholly self-sufficient. He is not confronted with an alien Necessity, for he is the efficient cause of all that is.

This conception of the relation between the Creator and the creature can be elucidated through the contrast between necessary and contingent being. God exists necessarily. In him essence and existence are identical. He is self-existent in a unique and incomprehensible way. Creatures, on the other hand, are contingent. Their essence, while preexisting ideally in the mind of God, would not have achieved independent being if he had not chosen to grant it by a free act of love. Therefore, while they participate in him both by nature and by grace, they never lose their created status. They can be deified (as the Greek fathers taught) within their finite limits, but they cannot become divine in the sense of sharing God's aseity.

The full Christian doctrine does not restrict God's creative act to an initial moment in the cosmic process. All things owe their being continuously to his power. He is a first cause in the order of existence, not of time, for he himself is supratemporal. Hence it is irrelevant to theology whether the world did or did not have a temporal beginning. Thomas held that while such a beginning was revealed through Scripture, it could not be rationally proved. All reason knows is that God is the eternal, ever-present, and creative source of anything that does (or can) exist. Creation and preservation are identical.

However, while no creature exists from itself (*a se*), every creature exists by itself (*per se*) or in itself (*in se*). Created substances have a relative independence, or derived autonomy. These paradoxical expressions are required in order to affirm the truth that while creatures owe their being to God as their first cause, they also act according to secondary causes that are appropriate to their natures. The distinction between these two types of cause is necessary for a true assessment of the relation between science and theology. Because finite things exist per se, their secondary causes are discoverable without the aid of faith. But the discovery of secondary causes does not, without a further, nonscientific, act of inference or intuition, either permit or prohibit belief in a first cause, God.

Yet God, as first cause, can suspend or transform secondary causes in order to perform his will. When he does so, his action is called a miracle. A miracle does not violate nature. It is a case of nature behaving in an abnormal way through a special act of the same creative power that is at work in the normal processes which can be subsumed under scientific laws. If the essence of finite being is to be dependent on God's will (and so to possess a *potentia obedientialis* in relation to it), miraculous acts are not less natural than nonmiraculous ones. But while the abnormal character of an event is empirically verifiable, its miraculous character as an act of God can be discerned by faith alone. (Many theologians readily admit that at least some of David Hume's skeptical objections have considerable prima-facie force.)

The relation between divine causality and the human will has been extensively discussed by theologians. The doctrine of predestination, in its rigid Augustinian form, would seem to be obviously incompatible with human freedom. Yet even those theologians who reject the doctrine are obliged to face the problem of the manner in which God acts on men both by nature (through his general providence) and by grace (through the supernatural gift of the Holy Spirit). While various attempts have been made to separate divine and human action so that, for example, the human will is left wholly autonomous in a strictly moral choice, many theologians (more recently, D. M. Baillie and A. M. Farrer) affirm, on grounds of Scripture and experience, that the divine and human wills act simultaneously throughout the Christian life, but that the manner of their interaction is a paradox, or mystery, that cannot be unraveled by the intellect.

GOD AS FINAL STAGE OF COSMIC PROCESS. Samuel Alexander held the eccentric view that God qua deity, so far from being the ground of the cosmic process, is (ideally) its final stage. The world evolves from space time through matter and life to mind. God exists wholly within the world, which is his "body," but he does not yet

exist as deity (that is, as an infinite, transcendent, Being). Moreover, he will never so exist. Deity, as a state of infinite perfection, is a goal to which the world (or God considered as the world) continually strives but which is unattainable.

Some philosophers have combined two or more of these views. Thus A. N. Whitehead, while rejecting the idea that God is the world's efficient cause, held, as did Aristotle, that he is a final cause who (like Plato's God) brings order into the world by ensuring the ingredience of eternal objects (which, however, do not exist independently) in the realm of temporal flux. But Whitehead also shows his affinity with Alexander by asserting that it is as true to say that the world creates God as it is to say that God creates the world.

THE DIVINE ATTRIBUTES

In most systems of religion and philosophy, God is endowed with characteristics that distinguish him from other forms of being.

INFINITY. The infinity of the Christian God was implied above in the accounts of his transcendence and creative power, and in most systems, God's infinity makes him free, in degree, if not in kind, from at least some human limitations. But he is not strictly infinite unless he is limitless throughout the whole range of his existence. He can be wholly limitless, however, only if he is self-existent and thereby self-sufficient. If (as Hegel thought) God needs the world as the sphere of his self-development, or if (as Plato thought) he copies an independent realm of Forms, he is *pro tanto* limited. He is strictly infinite only if his essence is identical with existence, as Thomas held when he said that the most appropriate name for God is the one disclosed to Moses according to the Vulgate text of Exodus—*Qui Est* ("He Who Is"). If God is thus infinite, he must possess all properties in a mode that is free from every limitation. He must be one, simple, incorporeal, immutable, impassible, eternal, good, omniscient, and omnipotent.

UNITY. The Greek philosophers were apt to speak interchangeably of "god" and "the gods" (as may be seen, for example, from Plato's *Laws* 900–905 and the *Discourses* of Epictetus 1,3,1). But in Judaism the belief that Yahweh is the only God became an unquestioned axiom that was inherited by Christians and defended by Thomas on the grounds that if there were two gods, one would possess what the other lacked, so that neither would be absolutely perfect (*Summa Theologiae* Ia, 11, 3). Similarly, Muslims

hold as a primary article of faith that "there is no god but God." But Christians differ from Jews and Muslims in believing that the one God exists in a threefold form as Father, Son, and Holy Spirit. He is one substance (*substantia, ousia*) in three persons (*personae, hypostaseis*).

SIMPLICITY. According to Christianity and Neoplatonism, God is one also in the sense that he is absolutely simple; for the distinctions (such as those between essence and existence, substance and accidents) that make a finite being composite are inapplicable to him. Plotinus interpreted this simplicity as a bare, characterless, self-identity. But Thomas held both that God actually possesses the perfections we ascribe to him and that these coalesce in an unimaginable unity. Each of God's attributes is objectively distinct, but each expresses his whole being.

INCORPOREALITY. Those philosophers who regard the world as an aspect of God or an unfolding of his essence are obliged to think of him materially. Thus the Stoics identified him with nature's basic elements, air and fire. Similarly, Augustine learned from Manichaeism that God is a bright and very subtle substance. But the immateriality of God has constantly been taught by Platonists and Christians on the ground that matter, being a principle of limitation, is incompatible with his perfection.

IMMUTABILITY. That God's nature cannot change (for change implies imperfection) was affirmed by Plato and the Old Testament. It was reaffirmed by Christian theologians, especially Augustine.

IMPASSIBILITY. Impassibility is equivalent to immutability, if it means that God cannot suffer change from either an external or an internal cause. But it has also been taken to mean that God cannot experience pain. While there is an apparent contradiction between this last meaning and Biblical descriptions of God's love, it has been maintained by some theologians (but denied by others) that, although Christ experienced pain in his *human* nature, God cannot experience it in himself, for, being wholly perfect, he is pure Joy.

ETERNITY. In the Bible, God's eternity signifies an everlasting, endless time. In later Christian thought (through the influence of Platonism) it was understood as "timelessness." It is, in the famous definition of Boethius, *interminabilis vitae tota simul et perfecta possessio* ("eternal life possessed perfectly and simultaneously," *De Consolatione Philosophiae* V, vi). God, it is said, would not be perfect unless he possessed his whole being in a simultaneous act.

GOODNESS. The moral order has sometimes been interpreted nontheistically through such abstract ideas as *Rita* (in India), *Dao* (in China), and *Dike* (in Greece). The gods of Greco-Roman polytheism were notoriously immoral. But in Christian thought, Plato's affirmation that God is wholly good (*Republic* 379) was combined with the Hebraic vision of Yahweh's righteousness. Hence Thomas considered it to be axiomatic that "God is sheer goodness, whereas other things are credited with the sort of goodness appropriate to their natures" (*In Boethium de Hebdomadibus* 5).

OMNISCIENCE. Omniscience is entailed by infinity. But a special problem is created by the view that God now knows future *freely chosen* human acts. Those who hold this view urge, first, that since God is timeless it is, strictly speaking, incorrect to say that he "foreknows" events, and second, that even if we say this (speaking from our finite standpoint), we need not assume that a human act, because it is foreknown, is predetermined—by either God or any other factor outside the agent's will. To say that a human act can in principle be predicted is not to say that the agent has no control over it or is not really active and responsible for what he does; this, at any rate, is a view of human action widely held by philosophers at the present time. But other theists (notably James Ward and F. R. Tennant) consider it contradictory to say that a free choice can be known in any sense until it has been made. They affirm that God is ignorant of future human choices and that his ignorance is a "self-limitation" he deliberately incurred in granting man free will.

OMNIPOTENCE. Omnipotence too is entailed by infinity. It is important to note that in the Creeds, *Pantocrator* and *omnipotens* imply that God is ruler of all things, rather than that he can do anything. He cannot act against either reason or morality. But it is extremely difficult to explain the existence of evil in a world created by a God who is both infinitely powerful and infinitely good. Various explanations have been given. Thus, evil has been traced to the fall of a first man or World Soul. Again, it is said that God permits (even if he does not inflict) unmerited suffering as a means of purifying the soul for eternal life. But many theologians would endorse Friedrich Von Hügel's frank admission that no explanation is fully satisfying. It is therefore not surprising that some philosophers (notably J. S. Mill) have tried to relieve God of apparent responsibility for evil by supposing that he is finite both in knowledge and in power. (Christians believe that God displays his omnipotence by *overcoming* evil through the ministry of Christ; but an exposition of

this belief would involve a study in the doctrines of Incarnation and Atonement.)

PERSONALITY

In the preceding sections it has been assumed that God is personal. The assumption is justified by the fact that, while in the primitive stages of religion he has often been conceived subpersonally, philosophers (in the West, at any rate) have nearly always described his nature to some extent by analogy with the human self. Thus, according to Plato, Aristotle, and Spinoza God has mental properties. But two conditions must be fulfilled if God is to be *fully* personal. First, it must be possible to speak of him as loving, or caring for, humankind. Second, it must be possible to speak of him truly through images drawn from human life. The Aristotelian and Spinozistic concepts of him fail to meet the first of these conditions. While Aristotle's First Mover contemplates himself, he does not have any knowledge of the world. Therefore, like Spinoza's God, he cannot return the love that he receives.

The second condition is not universally fulfilled either. Some thinkers have attempted to mediate between philosophy and religion by suggesting that concrete images of God are inadequate attempts to grasp a Reality that is suprapersonal. Thus Hegel held that Absolute Spirit can be adequately known only by the speculative intellect. Consequently, when he speaks of the Absolute as God he means by God (as Aristotle meant) self-thinking Thought. The personal God of theism is a prerational and imperfect representation (*Vorstellung*) of the Absolute. On the ascending scale of truth, religion occupies an intermediate place between art and philosophy.

This contrast between religion and philosophy becomes even more acute when the Absolute is equated with a suprarational Unity. Here there is a striking parallel between Indian monism and the thought of F. H. Bradley. Some Hindu scriptures (notably the *Bhagavad-Gita*) describe God as a personal being, the Lord of the universe, whose "grace" (*prasada*) requires the "loving devotion" (*bhakti*) of his worshipers. The *Gita* is especially significant. Through the theophany in the eleventh chapter, it declares that Krishna (the incarnate God, and friend of Arjuna) is "more to be prized even than Brahman." But Śankara, following the nondualistic strain in the Upanishads, held that the sole reality is the impersonal Absolute (Brahman) with which the soul is numerically identical. Personal concepts of the Absolute belong to the sphere of illusion (maya). They are forms under which the One appears to untutored minds. Likewise F. H. Bradley held that since Reality is nonrelational, a per-

sonal God is "but an aspect, and that must mean but an appearance, of the Absolute" (*Appearance and Reality,* Oxford, 1930, p. 397).

Christians, however, are obliged by revelation to identify the Absolute with a God who is fully personal, both in himself and in his dealings with humankind. Such primary images as Father, King, and Friend mediate a knowledge that cannot be surpassed by abstract speculation. During this century the personal nature of religious conviction has been stressed in varying terms by such writers as William Temple, John Oman, John Baillie, Karl Barth, Emil Brunner, Martin Buber, and the existentialists (especially Kierkegaard, Bultmann, and Gabriel Marcel). Buber's distinction between an "I-Thou" and an "I-It" relationship and Kierkegaard's contrast between subjectivity and objectivity have been widely used to express the difference between a personal and an impersonal attitude to God. At the same time, many theologians are aware that an unqualified application of personal categories to God results in anthropomorphism. Divine personality wholly transcends its finite counterpart. It is unique both because of the fact that essence and existence are identical in it and because of the mystery of its triune character.

THE KNOWLEDGE OF GOD. There are three main routes to God: reason, revelation, and religious experience.

Both Plato and Aristotle claimed that reason can obtain a certain knowledge of God's existence and nature. This claim has been endorsed by many Christian theologians. Thus, St. Augustine, writing from within the Platonic tradition, affirmed that the human intellect by nature participates in eternal Truth. Furthermore, many theologians have held that God's existence can be proved. These proofs may be divided between those which take the form of a priori reasoning from God's essence and those which take the form of a posteriori reasoning from finite experience. The first type of proof is exemplified chiefly by the Ontological Argument, which was first formulated by St. Anselm and restated by René Descartes. In its Anselmic form it runs as follows: The idea of God is the idea of that than which nothing greater can be conceived; a being that exists is greater than a being that does not exist; therefore God exists. In view of the criticisms to which this proof has been subjected (especially by Thomas and Immanuel Kant), it is widely considered to be invalid by both theologians and philosophers today. The main a posteriori arguments received their classical formulation from Thomas.

He constructed five proofs based on the facts of motion, causality, contingency, relative perfection, and design. (The first, second, and third of these Five Ways are different forms of the Cosmological Argument—the argument that the world in all its aspects shows its dependence on self-existent Being.) Kant rejected *all* proofs based on the use of the "speculative reason." But he maintained that the "practical reason" is obliged to postulate both God and immortality. Since World War I, natural theology has been vigorously attacked, on the one hand by Barth and, on the other, by those philosophers who deny the possibility of metaphysics. However, many twentieth-century philosophers (chiefly Roman Catholic Thomists—but also others, such as A. E. Taylor) held that the main a posteriori proofs can be presented cogently.

Thomas affirmed that in addition to a natural knowledge of God there is a supernatural knowledge revealed by Christ and received through faith. Thus, while reason can infer that God is the Creator, it cannot discover that he is Three-in-One. John Locke reproduced this distinction in his *Essay concerning Human Understanding* (Book 4, Ch. 18). But in his *Reasonableness of Christianity* he paved the way for the deists, who held that the Gospel merely "republishes" the basic truths of natural religion and morality. The supernatural character of revelation was also denied later by those Hegelians who regarded Christ as the highest instance of the Absolute's universal presence in humanity.

Religious philosophers from Plato onward have claimed that it is possible to have a *direct* knowledge of divine reality. Among Christian thinkers, some hold that this knowledge is available (even if in a confused form) to everyone; others restrict it to the recipients of biblical revelation. Some regard it as the highest activity of ordinary mental powers; others assign it to a special faculty of the soul. Some describe it intellectually as an insight or intuition; others stress its volitional character by calling it a confrontation or encounter. Apart from these differences, it is necessary to distinguish between an experience that is mediated and one that is immediate. As many recent writers have stressed (notably, William Temple, John Oman, and H. D. Lewis), religious experience is normally mediated through secular experiences, including those which are formulated in the premises of the a posteriori proofs. Thus, we become aware of God as eternal through the contingency of finite things and as holy through the demands of the moral law. (Even the divinity of Christ is experienced, in the first place, through meditation on his human life and on the impact that it made on his disciples.) But there is also an immediate, purely spiritual

experience that is called "mystical." While Christian and non-Christian mystics often use the same terminology, the former (when they are orthodox) differ from many of the latter at two points. First, they affirm that God is transcendent as well as immanent. Second, and as a consequence, they claim, not an absorption into the Godhead, but a union of love and will in which the distinction between the Creator and the creature is permanently retained.

See also Absolute, The; Alexander, Samuel; Aristotle; Augustine, St.; Barth, Karl; Bradley, Francis Herbert; Brunner, Emil; Buber, Martin; Bultmann, Rudolf; Caird, Edward; Cosmological Argument for the Existence of God; Descartes, René; Emanationism; God/Isvara in Indian Philosophy; Hegel, Georg Wilhelm Friedrich; Hiddenness of God; Hügel, Baron Friedrich von; Infinity in Theology and Metaphysics; Kant, Immanuel; Kierkegaard, Søren; Locke, John; Mani and Manichaeism; Marcel, Gabriel; Mill, John Stuart; Neoplatonism; Oman, John Wood; Ontological Argument for the Existence of God; Otto, Rudolf; Plato; Platonism and the Platonic Tradition; Plotinus; Pseudo-Dionysius; Spinoza, Benedict (Baruch) de; Taylor, Alfred Edward; Tennant, Frederick Robert; Thomas Aquinas, St.; Tillich, Paul; Whitehead, Alfred North.

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A. E. Taylor's article on theism in *Encyclopedia of Religion and Ethics,* edited by J. Hastings (New York, 1908–1926), is still authoritative. The best single book on Greek thought about God up to and including Plato remains James Adam's *The Religious Teachers of Greece* (Edinburgh: Clark, 1908). On the period from Augustine to Scotus, there are admirable accounts by F. Copleston in Vol. 2 of his *A History of Philosophy* (London: Burns, Oates & Washbourne, 1954). This book also contains an excellent bibliography. Most of the relevant passages in Thomas are assembled in the two anthologies, *Philosophical Texts* and *Theological Texts,* selected and translated by T. Gilby (Oxford: Oxford University Press, 1951 and 1955). On the modern period, there is much useful material in A. S. Pringle-Pattison's *The Idea of God* (Oxford: Oxford University Press, 1920) and in E. L. Mascall's *He Who Is* (London: Longmans, Green, 1943). The latter reexamines the essentials of theism, and contains a full bibliography. See also J. Collins's very comprehensive *God in Modern Philosophy* (Chicago: Regnery, 1959); Illtyd Trethowan's *The Basis of Belief* (London: Burns and Oates, 1960), a concise summary of recent work on natural theology; and F. Ferré's *Language, Logic and God* (London: Eyre and Spottiswoode, 1962), a full account of recent writing on religious subjects from an empiricist point of view. The classical analysis of religious experience remains Rudolf Otto, *Das Heilige* (Marburg, 1917), translated by J. W. Harvey as *The Idea of the Holy* (New York: Oxford University Press, 1925). The best modern defense of the miraculous element in Christianity is C. S. Lewis, *Miracles* (London: G. Bles, 1960). A full survey of recent writing on revelation is contained in John Baillie, *The Idea of Revelation in Recent Thought* (New York: Columbia University Press, 1956).

H. P. Owen (1967)

GOD, CONCEPTS OF [ADDENDUM]

Since H. P. Owen's entry there has been considerable work on Western theism's standard roster of divine attributes. One of the most-discussed, eternity, has its own entry. This entry notes developments on three others.

DIVINE FOREKNOWLEDGE: THE PROBLEM

Many biblical passages ascribe to God knowledge of what we will freely do in the future. But a now-standard argument (derived from Boethius) contends that no future creaturely action can be both foreknown and free. Suppose that for some act A, God believed yesterday that I do A tomorrow.

God is infallible. He cannot make a mistake. That is,

(1) Necessarily, for all P, if God believed yesterday that P, then P. So,

(2) Necessarily, if God believed yesterday that I do A tomorrow, I do A tomorrow.

(3) If God believed yesterday that I do A tomorrow and it is in my power not to do A tomorrow, then it is in my power to make it the case that yesterday God had a false belief, or it is in my power to make it false that God believed yesterday that I do A tomorrow.

(4) It is not in my power to make God have had a false belief (from 2).

(5) It is not in my power to alter the past. So,

(6) It is not in my power not to do A tomorrow. So,

(7) Tomorrow I do not do A freely.

Philosophers have revived approaches to this problem associated with the scholastic thinkers William of Ockham and Luis de Molina.

OCKHAMISM

Ockhamism rejects (4) in favor of

(4a) If it is in my power not to do A tomorrow, and God believed yesterday that I do A tomorrow, then: it is in my power to make it the case that yesterday God had a false belief; it is in my power to make it false that God believed yesterday that I do A tomorrow; or it is in my power to do something such that had I been going to do it, God would always not have believed that I would do A.

If it was the case yesterday that an infallible God had this belief, then I was going to do A. But it was also going to be the case that I have the power not to do A, even though I will not use this power. For Ockhamism, that I was going to do A determines what God believed, not vice versa: My future act constrains the past, rather than God's past belief constraining the future. Had I been going not to do A tomorrow, this would have determined what God believed, and so He would always have believed that I would not do A. Thus, since I have it in my power not to do A, it is in my power to do something such that had I been going to do it, God would always not have believed that I would do A.

But just how does what I do in the future determine what God believed? Ockhamists hold that what makes (1) true is not wholly in the past. Rather, as they see it, what makes a statement about God's past beliefs true is partly in the past and partly in the future. If (1) is true, for Ockhamism, what makes it true is partly God's mental state yesterday and partly my doing A tomorrow. One large question Ockhamism faces is how precisely to understand this. Perhaps God "sees" the future: Had I been not doing A in the future, that is what He would always have seen. Plausibly, when I see a tree, what makes this true is that I am seeing and that the tree is seen. So perhaps future events are part of what make it true that God sees the future.

But when I see a tree, this is because light reflected from the tree enters my eye—the tree sends a signal. So if God "sees" the future, future events send signals back to God in the present—there is backward causation. This is hard to defend.

MOLINISM

Molinism accepts (4a), not (4). For Molinism, God knows our future free actions by knowing "counterfactuals of freedom" (CFs), truths about what we would freely do in various circumstances, and knowing the circumstances we will be in. For Molinists, before all creation, it was true that

(8) were the snake and Eve in the garden, the snake eventually would freely tempt Eve, and

(9) were the snake to tempt Eve in the garden, she would freely fall.

God knew this. God placed Eve and the snake in the garden. As (8) was true, the snake freely tempted her. Since (9) was true, she freely fell. And so on. God decides who is created and what initial and later circumstances they face in light of His knowledge of all CFs. So God sets up the whole future, including the parts we would do freely. God knows the future by knowing the CFs and how He has set things up. But our freedom, say Molinists, is built into the CFs. Eve had it in her power not to fall. Had the CF

(10) were the snake to tempt Eve in the garden, she would not freely fall

been true instead of (9), God would have known that. And since Eve had it in her power not to fall, she had it in her power to do something such that had she been going to do it, God would always not have believed that she would fall.

One problem for Molinism concerns what makes CFs true. It cannot be God. If God determines both that (8) is true and that the snake and Eve are in the garden, God determines that the snake sins: Sin is God's fault. Furthermore, God simply determines all our actions, and so we are not free. Nor can it be our natures. Whatever our having our natures makes true is true necessarily. But CFs cannot be true necessarily. If we suppose that (8) is necessarily true, it is not so much as possible that the snake not tempt Eve, and so the snake does not do so freely—and so (8) turns out false. Nor can it be our actions. They come too late in the game. So there seems to be nothing at all in reality that can make CFs true.

Furthermore, arguably Molinism does not genuinely preserve our freedom. (8) is true from all eternity. It is also true from eternity that God has willed that Eve and the snake be in the garden. So from all eternity it is guaranteed that the snake tempts. It cannot be the case that God has willed that Eve and the snake be in the garden and that (8) is true and yet the snake does not tempt. Given conditions obtaining long before it existed, the snake cannot do otherwise: It is merely the case that it could have done otherwise (had these conditions not obtained). And there is a further worry: Even if God does not will that the snake tempt, does He not in fact initiate the snake's action, albeit indirectly? What initiates an action makes the first difference in the world that guarantees that (barring a miracle) the action is done. On the

Molinist scenario, we do not make this first difference at the moment of choice. God makes it from all eternity. If this is correct, then God removes our responsibility much as He would if He just directly caused our actions. Thus, it is not clear that Ockhamism or Molinism are successful approaches to the Boethian argument.

THE CONCEPT OF OMNIPOTENCE

The claim that God is omnipotent, that is, "all-powerful," concerns the range of God's power—how much He is able to do. At first glance, being all-powerful may seem to be having all powers. But this cannot be right. God has no body (leaving aside the Incarnation). So He cannot walk. He can take on a body. So He is able to walk, and He actually has a conditional power, the power to walk if He acquires a body. But having this conditional power does not entail being able to walk.

St. Thomas Aquinas gave a classic definition, that "God is omnipotent =df. God is able to bring about every absolutely possible state of affairs" (*Summa Theologiae* Ia 25, 3). The thought here is that God can make true any sentence stating something possible, but no sentence stating something impossible, for example, not "there is a square circle." In a sense this does not limit God's power. If a sentence describes something God can bring about, it describes something that can occur, so it states a possibility. So no sentence stating something impossible could describe something God can do. But what can seem to be a limit emerges when we add that some sentences really do state impossibilities, states of affairs God cannot bring about. One may wonder why there are any impossibilities if God is all-powerful. In response, some have wondered whether the sense that there being impossibilities limits God dissipates if we add that God's nature or activity accounts for these states of affairs being possible or impossible.

Discussions of omnipotence suggest that Aquinas's account is too sweeping—that there are some possible states of affairs God cannot bring about. These include

(a) Necessary states of affairs. Necessarily, 2 + 2 = 4. But this, some argue, has nothing to do with God. It is not something He or anyone else could bring about. Still, whatever is necessarily so is possibly so.

(b) Things God is too late to bring about, for example, that the Germans won World War II. It was possible that they do so, and it is now no contradiction to say "the Germans won the war." But it is now (some argue) impossible that anyone bring

this about. Thus, some suggest that we relativize omnipotence to what it is possible to bring about at any given time.

(c) The free actions of creatures. It is possible that I finish writing this entry. But if God makes me finish, some say my doing so is not free. So while it is possible that God makes me finish, some say it is not possible that God makes me freely finish.

(d) States of affairs that would be evil to bring about. Many think that God cannot do evil. If this is so, then if it would be evil to kill you, God cannot do this.

(e) States of affairs that entail that no one brought them about. God can make an atom appear from nowhere. But He cannot make one so appear with absolutely no cause, because if He brings it about that the atom appears, its appearing has a cause.

(f) Molinist CFs.

It is hard to make definition building in all these exceptions seem smooth and natural. But two accounts are worth noting. One could say that God is omnipotent =df. God has the greatest range of power one individual can have. This lets one place outside God's power as many of (a) to (f) as one wants. Suppose that no one can bring about at t states of affairs earlier than t. Then this is not in the range of power of any individual. So if God cannot do this, God can be too late to bring some things about and yet have the greatest range of power one individual can have. Again, it is in my power to kill you when it is evil to do so, and perhaps it is not in God's. Even so, God can still have the greatest range of power one individual can have, because His range of power is overall larger than mine.

Another definition that also allows exceptions (a) to (f) begins from the thought that omnipotence cannot ever be powerful enough to do anything: God is omnipotent =df. there is nothing such that God cannot do because of a lack of power. Anyone other than God cannot do some things because of a lack of power. I cannot run a three-minute mile because my legs are not that powerful. A turtle cannot do mathematics because its mind is not that powerful. On this last definition, the "distinctive" of God's power is that nothing like this is true of Him. God cannot walk because of a lack of a body, not because of a lack of power. There is no power to walk-without-a-body to lack. God cannot sin because of His moral perfection, not because of a lack of any power needed, for example, to tell a lie. If He cannot make the Germans win World War II, this is because it is now too

late, not because of a lack of power. And so on. One may wonder, though, whether having a set of powers with so many limits, even if not because of a lack of power, amounts to being *all*-powerful.

DIVINE SIMPLICITY

Many medieval thinkers held that God is "simple," and this thesis returned to active discussion in the 1980s. The more complicated or complex something is, the more parts it has. The simpler something is, the fewer parts it has, and something is wholly simple if it has no parts at all. The doctrine of divine simplicity (DDS) asserts that God is wholly simple. Most theists think that God is not made of matter, spread out in space, or an event, with earlier and later parts. So they think that God has no material, spatial, or temporal parts. But Aquinas, for instance, also speaks of God as not "composed" of essence, accidents, and existence (*Summa Theologiae* Ia 3, 3–6). The theist mainstream is silent on these. And well it may be, for what Aquinas presupposes here is not at all a matter of common sense.

Parts compose. Wholes are composed. Wholes can consist completely of different sorts of parts at once—our bodies consist completely of both molecules and quarks. When Aquinas speaks of things other than God as "composed" of, for example, essences and accidents, he takes it that concrete things consist completely not only of concrete parts but also of abstract ones—essences, accidents, and so on This claim stretches the sense of "part." For the part-whole relation is transitive. If a bolt is part of a wheel and the wheel is part of a car, it follows that the bolt is part of the car. The subject-attribute relation (that between things and their accidents) is not transitive. Being an attribute is an attribute of my accidents but not an attribute of mine.

If DDS is true, then while what makes it true that Brownie is a donkey is that Brownie has an essential property, donkeyhood, what makes it true that God is divine is simply God. Again, while what makes it true that Brownie is brown is that Brownie has an accidental property, brownness, what makes it true that God is just is simply God. We could put this a bit crudely by saying that given DDS, all God's properties are identical with God.

This courts two obvious objections. One is that if all God's attributes are identical with God, then they are all identical: God has just one attribute. But that does not seem true. God is wise and omnipotent. These seem to be two attributes.

Still, this is a bit quick. *Wise* and *omnipotent* are two predicates. But it is not obvious that real attributes pair 1:1 with (almost all) predicates. And even if predicates usually apply in virtue of a thing's having distinct attributes, it would take some argument to show that they can never apply in virtue of the same thing. Perhaps what made it true at one time that someone was king of England was that he rightfully wore one crown, and what made it true at one time that someone was king of Scotland was that he rightfully wore another crown. When the monarchies united, both became true in virtue of rightfully wearing a single crown.

A second obvious objection is that if God is identical with His properties, then He is a property, yet surely He is not. This objection takes it that the result of identifying God with His properties is to eliminate God. But why think that? Perhaps the identification gets rid of the properties, leaving God to make it true that He is wise, good, and so on. If an identity-statement A = B is true, then where one could have thought there to be two items, A and B, there is only one. This one has all attributes A really has and all attributes B really has, but may have only some attributes A has been thought to have and some B has been thought to have. It may even have none of either. (Here's a partial analogy: Suppose a spy is also a bigamist. He is discovered, and his wives meet. Each wife may learn that the husband's real life story includes nothing he has told her about himself. In fact, by pooling clues that previously only one had possessed, the wives may eventually learn that he is not even human, but really a robot. So the wives may well wind up learning that almost nothing either had believed about the husband was true.) Given that A = B, which of the attributes we thought A and B had this one thing has remains to be determined. If God = justice, why think that God has only attributes we thought justice had? Some might reply that the property has to be there regardless—there has to be such a thing as justice, because others than God are just. But actually one can use God in place of the property in other metaphysical contexts, though this is a story too complex to tell here.

See also Foreknowledge and Freedom, Theological Problem of; Molina, Luis de; Ockhamism.

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GÖDEL, KURT
(1906–1978)

Kurt Gödel, a logician, was born in Brno, in what is now the Czech Republic, and educated at the University of Vienna, where he became privatdozent in 1933. In 1940 he joined the Institute for Advanced Study in Princeton, New Jersey, where he remained for the rest of his career. Following David Hilbert, Gödel was instrumental in establishing mathematical logic as a fundamental branch of mathematics, achieving results such as the incompleteness theorems that have had a profound impact on twentieth-century thought. In philosophy, by contrast, he represents the path not taken. Of his few writings in this area, including posthumous publications, those that focus on the more immediate ramifications of his own (and closely related) mathematical work have had the greatest impact.

GÖDEL'S INFLUENCE

A close student of the history of philosophy, Gödel follows Plato, Gottfried Wilhelm Leibniz, and Edmund Husserl as opposed to the more fashionable Aristotle, Immanual Kant, and Ludwig Wittgenstein. (On Kant, however, see Gödel 1946/9 and 1961.) Methodologically, two patterns in his thinking stand out. First, a tendency to move from the possible to the actual is reflected in his Leibnizian ontological argument for the existence of god (Gödel 1970). He relies here on the S5 modal principle,

(possibly necessarily P ⊃ necessarily P). It can also, arguably, be discerned in his mathematical Platonism—because the distinction between the possible and the actual, relevant to material being, collapses in the formal realm of mathematics (see Yourgrau 1999). Finally, in relativistic cosmology (Gödel 1949, 1946/9) he concludes from the possible existence of rotating universes, where time is merely ideal, to its ideality in the actual world.

Second, he is preoccupied with probing mathematically the limits of formal methods in representing intuitive concepts. In his first incompleteness theorem, for example, by applying an ingenious arithmetization of metamathematics to a formal system of arithmetic, Gödel was able to construct a formula expressing its own unprovability, and thus to prove (as he made explicit later) the indefinability within the system of the intuitive concept of arithmetic truth (see Feferman 1984). Along the same lines one may view his results in cosmology as demonstrating the limits of the theory of relativistic space-time in representing the intuitive concept of time, although here, interestingly, his response was to abandon the intuitive concept (see Yourgrau 1999).

From a broader perspective Gödel isolates two basic philosophical worldviews: one with a "leftward" direction, toward skepticism, materialism, and positivism, the other inclined toward "the right," toward spiritualism, idealism, and theology (or metaphysics; Gödel 1961). He puts empiricism on the left and a priorism on the right and points out that although mathematics, qua a priori science, belongs "by its nature" on the right; it too has followed the spirit of the times in moving toward the left—as witnessed by the rise of Hilbert's formalism. With Gottlob Frege, Gödel resists this trend, pointing to his incompleteness theorems as evidence that "the Hilbertian combination of materialism and aspects of classical mathematics … proves to be impossible" (1961, p. 381).

FREGE AND GÖDEL

Frege's mathematical philosophy is held together by two strands that may appear to be in tension with one another: on one side his Platonism and conceptual realism, on the other his conception of arithmetic as analytic (that is, as resting on definitions and the laws of logic) and his "context principle" (which seems to put our sentences—hence language—at the center of his philosophy). This second aspect of Frege's thought, via Bertrand Russell and Wittgenstein, helped persuade the positivists of the Vienna Circle (whose meetings Gödel attended) that mathematics is without content, a mere matter of (more or less arbitrary) linguistic conventions concern-

ing the syntax of (formal) language. This conclusion was, however, rejected by both Frege and Gödel (1944, 1951, 1953–59), Frege hoping, contra Kant, "to put an end to the widespread contempt for analytic judgments and to the legend of the sterility of pure logic" (1884, p. 24; see also 1879, p. 55). Gödel, for his part, insists that "'analytic' does not mean 'true owing to our definitions,' but rather 'true owing to the nature of the concepts occurring therein'" (1951, p. 321). (See Parsons, 1994.)

Frege and Gödel are in further agreement against the spirit of the times, that the fundamental axioms of mathematics should be not simply mutually consistent but (nonhypothetically) true. They also reject Hilbert's conception of axiom systems as "implicit definitions," with Gödel insisting that a formal axiomatic system only partially characterizes the concepts expressed therein. Indeed, his Incompleteness Theorem makes the point dramatically: "Continued appeals to mathematical intuition are necessary … for the solution of the problems of finitary number theory.… This follows from the fact that for every axiomatic system there are infinitely many undecidable propositions of this type" (1947 [1964], p. 269). And it is in human ability—if indeed humans possess it—to intuit new axioms in an open-ended way that Gödel sees a possible argument to the effect that minds are not (Turing) machines (Gödel 1951; Wang 1996).

What kind of intuitions, however, are these? Gödel does, it is true, employ a Kantian term here, but he does not mean concrete immediate individual representations, and on just this point he faults Hilbert: "What Hilbert means by '*Anschauung*' is substantially Kant's space-time intuition.… Note that it is Hilbert's insistence on *concrete* knowledge that makes finitary mathematics so surprisingly weak and excludes many things that are just as incontrovertibly evident to everybody as finitary number theory" (1958 [1972], p. 272, n. b). (See also 1947 [1964], p. 258.) Note, further, that mathematical intuition, though a form of a priori knowledge, does not ensure absolute certainty, which Gödel rejects (Wang 1996); rather, as with its humbler cousin, sense perception, it too may attain various degrees of clarity and reliability (see Gödel 1951, his remarks on Husserl in 1961, and Parsons 1995, 1995a).

THE GÖDEL PHILOSOPHY

Frege and Hilbert, then, serve as useful coordinates in mapping Gödel's philosophy, in its tendency to "the right." What if one chooses Albert Einstein as a third coordinate? Note first that "idealistic" in the title of Gödel (1949) is not a gesture toward a subjective philosophy

such as George Berkeley's. (In his final years, he became sympathetic with Husserl's later idealism, which does not exclude objectivism. See van Atten and Kennedy 2003.) Rather, Gödel is pointing to the classic Platonic distinction between appearance and reality. Though the world may appear (to the senses) as if temporal, this is in fact an illusion. Only reason—here, mathematical physics—can provide a more adequate cognition of reality (i.e., of Einstein-Minkowski space-time). Gödel makes a sharp distinction between intuitive time, which lapses, and the temporal component of space-time. By his lights, already in the special theory of relativity (STR) intuitive time has disappeared, because "the existence of an objective lapse of time means … that reality consists of an infinity of layers of 'now' which come into existence successively" (Gödel 1949, pp. 202–203), whereas the relativity of simultaneity in the STR implies that "each observer has his own set of 'nows,' and none of these various systems of layers can claim the prerogative of representing the objective lapse of time" (p. 203).

These observations, however, rely on the equivalence of all "observers" or reference frames in the STR, whereas in the general theory of relativity (GTR), of which the STR is an idealized special case, the presence of matter and the consequent curvature of space-time permit the introduction of privileged observers, in relation to which one can define a "world time" (which, one may say, objectively lapses). Gödel's discovery is that there exist models of the GTR—the rotating universes—where, provably, no such definition of a world time is possible. In particular, these worlds permit time travel, in the sense that, "for *every* possible definition of a world time one could travel into regions of the universe which are past according to that definition," and "this again shows that to assume an objective lapse of time would lose every justification in these worlds" (1949 p. 205). The idea here is clearly that if a time has "objectively lapsed," it no longer exists and so is not *there* to be revisited (in the future). Hence, by contraposition, if it can be revisited, it never did objectively lapse in the first place.

To describe the Gödel universe as static, however, as opposed to our own, would be misleading. The time traveler's rocket ship, for example, would move at a speed of at least $1/\sqrt{2}$ of the velocity of light! It would seem to observers, just as in this world, to be moving at great speed, and in general the denizens of Gödel's universe may well experience time much as we do in the actual world. Indeed, that is why Gödel moves from the mere possible existence of the Gödel universe to the ideality of time in the actual world, because "if the experience of the

lapse of time can exist without an objective lapse of time, no reason can be given why an objective lapse of time should be assumed at all" (p. 206; see Yourgrau 1999).

Here, then, is another example of the Janus-faced quality of Gödel's thinking, presaged already in his arithmetization of metamathematics—contributing mathematically to "the left" while at the same time, as he sees it, pointing to "the right."

See also Gödel's Incompleteness Theorems; Logic, History of; Mathematics, Foundations of.

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GÖDEL'S INCOMPLETENESS THEOREMS

The axiomatic method is at the heart of mathematics. The work of mathematicians is to derive the consequences of axioms. According to Euclid, axioms are evidently true, and deduction from them is a powerful method of learning new truths. The rise of non-Euclidean geometry disrupted the carefree connection between truth and proof and led many modern thinkers to adopt the formalistic attitude that the mathematician's sole endeavor is to work out the consequences of axioms, taking no professional interest in inquiring what, if anything, the axioms are true of.

In 1931 Kurt Gödel proved a deep theorem that showed that deduction from axioms cannot be all there is to mathematical understanding. Gödel showed that, for whatever system of truths of number theory we choose to regard as axiomatic, there will be statements of basic arithmetic that we can recognize as true even though they are not consequences of the axioms. That there are truths not derivable from our axioms is hardly surprising; nobody ever promised us omniscience. What is surprising is that there are arithmetical statements *we can recognize as true* even though they are not derivable, so that no system of axioms we can write down fully captures our arithmetical understanding. Moreover this situation holds not only for systems of axioms we are capable of producing today but also for whatever systems we may devise in the future.

Gödel's true, unprovable sentence is obtained by using strings of numbers to encode strings of symbols, thereby reducing statements about language to statements about numbers. Under such a coding Gödel's sentence says that the system of axioms is consistent. Of course if we accept the axioms, we regard the axioms as true, so we certainly regard them as consistent. But even though adopting the axioms means accepting their consistency, the statement that the axioms are consistent cannot be proved from the axioms. We could adopt the thesis that the axioms are consistent as a new axiom. This would give us a new, larger system of axioms that can prove the consistency of the old system but not the consistency of the new system. We can continue the process of adding consistency statements repeatedly, but however far we go we shall never catch up with Gödel. No consistent system that includes basic arithmetic can prove its own consistency.

Gödel's result has important corollaries, notably, Church's theorem (1936) that there is no algorithm for testing whether a sentence is logically valid and Tarski's theorem (1935) that the set of true sentences of a language cannot be defined within the language itself.

THE LANGUAGE OF ARITHMETIC

Gödel's results apply to the language of arithmetic, which is an artificial language for formalizing reasoning about the natural numbers, and to other languages into which the language of arithmetic can be translated. To state his results we need to specify the language exactly. As numerals, the language uses "0" and expressions obtained from "0" by repeatedly prefixing "S," which stands for the successor function. The numeral for 3 is "$SSS0$," which we abbreviate "$\underline{3}$." The language also contains function signs "+" "$\times$" and "E," for addition, multiplication, and exponentiation, so that the *terms* of the language make up the smallest class that contains the numeral "0" and the variables $v_0, v_1, v_2, v_3, \ldots$, and that contains $S\tau$, $(\tau{+}\rho)$, $(\tau{\times}\rho)$, and $(\tau E\rho)$ whenever it contains τ and ρ. In the exposition here we shall sometimes use other letters as variables in place of the official v_is, so as to reduce the proliferation of subscripts. Including "E" as a primitive operation is not strictly necessary, as we shall see below, but it enables us to get off to a fast start.

A term without variables is *closed*. Rules that we learned in elementary school enable us to calculate the numerical value of each closed term. A term with n variables represents an n-ary function, calculable by a grade-school algorithm.

The *atomic formulas* take the form $\tau = \rho$ or $\tau \leq \rho$, where τ and ρ are terms, and the *formulas* constitute the smallest class containing the atomic formulas and containing $\sim \phi$, $(\phi \vee \psi)$, and $(\exists v_i)\phi$, whenever it contains ϕ and ψ. An occurrence within a formula of the variable v_i is *bound* if it occurs within some subformula that begins with $(\exists v_i)$, and it is *free* otherwise. A formula without free variables is a *sentence*; it is sentences that are either true or false. The symbols for conjunction ("$\wedge$"), the conditional ("$\rightarrow$"), the biconditional ("$\leftrightarrow$"), universal quantification ("$(\forall v_i)$"), and the less-than relation ("$<$") are treated as defined.

Where v_i does not occur within the term τ, we use $(\exists v_i \leq \tau)\phi$ and $(\forall v_i \leq \tau)\phi$ to abbreviate $(\exists v_i)(v_i \leq \tau \wedge \phi)$ and $(\forall v_i)(v_i \leq \tau \rightarrow \phi)$. These are *bounded quantifiers*, and a formula with no quantifiers that are not bounded is a *bounded formula*. For example 'v_0 is prime' is formalized by the bounded formula '$(SS0 \leq v_0 \wedge (\forall v_1 \leq v_0)(\forall v_2 \leq v_0)(v_0 = (v_1 \times v_2) \rightarrow (v_1 = S0 \vee v_2 = S0)))$'. A set or relation is said to be *bounded* if it is the extension of a bounded formula.

We can test whether an atomic sentence is true by grade-school algorithms; "true," that is, in the standard model consisting of the natural numbers 0,1,2,3, … Any bounded sentence is demonstrably equivalent to a truth-functional combination of atomic sentences, since bounded quantifiers can be cashed out as long but finite disjunctions and conjunctions. Thus we have an algorithm for determining the truth value of a bounded sentence. It follows that every bounded set or relation is decidable; that is, there is an algorithm for testing membership in the set or relation. If S is the extension of the bounded formula $\sigma(x_0)$, we can test whether $n \in S$ by asking whether $\sigma(\underline{n})$ is true.

The Σ *formulas* are obtained by prefixing a block of existential quantifiers to a bounded formula, and their extensions are *recursively enumerable* sets and relations. Any recursively enumerable set is the extension of a formula obtained by prefixing a single existential quantifier to a bounded formula, since $(\exists x_1)(\exists x_2) \ldots (\exists x_n)\phi$ is equivalent to $(\exists x_0)(\exists x_1 \leq x_0)(\exists x_1 \leq x_0) \ldots (\exists x_n \leq x_0)\phi$. (The same goes for recursively enumerable relations; in the future we shall let this go without comment.) The union and intersection of recursively enumerable sets are recursively enumerable, since $((\exists y)\phi(x,y) \vee (\exists z)\psi(x,z))$ and $((\exists y)\phi(x,y) \wedge (\exists z)\psi(x,z))$ are, respectively, logically equivalent to $(\exists y)(\exists z)(\phi(x,y) \vee (\psi(x,z))$ and $(\exists y)(\exists z)(\phi(x,y) \wedge (\psi(x,z))$ (assuming bound variables have been chosen so as to avoid conflicts). If $\chi(x,y,z)$ is bounded and τ is a term, $\{x:(\exists y \leq \tau)(\exists z)\chi(x,y,z)\}$ and $\{x:(\forall y \leq \tau)(\exists z)\chi(x,y,z)\}$ are both recursively enumerable since they are the extensions of $(\exists z)(\exists y \leq \tau)\chi(x,y,z)$ and $(\exists w)(\forall y \leq \tau)(\exists z \leq w)\chi(x,y,z)$, re-

spectively. If a Σ sentence is true, we can show it is true by providing an appropriate witness.

Σ FORMULAS AND DECIDABILITY

A set of numbers is *effectively enumerable* if there is a mechanical procedure for listing the set, so that every member of the set turns up on the list eventually and nothing appears on the list that is not in the set. Every recursively enumerable set is effectively enumerable. To see this, we introduce the pairing function. $Pair(x,y) = \frac{1}{2}(x^2 + 2xy + y^2 + 3x + y)$ is a one-one correspondence between $\mathbb{N} \times \mathbb{N}$ and $\mathbb{N}$ (where $\mathbb{N}$ is the set of natural numbers). Define the functions 1st and 2nd so that $Pair(1st(z), 2nd(z)) = z$. Given a recursively enumerable function $S = \{x_0: (\exists x_1)\sigma(x_0,x_1)\}$, with σ bounded, we can list S by the following algorithm: At stage n, test whether the sentence $\sigma(\underline{1st(n)}, \underline{2nd(n)})$ is true; if it is, add $1st(n)$ to the list.

Every set that is known to be effectively enumerable is recursively enumerable. This striking fact, together with a large body of evidence obtained by examining idealized models of computation and examining structural properties of effectively enumerable and recursively enumerable sets, has led to the general acceptance of the *Church-Turing thesis*: A set of natural numbers is effectively enumerable if and only if it is recursively enumerable.

A set of natural numbers is *decidable* if and only if there is an algorithm for testing membership in the set. A set can be effectively enumerable without being decidable, since, if we have a procedure for listing an infinite set, there will be no stage at which, from the fact that a given number has not yet turned up on the list, we can conclude that the number will never appear on the list. On the other hand if a set and its complement are both effectively enumerable then the set is decidable, and conversely. Defining a set to be *recursive* if it and its complement are both recursively enumerable, the Church-Turing thesis tells us that a set is decidable if and only if it is recursive.

An *unary partial function* is a set of ordered pairs f with the property that, whenever $<i,j>$ and $<i,k>$ are both in f, we have $j = k$. If $<i,j> \in f$, for some j, we say that i is in the *domain* of f, and we write $f(i) = j$. (Partial functions of more than one variable are defined similarly.) f is said to be *calculable* if there is an algorithm that, for given input i, gives the output $f(i)$ if i is in the domain of f, and yields no output at all if i is outside the domain of f. A unary partial function is calculable if and only if, *qua* binary relation, it is effectively enumerable. It follows according to the Church-Turing thesis that f is calculable

if and only if it is recursively enumerable. If so, f is said to be a *partial recursive function*. (The notation is confusing—a collection of ordered pairs can be a partial recursive function without being a recursive relation—but entrenched.) A *total recursive function*—a partial recursive function whose domain is all of $\mathbb{N}$—will be a recursive relation, since if f is $\{<i,j>: (\exists x)\theta(i,j,x)\}$, with θ bounded, the complement of f is $\{<i,j>:(\exists x)(\exists y)(\sim y = j \wedge \theta(i,y,x))\}$.

ARITHMETIZATION OF METAMATHEMATICS

The set-theoretic paradoxes, particularly Russell's paradox, had on David Hilbert much the same effect that Zeno's paradoxes had on Aristotle. Both thinkers came to realize that the idea of the infinite held great intellectual peril with the risk of contradiction at every turn. Unlike Aristotle, however, Hilbert was unwilling to banish the actual infinite from mathematical reasoning. Instead he proposed to develop the theory of infinite sets in such a way that we could be assured that no contradiction would ensue, by treating mathematical proofs as the objects of mathematical study, in the same way that earlier mathematicians had treated curves, planes, and numbers as objects of mathematical study. A mathematical proof is, after all, a finite object, even if the sentences that appear in the proof talk about infinite objects, and Hilbert proposed that a new science of *metamathematics* could show by finite means that set theory was free of contradiction, by showing that there is no finite path that leads from the axioms to "$\sim 0=0$."

The great breakthrough in metamathematics was Gödel's proof, which showed that it was not necessary to go outside set theory or even outside arithmetic to carry out metamathematical investigations. By assigning numerical codes to formulas and finite strings of formulas, and by reducing properties of proofs to properties of their code numbers, it was possible to develop proof theory as a branch of number theory. This technique led to a great flowering of metamathematics even though as we shall see, it derailed Hilbert's plan.

The arithmetization of metamathematics proceeded in two stages. In the first stage numerical codes are assigned to simple symbols more-or-less arbitrarily, so that a formula, which is a string of simple symbols, can be coded as a sequence of numbers. Second we devise a method for encoding a finite sequence of numbers as a single number. This enables us to encode a formula as a single number. In this way a proof, which is a sequence of formulas, is encoded as a sequence of numbers, which is, in turn, coded as a single number.

We attack the second stage first. We already know how to use the function *Pair* to code a pair of natural numbers by a single number. We can encode a finite set of natural numbers by a single number by setting the code number of the finite set F, *Code*(F), equal to $\sum_{i \in F} (2Ei)$ *Code* provides a one-one correspondence between the set of finite sets of natural numbers and $\mathbb{N}$. The number n is the image under *Code* of the set of places in the binary decimal expansion of n in which "1"s appear. Finally, we encode the finite sequence $<k_0, k_1, \ldots, k_m>$ as the number *Code*($\{Pair(0,k_0), Pair(1,k_1), \ldots, Pair(m,k_m)\}$). Here we shall use an expression like "$<3,2,1>$" ambiguously to denote a sequence of length three and to denote the code number for that sequence, which is 448.

The relation that holds between k and n if k is an element of the set coded by n is defined by a bounded formula; abusing notation, we write "$\underline{k} \in \underline{n}$" to represent the statement that $(\exists i < (\underline{2E\underline{k}}))(\exists j < \underline{n})\underline{n} = (i + ((\underline{2} \text{ E } \underline{k}) + (j \times (\underline{2}E(S\underline{k})))))$. The set of all code numbers of finite sequences is the extension of a bounded formula, as are the concatenation operation and the partial function that takes i and n to the ith member of the sequence coded by n (provided n codes a sequence of i or more elements). The simplicity of this technique for encoding a finite sequence of numbers by a single number is the motive for including exponentiation as a primitive operation.

The details of the assignment of numerical codes to terms and formulas are highly arbitrary. A motive for the particular choices here is to avoid fretting over parentheses. With each term τ, we associate a number $\ulcorner\tau\urcorner$, as follows: The numeral "0" is assigned $<0,0>$, and the variable x_i is assigned $<1,i>$. $\ulcorner S\tau\urcorner$ is $<2,\ulcorner\tau\urcorner>$, and $\ulcorner(\tau+\rho)\urcorner$, $\ulcorner(\tau\times\rho)\urcorner$, and $\ulcorner(\tau E\rho z)\urcorner$ are $<3,\ulcorner\tau\urcorner,\ulcorner\rho\urcorner>$, $<4,\ulcorner\tau\urcorner,\ulcorner\rho\urcorner>$, and $<5,\ulcorner\tau\urcorner,\ulcorner\rho\urcorner>$, respectively.

A number x is a the code of a term just in case it is an element of a finite set s with the following property: For any element y of s, either $y = <0,0>$; or $y = <1,i>$, for some $i \leq y$; or $y = <2,z>$, for some z in s; or y is equal to one of $<3,z,w>$, $<4,z,w>$, and $<5,z,w>$, for some z and w in s. s represents a finite tree, with each node labeled by the code of a term, so that when a node is labeled by a complex term, nodes beneath it are labeled by the term's constituents and so that each leaf of the tree is labeled either by the code of "0" or by the code for a variable. This characterization is naturally written out as a Σ formula, showing that the set of (code numbers of) terms is recursively enumerable.

The set of terms is, in fact, recursive. To see this, we note that, if x is not a term, then the attempt to construct a labeled tree with x at its trunk winds up with at least one branch that does not terminate in either $\ulcorner0\urcorner$ or a variable. More precisely, x does not encode a term if and only if there is a sequence $<x_0, x_1, \ldots, x_n>$ of numbers $\leq x$ with the following properties:

$x_0 = x$.

If x_i has the form $<2,y>$, then $i < n$ and $x_{i+1} = y$.

If x_i has one of the forms $<3,y,z>$, $<4,y,z>$, or $<5,y,z>$, then $i < n$ and either $x_{i+1} = y$ or $x_{i+1} = z$.

If $i < n$, x_i has one of the forms $<2,y>$, $<3,y,z>$, $<4,y,z>$, or $<5,y,z>$.

x_n does not have either of the forms $<0,0>$ or $<1,k>$.

This can readily be written out as a Σ formula, showing that the complement of the set of terms is recursively enumerable.

The function Z that takes a number n to the code number for the numeral $\underline{n}$ can be described by a recursive definition:

$$Z(0) = <0,0> = 5.$$
$$Z(m+1) = <2,Z(m)> = 8 + (2E(Pair(1,Z(m)))).$$

We can convert this recursive definition into an explicit definition, using a quite general technique that Gödel obtained by refining an idea from Gottlob Frege's *Begriffsschrift*. $Z(n) = k$ if and only if there is a sequence $<x_0, x_1, \ldots, x_n>$ with the following features:

$x_0 = <0,0>$.

For $m < n$, $x_{m+1} = <2,x_m>$.

$x_n = k$.

This characterization shows that Z is a total recursive function.

The function that associates a code $\ulcorner\phi\urcorner$ with each formula ϕ is again highly arbitrary. For τ and ρ terms, we let $<6,\ulcorner\tau\urcorner,\ulcorner\rho\urcorner>$ and $<7,\ulcorner\tau\urcorner,\ulcorner\rho\urcorner>$ be the codes of $\tau = \rho$ and $\tau \leq \rho$. For ϕ and ψ formulas, we let $<8,\ulcorner\phi\urcorner>$ be $\ulcorner\sim\phi\urcorner$, $<9,\ulcorner\phi\urcorner,\ulcorner\psi\urcorner>$ be $\ulcorner(\phi \vee \psi)\urcorner$, and $<10,i,\ulcorner\phi\urcorner>$ be $\ulcorner(\exists v_i)\psi\urcorner$. The proof that the set of codes of formulas is recursive is just like the corresponding argument for terms.

It is straightforward if somewhat laborious to verify, just by writing down an appropriate formula, that, for example, the arithmetical operations corresponding to forming the disjunction and the conjunction of two formulas, to prefixing a quantifier to a formula, and to substituting a given term for free occurrences of a variable in a formula are partial recursive functions. Also, for example, that the set of terms in which the variable v_{17} appears

and the set of formulas in which v_{123} appears free are recursive sets.

PROOFS AND COMPUTATIONS

Euclid's *Elements* deduces highly sophisticated geometric theorems as consequences of simple, intuitively obvious axioms. Aristotle, the father of logic, investigated the methods by which consequences are derived from axioms, identifying simple patterns of valid reasoning like the following so-called *syllogism*: "All men are animals. No stone is an animal. Therefore, no stone is a man." The methods of reasoning Euclid actually employed were far more sophisticated than the mere production of chains of syllogisms, however, and the ancients were generally content to take it as obvious that Euclid's deductions were legitimate, without demanding a detailed survey of deductive methods.

Meticulous nineteenth-century investigations revealed the surprising fact that, despite having been accepted by generations of scholars as the exemplar of deductive rigor, Euclid's proofs were often invalid. In proving a theorem he sometimes imported information from the accompanying diagram that was not justified by either the hypotheses of the theorem or the axioms. These investigations led to a search for fully precise methods of deduction in which one could have complete confidence. This search culminated in the widespread acceptance of a system of precise rules for the first-order predicate calculus—the logic governing the operators "∨," "~," (∃v_i), and "="—within which the deductions of classical mathematics can be formalized with scrupulous rigor.

With these rules in hand, we can capture the notion of logical consequence precisely, by pressing it from below and from above. It is clear that, if a sentence ϕ is a logical consequence of a theory (set of sentences) Γ, then it cannot be possible to choose a domain of discourse and semantic values for the nonlogical terms so as to make the members of Γ all true and ϕ false. Thus a necessary condition for a ϕ to be a logical consequence of Γ is that ϕ be true in every model of Γ. It is also clear, from examining the rules (for whichever of the standard textbook systems is convenient), that if ϕ derivable from Γ, ϕ is a logical consequence of Γ; this gives us a sufficient condition for logical consequence. Gödel's 1930 *Completeness Theorem* shows that these two conditions meet, so that if ϕ is true in every model of Γ then ϕ is derivable from Γ.

The Completeness Theorem applies equally well to any of many different logical calculi for first-order predicate logic. W.V. Quine developed a particularly convenient system with the following two properties: The (codes of the) axioms of logic form a recursive set; and each logical consequence of a theory Γ can be found at the end of a sequence of sentences, each member of which is either an axiom of logic, an element of Γ, or obtained from earlier members of the sequence by *modus ponens*, the rule that permits the deduction of ψ from ϕ and ($\phi \rightarrow \psi$). (Such a sequence is a *proof* of the sentence from Γ.) Quine's axioms will not be written out here.

If Γ is recursive, the set of pairs $<s, \ulcorner\phi\urcorner>$ such that s is a proof of ϕ from Γ is a recursive relation, represented by a Σ formula we shall abbreviate "$s\, B_\Gamma \ulcorner\phi\urcorner$." (In terminology introduced below, "B_Γ" "binumerates" the relation.) We write "$Bew_\Gamma(\ulcorner\phi\urcorner)$" to abbreviate "$(\exists s)s\, B_\Gamma\ulcorner\phi\urcorner$." Since "$Bew_\Gamma$," is Σ, the set of logical consequences of Γ is recursively enumerable.

William Craig noted a converse result: If the set of consequences of the theory Γ is recursively enumerable then Γ has the same consequences as some recursive set to axioms; Γ is, as they say, *recursively axiomatizable*. To see this, note that there is a bounded formula $\psi(x,y)$ such that the consequences of Γ constitute the set of sentences whose code numbers satisfy $(\exists y)\psi(x,y)$. Let Γ_{Craig} be the set of all sentences of the form ($\underline{m} = \underline{m} \wedge \theta$), for which the pair $<\ulcorner\theta\urcorner,m>$ satisfies $\psi(x,y)$. Then Γ_{Craig} is recursive (bounded, in fact), and Γ_{Craig} and Γ are logically equivalent.

We would now like to see how any numerical computation by algorithm can be simulated by a logical deduction from basic arithmetical axioms. Q_E, a variant of *Robinson's arithmetic*, is the conjunction of the following nine statements:

$$(\forall x)(x = 0 \leftrightarrow \sim (\exists y)x = Sy).$$

$$(\forall x)(\forall y)(Sx = Sy \rightarrow x = y)$$

$$(\forall x)(x + 0) = x.$$

$$(\forall x)(\forall y)(x + Sy) = S(x + y).$$

$$(\forall x)(x \times 0) = 0.$$

$$(\forall x)(\forall y)(x \times Sy) = ((x \times y) + x)$$

$$(\forall x)(x \, E \, 0) = S0.$$

$$(\forall x)(\forall y)(x \, E \, Sy) = ((x \, E \, y) \times x)$$

$$(\forall x)(\forall y)(x \leq y \leftrightarrow (\exists z)(x + z) = y).$$

Q, which we shall talk about later on, is obtained from Q_E by deleting the two clauses involving exponentiation.

A straightforward induction on the complexity of terms shows that, for every closed term τ, there is a number m such that the sentence $\tau = \underline{m}$ is a theorem of Q_E.

Another induction shows that every bounded sentence is decidable (either provable or refutable) in Q_E. Since every true bounded sentence is provable in Q_E, it follows that every true Σ sentence is provable in Q_E, since we can prove an existential sentence by providing a witness. If S is a recursively enumerable set, it is the extension of some Σ formula σ. Because every true Σ sentence is provable in Q_E and (because Q_E is true) no false Σ sentence is provable, we have (where "⊢" is provability):

For any n, $n \in S$ if and only if $Q_E \vdash \sigma(\underline{n})$.

We shall say that σ *enumerates* S in Q_E. (The same observation holds for recursively enumerable relations.)

We shall say a formula ϕ *binumerates* a set S in Q_E if and only if, for each n, we have:

$n \in S$ if and only if $Q_E \vdash \phi(\underline{n})$.

$n \notin S$ if and only if $Q_E \vdash \sim \phi(\underline{n})$.

If S is recursive then there is a bounded formula $\chi(x,y)$ such that $(\exists y)\chi(x,y)$ enumerates S in Q_E, and there is a bounded formula $\theta(x,y)$ such that $(\exists y)\theta(x,y)$ enumerates the complement of S in Q_E. To show that S is binumerable in Q_E, we need to show that S is enumerable by a formula whose negation enumerates the complement of S. Developing an idea of J. Barclay Rosser, Tarski, Mostowski, and Robinson showed that the following Σ formula does the job:

$$(\exists y)(\chi(x,y) \wedge \sim (\exists z < y)\theta(x,z)).$$

Clearly if ϕ binumerates S in Q_E, it binumerates S in any consistent theory that entails Q_E.

A formula $\psi(x,y)$ *functionally represents* a total function f in a theory if and only if, for each k, the following sentence is a consequence of the theory:

$$(\forall y)(\psi(\underline{k},y) \leftrightarrow y = f(\underline{k})).$$

If f is a total recursive function, we know that there is a formula $\phi(x,y)$ that binumerates f in Q_E. Tarski, Mostowski, and Robinson showed that the following formula functionally represents f in Q_E (and hence in any theory that entails Q_E):

$$(\phi(x,y) \wedge (\forall z < y)\sim \phi(x,z)).$$

THE FIRST INCOMPLETENESS THEOREM

We are now ready to see how to construct, for any recursively axiomatizable, true theory that includes Q_E, a true sentence that is not a consequence of the theory. The key to the construction is to see how to produce sentences that can talk about themselves so that we can construct a

sentence that asserts its own unprovability. Such a sentence cannot be provable since if it were provable it would be a false consequence of the axioms. So the sentence must be true. To carry out this plan we use the following result, one of the masterpieces of modern mathematics:

GÖDEL'S SELF-REFERENCE LEMMA. For any formula $\psi(y)$, one can construct a sentence ϕ such that $Q_E \vdash (\phi \leftrightarrow \psi(\ulcorner \phi \urcorner))$.

The hard part, the part that requires true genius, is to figure out what sentence to write down. The easy part is to verify that the sentence works. Here we shall only attempt the easy part.

Define a function f as follows: If m is the code of a formula $\chi(x,y)$ with only "x" and "y" free, let $f(m)$ be the code of the formula

$$(\exists x)(\exists y)((x = \underline{m} \wedge \chi(x,y)) \wedge \psi(y)).$$

Otherwise, $f(m) = 0$.

This definition can easily be written as a Σ formula, showing that f is a total recursive function. Consequently, there is a formula $\theta(x,y)$ that functionally represents f in Q_E. Let m be $\ulcorner(\theta(x,y)\urcorner$, and ϕ be the following sentence:

$$(\exists x)(\exists y)((x = \underline{m} \wedge \theta(x,y)) \wedge \psi(y)).$$

Then $\ulcorner \phi \urcorner = f(m)$, and so the following sentences are consequences of Q_E:

$(\forall y)(\theta(\underline{m},y) \leftrightarrow y = \ulcorner \phi \urcorner)$.

$((\exists x)(\exists y)((x = \underline{m} \wedge \theta(x,y)) \wedge \psi(y)) \leftrightarrow \psi(\ulcorner \phi \urcorner))$.

$(\phi \leftrightarrow \psi(\ulcorner \phi \urcorner))$.

Let Γ be a consistent, recursive set of sentences that entails Q_E. Using the Self-reference Lemma, we can find a sentence γ so that $(\gamma \leftrightarrow \sim Bew_\Gamma \ulcorner \gamma \urcorner)$ is a consequence of Q_E; γ is called the *Gödel sentence* for Γ. If γ were a consequence of Γ, $\sim Bew_\Gamma(\ulcorner \gamma \urcorner)$ would be a consequence of Γ, and also $Bew_\Gamma(\ulcorner \gamma \urcorner)$ would be a true Σ sentence, hence a consequence of Q_E, hence a consequence of Γ. This contradicts the consistency of Γ. So γ is unprovable, so that $Bew_\Gamma(\ulcorner \gamma \urcorner)$ is false, and γ is true. Thus γ is our example of a true, unprovable sentences.

If Γ is true then Γ does not prove $\sim\gamma$ because $\sim\gamma$ is false, so that γ is undecidable in Γ. Let us say that a theory Δ is *ω-inconsistent* if there is a formula $\chi(x)$ such that $(\exists x)\chi(x)$ is a consequence of Δ, and yet, for each n, $\sim \chi(\underline{n})$ is a consequence of Δ. Every ω-consistent theory is consistent, so if Δ is a recursive, ω-consistent theory that entails Q_E, the Gödel sentence γ for Δ is a true sentence not provable in Δ. Hence, for each m, the sentence

~ $\underline{m}$ B_Δ $\ulcorner\gamma\urcorner$ is true, hence provable in Q_E, hence provable in Δ. It follows by ω-consistency that Bew_Δ $\ulcorner\underline{\gamma}\urcorner$ is not a consequence of Δ, and so ~γ is not a consequence of Δ. Thus the assumption of ω-consistency, rather than truth, is enough to ensure that γ is undecidable in Δ. Because γ is unprovable in Δ, $\Delta \cup \{\sim\gamma\}$ is consistent, although ω-inconsistent. So consistency does not imply ω-consistency.

Gödel used γ to show that every ω-consistent, recursively axiomatizable theory that entails Q_E is incomplete, that is, that there are sentences that the theory cannot decide; this is the *First Incompleteness Theorem*. Rosser went a step farther, showing that the assumption of ω-consistency can be weakened to consistency. Rather than examine Rosser's proof, we shall derive his conclusion from a stronger result, one due, in essentials, to Tarski, Mostowski, and Robinson:

RECURSIVE INSEPARABILITY THEOREM. There is no recursive set that includes the consequences of Q_E and excludes all the sentences refutable in Q_E.

Suppose C were such a recursive set, and take a formula $\mu(x)$ that binumerates C in Q_E. The Self-reference Lemma gives a sentence ν such that $(\nu \leftrightarrow \sim \mu(\ulcorner\underline{\nu}\urcorner))$ is a consequence of Q_E. We derive a contradiction by examining two cases:

Case 1. $\nu \in C$. Then $Q_E \vdash \mu(\ulcorner\underline{\nu}\urcorner)$, and so $Q_E \vdash \sim \nu$. Thus υ is a sentence refutable in Q_E, and so it is excluded from C. Contradiction.

Case 2. $\upsilon \notin C$. Then $Q_E \vdash \sim \mu(\ulcorner\underline{\nu}\urcorner)$, and so $Q_E \vdash \nu$. Thus υ is a consequence of Q_E, and so an element of C. Contradiction.

Corollary. No consistent theory that entails Q_E has a recursive set of consequences.

This follows from the fact that, if a consistent theory entails Q_E, it excludes the sentences refutable in Q_E.

Corollary (*Rosser's Theorem*). No consistent, recursively axiomatized theory that entails Q_E is complete.

If Γ is consistent, recursively axiomatized, and complete, then the complement of Γ is recursively enumerable, since it is the union of the set of non-sentences with the set of sentences whose negations are provable in Γ.

Corollary. No theory consistent with Q_E has a recursive set of consequences.

If Δ were such a theory then the set of sentences ψ such that $(Q_E \rightarrow \psi)$ is a consequence of Δ would be a consistent,

recursive set of sentences, closed under consequence, that included Q_E.

Corollary (*Church's Theorem*). The set of logically valid sentences in not recursive.

The valid sentences are the consequences of the empty theory, which is consistent with Q_E.

MATHEMATICAL INDUCTION

Q_E is a weak axiom system. It cannot prove the associative law of addition or multiplication, nor can it prove the commutative law of addition or multiplication. The system is weak because it leaves out the essential feature of the natural number system, the principle of mathematical induction, according to which any collection of natural numbers that includes 0 and is closed under the successor operation has to include all the natural numbers. *Modulo* Q_E, the principle is equivalent to the thesis that the natural numbers are well-founded, that is, that any nonempty collection of natural numbers has a least element.

Richard Dedekind showed that the system one gets from Q_E by adding the principle of mathematical induction completely characterizes the natural numbers. The system is *categorical*, that is, there is an isomorphism—a one-one correspondence that preserves mathematical structure—between any two models of the system. Thus if $\mathfrak{A}$ and $\mathfrak{B}$ are models of Q_E plus the principle of induction, let f be the smallest class that includes the pair $<0^{\mathfrak{A}}$, $0^{\mathfrak{B}}>$ and includes $<S^{\mathfrak{A}}(x), S^{\mathfrak{B}}(y)>$ whenever it contains $<x,y>$. It is easy to verify, using induction several times, that f is an isomorphism. It follows that the system is complete, since if it left ϕ undecided, it would have a model $\mathfrak{A}$ in which ϕ is true and a model $\mathfrak{B}$ in which ϕ is false; but then $\mathfrak{A}$ and $\mathfrak{B}$ could not be isomorphic.

Peano Arithmetic (PA), is the system used to formalize the principle of induction into a precise system of axioms. Its axioms are Q_E together with all instances of the *induction axiom schema*:

$$((R(0) \land (\forall x)(R(x) \rightarrow R(Sx))) \rightarrow (\forall x)R(x)).$$

An *induction axiom* is a sentence of the language of arithmetic obtained from the schema by substituting a formula of the language of arithmetic for "R," then prefixing universal quantifiers to bind all the variables other than "x" that appear free in the substituted formula.

In view of Dedekind's categoricity theorem, it is surprising to realize that PA is incomplete. But incomplete it must be, since it is a true, recursively axiomatized theory that entails Q_E. The explanation is that the induction axiom schema does not fully capture the principle of

mathematical induction. It tries to assure us that every nonempty collection has a least element, but only succeeds in telling us that every nonempty collection that is the extension of a predicate (with parameters) of the language of arithmetic has a least element.

Let γ be the Gödel sentence for PA. We know that γ isn't a consequence of PA, so that, by the Completeness Theorem, there is a model $\mathfrak{A}$ in which all the axioms of PA $+ \sim \gamma$ are true. In $\mathfrak{A}$ there is an element g that satisfies "$x\mathrm{B}_{\mathrm{PA}}$ $\ulcorner\gamma\urcorner$." For each n, "$\sim \underline{n}\mathrm{B}_{\mathrm{PA}}$ $\ulcorner\gamma\urcorner$." is a theorem of PA, so g must be different from the referents of all the numerals $\underline{0}, \underline{1}, \underline{2}, ...$ Instead, g is one of the *nonstandard numbers* that lie above all the standard numbers in the relation $\mathfrak{A}$ assigns to "$\leq$."

It is worth emphasizing because there has been some confusion on this score that the existence of nonstandard models of PA does not depend on the First Incompleteness Theorem. Their existence follows from the Compactness Theorem, according to which an infinite set of sentences has a model if every finite subset does, which Gödel derived from the Completeness Theorem. Let Γ be a consistent theory that entails Q_E. Add a new constant "c" to the language, and let Γ^c be the union of Γ with the set of sentences "$\sim c = \underline{n}$," for n natural number. Any finite subset of Γ^c has a model, obtained by taking a model of Γ and letting "c" denote a sufficiently large standard number. The Compactness Theorem gives us a model of Γ^c, which means we have a nonstandard model of Γ. This construction works even if we take Γ to be *true arithmetic*, the set of sentences true in the standard model, even though true arithmetic is complete. Because it is complete, the First Incompleteness Theorem tells us that true arithmetic is not recursively axiomatizable.

THE SECOND INCOMPLETENESS THEOREM

The proof of the First Incompleteness Theorem showed that, if Γ, a recursively axiomatized theory that entails Q_E, is consistent, then the Gödel sentence γ for Γ is unprovable in Γ. Using "$Con(\Gamma)$" as an abbreviation for

$$\text{"} \sim Bew_\Gamma(\ulcorner\underline{\sim \underline{0}=\underline{0}}\urcorner),\text{"}$$

we can formalize this result in a sentence of the language of arithmetic:

$$(Con(\Gamma) \rightarrow \sim Bew_\Gamma(\ulcorner\gamma\urcorner)).$$

If we were able to prove this conditional in Γ, we could conclude that, if $Con(\Gamma)$ were provable in Γ, $\sim Bew_\Gamma(\ulcorner\gamma\urcorner)$ would be provable in Γ. Since we already know that $\sim Bew_\Gamma(\ulcorner\gamma\urcorner)$ is only provable in Γ if Γ is inconsistent, we

could conclude that $Con(\Gamma)$ is only provable in Γ if Γ is inconsistent.

Can we prove the conditional in Γ? We certainly cannot do so if we take Γ to be Q_E, for we can scarcely prove any significant generalizations in Q_E. We can, however, prove the conditional if we take Γ to be PA. This is hardly surprising, since nearly all our reasoning about natural numbers can be formalized in PA. The details are, nonetheless, burdensome; so we only present a faint sketch here.

Let Γ be a recursively axiomatized theory that entails PA. M. H. Löb singled out the following three principles as central to Gödel's proof that, if Γ is consistent, it does not prove $Con(\Gamma)$:

(L1) If $\Gamma \vdash \phi$, then $\Gamma \vdash Bew_\Gamma(\ulcorner\phi\urcorner)$.

(L2) $\Gamma \vdash (Bew_\Gamma(\ulcorner\phi\urcorner) \rightarrow Bew_\Gamma(\ulcorner\underline{Bew_\Gamma(\ulcorner\phi\urcorner)}\urcorner))$.

(L3) $\Gamma \vdash (Bew_\Gamma(\ulcorner(\phi \rightarrow \Psi)\urcorner) \rightarrow (Bew_\Gamma(\ulcorner\phi\urcorner) \rightarrow Bew_\Gamma(\ulcorner\Psi\urcorner)))$.

We have already seen why (L1) has to hold. If ϕ is a consequence of Γ, $Bew_\Gamma(\ulcorner\phi\urcorner)$ is a true Σ sentence, hence provable in Q_E, hence provable in Γ. (L2) is obtained, laboriously, by formalizing the proof of (L1). In fact, Γ proves $(\theta \rightarrow Bew_\Gamma(\ulcorner\theta\urcorner))$, for each Σ sentence θ. (L3) is easy. If we have proofs of $(\phi \rightarrow \psi)$ and ϕ, we get a proof of ψ by concatenating the two proofs and tacking ψ on the end.

Given the Löb conditions, the proof of the *Second Incompleteness Theorem*, according to which, if Γ is a consistent, recursively axiomatized theory that entails PA, then Γ does not prove its own consistency, is straightforward. Let γ be the Gödel sentence for Γ. Because of the way γ was constructed, we have:

$$\Gamma \vdash (\gamma \rightarrow \sim Bew_\Gamma(\ulcorner\gamma\urcorner)),$$

which is logically equivalent to:

$$\Gamma \vdash (\gamma \rightarrow (Bew_\Gamma(\ulcorner\gamma\urcorner) \rightarrow \sim \underline{0}=\underline{0})).$$

One application of (L1) and two applications of (L3) give us this:

$$\Gamma \vdash (Bew_\Gamma(\ulcorner\gamma\urcorner) \rightarrow (Bew_\Gamma(\ulcorner\underline{Bew_\Gamma(\ulcorner\gamma\urcorner)}\urcorner) \rightarrow Bew_\Gamma(\ulcorner\underline{\sim \underline{0}=\underline{0}}\urcorner))).$$

(L2) gives us this:

$$\Gamma \vdash (Bew_\Gamma(\ulcorner\gamma\urcorner) \rightarrow Bew_\Gamma(\ulcorner\underline{Bew_\Gamma(\ulcorner\gamma\urcorner)}\urcorner)),$$

and these two results together give us:

$$\Gamma \vdash (Bew_\Gamma(\ulcorner\gamma\urcorner) \rightarrow Bew_\Gamma(\ulcorner\underline{\sim \underline{0}=\underline{0}}\urcorner)).$$

By contraposition,

$$\Gamma \vdash (\sim Bew_\Gamma \ulcorner\underline{\sim \underline{0}=\underline{0}}\urcorner) \rightarrow \sim Bew_\Gamma (\ulcorner\gamma\urcorner)),$$

that is,

$$\Gamma \vdash (Con(\Gamma) \rightarrow \sim Bew_\Gamma (\ulcorner\gamma\urcorner))$$

Now assume

$$\Gamma \vdash Con(\Gamma).$$

Then

$$\Gamma \vdash \sim Bew_\Gamma (\ulcorner \gamma \urcorner).$$

By the way γ was constructed,

$$\Gamma \vdash \gamma.$$

Hence, by (L1),

$$\Gamma \vdash Bew_\Gamma (\ulcorner \gamma \urcorner),$$

and so Γ is inconsistent.

In accepting PA, we recognize that the axioms of PA are all true. If the axioms are all true then the theory is certainly consistent, and if the theory is consistent its Gödel sentence is true. So we have good reason to accept the Gödel sentence for PA, even though it is not a consequence of PA. If in this argument we replace PA with our total arithmetical theory—the (admittedly, vaguely defined) totality of arithmetical sentences we are willing to accept as true—we seem to get the curious result that, assuming that our total theory is recursively enumerable, we accept the Gödel sentence for our total theory even though it is not a consequence of the theory. But this contradicts the characterization of our total theory.

J. R. Lucas (1961) and Roger Penrose (1989) took this puzzling situation as reason to believe that the cognitive processes of the human mind cannot be simulated by any purely mechanical device, and that this conclusion undermines the prospects for a naturalistic conception of mind, according to which the human mind is a product of the orderly operation of the laws of nature, not in principle any more mysterious or less constrained by physical law than a player piano or a personal computer. Adherents to the computational theory of mind hold that the operations of the mind are usefully understood on the model of a sophisticated electronic computer, and even naturalists who are not advocates of the computational model will be inclined to say that the facts that the human body is produced by natural selection rather than conscious design and that its central processing unit is carbon-based rather than silicon-based will not affect its capabilities in any fundamental way, so that, according to a naturalistic conception, the cognitive activities of a human being can, in principle, be simulated by a purely mechanical device.

The connection between mechanism and recursive enumerability is given by a variant of the Church-Turing Thesis, supported by similar evidence, that declares that the set of numbers accepted by a mechanical input-output device is invariably recursively enumerable. This includes nondeterministic machines, whose operation is to some extent a matter of random chance, so that the set S is accepted by the machine just in case, for any n, n is in S if and only if there is some possible computation of the machine on input n that yields a positive outcome, as well as deterministic machines for which the course of a computation is uniquely determined by its input.

The argument that our total arithmetical theory is not recursively enumerable proceeds by *reductio ad absurdum*. If the theory were recursively enumerable, it would be recursively axiomatizable, so it would have a Gödel sentence. But we can see that the Gödel sentence is true, even though it is not part of the total theory.

The Lucas-Penrose argument is vulnerable to two criticisms. First, for naturalism to be correct, there has to exist a recursive axiomatization of our total theory. In order to construct the Gödel sentence, we have to be able to specify a recursive axiomatization by writing down a formula that binumerates it. However it is perfectly possible for a recursive axiomatization to exist without our being able to specify it.

Second, even if we were able to specify a recursive axiomatization, perhaps by analyzing a futuristic brain scan, it is hard to see how we could be justified in being completely confident that our total theory is consistent. If we decide to be strict about what arithmetical sentences we are willing to count as "accepted," so that we only regard a sentence as part of our total theory if we arrive at it by unimpeachably lucid reasoning, we shall increase our confidence that our total theory is consistent, but raising the bar this way will also heighten the hurdle that the Gödel sentence has to pass in order to count as "accepted." There are different standards we might use for when we are willing to count a sentence as proven, and each standard has a different Gödel sentence, but however high we set the standard the Gödel sentence corresponding to that standard cannot pass it, on pain of inconsistency.

THE LOGIC OF PROVABILTY

If we explicitly embrace a theory Γ, so that we are willing consciously to acknowledge that the axioms of Γ are all statements we regard as true then we surely ought to regard Γ as consistent. Yet (assuming that Γ implies PA and is recursively axiomatizable and consistent) the statement that Γ is consistent is not provable in Γ. Thus the arithmetical statements that we commit ourselves to in embracing Γ go beyond what Γ itself entails.

The disparity between what consciously accepting Γ commits us to and what Γ entails is even wider than the Second Incompleteness Theorem indicates. Accepting Γ means acknowledging that all the consequences of Γ are true. For a given sentence ϕ, we may not know whether ϕ is a consequence of Γ—there is after all no algorithm to tell us—but at least we accept that, if ϕ is a consequence of Γ, ϕ is true. Consciously accepting Γ commits us to the conditionals $Bew_\Gamma(\ulcorner\phi\urcorner) \to \phi)$, but they are not in general consequences of Γ. In fact such a conditional is a consequence of Γ only if its consequent is a consequence of Γ.

> **Löb's Theorem.** Let Γ be a recursively axiomatized theory that entails PA. If $Bew_\Gamma(\ulcorner\phi\urcorner) \to \phi)$ is a consequence of Γ, so is ϕ.

We can regard the Second Incompleteness Theorem as the special case of Löb's Theorem in which ϕ is taken to be the sentence "$\sim 0{=}0$." Conversely we can derive Löb's Theorem from the Second Incompleteness Theorem. The argument, which is due to Saul Kripke, utilizes the observation that, for any ψ and θ, $\Gamma \vdash (\psi \to \theta)$ if and only if $\Gamma \cup \{\psi\} \vdash \theta$, and the fact that this observation is provable in PA.

Suppose that ϕ is not a consequence of Γ. Then $\Gamma \cup \{\sim \phi\}$ is consistent, which implies, by the Second Incompleteness Theorem, that $Con(\Gamma \cup \{\sim \phi\})$ is not a consequence of $\Gamma \cup \{\sim \phi\}$. Thus we have:

$\Gamma \cup \{\sim \phi\} \not\vdash \sim Bew_{\Gamma \cup \{\sim\phi\}}(\ulcorner\sim 0{=}0\urcorner)$

$\Gamma \cup \{\sim \phi\} \not\vdash \sim Bew_\Gamma(\ulcorner(\sim \phi \to \sim 0{=}0\urcorner)$

$\Gamma \cup \{\sim \phi\} \not\vdash \sim Bew_\Gamma(\ulcorner\phi\urcorner)$

$\Gamma \not\vdash (\sim \phi \to \sim Bew_\Gamma(\ulcorner\phi\urcorner))$

$\Gamma \not\vdash Bew_\Gamma(\ulcorner\phi\urcorner) \to \phi)$

Conditionals of the form $Bew_\Gamma(\ulcorner\phi\urcorner) \to \phi)$ are called *reflection principles*. We cannot obtain them by working within Γ. We get them from the outside by reflecting on the fact that Γ is a theory we accept.

We can describe the logic of provability precisely by utilizing the methods of modal logic. Modal sentential calculus has, in addition to formulas built up from atomic formulas by the familiar connectives "$\lor$" and "$\sim$," a new connective "$\square$." "$\square\phi$," usually read "It is necessary that ϕ," is here understood to mean, "It is provable in Γ that ϕ," where Γ is a consistent, recursively axiomatizable theory that implies PA. An *interpretation* of the modal sentential calculus is a function i that associates an arithmetical sentence with each modal formula, subject to the conditions that $i(\phi \lor \psi)$ be equal to $(i(\phi) \lor i(\psi))$, $i(\sim\phi)$ be equal to $\sim i(\phi)$, and $i(\square\phi)$ be equal to $Bew_\Gamma\ulcorner i(\phi)\urcorner$. A modal formula

ϕ is *always provable* if, for each interpretation i, $i(\phi)$ is provable in Γ. ϕ is *always true* if, for each ϕ, $i(\phi)$ is true.

(L1) tells us, if $i(P)$ is provable, $i(\square P)$ is provable, so that the set of always-provable formulas is closed under necessitation, the rule of modal logic that infers $\square\theta$ from θ. (L2) tells us that $(\square P \to \square\square P)$ is always true, and the formalization of (L2) tells us that it is always provable. (L3) tells us that $(\square(P \to Q) \to (\square P \to \square Q))$ is always true; it is easily seen to be always provable as well. Löb's Theorem tells us that whenever $i(\square P \to P)$ is a theorem, $i(P)$ is a theorem. Formalizing his proof, we see that the formula $(\square(\square P \to P) \to \square P)$ is always provable and always true.

Robert Solovay deployed an ingenious application of the Self-referential Lemma within the possible-world semantics for modal logic to show that, provided Γ does not prove any false Σ sentences, a formula is always provable if and only if it is derivable by *modus ponens* and necessitation from sentential-calculus tautologies (formulas that are assigned the value "true" by every function assigning truth-values to formulas that respects the meanings of "$\lor$" and "$\sim$") and instances of the following schemata:

$(\square(\phi \to \psi) \to (\square\phi \to \square\psi))$

$(\square(\square\phi \to \phi) \to \square\phi)$

Assuming Γ is true, a formula is always true if and only if it is derivable by *modus ponens* from always-provable formulas and instances of the reflection principle $(\square\phi \to \phi)$.

BEYOND THE LANGUAGE OF ARITHMETIC

Gödel's results apply not only to the language of arithmetic but to any language into which the language of arithmetic can be translated. Thus any recursively axiomatized, consistent theory into which one can translate Q_E is incomplete. The appropriate notion of translation was made precise by Tarski, Mostowski, and Robinson. An *interpretation* (what they call a "relative interpretation") of an arithmetical theory Γ into a language $\mathcal{L}$ is obtained by doing the following: First, having rewritten all the sentences in Γ so that the "$+$" sign only appears in the canonical form "$(v_i + v_j) = v_k$," pick a formula "$A(x,y,z)$" of $\mathcal{L}$ and replace "$(v_i + v_j) = v_k$" by "$A(v_i,v_j,v_k)$," changing bound variables to avoid conflicts. Do the same thing for the other function signs and "0" and pick a formula $L(x,y)$ to replace "$\leq$." Next pick a formula "$N(x)$" of $\mathcal{L}$ to represent the members of the domain of $\mathcal{L}$ that are to play the role of natural numbers, and restrict the quantifiers, writing "$(\exists v_i)(N(v_i \land \ldots$" in place of $(\exists v_i)$. Finally add an axiom ensuring that "$A(x,y,z)$" represents a function on

the set of things that satisfy "$N(x)$," writing " $(\forall x)(N(x) \to (\forall y)(N(y) \to (\exists z)(N(z) \land (\forall w)(N(w) \to (A(x,y,w) \leftrightarrow w = z))))$)." Do the same thing for the other function signs and "0." If the theory thus obtained is a consequence of the theory Δ of $\mathcal{L}$, Δ is said to *interpret* Γ.

We can translate the language of arithmetic into the language of set theory, identifying a number with the set of its predecessors, so that 0 corresponds to $\emptyset$, 1 corresponds to $\{\emptyset\}$, 2 corresponds to $\{\emptyset, \{\emptyset\}\}$, and so on, and defining set-theoretic analogues of "+," "×," "E," "S," and "≤" accordingly. The axioms of set theory, in any of its normal versions, interpret PA. We can arithmetize proofs in set theory just as we artimeticized proofs in PA, proving the Second Incompleteness Theorem for set theory. The axioms of set theory, if consistent, cannot prove their own consistency.

This result devastates the Hilbert program. Hilbert wanted to prove the consistency of set theory in a finitistic theory much weaker than set theory, and it turns out that proving the consistency of set theory requires a theory even stronger than set theory.

The standard way to prove that there is no algorithm for testing whether a given sentence is a consequence of a theory Γ—that is, for showing that Γ is *undecidable*—is to interpret an arithmetical theory strong enough to prove the First Incompleteness Theorem into Γ. As far as what we have looked at so far, we would need to take our arithmetical theory to be Q_E, but we can actually do much better. We can define exponentiation in terms of "0," "S," "+," and "×," and we can prove the First Incompleteness Theorem in the dialect of the language of arithmetic without "E," with Q in place of Q_E. In trying to prove undecidability results, this improvement (which is due to Gödel) is an enormous practical advantage.

Let us define $\beta(u,v,w)$ to be the remainder obtained on dividing u by $(v \times w) + 1$. β can be defined by a bounded formula in the language of arithmetic. For $x > 0$, we have $(xEy) = z$ if and only if the following formula is satisfied:

$$(\exists u)(\exists v)((\beta(u,v,0) = 1 \land (\forall w < y)\beta(u,v,Sw) = (\beta(u,v,w) \times x)) \land \beta(u,v,y) = z).$$

The right-to-left direction of this characterization is obvious. What is hard is to verify the left-to-right direction by finding an appropriate u and v. We make use of the Chinese Remainder Theorem, which says that, given $p_0, p_1, \ldots, p_n$ relatively prime (that is, no two of the p_is have a common divisor other than 1), and given a sequence $a_0, a_1, \ldots, a_n$, with each $a_i < p_i$, we can find a number b such that a_i is the remainder on dividing b by

p_i, for each i. A proof of the theorem can be found in any number-theory textbook or in George Boolos's *The Logic of Provability* (1993).

Given x, y, and z with $(xEy) = z$, let $v = z!$, the product of the positive integers $\leq z$. If $s < t \leq z$, then $(s \times v) + 1$ and $(t \times v) + 1$ are relatively prime, since if p were a prime that divided both of them, p would divide $(t - s) \times v$, and so, since $(t - s)$ is one of the factors of v, p would divide v. But this enables us to conclude that the remainder on dividing $(t \times v) + 1$ by p is one, contrary to our assumption that p divides $(t \times v) + 1$. Use the Chinese Remainder Theorem to find u so that, for each $t \leq y$, xEt is the remainder on dividing u by $(t \times v) + 1$.

Now that we have our Σ definition of exponentiation—Σ, that is, in the restricted language—we can apply our standard tricks for pulling quantifiers to the fronts of formulas to convert a Σ formula of the language with exponentiation to a Σ formula of the language without exponentiation. With this emendation, all the proofs go through.

The use of interpretations originates with Beltrami's proof of the consistency of non-Euclidean geometry. By interpreting non-Euclidean geometry (Euclid's axioms with the axiom of parallels replaced by its negation) into Euclidean geometry, Beltrami showed that if the latter is consistent then so is the the former. Beltrami's strategy was exploited by Alex Wilkie and Samuel Buss to obtain a dramatic strengthening of the Second Incompleteness Theorem, applying it to theories that merely contain Q rather than PA. The details are complicated, but the idea is to interpret into Q a theory that, while weaker than PA (the induction axiom schema being restricted), is just strong enough to provide the Löb conditions (L1)-(L3). The interpretation leaves the arithmetical symbols unchanged but restricts the domain of quantification to an initial segment, replacing "$(\exists x)$" by "$(\exists x)(J(x) \land \ldots$," for artfully chosen "$J(x)$;" call the sentence thus obtained from ϕ "ϕ^J."

Where Γ is a recursively axiomatized theory that includes Q, let Γ^{-J} be the set of sentences ϕ for which Γ entails ϕ^J. Suppose that Γ entails Con(Γ). Con(Γ) entails Con(Γ)^J, so that Con(Γ) is in Γ^{-J}. The argument Beltrami used tells us that if Γ is consistent then Γ^{-J} is too. This proof can be formalized in Γ^{-J}, so that Γ^{-J} entails Con(Γ^{-J}). Because (L1)-(L3) yield the Second Incompleteness Theorem for Γ^{-J}, Γ^{-J} must be inconsistent. Consequently Γ is inconsistent.

TRUTH

There is a bounded formula of the language of arithmetic that defines the set of prime numbers, and there is a Σ for-

mula that defines the set of consequences of PA. Tarski proved that there is no formula of the language of arithmetic that defines the set of codes of true sentences. The difficult part of his argument was to say precisely what would be required for a formula to define truth; the easy part is to show that there is no such formula.

A proposed definition of truth is a formula of the form $(Tr(x) \leftrightarrow \tau(x))$, where $\tau(x)$ is a formula of the language of arithmetic. A proposed definition is *materially adequate*, Tarski tells us, if and only if it lets us derive all sentences of the form:

(T) $Tr(\ulcorner\phi\urcorner) \leftrightarrow \phi.$

To see that there is no materially adequate definition, apply the Self-reference Lemma to find a sentence λ so that $(\lambda \leftrightarrow \sim\tau(\ulcorner\lambda\urcorner))$ is a consequence of Q. The argument here is a formalization of the paradox posed by Eubulides, who asked whether a man who says "I am lying" speaks truthfully.

We can define the set of true sentences of the language of arithmetic within, say, the language of set theory, but we cannot define it within the language of arithmetic. This negative result obtains for any language into which we can translate the language of arithmetic.

The question of what moral, if any, these formal results have for the notion of truth as applied to natural languages is deeply troubling. Tarski showed that there is no formula of the language of arithmetic that means (or even has the same extension as) "true sentence of the language of arithmetic." Manifestly there is a phrase of English that means "true sentence of English," and Tarski and Eubulides' reasoning would appear to apply to that phrase just as to the formal language. Is there in spite of this a coherent way to talk about the truth of an English sentence?

See also Analysis, Philosophical; Aristotle; Church, Alonzo; Computability Theory; Craig's Theorem; Geometry; Gödel, Kurt; Hilbert, David; Infinity in Mathematics and Logic; Kripke, Saul; Logic, History of: Modern Logic; Logical Paradoxes; Mathematics, Foundations of; Russell, Bertrand Arthur William; Tarski, Alfred; Turing, Alan M.; Wittgenstein, Ludwig Josef Johann; Zeno of Elea.

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GODFREY OF FONTAINES

Godfrey of Fontaines, the scholastic philosopher and theologian, was a native of Fontaines-les-Hozémont in the principality of Liège. He was born of a noble family about the middle of the thirteenth century, the exact date unknown. About 1270 he began studies at the University of Paris and became a *magister regens* in the faculty of theology there in 1285, having studied under Henry of Ghent and Gervais of Mt. St. Elias. His regency lasted until 1297, and during this period he produced fourteen of his *Quodlibets,* his most important works. There is evidence that he resumed teaching at Paris about 1303 or 1304, composing *Quodlibet* XV at this time. Canon of Liège, probably also of Paris, and provost of Cologne (1287–1298), Godfrey was chosen bishop of Tournai in 1300 but renounced his rights when the election was contested. He is cited among the senior members of the Sorbonne until 1306 and probably died about that time. The obituary at the Sorbonne dates his death October 29, but does not give the year.

Godfrey's doctrinal preferences generally favor the positions of St. Thomas Aquinas, but he manifests a marked independence of judgment on certain points and sometimes works out the logic of Thomas's principles to different conclusions. Some historians (M. De Wulf, E. Gilson) see Godfrey as an opponent of Thomas's distinction between essence and existence in finite being, and attribute Godfrey's stand to a hard-and-fast Aristotelianism that refused to admit an act of the form. Others see Godfrey as opposing the realism of Giles of Rome rather than Thomas. Godfrey held that in the divine mind there is no proper idea of individuals distinct from their species. On the hotly debated issue of the oneness or plurality of substantial forms in composite beings, Godfrey always remained hesitant. He would have favored the doctrine of the unicity of form were it not for the fact that it seemed to contradict theological truths.

Godfrey showed particular acumen in his treatment of psychological problems. Under the influence of Averroes, probably through Siger of Brabant, he espoused an Aristotelianism stricter than that of most of his contemporaries. Godfrey criticized and rejected the so-called Augustinian theory on the genesis of ideas, insisting on the close dependence of human concepts on sense experience. He insisted strongly on the passive nature of the human intellect—the abstractive function of the agent intellect does not consist in the production of any positive disposition in the sensible image upon which it works, but in disregarding in a merely negative way the concrete particularizations characteristic of the image. This outlook is intimately connected with an Avicennan realism of abstract essence, so that Godfrey held that the intellect does not produce intelligibility or universality either in things or in images, but that the agent intellect places the images under an illumination such that the quiddity or essence of the object can appear alone and act on the possible intellect and become known to us.

In his explanation of human free will Godfrey adhered closely to the Thomistic doctrine, but he insisted more than Thomas upon the freedom of the intellect as its foundation. Against the voluntarism of Henry of Ghent, Godfrey stressed the formal influence of the intellect upon the will to the point of making it an efficient cause, whereas Thomas, in different historical circumstances against the Averroists, minimized the formal influence of the object upon the will. In other respects Godfrey did not break cleanly with the Augustinian tradition. For example, he made an interesting equivalence of the active and passive intellects with Augustine's "memory," the passive intellect inasmuch as it conserves species and is a *habitus,* the active intellect inasmuch as it contributes to actual knowledge.

Godfrey was a lively controversialist, combating at length the opinions of his contemporaries, particularly Henry of Ghent, Giles of Rome, and James of Viterbo. Not only did he engage in an active dialogue with his contemporaries, but he also occupied himself with pressing problems—moral, legal, social, and political—arising from daily life. Among his admirers can be listed John the Wise, Peter of Auvergne, and Gerard of Bologna; among his critics, Bernard of Auvergne, Gonsalvus of Spain, and John Duns Scotus. His influence was widespread and lasted well into the fourteenth century but waned thereafter.

See also Agent Intellect; Aristotelianism; Augustine, St.; Augustinianism; Averroes; Duns Scotus, John; Essence and Existence; Giles of Rome; Henry of Ghent; Realism; Siger of Brabant; Thomas Aquinas, St.

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GOD/ISVARA IN INDIAN PHILOSOPHY

This entry deals briefly with the Isvara concept in the six schools of philosophy in Hinduism, usually called the orthodox schools because they were thought to believe in the authority of the Vedas. The schools are Nyaya, Vaisesika, Samkhya, Yoga, Purvamimamsa, and Uttaramimamsa, also called Vedanta. This article is not a philosophical discussion of the nature of Isvara but is a description of how Isvara is viewed in these schools.

Each of the main schools has a foundational text called *sutras*. The word *sutra* means "a thread" and is usually a brief sentence of a few words that convey the basic philosophy of the respective school. As these *sutras* are difficult to follow without some explanation, commentaries called *bhasyas* emerged from erudite commentators, which in turn spawned commentaries on commentaries that went on for a long time up until the present day. One could generally assign the period between the second century to the fifth century CE as the point of origin for these schools of philosophy. The authors of the first *sutras* of Nyaya was Gautama, of Vaisesika Kanada, of Samkhya Kapila, of Yoga Patanjali, of Purvamimamsa Jaimini and of Vedanta Badarayana, also called Vyasa. These *sutras* are all written in the oldest lan-

guage of the world, Sanskrit, which was the language of religion and philosophy for most of Hinduism's history. Each of these schools has a unique approach to the understanding of Isvara.

It is useful to remember that in Hinduism, within which one has to view the six schools, Isvara cannot be equated with the concept of God as it is understood in the Abrahamic religions. Isvara does not have the role of creator because Isvara does not create the world and the selves from "nothing." The theory of karma and the cyclical evolution and dissolution of the universe in periodic cycles, in keeping with karma, does not allow Isvara the same role that is assigned to God in the Abrahamic religions. Hindu schools of philosophical thought have liberation or *moksa* as their highest value, and each school develops its ontology and epistemology in order to realize this eschatological value.

All the orthodox schools share in the belief that the self (also called variously as *atman, jiva, purusa*, and so on) is an eternal entity born into the world and associated with a body and other faculties in accordance with the karma that belongs to it from the past. The ego or sense of "I" that one normally associates with notions of one's identity is not the real self in these schools. The real self is the *atman*, which is the inner essence, and it is the quest for this inner self and its realization that constitutes ultimate freedom or *moksa*, which, in an extended sense, also means breaking the chain of subsequent births and deaths in the world. This quest for the true self is also situated within the inner efforts of individual earthly selves and so, on the surface at least, there is no role for Isvara in the way these *sutras* were initially formulated. As Isvara does not also have a role in the direct evolution of living beings in the world, the concept of Isvara is something that is sneaked into the *sutras* sometimes by later commentators in order to serve other needs. Since there is no uniformity of approach in the methodology followed for this purpose in the different schools, our task is to examine how this is done in the different schools and how the Isvara concept is made to fit into the general philosophy of the different systems.

NYAYA-VAISESIKA

Although *Nyayasutras* and *Vaisesikasutras* were composed by different authors, because of certain similarities in the way they viewed ontology and epistemology, they gradually came to be discussed jointly in all discussions of the philosophical schools. I shall also deal with them together in this entry.

Nyaya and Vaisesika are realistic schools and trace the origin of the real from basic atomistic principles. They have minor disagreements in the number of metaphysical categories and also in the emphasis that each brings into the discussion. Whereas Vaisesika concentrates on discussing in detail the metaphysical categories and the ultimate realistic principles, Nyaya is more concerned with developing the epistemology of gaining right knowledge of reality, which is to realize the true nature of *atman*.

The ultimate realities that explain the whole universe are the atoms of earth, water, fire, air, ether (*akasa*), space, time, mind, and self (*atman*). As can be seen from the above, the system is not purely materialistic. The self is considered to be eternal and many. Though omnipresent, it is confined to the body to which it is associated. The theory of causation is teleological; the karma called *adrsta* (unseen potential of past *dharma* and *adharma*) is sufficient to determine the coming together of the eternal atoms to form bodies for the selves to continue their cycle of lives until they attain liberation through a discrimination between the true nature of *atman* and the false identity it has with the body and other material substances. Thus the initial *sutras* of Gautama and Kanada did not really have a place for Isvara though Gautama refers to Isvara in a weak sense in one place (*Nyayasutras* IV 1.21)

Later commentators, however, found a place for Isvara in both Nyaya and Vaisesika by using various arguments. The eternal atoms and the eternal selves (*jivas*) are not created by Isvara. However, there was a need to bring together the *jivas* and their future embodied lives in consonance with past karma. Since karma itself was not a conscious category, there was room for the introduction of an intelligent, superconscious *atman* who could fulfill this task. Thus, some of the reasons for the existence of Isvara in Nyaya-Vaisesika are: (1) because the world as an effect needs an agent as an efficient cause equal to the task of coordinating the different phenomena of the world; (2) the atoms being basically inactive, Isvara enables them to combine in accordance with the past karma (*adrsta*) of *jivas*; (3) the manifestation and destruction of the world in cyclical rhythm is due to Isvara.

Liberation called *apavarga* in these two schools is, however, still an individual effort, and Isvara has no role to play in the achievement of the highest value of liberation (*moksa*) for the *atman*. It comes about by correct knowledge of things of which Isvara is also just one more thing.

SAMKHYA-YOGA

The *Samkhyakarika* of Isvarakrsna and the *Yogasutra* of Patanjali are used for this discussion. Like Nyaya and Vaisesika, Samkhya and Yoga also share some metaphysical ideas; they both believe in two ultimate realities—one called *prakrti*, the material reality and the building block of the world—and the other the spiritual reality called *purusa*, which is another word for *atman*. Even though there are many *purusas* in these two schools, they are not different from one another in essence. Whereas in Nyaya-Vaisesika *atman* only has knowledge as an adventitious property, in these schools it is also characterized as being pure consciousness.

The coming into being of the world and its properties in both the schools is from *prakrti* alone without the assistance of any outside agency. The proximity of *purusa* and *prakrti* is a sufficient condition for the evolution and involution of the world. *Prakrti* is viewed as constituted of the three *gunas* (characteristics) of *sattva, rajas,* and *tamas*. These *gunas* are not properties of *prakrti* but its very nature. *Prakrti* as constituted by the *gunas* is in constant motion. When the *gunas* are in equilibrium, there is no evolution of the world, and the world evolves when there is disequilibrium of the *gunas*. Thus evolution and involution is a teleological process governed by the past karma associated with *purusas*. The evolution is also explained as serving the twin purposes of *purusa*: experience in the world and gaining liberation or *kaivalya*.

Philosophically there are many difficulties, among them (1) the conception of many *purusas* who are all of the same nature of pure consciousness, (2) an insentient *prakrti* sufficient to explain the evolution of the world, (3) the problem of what initiates the disequilibrium in the first place, and so on. This article, however, confines itself to Isvara in the system. Thus, as seen above, it is clear that there is no role for Isvara in the *Samkhyakarika*. The final goal of liberation or *kaivalya* also comes through discrimination between the true nature of *purusa* and *prakrti* gained by correct knowledge. Thus Isvara does not figure either in the coming into being of the world or in the attainment of *kaivalya* for *purusa*.

Although Yoga shares with Samkhya the belief in the ultimate two realities of *prakrti* and *purusa*, there is a weak introduction of Isvara in the system, described as an excellent *purusa*. The excellent *purusa* (Isvara) is unaffected by karma in the past, present, and the future. By arguing from experience that there is a graded scale of knowledge, wisdom, power and so on, Patanjali describes Isvara as the one who represents the utmost excellence and who is also an aid to the practice of yoga by being an object of support (*alambana*) in meditation. But, at the same time, Isvara is only one among many supports in meditation. He is also called the first guru who teaches the Vedas to the sages. His symbol is Om, and he is one that brings the association and disassociation of *purusa* and *prakrti* to start the evolution and involution of the universe. Though philosophically these are weak arguments, Isvara has been accommodated in a backhanded manner into Yoga philosophy by Patanjali. However, because Isvara does not play any role in the manifestation of the world, in the evolution of individual *purusas*, or in the granting of liberation, one can conclude that Yoga also does not accommodate Isvara in the usual sense of the term.

PURVAMIMAMSA AND UTTARAMIMAMSA

The earlier sections (*purva*) of the Veda, the *mantra* and ritualistic or *brahmana* sections, deal with rituals and are therefore called the *karmakanda* (sections dealing with rituals) while the latter sections (*uttara*), the Upanisads, deal with knowledge of reality and so are called the *jnanakanda* (sections dealing with knowledge). Both the schools believe implicitly in their respective sections of the Veda. I shall first consider Purvamimamsa (PM) and then talk about Uttaramimamsa (UM) or Vedanta.

PM is a realistic school and considers the Vedas as an infallible authority. This discussion is based on Jaimini's PM *sutras* and on some later commentaries. PM primarily focuses on the right interpretation of Vedic statements and in the correct performance of rituals or karma. It differs from all other schools in not believing in the periodic evolution and involution of the world. According to PM, there never was a time when the world was different from what it is now. PM believes in the law of karma as an unseen power, in the individual selves that are ruled by the law of karma, and in *moksa* which, though initially the attainment of *svarga* (heaven), gradually changed to the attainment of the true nature of *atman* in later commentaries. It is attained by the exhaustion of *dharma* and *adharma* by the disinterested performance of one's own karma. The ultimate authority being the Veda, there was no need of an Isvara in the system. Karma classified in various ways was sufficient to explain the coming into being of the individual selves and their ultimate achievement of *moksa*.

Uttaramimamsa or Vedanta is based primarily on the Upanisads, which are the basis of Badarayana's Brahmasutras (BS), also called the Vedantasutras. Although there are many Vedanta schools based on differing interpreta-

tions of the BS and the Upanisads, this entry shall be dealing only with Advaita Vedanta and very briefly with Visistadvaita and Dvaita philosophies. Samkara (c. eighth century CE), Ramanuja (c. eleventh/twelfth century CE) and Madhva (c. thirteenth/fourteenth century CE) are the important commentators on the BS for Advaita (nondualism), Visistadvaita (qualified nondualism), and Dvaita (dualism), respectively.

Samkara declares the ultimate ontological reality as Brahman and identifies the individual self called *atman* with this Brahman. Because there is only one Absolute Reality, the so-called reality of the world and all other things is only an appearance, according to Advaita (nondual)Vedanta. Brahman is described as *nirguna* (without any qualities) and cannot be viewed in a personal way. However, because the world appears to be real, in order to reconcile this world-reality with the ultimate reality, Advaita views reality as a threefold entity that includes the illusory (*pratibhasika*, such as dreams), worldly experience (*vyavaharika*), and absolute reality (*paramarthikasatta*). Because Brahman is also without any properties, it cannot be an agent of manifestation. Therefore, the necessity of explaining the world forces Samkara to introduce *maya* (cosmic ignorance), which, when associated with Brahman, is called *saguna*-Brahman (Brahman with qualities) or Isvara, which is then considered to be both the efficient and material cause of the universe. There are many ways in which *maya* and its association with Brahman are explained in order to maintain the nondual nature of Advaita, but that need not concern us here. Because this Isvara is not free to manifest the world and the selves but is bound by the karma of the individual selves in the manifestation of the world, and because Isvara does not have a role to play in the attainment of *moksa* of the selves, it is only a device to explain the so-called reality of the world. Liberation is achieved when, through correct knowledge, the *atman* realizes its identity with Brahman.

By the times of Ramanuja and Madhva, a fundamental change has taken place in the religious sphere. Devotion (*bhakti*) has come to be valued as higher than knowledge in the attainment of *moksa*, and the highest entity Brahman is also now viewed in a personal manner. Brahman—variously called Narayana, Visnu, Gopala-Krsna, Vasudeva-Krsna, and so on—is capable of responding to the devotion of individual selves and even to mitigate the evil effects of karma, enabling the devotee to attain *moksa*. *Moksa* is also defined differently in a dualistic manner whereby the self retains its separation from the Supreme Brahman it worships. There are differ-

ences in the way in which the nature of the individual selves, the world, and the nature of Brahman are understood in Ramanuja's and Madhva's interpretation of the BS. But those are in the details. In both *bhakti* is a sufficient condition for *moksa*.

As long as the philosophical schools depended only on correct knowledge to attain the true nature of *atman*, there was no need for dependence on an outside agent called Isvara to enable *atman* to achieve its highest value. But when the religious atmosphere changed with the introduction of devotion as the paramount means for achieving liberation, it was possible for Isvara to play a role in many ways—like the reduction of karma, bestowing grace, and so on—for the *atman* to attain *moksa*.

See also Atomic Theory in Indian Philosophy; Brahman; Causation in Indian Philosophy; Indian Philosophy; Karma; Knowledge in Indian Philosophy; Liberation in Indian Philosophy; Meditation in Indian Philosophy; Self in Indian Philosophy.

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GODWIN, WILLIAM
(1756–1836)

William Godwin, English political philosopher, novelist, and essayist, was born at Wisbech, in Cambridgeshire, where his father was a dissenting minister. He was educated at Hoxton, one of the dissenting colleges that had been founded because of the refusal of the established universities to admit nonconformists, and himself entered the ministry in 1778. By 1783, apparently as the result of reading Claude-Adrien Helvétius and Baron d'Holbach, he had lost his faith, and instead took to literature as a means of livelihood. Much that he wrote at this time was hackwork, including three novels, none of

which have survived. He did, however, gain some reputation as a political journalist, contributing regularly to such Whig publications as *The Political Herald* and *The New Annual Register.*

In 1791 Godwin managed to free himself from hackwork by persuading a publisher to subsidize him while he settled down to a serious treatise on political theory. The *Enquiry concerning Political Justice* (London, 1793) was the kind of book the intellectual radicals of the day had been waiting for, and Godwin soon became a celebrity. In this work, he set down, with passionate sincerity and a complete absence of compromise, the radical beliefs that were emerging from the French Revolution and the intellectual ferment that had preceded it. The book went through three editions (2nd ed., 1796; 3rd ed., 1798).

For a few years Godwin was happy and successful. His novel *Things as They Are; or, the Adventures of Caleb Williams* (London, 1794) was widely acclaimed as a masterpiece. In the same year, his *Cursory Strictures on the charge delivered by Lord Chief Justice Eyre to the Grand Jury* (London, 1794), which protested against the committal on charges of treason of twelve leading radicals, may have been partly responsible for the acquittal of three of the defendants and the dropping of the charges against the others. He also published a volume of essays, *The Enquirer* (London, 1797).

In 1797 Godwin married Mary Wollstonecraft, the author of *A Vindication of the Rights of Woman.* She died in the same year, a few days after the birth of their daughter Mary, who was to become the wife of Percy Bysshe Shelley. In 1798 Godwin wrote a memoir of his wife (*Memoirs of the Author of A Vindication of the Rights of Woman,* London, 1798), and in the following year another novel, *St. Leon* (London, 1799).

From then on his fortunes declined. Radicalism came into disfavor, and Godwin was fiercely attacked, sometimes by his former friends. One of these preached a sermon against him, to which he replied in *Thoughts Occasioned by Dr. Parr's Spital Sermon* (London, 1801).

In the same year, 1801, he married a widow, Mary Jane Clairmont. His second marriage was less happy than his first. Before long he was back at hackwork, and the last years of his life were spent in poverty.

Though he continued writing until his death, many of his later books were potboilers. The most important of these works (all of which, with one exception, were published in London) are his novels *Fleetwood* (1805), *Mandeville* (Edinburgh, 1817), *Cloudesley* (1830), and *Deloraine* (1833); his *Life of Chaucer* (1803); *An Essay on*

Sepulchres (1809); *Of Population* (1820), a reply to Thomas Robert Malthus; and *Thoughts on Man* (1821). He had expressed his views on religion in a book that he called *The Genius of Christianity Unveiled,* but it was not published until long after his death, when it appeared under the title of *Essays Never before Published* (London, 1873).

ANARCHISM

Godwin's political theory is uncompromisingly anarchist. He was opposed to all kinds of coercion, including punishment, partly because of his determinism. "The assassin," he said in *Political Justice,* "can no more help the murder he commits than the knife in his hand." Such a view might be thought to lead to an authoritarianism based on the need to condition men rigidly so that their actions will not be antisocial. Godwin did indeed believe that it is society that molds men's characters and actions. He was one of the earliest proponents of what is now called cultural determinism, but he combined this view with a quite extreme liberalism and individualism.

TYPES OF SOCIETY. Before Godwin, Baron de Montesquieu (and indeed Plato) had already maintained that each type of government developed not only its own characteristic type of institution, but also its own characteristic attitudes and value judgments within the minds of its citizens. Montesquieu distinguished three main types of government, each with its own characteristic "spirit": despotism, whose spirit is fear; monarchy (the aristocratic semifeudal type of society still current in most of eighteenth-century Europe), whose spirit is honor; and the republic (which for Montesquieu suggested Sparta, oddly idealized in the eighteenth century, as much as the actual contemporary example), whose spirit is virtue, used not quite in its modern sense but rather to mean public-spiritedness.

Where Godwin differed from the modern anthropologist and, to some extent at least, from Montesquieu, was that he saw all three types of society as corrupting their citizens—even monarchy, with its ideal of honor, so much admired in Godwin's time. Honor demands that one shall do what is fitting to one's rank; this was thought a sufficient motive to keep the wheels of society turning and to ensure decent and at times even noble behavior. Falkland, in *Caleb Williams,* is a portrait of the Man of Honor. He is a thoroughly charming, accomplished, and benevolent man, but at the moment of crisis he is prepared to commit murder and further crime rather than see his good name disgraced. The moral is clear enough:

Honor is not enough to make men behave benevolently. Only benevolence will do that.

In some ways Godwin was more sympathetic to the republican ideal than to any other. Montesquieu's Republic is a state like Sparta, in which there is equality, frugality, and complete submission of the individual to the state. Godwin was strongly in favor of equality; he shared the republican objection to ostentation and luxury; and he agreed that it was the supreme duty of the individual to merge his own welfare with that of his neighbor. Nevertheless, Godwin rejected the republican ideal quite as decisively as the monarchic one—first, because it turns men's attention away from human beings toward a quite mythical entity called the State, and second, because it teaches men to merge their own judgment in that of the majority.

CORRUPTING INFLUENCE OF GOVERNMENTS. Behind these objections, there is a quite general criticism that would apply to any type of government. Godwin believed that social institutions corrupt because they create prejudice; they prevent men from seeing things as they are. Men in society see themselves and one another through a mist of preconceived ideas—as members of this or that social class, as fellow countrymen or foreigners, but never as the unique individuals they really are. To some extent this is inevitable, in society or out of it: All generalizations, according to Godwin, distort the particulars that are subsumed under them; and yet it is impossible to think at all without generalizing. Nevertheless, to see things as they are, though difficult, is not impossible. However, it is peculiarly difficult to see ourselves and our fellow men as they are unless we can get close enough to them to sympathize with them and to realize the true complexity of their motives.

Government perverts our judgment in three main ways. First, it creates artificial barriers between men, as the result of social inequality and of the insincerity that results from the perpetual effort to keep up with the Joneses.

Second, it encourages us to do the right things for the wrong reasons. Patriotism and social prestige are both wrong reasons for treating other men benevolently. Punishment, which leads men to keep the law from fear and not because they understand the reasons for keeping it, acts in the same way. The objection to doing the right thing for the wrong reason is that, since it results in the muddling of men's minds, they will become quite incapable of adapting their actions intelligently to changed circumstances; and consequently the things they do will not for long be the right ones.

Third, government encourages us to acquiesce in the opinions of others, whether of the majority or some minority of rulers. This means that we accept conclusions without really understanding the evidence upon which they are based. Consequently we are acting from prejudice, without any real understanding. Once again, this can only make us unfit to cope with a complex and changing world. "The history of mankind," Godwin said, "is little else than a record of crimes" (*Political Justice,* I, ii), crimes that are caused ultimately by man's inability to see things as they are and to think clearly about them.

THE IDEAL SOCIETY. For these reasons, Godwin rejected all three of Montesquieu's forms of society. Godwin did not, however, merely want to put a fourth type of government in place of the other three. He believed not merely that all existing governments have corrupted society, but also that government as such is necessarily corrupting.

In what kind of society, then, can one hope to escape prejudice? Obviously not in a large society, because every individual is unique, and one can avoid prejudice only by an intimate and sympathetic understanding of one's fellows. Indeed, it is rare enough to know even one person well enough not to misjudge him. In this connection, it is worth noticing that Godwin had an almost morbid obsession with friendship. In all his novels the central figure complains of being without a friend, and is cut off from the rest of his fellows—usually as the result of his own prejudices. This loneliness is, for Godwin, the central tragedy of the human situation.

The ideal community, then, must not be large and must not be highly organized. The citizen must never be a cog in a machine, unable to see the significance of his everyday activities. There must be no class distinctions that prevent us from seeing individuals as individuals. And there must be no formal rules and regulations, because these are rules of thumb that demand the acquiescence of the individual in propositions he does not really understand. For the same reason, there is to be no punishment. For Godwin, the ideal society is one in which individuals cooperate without any kind of compulsion because they like and understand each other and wish each other well.

THE NEED FOR GRADUAL CHANGE. Godwin's ideal society is usually criticized as absurdly unpractical and utopian. The truth is that he was not really a political

reformer in the ordinary sense. He was not very interested in blueprints for a "brave new world"; he did not believe in political organizations, and he had no program. He was primarily a moralist concerned with analyzing the causes of prejudice; once we understand these, according to him, the cure may very well be left to look after itself. We need to have some vague idea of the direction in which we wish to move, but we need have no more than that, because change can be brought about only very slowly and gradually. Godwin insisted again and again upon the folly of violent change. We can do nothing here and now but try to make a few small breaches in the wall of prejudice. If enough people can be brought to see what is wrong with society, society will right itself—but only by slow and gradual changes that will take generations. There is no question of a political program; political organizations are themselves a cause of prejudice. We are not even to point the way to the new society by setting an example of a better way of life. It is by reasoning and discussion that we must break down existing prejudice. The immediate task is to destroy the current ideals of honor and virtue. These ideologies have been created by existing institutions. They can be destroyed without destroying these institutions, however, because though prejudice is strong, it cannot entirely blind men to the facts. When supported by existing institutions, opinion can only be changed slowly—but it can be changed, and as it changes, the institutions will gradually be transformed.

MORAL THEORY

Society is to be transformed, then (even if only slowly and gradually), by means of a change in men's opinions—chief among them their opinions about what is desirable. But here a major difficulty presents itself. Even if men can be brought to see things as they are, how can their moral beliefs be changed thereby, since, as David Hume had pointed out, it is impossible to derive any conclusion about what ought to be the case from knowledge about what is the case? Godwin knew of Hume's views and agreed with them, at least in part. In a certain sense, Godwin believed that virtue is knowledge; but he also insisted quite emphatically that "moral reasoning is nothing but the awakening of certain feelings" (*Political Justice*). It is in order to reconcile these two positions that he introduced his concept of natural goodness.

GODWIN'S UTILITARIANISM. Godwin was a thoroughgoing utilitarian. For him, the right action is the one that makes for the greatest happiness of the greatest number. His utilitarianism, however, is unusual in two respects. First, it is not derived from egoism: The "greatest happiness" principle is ultimate, and cannot be derived from self-interest. Second, Godwin was quite prepared to push utilitarianism to its logical conclusion and openly embrace the consequences that many critics have regarded as fatal to it. He repudiated as immoral any obligations that cannot be derived from the general obligation to promote the general happiness—such obligations, for example, as promises and other contractual obligations, or the domestic obligation to prefer the happiness of one's friends and family to the greater happiness of others. He caused considerable scandal by the passage in *Political Justice* in which he said that one ought to save François Fénelon from a burning building rather than his chambermaid (supposing that the archbishop has more to contribute to the general happiness), even if the chambermaid is one's own mother.

KNOWLEDGE AND VIRTUE. For Godwin, then, our belief that X is desirable is true only when X is something that will make for the general happiness. Since "moral reasoning is nothing but the awakening of certain feelings," the virtuous man is the one who does desire whatever makes for the general happiness. How will seeing things as they are awaken this desire? The following may serve as an example: If someone says that it is a bad thing that millions of people in a distant part of the world are starving, I may very well agree, but the chances are that I won't do anything about it. But now suppose that one of them comes and starves on my doorstep. Almost certainly I shall be moved to feed him. When I see a man starving before my eyes, the proposition "starvation ought to be relieved" takes on a new meaning for me. I can now see in detail precisely how and why starvation is evil; I can see exactly how the generalization applies to the particular instance. It is not a question of perfect knowledge being reinforced by emotion, since my knowledge before was imperfect. When it becomes perfect, it necessarily brings the emotion with it. Thus, if I *know* in this sense that X is desirable, and if I not only accept this as a rule of thumb but also fully understand the evidence on which it is based, then I cannot but desire it.

THE CAUSES OF IMPERFECTION. Because he held that men are "perfectible" and "naturally good," Godwin has been accused of excessive optimism. He did not mean, however, that men are, or are likely to become, perfect. He was merely saying that imperfection has causes (usually social causes) that may be removed. To talk about original sin is to give up the search for the causes of sin. It is as if we were to say "disease is a natural phenomenon" and turn our backs on medicine. In general, no doubt,

wickedness, like disease, is always with us; but any particular piece of wickedness, like any particular disease, has specific causes, and it may be possible to remove them. That the causes are far-reaching and difficult to remove, Godwin did not deny. He was even prepared to grant that there may be "something in the nature of man incompatible with absolute perfection." Men can never fully understand the principle of universal benevolence, simply because they cannot hope to know all their fellows intimately. But this is an ideal toward which we can strive and which, even if it can never be reached, can always be brought a little closer.

RIGHTS. As a thoroughgoing utilitarian, Godwin, like Jeremy Bentham, denied that there are any natural rights. The only right, which is also a duty, is to do whatever makes for the general happiness. He would not concede the rights to life and liberty. Nevertheless, the individual has one right—the right of private judgment. The reason for this is simply that, in the final analysis, nothing will be gained if men do not understand the reasons for acting as we wish them to act. When men see things as they are, they will quite freely and without any kind of coercion do what makes for the general happiness. Any attempt to coerce them will hinder them from seeing things as they are and will therefore do more harm than good. In this way, Godwin was able to reconcile utilitarianism with the utmost insistence on individual freedom, and especially on freedom of thought and opinion.

THE BASIS OF GODWIN'S ETHICS. Godwin's basic beliefs may be summarized in three propositions—one about ethics, one about logic, and one about social psychology.

The nature of virtue. The ethical proposition is that to be virtuous is to feel the right emotions. The right emotions are those that men feel when they see all the facts clearly. When we analyze these emotions, we find that they are all consistent with the "greatest happiness" principle.

In the last analysis, statements about morals are expressions of feeling. But this does not mean that we cannot reason about morals. There are good and bad reasons for feeling frightened or angry. Fear is appropriate in a situation of danger. We do not doubt that if once we make a man see the full facts of the situation, the emotion of fear will come of its own accord. In the same way, if we want men to feel the appropriate emotions of benevo-

lence, pity, affection, and so on, we can do it by making them realize the full facts about human beings. It is in this sense that men are naturally good.

Generalizations. The logical proposition is that true knowledge is of particulars and all generalizations are, if not false, at least seriously misleading. It is possible to know in a sense that a situation is dangerous without feeling the appropriate emotion. A man may ignore the danger out of bravado, but in that case we may say that he does not fully appreciate the danger. He knows, as a generalization, that the situation is dangerous, but he does not know the particulars that the generalization expresses—which is to say that he does not really know the generalization at all.

But we cannot, of course, do without generalizations. It is impossible to know every particular in all its particularity. Here, then, is an inescapable source of error. It is particularly likely to mislead us in our judgments of human beings and of human actions, for every human being is unique. Since we cannot know everyone intimately, we have to rely on generalizations, any one of which may be seriously misleading when applied to a given individual. Such generalizations form, as it were, a distorting glass through which we look at the world. And, since virtue depends on feeling the appropriate emotions toward other human beings, emotions that depend on a clear perception of all particulars, the logical proposition is an adequate explanation of human frailty. It also explains what Godwin meant by prejudice.

Political institutions influence beliefs. The proposition about social psychology is that the generalizations men believe depend on the political institutions under which they live. In practice, the particular distorting glasses we use are, so to speak, handed out to us by the governments under which we live. Our opinions about how human beings actually behave are influenced by concepts derived from legal institutions, like "thief" or "murderer," or concepts derived from social institutions, like "lord" or "pauper." These stereotypes come between us and the actual human beings around us. Our opinions about how human beings ought to behave are distorted by such concepts as "honor" and "virtue," which stem directly from political institutions, as Montesquieu had clearly demonstrated. This is what Godwin meant by the corrupting effect of government.

GODWIN'S SOLUTION. Two main conclusions follow from these three basic beliefs: First, that if we want to improve human beings, we must help them to see things, and particularly each other, as they are; and second, that

this can be done by simplifying society, by sweeping away social categories like rank and the legal categories that depend on punishment, and by encouraging individual judgment so that men will no longer trust to rules of thumb.

See also Anarchism; Bentham, Jeremy; Helvétius, Claude-Adrien; Holbach, Paul-Henri Thiry, Baron d'; Hume, David; Montesquieu, Baron de; Plato; Shelley, Percy Bysshe; Utilitarianism; Virtue and Vice; Wollstonecraft, Mary.

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GOETHE, JOHANN WOLFGANG VON
(1749–1832)

Johann Wolfgang von Goethe, the German poet, pantheist, novelist, and scientist, was born in Frankfurt am Main and died in Weimar. Goethe's literary genius disclosed itself early. He wrote numerous lyric poems, invariably inspired by love affairs, while still in his teens. University studies in Leipzig and Strasbourg were less important to his development than were his extracurricular interests: occult philosophy, astrology, and religious mysticism while in Leipzig; and his friendship with Herder at Strasbourg, a friendship that evoked Goethe's passion for William Shakespeare, nature, and German folk poetry. The historical drama *Götz von Berlichingen,* written while Goethe was a law student in Strasbourg, marks the start of his *Sturm und Drang* ("storm and stress") period. *Die Leiden des jungen Werthers* (The sorrows of young Werther, 1774), written to purge himself of the despair engendered by his love for Charlotte Buff, who married another man, marks the high point of this phase of Goethe's career. *Werther,* translated into numerous languages, made Goethe famous throughout Europe. Other works belonging to this period were the dramas *Stella, Egmont,* and the "Gretchen" episodes of *Faust.*

In 1775, at the invitation of Karl August, Duke of Saxe-Weimar, Goethe moved to the court at Weimar. Here, in addition to his work as chief of state and his continued literary activity, Goethe's interest in the sciences developed: His official duties involved such diverse matters as horticulture, mining, road inspection, and later the management of the state theater. In Weimar, Goethe's involvement with Frau Charlotte von Stein, an intellectual lady of refined tastes in the arts, lasted for twelve years. His writings during those years included some of his greatest lyrics. It is said that Stein exercised a humanizing, moral influence on Goethe.

Goethe's trip to Italy in 1786 was to his own mind the climax of his life. In his thinking about art and literature, the classical ideal of calm beauty replaced the representation of tempestuous emotion and rebelliousness characteristic of the *Sturm und Drang* movement. *Iphigenie auf Tauris* (1787), a verse reworking of an earlier play, and *Torquato Tasso* (1789) exemplify the new style.

Returning to Weimar, Goethe took a new mistress, Christiane Vulpius, who bore him a son in 1789 and whom he married in 1806. Many of Goethe's scientific studies were published in this period: *Versuch, die Metamorphose der Pflanzen zu erklären* (Essay on the meta-

morphosis of plants, 1790), *Beiträge zur Optik* (Contributions to optics; 1791 and 1792). Earlier he had published his discovery that a part of the human jawbone is analogous to the intermaxillary bone in apes (1784). Goethe returned to Italy in 1790 but did not find the excitement and inspiration of his earlier travels. In 1792 he accompanied Karl August in a battle against the French revolutionaries. In 1794 began Goethe's friendship—more literary and intellectual than personal—with Friedrich Schiller, which lasted until Schiller's death in 1805. Schiller was a sympathetic critic and he encouraged Goethe's work on *Faust*. It has been thought that Schiller's Kantian background stimulated Goethe's interest in Immanuel Kant, but Goethe was familiar with Kant's writings even before 1794.

While the political and social tumult of the Napoleonic era dominated the minds of his contemporaries, Goethe calmly concentrated his attention on optics and plant morphology. Perhaps as a result of Goethe's indifference to the popular causes of nationalism and democracy, his reputation declined somewhat, but the appearance of *Faust* (Part I) in 1808 and the psychological novel *Die Wahlverwandtschaften* (Elective affinities) in 1809 served to restore his stature. Some of Goethe's subsequent works were *Zur Farbenlehre* (Toward the theory of colors; 1810), which contains an extended attack on Isaac Newton's theory of light; *Dichtung und Wahrheit* (Poetry and truth, 1811, 1812, 1814, and, posthumously, 1833), a series of autobiographical essays; *Italienische Reise* (1816–1817), the record of his Italian travels; *Zur Morphologie* (1817–1824); and the second part of *Faust*, completed in 1831, just before his death. Goethe was buried in Weimar beside Schiller.

PHILOSOPHY

Although Goethe was not a systematic thinker and even asserted that philosophy only ruined him for poetry, he was aware of the philosophical and scientific tendencies and controversies of his time; and while he admitted his lack of a "proper organ for philosophy," he did not hesitate to express himself on numerous philosophical and scientific questions. In addition to specific essays and pronouncements, his poems and novels were often vehicles for expressing his intellectual convictions concerning God, man, and nature.

SPINOZA AND GOETHE. The influence of Benedict Spinoza on Goethe's overall *Weltanschauung* was considerable, although the importance of Kant, Gottfried Wilhelm Leibniz, and Friedrich Schelling is also evident.

Goethe first became slightly acquainted with Spinoza's philosophy while in Strasbourg, but it was in 1774 that his acquaintance with Friedrich Jacobi (who regarded Spinoza's views as the only rational philosophy) drew his full attention to Spinoza. Goethe's commitment to pantheism is often cited to show his agreement with Spinoza. Yet when Goethe himself spoke of his relation to Spinoza, he emphasized the ethical as much as the metaphysical doctrines of Spinoza and Spinoza's "all-harmonizing peace," which contrasted with his own restlessness. Spinoza's rejection of final causes and his defense of determinism and of the view that praise, condemnation, and regret are attitudes reflecting an inadequate understanding of inexorable natural processes were accepted by Goethe and given expression in *Faust* (especially in the opening scene of Part II). Goethe said that Spinoza's mathematical method was the opposite of his own poetic way of feeling and expressing, and that Spinoza's orderly treatment of moral questions made Goethe his passionate disciple and convinced admirer. He defended Spinoza against the charge of atheism and claimed (without slavish regard for accuracy) that Spinoza was the most theistic and Christian of philosophers, since for him all existence is God and thus no proof of God's existence is needed.

The central thesis of Spinoza's system, Goethe thought, was that the universe contains and expresses a creative force which appears as a duality (*Zweiheit*) but is in fact a unity. God is not simply the cause but the indwelling spirit of the world, the all-embracing actuality. Goethe, however, questioned Spinoza's contention that reason can attain an adequate knowledge of God-nature. We cannot comprehend this infinite whole, and when we attempt to do so, even in a limited way, we must use imagination and intuition, not the method of mathematics.

LEIBNIZ AND GOETHE. While Goethe's view of nature was, like Spinoza's, deterministic and nonteleological, his mystical feeling for nature was more akin to Schelling, and he resembled Leibniz in maintaining that everything in nature is in some sense animate (*Beseelt*). The universe consists of an infinite number of unique beings—Leibnizian monads—each alive and harmonious with all others. The essence of these individuals is activity and creativity. Goethe's knowledge of Leibniz was probably derived from Goethe's friend Johann Kaspar Lavater, the Swiss theologian who linked his theory of phrenology with the theory of Leibniz's monadology, and from the Earl of Shaftesbury, whose presentation of Leibnizian optimism involved the belief, so congenial to Goethe, that nature's physical beauty expresses the divine harmony.

KANT AND GOETHE. Goethe was inclined to take from philosophers whatever elements or fragments fitted his intuitions and feelings. Thus, while he found Leibniz's confident optimism appealing, he also praised Kant for destroying the popular optimistic teleology of common-sense philosophers who with Philistine wisdom sought to demonstrate that everything in nature exists to satisfy some human purpose. Goethe's enthusiasm for Kant was mainly based on Kant's *Critique of Judgment.* He was pleased with Kant's claim that nature and art both resemble purposive agents but pursue no external goal. He maintained also that art mediates between nature and freedom, since it is produced by the artist in conformity with principles that operate in nature as well.

Goethe, like many of Kant's contemporaries (including Moses Mendelssohn and Johann Gottfried Herder), had little understanding of the *Critique of Pure Reason*; and while he praised Kant's ethics, he rejected most of Kant's central claims. In particular, he denied the opposition of duty and inclination, reason and sensuality, and regarded Kant's Calvinistic notion of a radical evil in human nature as a sad regression toward Christian orthodoxy. Goethe also took exception to Kant's view of knowledge. He insisted that imagination (*Phantasie*) was an avenue to knowledge distinct from and supplementary to Kant's faculties of reason, understanding, and sensibility. Furthermore, Goethe held, men are capable of intellectual intuitions, and with such nonsensuous insights they may hope to penetrate the heart of nature.

SCIENTIFIC THEORIES

Goethe thought his scientific theories were as important as his literary works. The concepts of primal phenomena (*Urphänomen*) and primal polarity (*Urpolarität*) were central to his conception of the world and were the foundations for both his scientific studies and his conception of man and existence.

PRIMAL PHENOMENA. Nature's secrets can only be understood by discovering, through intellectual intuitions, her ideal: ground phenomena. In optics the primal phenomenon is the opposition or antipathy of light and darkness. This *Urphänomen* (which in this instance is also an example of polarity) is the goal and limit of a scientific investigation of light. In mineralogy and geology the *Urphänomen* is granite, which Goethe believed to be the base of Earth's crust.

In the organic realm there are primal shapes and modes of development that nature repeatedly uses, like a theme and variations in music. The same organ is trans-

formed manifoldly through metamorphosis. In plants the leaf is the organ that is varied to form all the parts of the plant. The study of the basic formations, morphology (*Gestalten*), would disclose the secret principles according to which nature operates. Seeking the primal image or idea by observing and comparing the metamorphosis of organisms, Goethe conjectured that a primal plant (*Urpflanze*), might be the basic model according to which all plants are patterned. This theory has sometimes been cited to show Goethe as a forerunner of the theory of evolution, but it is not at all clear that he believed in the historical evolution of species from a common ancestor. The doctrine of the *Urpflanze* is more Platonistic and, perhaps, mythical than Darwinian, Charles Darwin's reference to Goethe as a "path-maker" notwithstanding.

POLARITY. Goethe's distrust of mathematics and experimental instruments (such as prisms) was, unfortunately, great. He believed that numbers and equations only distort our vision of nature. Isaac Newton's physics was repellent to him; Newton's theory that white light contained the spectrum seemed to him absurd because light was an elemental entity, an inscrutable attribute of the world that could not be analyzed. Goethe attempted to explain the origin of color phenomena out of an original polar opposition of light and dark. If light and dark are mixed directly, the result is gray; but a "murky medium" (such as a prism, according to Goethe) produces a cooperation of the polar opposites, and this cooperation produces colors. The activity of the eye in color perception is explained by the rule that brightness is "demanded" when the eye encounters darkness. The perception of every color produces a "demand" for the complementary color.

Goethe used extensively the idea of polarity, of attraction and repulsion as basic cosmic forces. He explained the metamorphosis of plants in terms of the periodic alternation of contraction and expansion. Contraction (*systole*) produces specific differentiation; expansion (*diastole*) produces an "advance into the infinite." The importance of polarity is seen also in magnetism—another *Urphänomen*—and in the activity of the heart, the rhythm of life, and in man's moral activity where the good is brought into play by its contrary, evil. Schelling had said that there is no life without opposites, and Kant had claimed attraction and repulsion to be the only essential forces of matter. Goethe adopted these principles in both his science and his art. The whole of existence is "an eternal parting and uniting."

STRIVING. Polarity is one of the driving wheels of nature, and while Goethe's use of this idea may suggest a

cyclical view of life and history, his concept of gradation (*Steigerung*) is that of a constantly striving ascent. This upward striving Goethe believed to be a universal characteristic of nature. It discloses itself in the "higher intention" of every heavenly body and in the variations of similar organisms developing from a basic form. What Goethe meant by this is not very clear, but in *Faust* the idea is applied to man. Every man, said Goethe, innately feels an urge to strive upwards. This striving involves all his capacities, his creativity in every sort of action and experience. Faust's insatiable love of life and hunger for new experience are expressive of this natural longing.

RELIGION

Goethe early rejected positive religion. With Spinoza, he came to regard creeds and dogmas as irrelevant to the veneration of God-nature. Although Goethe was on friendly terms with many ardent Christians and although he even spoke at times of a providential God, he opposed the dogmatism of churches and theologians and regarded the idea of miracles as a "blasphemy against the great God and his revelation in nature." Since Goethe maintained that no set of concepts could be adequate to the unfathomable infinity of the divine, it is not surprising that his pronouncements concerning God are somewhat ambiguous and inconsistent. While the remark on miracles seems to imply a distinction between God and nature, this is, of course, not Goethe's usual position.

Goethe rejected asceticism and the tendency to devalue the physical in favor of a supernatural world. To Johann Kaspar Lavater he wrote that he could find a thousand pages of various books as lovely, useful, and indispensable to humankind as the Gospels. He claimed that he was unchristian rather than anti-Christian but declared the crucifix to be "the most repugnant thing under the sun." Although at one time he spoke of the Gospels as messages from God, he clearly did not intend this in the ordinary sense, since he held that God, being the inexorable order of nature, cannot have any personality or be in any sense outside the natural world. Thus God does not cause or control the world in the way that theists have believed. "What sort of God would it be, who only pushed from without?" (*Was wär' ein Gott, der nur von aussen stiesse?*, in *Weltanschauliche Gedichte,* 1815). The ambiguity (or richness) of Goethe's theology may be seen in what is perhaps his most famous remark on this topic: "We are pantheists when we study nature, polytheists when we poetize, monotheists in our morality" (*Wir sind naturforschend Pantheisten, dichtend Polytheisten, sit-*

tlich Monotheisten, in *Maximen und Reflexionen,* No. 807).

Since every man is part of nature and, hence, of the divine, he shares the basic impulses of all natural things—specifically, as already noted, the urge to develop upward and outward, the striving for an ideal. Action and striving are not only means to some static goal but are also ends in themselves. Since there is no goal for man apart from his life, man struggles, like Faust, with the fear of life (*Lebensangst*) and is tempted by care (*Sorge*). Some have argued that Goethe saw man's fulfillment in activity itself, but perhaps it would be more accurate to say that there is no fulfillment—contentment means annihilation—so that man is destined to be dissatisfied, unfulfilled, no matter what he achieves.

See also Darwin, Charles Robert; Herder, Johann Gottfried; Jacobi, Friedrich Heinrich; Kant, Immanuel; Lavater, Johann Kaspar; Leibniz, Gottfried Wilhelm; Mendelssohn, Moses; Newton, Isaac; Pantheism; Pantheismusstreit; Schelling, Friedrich Wilhelm Joseph von; Schiller, Friedrich; Shaftesbury, Third Earl of (Anthony Ashley Cooper); Spinoza, Benedict (Baruch) de; Spinozism.

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Laterza, 1919), translated by Emily Anderson (London, 1923); and the beautiful and perceptive chapter on *Faust* in George Santayana, *Three Philosophical Poets* (Cambridge, MA: Harvard University Press, 1922). Thomas Mann's essays on Goethe, which include discussions of Goethe's political views, are in his *Freud, Goethe, Wagner,* translated by H. T. Lowe-Porter (New York: Knopf, 1937) and in his *Essays of Three Decades* (New York: Knopf, 1947). Karl Viëtor, *Goethe the Thinker,* translated by B. Q. Morgan (Cambridge, MA: Harvard University Press, 1950), discusses Goethe's science and philosophy comprehensively. See also Fritz-Joachim von Rintelen, *Der Rang des Geistes* (Tübingen: Niemeyer, 1955).

Arnulf Zweig (1967)

GOGARTEN, FRIEDRICH
(1887–1968)

Friedrich Gogarten, the German theologian, was born in 1887 at Dortmund. After serving as a pastor in Thuringia, in 1927 he became professor of systematic theology at Jena and in 1935 moved to the corresponding chair at Göttingen. He was early associated with the new dialectical theology and its revolt against liberalism and idealism. Within this movement he stands nearer to Rudolf Bultmann than to Karl Barth, but he worked out a distinctive position of his own. His thought shows the influence of existentialist philosophy, but he claimed that it also continues the insights of Martin Luther, on whom Gogarten was a recognized authority.

Gogarten believed that Luther delivered Christian theology from the hold of metaphysics. This achievement was obscured in the period of Protestant orthodoxy following the Reformation, but it is now time to revive his insights, which can be restated in terms of current existentialist philosophy. According to Gogarten, the major Christian doctrines were formulated under the domination of metaphysical categories, in an age when history was understood as a process that takes place within a stationary metaphysical framework and when the course of history was supposed to be determined by metaphysical factors. Deliverance from metaphysics makes it possible to take history with a new seriousness. Man is responsible for history and creates it by his decisions. So far are we from having an obligation to interpret history in the light of metaphysics that we must rather view metaphysical systems themselves as products of history. Christianity is not dependent on any metaphysical system but is rather the summons to a historical self-understanding, in which we accept responsibility for our own historical existence under the word of God, which addresses us in Christ.

These emphases, which Gogarten relates as much to the *sola fide* of Luther as to modern existentialism, are developed into a secular interpretation of the Christian gospel. The Christian faith brings man to maturity and strips the world of every mythical or numinous property. The world is deprived of its religious power and is handed over to man as the son who has come of age, the heir to whom God has entrusted the creation. These views are related by Gogarten especially to the teaching of St. Paul in Galatians 4:1–11.

See also Barth, Karl; Bultmann, Rudolf; Idealism; Liberalism; Luther, Martin; Metaphysics, History of.

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Gogarten also edited various works of Luther and contributed extensively to *Zwischen den Zeiten,* the journal of the dialectical theology group.

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John Macquarrie (1967)

GOLDEN RULE

One early use of the word *golden* in English is "most excellent, important, or precious." With reference to rules or precepts it was used to mean "of inestimable value," and the expression "the golden rule" was often specifically used with reference to the precept in Matthew: "Therefore all things whatsoever ye would that men should do to you, do ye even so to them: for this is the law and the prophets" (7:12). Thus, the principle that has come to be known as the golden rule has been so called presumably

because it has been regarded as being of inestimable value or importance. This regard was not derived solely from the fact that it was set forth in the sermon on the mount. The golden rule has been widely accepted, in word if not in deed, by vast numbers of greatly differing peoples; it is a basic device of moral education; and it can be found at the core of innumerable moral, religious, and social codes. So far as can be determined from available records, it was probably first formulated by Confucius some five hundred years before Christ—"What you do not like when done to yourself do not do to others"—and the multitude of different formulations testify to its widespread acceptance and influence.

There is probably no principle which has been so widely accepted and remained so controversial. Nonetheless, the golden rule has been the subject of comparatively little philosophical discussion. It is usually mentioned, when it is mentioned at all, only in passing, and it has generally received more attention in theological and inspirational literature. However, there are signs of increasing philosophical interest in it.

One of its commonest formulations today is "Do unto others as you would have them do unto you." It is commonly supposed that there are significant differences between this, the positive formulation, and the negative formulation, "Do not do unto others what you would not have them do unto you," and that the positive formulation "marks a distinct advance" since it "prescribes positive services rather than mere abstinences" and "sets forth an ideal which is higher and therefore more difficult to realize." It can be argued, however, that this is an error resulting from faulty analysis and perhaps also from theological bias. In connection with a specific action or object of desire, there is a considerable difference between a positive desire, a desire to do it or have it done to oneself, and a negative desire, a desire not to do it or not to have it done to oneself. But in the abstract, so the argument runs, there is only a difference in formulation, and a want, wish, or desire formulated in negative terms can always be reformulated in positive terms. For example, there is no difference between not wanting others to lie to oneself and wanting them not to lie to oneself, wanting them to tell one the truth and wanting them not to fail to tell one the truth. In general, "*A* wants *x* to happen" is equivalent to "*A* does not want *x* not to happen," and "*A* does not want *x* to happen" is equivalent to "*A* wants *x* not to happen." Thus, according to this line of argument, every desire formulated negatively, which would come within the scope of the negative golden rule, can be reformulated positively and will then come within the scope of

the positive golden rule. It would follow, then, that there is no logical or moral difference between the negative and positive formulations, only a psychological or rhetorical one.

On either account the negative formulation of the golden rule is to be distinguished from the denial of the golden rule: "Do not do unto others as you would have them do unto you." Obviously, this is not a formulation of the golden rule at all but is, rather, its total rejection. The denial of the golden rule is usually supported by the claim that the golden rule presupposes a uniformity of human nature, in the sense of a uniformity of tastes, interests, needs, and desires, and the attendant claim that there is no such uniformity. One way of meeting this objection is to deny that the golden rule involves any such presupposition. It has been argued that it is necessary to make a distinction between the particular interpretation and the general interpretation of the golden rule. The particular interpretation implies that whatever in particular one would have others do to or for him, he should do to or for them. It is in the particular interpretation that, to take some of the standard objections, the golden rule "authorizes the quarrelsome person who loves to be provoked, to go about provoking others, and the person who hates friendliness and sympathy to be cold and unsympathetic in his dealings with others" (L. J. Russell). But these consequences, it has been claimed, do not follow from the general interpretation. On this interpretation what one has to consider is not what in particular one would have others do to or for oneself but, rather, the general ways in which one would have others act in their treatment of oneself. If one abstracts his general wishes from his particular desires, what one would have others do is to take account of his interests, needs, and desires, which may be quite different from theirs, and either satisfy them or not willfully frustrate them. What the golden rule requires a person to do, then, is to take account of the wishes of others and accord them the respect and consideration he would want them to accord to his. In other words, what the golden rule requires of each of us is that we should treat others in accordance with the same principles or standards that we would have others apply in their treatment of us. Thus, the golden rule, if this argument is sound, is compatible with differences in interests, needs, tastes, wishes, and desires and does not presuppose that human nature is uniform in the sense specified.

Another principle which should be distinguished from the golden rule is what might be called its inversion: "Do unto others as they would have you do unto them." The inversion of the golden rule has received some sup-

port, and it has even been urged that it replace the golden rule as a guide to conduct, mainly as a consequence of the same sort of objection as the distinction just outlined is intended to eliminate. It has been claimed that the inversion of the golden rule has "the merit of stressing the need for an understanding of other people as a basis of our behavior toward them" and does not presuppose any uniformity or identity of nature in the beings it is intended to govern.

One counterargument to this is that the implications of the inversion of the golden rule are more absurd than the alleged implications of the golden rule itself and that it is tantamount to a rule that would require everyone always to do whatever anyone else wants him to do, a rule it is impossible to follow in a world of conflicting interests. Once it is recognized, the argument runs, that the "uniformity of human nature," in the sense of an absolute identity of interests, needs, and desires, is not a presupposition of the golden rule, any temptation to substitute the inversion of the golden rule for the golden rule itself should disappear. For in its general interpretation the golden rule does require us to take account of and accord respect to the differing needs, interests, and desires of others, and it is just this that the inversion of the golden rule is intended to bring about. However, the question remains whether the inversion of the golden rule cannot be rescued from at least some of the more obvious objections to it by means of a distinction similar to that made between the particular and the general interpretation of the golden rule.

In the course of time a number of anomalous interpretations of the golden rule have found strong support. On the one hand, it has been said that the golden rule comprehends all the requirements of morality in a single formula; on the other, it has been said that the golden rule is only a guide, that it is far from complete, that it requires rules, a sense of justice, or even a whole system of morality for its proper interpretation and application. Again, the golden rule has been said to be not only consistent with but actually to comprehend all of utilitarianism; it has also been said to provide just that element, the requirement of justice or fairness, that is alleged to be most lacking in a utilitarian theory. On this interpretation the golden rule is regarded as being the basis of justice, sometimes also the basis or equivalent of Immanuel Kant's categorical imperative. Finally, it has been claimed that the golden rule is a perfect guide to conduct and that the only thing needed to make the world perfect is for everyone to follow it; at the same time it has been claimed

that the golden rule leads to paradoxes and is misleading, false, or absurd.

Each of the points and issues mentioned here is discussed, more or less adequately, in one or more of the sources listed in the bibliography. But no one has yet dealt satisfactorily with the question of why this precept should have appeared in the codes and outlooks of so many diverse peoples and sages. The golden rule, in one version or another, has a prominent place in all the major religions and most minor ones; it has been enunciated by pagan philosophers both before and after Christ and by Sophists (Isocrates) and anti-Sophists (Aristotle). There are no detectable historical traces that could explain this, and the historical diffusion theory is worthless as an explanation here. The nearly universal acceptance of the golden rule and its promulgation by persons of considerable intelligence, though otherwise of divergent outlooks, would therefore seem to provide some evidence for the claim that it is a fundamental ethical truth.

See also Aristotle; Confucius; Ethics and Morality; Sophists.

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Marcus G. Singer (1967)

GOLDMAN, ALVIN
(1938–)

Alvin Goldman, an American philosopher, is best known for his contributions to epistemology, philosophy of mind, and related fields. His first paper, "A Causal Theory of Knowing," (1967, reprinted in *Liaisons* 1992), defends the view that an individual S knows a proposition p just in case p is causally related in the right sort of way to the individual's belief that p. Thus, for example, Sam knows that there is a cat on the mat because Sam is looking at the cat, and the fact that the cat is on the mat caused Sam to have that belief. This kind of account of knowledge breaks with the tradition that identifies knowledge with some sort of justified, true belief. While Goldman's account requires that a belief be true if it is to count as knowledge, the requirement of justification is replaced

with a requirement that highlights the importance of the causal ancestry of the belief. Goldman further develops this view in "Discrimination and Perceptual Knowledge" (1976) and "What Is Justified Belief?" (1979) (both reprinted in *Liaisons*), coming to hold, in the latter paper, that knowledge does indeed require justification, where justification is to be identified with reliably produced belief rather than with any kind of ability to produce an argument, as traditional accounts require. This style of account has come to be known as "externalist" (because the factors in virtue of which a belief is justified may be external to the knower's mind), and is opposed to the more traditional "internalist" accounts on which the features in virtue of which a belief is justified are ones to which the knower inevitably has cognitive access. Goldman develops this view in tremendous detail in a series of papers, and ultimately in *Epistemology and Cognition* (1986).

Whereas Goldman's account of knowledge is offered as an analysis of the concept of knowledge, the substance of his account places a great deal of stress on the relevance of empirical work to epistemological issues. Thus, Goldman's approach prompts him to investigate the various psychological mechanisms by which belief is produced because it is upon the reliability of these mechanisms that people's status as knowers depends. This concern with the ways in which empirical work—and especially work in the cognitive sciences—may be brought to bear in advancing human understanding of traditional philosophical issues is characteristic of Goldman's work generally; his work in this area constitutes the most sustained development of naturalistic epistemology available.

Although his early work was concerned with the philosophy and psychology of individual cognition, Goldman has gone on to make seminal contributions to social epistemology. The mechanisms by which beliefs are produced and sustained include not only those inside the knower's head, but features of the social organization of the knower's epistemic community. In *Knowledge in a Social World* (1999), Goldman investigates the ways in which social structures may either contribute to, or interfere with, the discovery and dissemination of truths. This project includes work on the epistemology of testimony and argumentation, the social structure of scientific investigation, and the epistemology of education. Additionally, Goldman addresses questions about democracy, government regulation of speech, the role of truth in legal proceedings, and the economics of communication—all topics illuminated by his epistemological approach.

Goldman has also made important contributions to the philosophy of mind, especially in his elaboration and development of the "simulation" account of mental state attribution. A standard approach to mental state attribution, now known as the "theory-theory," sees human attribution of mental states to others as the product of theory construction. On this view, when one forms the belief that Jack will want the university president to resign, that person's belief about Jack's desire is derived from beliefs held about Jack's other mental states, together with theories the person holds about the laws governing interactions among mental states. On the simulation view, however, attribution of mental states does not derive from theory construction and need not involve any beliefs about psychological laws or regularities. Instead, the processes by which one's own mental states interact are brought to bear on the task of mental state attribution, being used to simulate the workings of the process by which the target mental state was produced. Goldman's *Simulating Minds: The Philosophy of Psychology, and Neuroscience of Mindreading* (forthcoming) develops this view in detail. He assembles evidence from psychology and especially neuroscience of low-level, automatic processes that mimic, mirror, or resonate with those of an observed other. Such processes play a crucial role in the facial mind-reading of emotions, for example. On the topic of the self-attribution of mental states, Goldman defends an introspectionist approach—in contrast with other simulationists. Elsewhere, he defends introspection as the basis for relying on subjects' verbal reports in the science of consciousness.

In his first book, *A Theory of Human Action* (1970), Goldman defended a fine-grained approach to the ontology of action and illuminated the relationship between determinism and fatalism. He has also explored the interface between metaphysics and cognitive science.

See also Epistemology, History of; Philosophy of Mind.

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Hilary Kornblith (2005)

GONGSUN LONG
(320–250 BCE)

Gongsun Long was a logician in ancient China and a representative figure of the School of Names (*Ming-Jia*). What distinguishes Gongsun Long's work is his in-depth investigation into the relation between names and reality through conceptual analysis and rational argumentations. His thoughts are delivered in the *Gongsun Longzi*. Three brief essays in the text, "On the White Horse," "On Referring to Things," and "On Hardness and Whiteness," are considered most important in understanding his thoughts. The first one is considered the most philosophically interesting and influential in view of its substantial philosophical points, its articulate character of rational argumentation, and its sophistication.

Gongsun Long's well-known thesis "[the] white horse [is] not [the] horse" (*bai-ma-fei-ma*) is supported by several articulate arguments in the essay "On the White Horse." Modern scholars elaborate their substantial contents and philosophical significance through seemingly competing interpretations. Fung Yu-lan (1952–1953) renders Gongsun Long a Platonic realist; he considers that all of Gongsun Long's arguments are intended to argue that "white horse" and "horse" represent two distinct Platonic universals and thus the universal of white-horseness is not (identical to) the universal of horseness. One criticism is that Fung seems to impose his Platonic realist reading on the thoughts of a figure in the Chinese tradition whose general mentality and language characteristics have not tended to nourish a Platonic outlook of the universe.

Janusz Chmielewski (1962) takes a set-theoretic line: "white" and "horse" are used to denote distinct classes, and "white horse" denotes the intersection of the two classes, which is an empty class, instead of a subclass of either of the two classes. One major difficulty with Chmielewsky's interpretation is that it obviously deviates from the original text in which Gongsun Long clearly indicated that there are white horses.

Chad Hansen (1983) proposes a radical shift of interpretation based on mereology (part-whole logic) and his mass-noun hypothesis: The term "white horse" is a mass noun and refers to a mass *sum* whole of horse-stuff part and white-stuff part, distinguishing it from a mutually pervasive compound, like hard-white, that is a mass *product*; the whole of white part and horse part is not its horse part. Angus C. Graham (1990) endorses Hansen's mereological interpretation though without being committed to the mass-noun hypothesis. The Hansen-Graham radical mereological interpretation is to bypass class-member relation but resorts to whole-part division alone. Nevertheless, an interpretation that renders Chinese thinkers short of conceptual abstraction intrinsically involved in member-class relation is questionable.

The previous interpretations share one feature: Their interpretations of the semantic reference of those common nouns like "white horse" and "horse" seem to variously derivate from the semantic structure as embedded in actual language practice, in which Chinese common nouns are normally used to denote (a collection of) particular things (including particular properties) via their conceptual contents. A modest mereological interpretation with a collective-noun hypothesis might be reasonable for the sake of capturing the semantic structure. That is, (1) the denotational semantics and deep structure of Chinese common nouns are like those of collective nouns; their implicit ontology is a mereological one of collection-of-individuals with both part-whole structure and member-class structure. (2) The denotation of "white horse" is neither a Platonic universal nor a sum of horse stuff and white stuff nor an empty set, but a collection of white horses. (3) The collection of white horses is both a mereological whole and a class; the part-whole relation here is also the relation between subclass and class that accommodates conceptual abstraction and can be specified in terms of Fregean sense. From this point of view Gongsun Long argues for the thesis that what "white horse" denotes (the collection of white horses) is not identical to ("*fei*") or differs from ("*yi*") what "horse" denotes (the collection of horses) in view of their distinct conceptual contents, distinct extensions and ddistinct necessary-identity-contributors.

Although Gongsun Long emphasizes distinct aspects of things, he does not ignore common aspects and connections of things and thus explicitly indicates, "It is when what is pursued is their common aspect that the white horse [as a subclass] is [is included in the class of] the horse" The previously mentioned class-mereological nature of the denotation of collective nouns allows a flex-

ible shift between the identity-relation and the class-inclusion relation between two collections, depending on whether the speaker's focus is on distinct aspects or on common aspects of things: The point of the referring subject's focus shift is related to one central point made in his essay "On Referring to Things": those relevant contributing elements involved in the referring subject's act of referring via a name (such as her purpose or focus) make their intrinsic contributions to the identities of things that are referred to.

In "On Hardness and Whiteness" Gongsun Long investigates the metaphysical status of properties themselves like hardness and whiteness, which are mutually pervasive in the hard white stone, by examining their separability. He thinks that the property itself, say, hardness, can stand alone in the form of *zi-cang* (being self-hidden) but also maintains that "there exists no such hardness in the world [except of its manifestations in particular things]" (the author's translation). The question is this: How could the property per se be self-hidden, in some realist way or in some conceptualist way or in a radical nominalist way? The text of that essay seems to be open to distinctive interpretations. This is a controversial issue that needs to be examined in the context of Gongsun Long's whole thought.

See also Logic, History: Chinese Logic; Mereology.

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For further elaborations of the Platonic realist interpretation, see Chung-yin Cheng, "Kung-sun Lung: White Horse and Other Issues," *Philosophy East and West* 33 (1) (1983): 341–354; and Yiu-ming Fung, *On the Gongsun Longzi* [Gong-Sun-Long-Zi] (Taipei: Dongda, 2000) (in Chinese). Fung also gives a comprehensive discussion of the previously mentioned authors' various representative interpretations.

For a further elaboration of the collective-noun hypothesis for Chinese names to which the last interpretation resorts, see Bo Mou, "The Structure of the Chinese Language and Ontological Insights: A Collective-Noun Hypothesis," *Philosophy East and West* 49 (1) (1999): 45–62.

Bo Mou (2005)

GOOD, THE

For many evaluative terms it is useful to distinguish, following John Rawls, between concepts and conceptions of them; for instance, on the one hand there are questions about what it means to be good, on the other there are questions about which specific things actually are good. This distinction helps explain why many evaluative terms allow much more disagreement than other terms; two people can agree about what it means to be good (concept) and still disagree entirely about which concrete things are good (conceptions), whereas people could hardly agree on what it means to be, say, a knife and still widely disagree about which objects are knives.

Although it is not a distinction drawn by all moral philosophers, this split between concept and conception does set its mark on the literature in the sense that there are two main lines of inquiry about the good: inquiry into the meaning of good and inquiry into which things actually are good. Interest in the first question became prominent in the wake of the publication of G. E. Moore's *Principia Ethica* in 1903; with it moral philosophy took a turn toward conceptual analysis. When it comes to conceptions of the good there have been extensive discussions ever since antiquity and there are primarily two types of goodness that have been the focus of most of them, the prudentially good and the morally good (i.e., what constitutes a good life and what it takes to be a good person).

THE MEANING OF GOOD

Moore claimed that good is indefinable, that it is a simple, nonnatural property. He accused several of his predecessors of having committed what he called the naturalistic fallacy in trying to spell out what it meant to be good. His main argument was that of the open question: For any proposed analysis of good, it would seem that one can ask "But is x good?" and the openness of that question shows that the analysis has not succeeded. It is uncertain whether the philosophers discussed by Moore really had proposed analyses of good rather than simply presented conceptions of the good and it is difficult to find unambiguous examples of theories that are naturalistic in Moore's sense of the word. Nevertheless, Moore did set the agenda for the attempts at analyzing good that have since then followed.

Moore himself is not always clear about whether he discusses the concept of good or the property to which this concept refers. This can make an important difference. If one thinks that the reference is determined by the property or properties that a concept causally tracks, then they can see that, even for normative concepts, there is the possibility that they ultimately refer to natural properties even though they cannot a priori be analyzed in such terms. This kind of naturalism, so-called Cornell realism, was developed in the 1980s by David Brink and others and according to it there is nothing peculiar about the open question being open because the identity involved is synthetic, not analytic.

But there are also other alternatives. Around the same time that Moore developed his theory of the good, Franz Brentano (1969) developed an analysis of good that occupied a halfway point between Moore and naturalism. Moore contended that good was a simple, nonnatural quality; Brentano claimed that it was a complex, nonnatural property, that to be good was to be worthy of love. This kind of position was later elaborated in more detail by A. C. Ewing (1947), who claimed that to be good was to be a fitting object of a pro-attitude. He also thought that different types of goodness could be differentiated through kinds of pro-attitudes, so it was a theory that tried to capture an essential unity of good but also make sense of the variety of uses that good is put to. It is however not an analysis without problems; above all, the key notion of fittingness was not given a satisfactory elucidation by Ewing. Later philosophers, such as Thomas Scanlon (1998) with his buck-passing analysis of value, pursue a similar project, albeit framed in terms of reasons for pro-attitudes rather than the fittingness of them.

The largely Moorean approach of focusing on the meaning of particular evaluative notions was however out of fashion from the 1930s through to the 1960s. The dominant approach to ethical language then was instead non-descriptivist. This is an approach according to which the function of ethical language is not to describe a realm of values and norms, but rather to express sentiments or, as in the best worked-out version of this approach, namely that of Richard Hare (1952), to issue prescriptions. Thus, non-descriptivist analyses of evaluative language do not really provide analyses of the meaning of notions like good, rather what they provide is analyses of what it means to say or judge that something is good. And because ethical judgments appear to have a strong connection to action and motivation, one should perhaps doubt whether predications of good really work essentially like predications of round.

However, even if non-descriptivists eschewed talk about objective evaluative properties, it should be made clear that the position was not as such nihilistic. Rather, what these theories often did was to show that ethical

judgments could make sense even if there really were nothing in the world for them to be about. Hare especially argued at length that one could discuss moral matters rationally even though moral discourse was not descriptive. One problem, however, was that non-descriptivists tended to build their accounts on analyses of asserted evaluative judgments, but talk of good and similar notions does not just consist in that. Evaluative notions can also be embedded in nonevaluative claims, for instance, in conditionals such as "If Peter is good, then Mary is also good." When trying to explain how such sentences function even in very simple forms of deductive reasoning, non-descriptivists tend to be driven to suspiciously complex analyses. The popularity of non-descriptivism has waned considerably since its heyday, although new and sophisticated versions of the theory have been presented after that, most notably by Allan Gibbard.

THE UNITY OF GOOD?

When Brentano proposed his analysis of good it was with the intent of showing the essential unity of good. Many other philosophers have simply taken it for granted. However, even if there is one word that is used in a variety of contexts, that does not necessarily mean that a single concept is being dealt with. Some philosophers, such as Peter Geach (1956), have suggested that one needs to distinguish between a predicative and an attributive use of good. Take a sentence such as "X is an A B." If A is used predicatively, then this sentence can be split into "X is A" and "X is a B"; if this is not possible, then A is used attributively. The sentence "Jill is a dark-haired woman" can be split into "Jill is dark-haired" and "Jill is a woman," whereas "Jill is a tall woman" cannot be split that way. The difference is that there is no way of ascertaining whether Jill is tall without taking into account that she is a woman; it is qua woman that she is tall.

When it comes to goodness, judgments such as "that is a good knife" are clearly attributive, whereas judgments such as "that was a good event" seem predicative. Both uses of good have been prominent in the history of ethics, although some (like Aristotle) have leaned toward the attributive and others (like Moore) toward the predicative. Geach himself contended that, when it makes sense, good is always an attributive adjective; nothing is ever simply good. Relatively few philosophers have followed Geach in taking this stance although the distinction still highlights an important disunity of good. This can be seen if one compares good to valuable. The predicative use of good roughly corresponds to valuable, whereas attributive goodness has a much looser connection to

value. For instance, if Jill shoots Jack in the head from a long distance, one might think that it was a good shot without finding the event valuable in any sense.

Although the distinction between the attributive and the predicative concerns good as a concept, it is also the case that when it comes to conceptions of the good, philosophers have tended to take different positions depending on how they have tended to use good. The advantage with attributive uses of good is that they hold the promise of naturalizing the good, thereby rendering its place in the world less mysterious, and this has led some, such as Philippa Foot (2001), to develop ethical theories in terms of the attributive good. The problem with such an approach is just that when it comes to the particular natural kind that is of most interest for ethical matters, namely that of human beings, it is very unclear whether there is any ideal way of leading a human life that one can simply distill from an understanding of what it is to be a human being similar to how one can know what is to be a good knife through an understanding of what is to be a knife.

CONCEPTIONS OF THE PRUDENTIALLY GOOD

The question of what is involved in leading a good life is one of the oldest in philosophy. And although there are many different theories about what is good for people, there are two main traditions of thought on the issue running through the history of ethics. The first is hedonism, the theory that what ultimately makes up a good life is pleasure or enjoyment. The second is perfectionism, that what ultimately is good for a person is to flourish as a human being. Of course, these two traditions do not exhaust the possibilities, but they stand apart in sharing an important strength, namely that they do not simply list a handful of things that are supposed to be good; they also provide an underlying idea about the point of it all. In the case of hedonism there is the appealing thought that if something is to be good for people, then it must feel good to them. In the case of perfectionism, there is another appealing thought, namely that as a human being, one has certain potentials and that it is a waste of one's life if one does not realize them. These two lines of thought do however pull in opposite directions, the first in a subjective one and the second in an objective.

Although there were philosophical schools during antiquity that tended toward hedonism (the Epicureans and, more clearly, the Cyrenaics), perfectionism dominated ethics during that time. As already noted, there was a tendency during antiquity to use good attributively: To

lead a good life is to excel at being a human being. Thus, to understand what the good life consists in, one must understand what lies at the heart of a distinctly human existence. The standard answer was that the exercise of reason was what lifted humans above the level of animals. For instance, Aristotle argued that rational thought was the function, or characteristic activity, of human beings and that, therefore, it must define wherein our good lies.

There are certainly problems with perfectionism having to do with its objectivist slant (what if one really does not want to achieve their potential but do other things instead, where does their good lie?), but the most significant worry is a metaphysical one. Does not perfectionism require a teleological conception of human nature and has not such a conception been put to rest by science? There are modern attempts to address this issue, one of the more interesting being Alasdair MacIntyre's (1984) attempt to understand humans as social beings and partly derive the contents of a good life from the social practices in which humans are embedded; but this remains a difficult issue for perfectionists.

Hedonism, by contrast, had its most prominent exponents in British moral philosophy of the 1700s and the 1800s. Its most emphatic proponent was Jeremy Bentham, although the version that has generated most discussion is that of John Stuart Mill (1998), who argued that there is a qualitative dimension to be considered when judging the value of pleasures: The pleasures of poetry are superior to the pleasures of pushpins. This can thus be seen as an attempt at a hybrid theory, introducing perfectionist elements into hedonism. Hedonism of all forms is however plagued by problems that are rooted in its subjectivist nature.

Say that two people lead lives containing equal amounts of pleasure or enjoyment, but in one of them the pleasures are all based in the subject's delusions; in that case it seems fair to say that the other life is at least somewhat better. So even if pleasure is a very important good, it can reasonably be doubted whether it really is, as hedonists would have it, the only one. Although there are later hedonists, a good example being Fred Feldman (2004), trying to address these problems, the second half of the twentieth century has seen those philosophers who are drawn to subjectivist conceptions of the good life largely abandoning hedonism for theories that emphasize the fulfillment of our preferences instead: One leads a good life when what one wants is realized. This has the advantage of involving the way things really are, but it is accomplished at the cost of moving away from the emphasis on how things feel that provided such an attractive rationale for subjectivist theories to begin with.

CONCEPTIONS OF THE MORALLY GOOD

In antiquity the standard conception of being a good person was to have the four cardinal virtues: wisdom, justice, courage, and temperance. Philosophers tended to conform roughly to this view. Aristotle was a notable exception and presented an extensive list of virtues. His theory is also original in that while many place virtue and vice as opposite poles on a moral spectrum, Aristotle conceived of virtue as a mean lying between two vices, one of deficiency and one of excess. It should, however, be pointed out that even if the ancients tended to list a number of traits as constituents of moral goodness, a common idea among them was that of the unity of the virtues, that one either has all the virtues or none. This is a controversial idea because many would say that it is quite possible, for instance, to be courageous without being just. Adherents of the unity thesis would respond that persons cannot really be deemed courageous if they do not have a fair appreciation of what is at stake—and for that they need to have all the virtues. Terrorists might be prepared to sacrifice their lives, but that alone does not make them courageous.

Although there was a renewed interest in the virtues, particularly in Aristotelian virtue theory, toward the end of the twentieth century, modern philosophers have focused more on the question of which actions are right than on what constitutes a good person. Kantianism is probably the modern moral theory with the best articulated vision of moral goodness. For Kant it is the will rather than character that is the potential bearer of moral goodness. And whereas for Aristotle one cannot be a good person unless acting well comes naturally to them—indeed, he even thinks that it is a mark of good persons that they take pleasure in acting well—for Kant virtue is essentially about self-control, about having moral determination.

This does not preclude that one takes pleasure in acting well, but the true test of virtue occurs when things do not come naturally: Does one then still put morality above their own inclinations? Kant also sharply distinguished between the moral and the prudential. This is very common among modern philosophers, whereas ancient philosophers often saw the virtues as constitutive parts of the good life. This tendency has led some philosophers, such as Bernard Williams (1985), to question whether the idea of a sui generis category of the

moral is not a modern artifice, thus partially echoing Friedrich Nietzsche's complaints about how the evolution of morality has involved a turn from a positive striving after excellence to a negative, prohibitive ethic of self-diminishment.

ETHICAL THEORIES AND THE GOOD

A common way of distinguishing ethical theories (i.e., theories of what one ought to do) with respect to the role played by the good in them is into teleological and deontological. This distinction was introduced by J. H. Muirhead (1932). In teleological theories actions are right because of the way that they contribute to the good, either, as is the case in utilitarianism, because it contributes to the common good or, as is the case in self-realization theories like those of ancient virtue theorists or Hegelians such as F. H. Bradley (1927), because it contributes, or is at least ultimately connected to, the agent's flourishing. Deontologists reject this direct link between the right and the good. In its simplest form, exemplified by W. D. Ross (1930), a deontological theory simply consists in a set of moral rules that are to be obeyed. Indeed, one main worry, voiced by Muirhead as well as others such as J. J. C. Smart (1973), about deontological theories is precisely that they inculcate almost a form of blind rule worship: One just obeys certain rules because they are the rules one should obey.

As a general charge against deontological theories, this is unfair. There can still be an underlying rationale in terms of the good; it is just that it does not take such a direct form. The most sophisticated form of deontology is probably Kantian ethics and while it is true that moral rules are given another kind of justification in Kant (in terms of what reason demands of one as an agent), he does still provide a picture of the place of morality in the life of a human agent, namely that it is a condition of the value of one's well-being: If one is not moral, one cannot reasonably view one's self as worthy of happiness. And in liberal rights theory it is a common idea that the rationale for the basic principles of right is provided at least in part by the fact that there is such widespread disagreement about the good: In the face of such disagreement certain principles of right make sense because they enable people to live together and pursue their own private conceptions of the good. It might even be seen as a weakness of teleological theories that they require that a conception of the good be spelled out in order to make it possible to tell right actions from wrong ones. A variety of teleologists, especially in the utilitarian tradition, have of course proposed a number of such conceptions, but none of

them have won wide assent and there seems to be little reason to see such assent as forthcoming. In light of that, some might see deontology as a more viable approach.

See also Deontological Ethics; Ethical Naturalism; Intrinsic Value; Liberalism; Metaethics; Objectivity in Ethics; Teleological Ethics; Utilitarianism; Value and Valuation.

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Johan Brännmark (2005)

GOODMAN, NELSON
(1906–1998)

Nelson Goodman, the distinguished American philosopher of science and language, was born in Massachusetts in 1906. He received a bachelor of science degree from Harvard in 1928 and took his Ph.D. in philosophy there in 1941. After an instructorship at Tufts College (1945–1946), he was appointed associate professor at the University of Pennsylvania (1946–1951) and then professor (1951–1964). From 1964 to 1967 Goodman was the Harry Austryn Wolfson professor of philosophy at Brandeis University. In 1967 he became a professor of philosophy at Harvard. He died in 1998.

Goodman's delineations of certain strategic problems in epistemology, philosophy of science, and constructional methods, as well as the results of his own inquiries, are fundamental in the areas in which he worked. Specifically, these include theories of inductive logic or confirmation, problems concerning the nature of causal or lawlike regularity, theories of the structural or logical simplicity of theories, and constructions of linguistic systems within which philosophical problems may be solved, as well as theories of the adequacy or accuracy of such systems. Because of his achievements any further significant contributions to these areas may be expected to rest, in some measure, upon his work.

In this brief compass no attempt will be made either to give a comprehensive account of Goodman's ramified views or to rehearse in full detail any one of his major achievements. Instead, we will give an account of a few aspects of his major contributions in just sufficient detail to make their general import intelligible and to show something of their interconnections.

Our order of presentation of topics is quite independent of their chronology in Goodman's philosophical development. We begin with those of his important studies with which there appears to be widest familiarity.

INDUCTIVE THEORY

One of Goodman's characterizations of the task of inductive theory is that it consists in "formulating rules that define the difference between valid and invalid inductive inferences." On this usage a set of rules for discriminating valid acceptances or nonacceptances of hypotheses from those which are invalid constitutes an inductive theory, or, alternatively, a theory of confirmation or a theory of projection.

Goodman's contribution to the provision of such inductive canons has been threefold. First, he provided an analysis of the character of philosophical problems about induction. Second, he furnished a critique of the problems still to be solved and of the versions of confirmation theory which have been at all fully elaborated (notably those of Rudolf Carnap and Carl Gustav Hempel; see *Fact, Fiction and Forecast,* especially pp. 24–34, 48–51, and 68–86, and also the published exchanges between Carnap and Goodman to which reference is made on p. 86). Third, he made advances, explicitly in the form of a discussion of a *theory of projection,* toward the solution of some of the problems thus delineated. Where *induction* is construed narrowly as inference about future cases on the basis of examined cases, *projection* is, by contrast, inference about any unexamined cases on the basis of examined ones. We will consider each of these three aspects of his contribution in turn.

THE "PROBLEM OF INDUCTION." Goodman argues that the so-called problem of induction, when it is construed as the problem of *justifying* induction, is one that may be "dissolved" as soon as we see what is at issue. Moreover, this "dissolution" highlights all the more clearly the bona fide problem that he calls the new riddle of induction. As he sees it the problem is not to justify induction but to be able to distinguish valid from invalid inductions. On Goodman's view the dissolution of the *old* problem of induction, that is, of the problem of justifying induction, is accomplished when we come to understand that a genetic or descriptive account of our inductive behavior, such as the one that David Hume *almost* brought off, furnishes the basis of such a justification. That this is a cogent view, he points out, can be seen when we raise the question of justifying *deduction.* How do we justify a deductive inference? By showing that it conforms to specific logical rules of deduction. By the same token, an inductive inference can be justified by showing that it conforms to a specific rule of induction.

One may immediately ask, however, what justification we have for adopting a set of rules of induction as valid. Of course, the same question might be asked concerning a set of deductive rules. The answer may be indicated by furnishing a parable.

Consider the situation of an imaginary philosopher to whom we may give the name "Aristotle." Aristotle has a keen interest in the area of deductive inference. In this area, he finds that although there is *already* an established practice among humans of making deductive inferences and although there is *already* a practice of discriminating,

among ostensible inferences of this type, those that are correct from those that are not, nevertheless no one has yet made explicit or systematically codified the implicit rules upon which such discriminations appear to be based.

Our imaginary philosopher decides to undertake this task and eventually comes forward with such a codification. Using his codification people are enabled to make explicit their reasons for discriminating valid from invalid deductions by referring to the explicit rules that Aristotle has placed conveniently at hand. Of course no one would have paid any attention at all to these rules if they did not, with fair accuracy, reflect established practice—this is indeed what constitutes their validity as a set of rules. In the course of many years, however, other philosophers come forward to point out anomalies in Aristotle's set of rules. They point out that in certain cases some of his rules yield unacceptable inferences, and these philosophers suggest amendments which will remove the anomalies. When the amendments are incorporated they, in turn, have the effect of modifying practice. As Goodman puts it:

> [Deductive] inferences are justified by their conformity to valid general rules, and … general rules are justified by their conformity to valid inferences. But this circle is a virtuous one. The point is that rules and particular inferences alike are justified by being brought into agreement with each other. A rule is amended if it yields an inference we are unwilling to accept; an inference is rejected if it violates a rule we are unwilling to amend. The process of justification is the delicate one of making mutual adjustments between rules and accepted inferences." (*Fact, Fiction and Forecast,* p. 67)

If we return our attention to induction we see that an analogous situation obtains. Particular inductive inferences are justified by reference to rules of induction, and rules of induction are justified by reference to particular practices of inducing. Hume was on the right track in giving a descriptive account of inductive practice and in explicating rules of causal inference that he held to be in conformity with this practice. Those who have criticized him for this have been wrong.

We are thus quits with the old problem of induction, but the new, very formidable "riddle of induction" still remains. For although Hume was right in turning to description of actual practice, his description was insufficiently precise. He pointed out that observed regularities give rise to habits of expectation and that predictions based on such regularities are "normal or valid." But the defect in Hume's account, Goodman shows, lies in his failure to note "that some regularities do and some do not establish such habits; that predictions based on some regularities are valid while predictions based on other regularities are not. … To say that valid predictions are those based on past regularities is thus quite pointless" (ibid., pp. 81–82). Accordingly, the new riddle of induction consists in finding a set of rules of inductive logic that will do for us what Hume failed to do. Thus, the problem is not to justify induction but adequately to codify it. An adequate codification would presumably stand to inductive practice very much as the codification of deduction, accomplished by our mythical Aristotle, stood to deductive practice as described in our parable above. In particular, it would presumably consist of a set of rules the appeal to which would serve to validate specific acceptances or rejections of scientific hypotheses or theories.

CRITIQUE OF CONFIRMATION THEORY. In "The Problem of Counterfactual Conditionals" (reprinted without major change as Chapter 1 of *Fact, Fiction and Forecast*) Goodman was able to show that a solution to the problem of achieving an adequate interpretation of counterfactuals is intimately connected with many of the other crucial questions of the philosophy of science and that such a solution could be achieved only if various critical questions about the nature of scientific laws and of confirmation theory could be answered.

He shows, in particular, that the problem of furnishing adequate criteria for distinguishing true from false counterfactual conditionals has as a constituent the problem of adequately defining "scientific law," that this requires us to distinguish those hypotheses which are *confirmed* by their instances from those which are not, and that this, in turn, requires the fashioning of an adequate theory of confirmation. It is together the burden of the last part of "The Problem of Counterfactual Conditionals," of two brief articles on confirmation theory and of several passages in Chapter 3 of *Fact, Fiction and Forecast* that extant confirmation theories are defective, for they provide no means (except such as vitiate the theories through question-begging stipulations about what primitive predicates may be comprised in confirmable hypotheses) to distinguish the hypotheses to which such theories may be applied. Goodman, for example, points out that extant provisions of criteria for what constitutes a confirming instance in such defective theories either have the consequence that "any statement will confirm any statement" (ibid., p. 81) or make question-begging assumptions, mentioned before, about the recognizability

of "purely qualitative predicates" which are held to be the only permissible ones that may occur in (thus distinguishable) confirmable hypotheses. He shows, in short, that a desideratum of theories of confirmation is a definition of "confirmable hypothesis." In the final chapter of *Fact, Fiction and Forecast* he attempts to fill this need through advances on the problem of defining "projectible" as a predicate of hypotheses.

THEORY OF PROJECTION. In earlier discussions Goodman had shown that certain dispositional terms (other than *projectible*) may be adequately defined by *projecting* them over the extensions of (that is, by defining them in terms of) certain carefully specified nondispositional or *manifest* predicates. Such earlier successes provide important paradigms. If on their model the meaning of the term *projectible* can be clarified, it will be feasible to decide to which hypotheses the term applies, and a crucial desideratum of heretofore defective theories of confirmation will have been taken care of.

Inasmuch as the term *projectible* is itself a dispositional predicate we may expect that among the manifest predicates that will occur in any candidate definiens will be the *corresponding* manifest predicate: "projected." However, defining *projectible* in terms of "projected" offers some very special difficulties which do not arise in the case of many dispositional predicates. The predicate "projectible" is like "desirable." It is not the case that every hypothesis that has been actually projected ought to have been or ought to be projected. (A hypothesis is characterized as having been *actually projected* if "it is adopted after some of its instances have been examined and determined to be true, and before the rest have been examined"; ibid., p. 90.)

Goodman, perhaps unlike J. S. Mill in confronting "desirable" is explicitly aware of the trap, and although his task is thereby enormously complicated, he avoids falling into it. He proposes, eventually, an explication of "projectibility" that provides criteria for discriminating projectible hypotheses based on past projections and certain other characteristics of our actual linguistic habits. In particular, attention to actual projections of hypotheses enables Goodman to explicate a relevant sense of *projected predicate* (a predicate occurring in an actually projected hypothesis). This, in turn, leads to his explication of a concept that becomes pivotal to his theory of projection: the concept of "entrenchment"—more specifically, the concept "is a much better entrenched predicate than."

One predicate, *P,* is said by Goodman to be much better entrenched than another predicate, *Q,* if *P* and all

predicates coextensive with it have actually been projected much more often than *Q* and all predicates coextensive with it. Thus, take the predicate "grue" (which applies to any blue thing not examined before some time, *t,* and also to any thing examined before time *t* and found to be green). This "highly artificial" predicate, occurring in the hypothesis "The next emerald to be examined (after time *t*) will be grue" allows that hypothesis to be *equally highly evidenced* with the more usual "The next emerald to be examined (after time *t*) will be green." But hypotheses employing "grue" (or any term applicable to exactly the things "grue" is applicable to) have, nevertheless, been much less frequently projected (for example, used in making predictions) than have hypotheses using "green" (or any term applicable to exactly the things "green" is applicable to). This is part of the basis upon which "green" is judged a much better-entrenched predicate than is "grue"; and Goodman's theory attempts to show how, although they are equally well evidenced, hypotheses containing much better-entrenched predicates are to be preferred to ones that contain much less well-entrenched predicates. Goodman points out that when we speak of the entrenchment of predicates we are really speaking of the entrenchment of habits of classification. This is to say that talk of the entrenchment of predicates is, in effect, talk of the entrenchment of their extensions. And, a little later on, still referring to his elucidation of entrenchment, he says:

> Like Hume, we are appealing here to past recurrences, but to recurrences in the explicit use of terms as well as to recurrent features of what is observed. Somewhat like Kant, we are saying that inductive validity depends not only upon what is presented but also upon how it is organized; but the organization we point to is effected by the use of language and is not attributed to anything inevitable or immutable in the nature of human cognition. To speak very loosely, I might say that in answer to the question what distinguishes those recurrent features of experience that underlie valid projections from those that do not, I am suggesting that the former are those features for which we have adopted predicates that we have habitually projected. (Ibid., pp. 96–97)

The import of these considerations is that what constitutes a valid projection, and consequently what comes to constitute a projectible hypothesis, is a result of how we have, as a matter of fact, come to classify.

If Goodman's attempt to define "projectible" is successful, we have at hand the means of solving the problem of distinguishing confirmable from nonconfirmable hypotheses and thereby of surmounting a major obstacle in the way of providing a logic of induction.

These results of Goodman's—both the critique of extant theories and the positive proposals put forward in 1955 (ibid.)—are clearly still being digested by people in the field, if one may judge by the discussions of them that (ten years later) appeared in print with increasing frequency.

THEORY OF STRUCTURAL SIMPLICITY

An early version of Goodman's calculus of simplicity (later extensively modified) occurs in Part I, "On the Theory of Systems," of his first book, *The Structure of Appearance.* There the calculus is exclusively connected with considerations somewhat more general than those involved in, for example, assessing the simplicity of scientific theories. In *The Structure of Appearance* interest in simplicity is interest in the simplicity of the primitive predicate basis of *any* constructional system; that is, any constructed linguistic system or axiomatic system which makes explicit what are the primitive (that is, the undefined) terms of the system. The main general problem that Goodman addresses is that of delineating criteria of adequacy for constructional systems generally, rather than for scientific theories in particular. For the constructor of such systems this problem is often posed—in part, at least—as the problem of choice among alternative primitive predicate bases. In choosing a primitive basis such considerations as antecedent clarity and "defining power" are obviously to be taken into account, but Goodman shows that the simplicity—the structural or logical simplicity—of such bases, is also an at least equally important consideration.

In his later writings on the subject (particularly in "The Test of Simplicity" and *Fact, Fiction and Forecast*) Goodman also made clear the relationship of measures of simplicity to the philosophy of science. He maintains that simplicity is a primary consideration guiding choices among scientific theories or systems of hypotheses. It is a mistake to believe that simplicity becomes a factor only after we have first sought a true system and then turn to matters of elegance. He maintains that, on the contrary, our concern with simplicity is an inevitable concomitant of our concern with system. For, he points out, we achieve systematization only to the extent that the basic vocabulary and principles we employ in dealing with some subject matter come to be simplified. The important thing to note is that "when simplicity of basis vanishes to zero—that is, when no term or principle is derived from any of the others—system also vanishes to zero. Systematization is the same thing as simplification of basis" ("The Test of Simplicity," p. 1064).

Goodman finds the key to the problem of measuring the structural simplicity of predicate bases in a "meagre and negative" but highly plausible principle: "If every basis like a given one can always be replaced by some basis like a second, then the first is not more complex than the second" (ibid., p. 1066). The relation "always replaceable by" between predicate bases holds in cases where the replacement is a matter of a purely routine procedure that can always be applied (presumably, for example, in case there is available some *decision procedure* for determining replaceability). Employing this key principle and some results in the theory of relations. Goodman provides a means of effecting the requisite measures. The *calculus of simplicity* is applicable only to theories that have been at least sufficiently formalized to enable discrimination of their primitive predicates. Its applicability (for example, as a factor in assessing the acceptability of some scientific theory) is thus severely limited for the present by the paucity of scientific theories that have reached this stage of formalization. On the other hand, this situation would be importantly alleviated if some means could be found either to bring more such theories to the requisite stage of formalization or to modify the calculus in such a way that useful applications of it may be made even to less fully formalized systems.

For the time being, applications of the simplicity measures may, however, be made to constructional systems devised for purposes of philosophical explication (for example, see Goodman's own system in *The Structure of Appearance*).

CONSTRUCTIONALISM

Whatever its importance for both philosophy of science and constructional methods, furnishing a way of measuring the simplicity of bases of any constructed systems by no means represents Goodman's only contribution to constructional methods. The first three chapters of *The Structure of Appearance* (for example) provide also a discussion of the problem of assessing the adequacy and the accuracy of definitional systems. Here an especially significant discussion (for example, in Ch. 1) provides both an illuminating critique of criteria which in the past have been adduced for assessing such systems and a newly developed criterion, *extensional isomorphism,* for assessing the *accuracy* of such systems. The development of this

criterion throws new light on the entire program of philosophical or logical analysis.

Although full elucidation of the criterion is beyond the scope of the present entry, some general inkling of its import may perhaps be conveyed by pointing out some of its differences from some of the criteria which have been previously offered for the adequacy of philosophical analyses. It has long been recognized that full synonymy of analysandum (the concept or term being subjected to philosophical analysis) and analysans (the concept or term constituting the product of the analysis) is too strong a requirement. Accordingly, weaker criteria (for example, *intensional identity* or *extensional identity* of analysandum and analysans) have been proposed. In *The Structure of Appearance* Goodman argues that even the weakest of these—extensional identity—is too strong a requirement to place on tasks of analysis, for none can totally fulfill such a condition. He proposes instead a criterion that does not "square" an analysandum with its analysans in any one-to-one fashion but rather tests the whole *system* of concepts to which the analysandum belongs against the whole newly constructed system to which the analysans belongs. The meeting of specified and relatively weak extensional correspondences between two such systems is sufficient—and indeed is the most that can cogently be required—to warrant the accuracy of the analysis.

The discussions of new constructional methods in the first chapter of *The Structure of Appearance* and the presentation of a version of the calculus of individuals which had been developed by H. S. Leonard and Goodman (in "The Calculus of Individuals and Its Uses") are well supplemented by the specific application of these and other devices to a detailed critique of Carnap's *Der logische Aufbau der Welt* (in Ch. 5). An important application is also provided by the construction (in Chs. 6–11) of his own systematic explication of phenomenal concepts or predicates.

PHENOMENALISM AND NOMINALISM

Goodman's actual work upon, and his defenses of work upon, phenomenalistic systems lead many observers to conclude that he subscribes to phenomenalism as a philosophical position. The fact is, however, that he wrote in full and explicit detail about the relative unimportance and the opacity of questions about the epistemological priority of the phenomenal (and "rival," for example, physicalistic) systems, and there seems to be no good reason to doubt the sincerity of his disavowals of that kind of philosophical commitment. (See *The Structure of Appearance,* Ch. 4 and passim, and "The Revision of Philosophy.") All of this is notwithstanding the fact that he made contributions to the solution of many very complex problems that are involved in the construction of a phenomenalistic system.

If phenomenalism represented, for him, no particular philosophical commitment, *nominalism,* on the other hand, surely did. His major writings on this topic (in his and W. V. Quine's "Steps Toward a Constructive Nominalism" and in his *The Structure of Appearance; Fact, Fiction and Forecast;* and "A World of Individuals") obviously constitute a fundamental philosophical conviction. Although Goodman's and Quine's nominalism coincide importantly (for example, in their mutual rejection of classes, see "Steps toward a Constructive Nominalism"—but note, however, that in later writings Quine appears no longer to embrace such views) it should nevertheless be observed that their nominalistic positions are quite disparate. Thus, Quine apparently rejects, so to speak, classes on account of their being abstract entities; whereas Goodman rejects, so to speak, classes not on account of their being abstract entities (his system in *Structure,* indeed, refers to abstract entities categorematically) but rather on account of their being *nonindividuals.* It is the notion of a *nonindividual* that Goodman finds unintelligible, and he is conscientious in avoiding any philosophical or logical method which presupposes or extorts the claim that there exist any nonindividuals. The consequent austerity in bases chosen and logical tools available to him have had, in fact, fruitful results in eliciting complex, ingenious, and far-reaching techniques or methods of constructional analysis.

We have indicated that there are differences between what might be called G-nominalism (Goodman's position)—the view, on the one hand, that there are no nonindividuals—and the position that might be called Q-nominalism—the view that there are no abstract entities, on the other. While it would, again, be beyond the scope of this entry to give a detailed account of G-nominalism, it may yet be illuminating to remind the reader that Goodman himself characterized his position as a sort of "super-extensionalism." The usual or classical extensionalist position prohibited some otherwise indiscriminate multiplication of entities by imposing a principle to the effect that two entities (say, two classes) that have, so to speak, the same proximate constituents are identical. G-nominalism goes further; it imposes the condition that any two things which have the same systematically *ultimate* constituents are identical.

Thus, consider the systematic atoms (things not having anything else in the system as possible constituents) *a, b, c,* and *d.* Suppose in a (classically) extensional system *A* we discriminated the classes of pairs {*a,c*} and {*b,d*}, and suppose in system *B* we discriminated the classes {*a,b*} and {*c,d*}. For classical extensionalism, systems *A* and *B* would *not* be identical; that is, the proximate constituents—the two classes of pairs—are different, and hence the world's population on this account is increased by two more classes. The G-nominalist, however, has a stronger condition for diversity. For him there are not, say, the eight different entities consisting of the four atoms and the four classes of pairs of them. Rather, there are only four entities—the ultimate atoms of the system themselves. The cogency of this view is argued with great vigor and clarity in "A World of Individuals."

WORK IN PROGRESS

Goodman's interest appears to be an analysis of representationalism in a very broad sense of this concept taken presystematically. Thus, the focus of his attention is not only upon representation as a phenomenon involving, for example, paintings in aesthetics but also upon the representational aspects or functions of maps, graphs, musical scores, and choreographic notations, and, in addition, theories and other descriptions. His deep and abiding interest in this topic is evidenced too as a recurrent thread in many of his works, from very early ones on. The articles in which this concern is most obviously expressed are "On Likeness of Meaning," "Sense and Certainty," "The Way the World Is," and "About." The concern is also dominantly present in his John Locke lectures (given at Oxford in 1962), published as *The Languages of Art.*

See also Aesthetics, History of; Aesthetics, Problems of; Aristotle; Carnap, Rudolf; Counterfactuals; Hempel, Carl Gustav; Hume, David; Induction; Kant, Immanuel; Mill, John Stuart; Nominalism, Modern; Phenomenalism; Philosophy of Science, Problems of; Projectivism; Quine, Willard Van Orman.

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GOODMAN, NELSON [ADDENDUM]

Nelson Goodman (1906–1998) was one of the foremost philosophers of the twentieth century. His works reshaped epistemology, metaphysics, and the philosophy of art. *The Structure of Appearance* (1977), which grew out of his PhD dissertation, shows how to construct interpreted formal systems that solve or dissolve long-standing epistemological and metaphysical problems. *Fact, Fiction, and Forecast* (1983) poses the new riddle of induction and proposes a solution to it, arguing that to block the inference to "All emeralds are grue," one must consider the ways terms have been inductively used in the past. *Languages of Art* (1976) reconceives aesthetics, construing it as a branch of epistemology. It is tempting to say that Goodman worked in diverse branches of philosophy. A more accurate claim would be that he focused on issues that cut across philosophy, showing that the branches are not so diverse as they sometimes seem.

Goodman attended Harvard University both as an undergraduate and as a graduate student. During graduate school, he supported himself by running an art gallery in Boston. He spent most of his academic life as professor

of philosophy at the University of Pennsylvania. For the final decade of his teaching career he was professor of philosophy at Harvard, where he founded Project Zero, an ongoing research program in arts education, and the Harvard Summer Dance Program. He was an avid, eclectic collector of art.

MEANING

In the late 1940s, Goodman, W. V. Quine, and Morton White wrote a series of papers repudiating the analytic/synthetic distinction. Goodman's target is synonymy. He contends that synonymy requires that terms agree in primary extension and all parallel secondary extensions, where the secondary extension of a term is the extension of a compound containing that term. Although "unicorn" and "centaur" have the same (null) primary extension, because compounds such as "unicorn picture" and "centaur picture" differ in extension—because, that is, not all unicorn pictures are centaur pictures—"unicorn" and "centaur" differ in meaning. This fits human intuitions. But even seemingly synonymous terms differ in meaning according to Goodman's criterion. Although "spine" and "backbone" seem synonymous, one can readily contrive a spine description that is not a backbone description—for example, "spine that is not a backbone." In general, "*p* that is not a *q*" is a *p*-description but not a *q*-description. Such an all-purpose device for generating differences in meaning might seem illegitimate. Even if a person were to exclude its deliverances, the pictures and descriptions that belong to a secondary extension of one but not both of a pair of coextensive terms are easily found. The vast majority of apparently synonymous terms fail to satisfy Goodman's criterion. Although Goodman does not argue for his criterion, its justification is evident. Synonymous terms should be intersubstitutable in fiction and in statements of fact. Because nothing should count as a representation of the referent of the one that is not a representation of the referent of the other, divergence in the classifications of the descriptions or pictures marks a divergence in meaning.

Secondary extensions do more than discredit synonymy; they provide resources for recognizing degrees and kinds of likeness of meaning. To do this, one must limit focus. If, within a restricted range, all parallel compounds of a pair of coextensive terms are coextensive, the meanings of the coextensive terms agree within that range. The terms then may be alike enough in meaning to be intersubstitutable within that range, even if their meanings diverge elsewhere. If in medical discourse all and only instances of "spine representation" are instances

of "backbone representation," then "spine" and "backbone" may be sufficiently similar in meaning to be intersubstitutable in purely medical contexts. If most parallel compounds are coextensive, or most important parallel compounds are coextensive, terms may be sufficiently similar in meaning to justify substituting one for the other. In place of a rigid, context-indifferent criterion of synonymy, Goodman provides a flexible, context-sensitive criterion of likeness of meaning (Goodman 1972, pp. 221–238).

The analytic/synthetic distinction is not unique. Other familiar dualisms—essence/accident, scheme/content, necessity/contingency, and the like—are vulnerable to similar objections. All must be rejected, Goodman, Quine, and White believe. Unlike Quine, Goodman devotes little subsequent effort to arguing against the dualisms. He simply jettisons them and does philosophy without them. He considers the demise of the dualisms not to deprive philosophy of resources, but to liberate it from unwarranted restrictions. Perhaps surprisingly, he finds that the rejection of the dualisms fosters progress in aesthetics.

ART

Goodman's trailblazing *Languages of Art* reorients aesthetics. Active engagement, rather than passive contemplation, marks the aesthetic attitude. Goodman believes that the arts function cognitively. He thus construes aesthetics as a branch of epistemology whose task is to explain how and what the arts contribute to cognition. The plausibility of such a position obviously depends both on the nature of art and the nature of cognition. If the cognitive function of art is simply to transfer information to passive receivers, resemblance might be the mechanism. Then works resemble their subjects and convey information about how their subjects appear.

There are, however, seemingly insuperable objections to such a position. At best it works only for representational art. Music, abstract painting, and architecture would not be accommodated under such an account. Nor can it feasibly accommodate anything except realistic works. Neither cartoons nor cubist portraits much resemble their subjects. Indeed, Goodman argues that the account does not even accommodate realistic works. The cognitive contribution of a painting could be to convey the way its subject looks only if there were such a thing to convey. Any thing looks many ways, and looks different ways to different people. A subject then has no canonical look that its painting, to be accurate, ought to convey. Moreover, some realistic pictures have fictive subjects—

unicorns, griffins, and the like. Clearly they do not resemble their subjects, because there are no unicorns or griffins to resemble. Nonetheless, one can readily interpret such pictures, recognize what they are of, and gain insights from them.

The problem, Goodman believes, is that the proposal rests on misunderstandings both of art and of cognition. Contrary to what classical empiricists thought, the mind is not passive in the reception of sensations. It actively searches, seeks, selects, and finds. Nor should works of art be construed as mere sensory surfaces. Rather, Goodman maintains, they are symbols with determinate syntactic and semantic properties. Art advances understanding and affords insight in much the way language does. Like linguistic symbols, the symbols that constitute a work of art require interpretation, and the symbol systems to which the works belong need to be learned. In *Languages of Art* Goodman develops a taxonomy of symbol systems used in the arts and elsewhere, detailing their powers and limitations.

Two modes of reference are basic. Denotation links names to bearers, predicates to instances, representations to the things they represent. "George Washington," "the first U.S. president," the figure on the U.S. dollar bill, and the Gilbert Stuart portrait all denote Washington. In exemplification, a symbol points up—hence refers to—properties it serves as a sample of. A fabric swatch exemplifies its pattern; a Mondrian painting, squareness; a blood test, the presence of antibodies. Ubiquitous in art, exemplification is also widespread in science, advertising … indeed anywhere people adduce samples and examples (Goodman 1976).

Reference need not be literal. Metaphorical reference, Goodman maintains, is real reference; metaphorical truth, real truth. "Bulldog" genuinely, albeit metaphorically, denotes Churchill. "Churchill is a bulldog" is genuinely, although not literally, true. Michelangelo's *Moses* genuinely, albeit metaphorically, exemplifies rage. Expression is metaphorical exemplification by a work of art functioning as such. *Moses* thus expresses the rage it metaphorically exemplifies (Goodman 1976, 1984).

Some reference is complex. In allusion, a referential chain composed of denotational and exemplificational links connects a symbol to its referent (Goodman 1984). Two chains figure in variation, one exemplifying features a variation shares with its theme, the other exemplifying features that contrast with the theme (Goodman and Elgin 1988).

Scientific symbols, Goodman maintains, are relatively attenuated, aesthetic symbols relatively replete. A scientific symbol is normally univocal, its full referential import readily apparent. An aesthetic symbol may bear multiple correct interpretations and symbolize along several dimensions simultaneously. Exactly what it symbolizes may never be settled. The same item may qualify as a symbol of either kind, depending on how it functions. So "When is art?" not "What is art?" is the crucial question. When, how, and to what effect does a symbol function aesthetically (Goodman 1978)?

Art advances understanding, not only because interpretation is a cognitive process. Encounters with art afford insights that extend beyond the aesthetic realm; discoveries made, orientations adopted, and patterns discerned in aesthetic contexts transfer and make sense of other aspects of experience; emotion transform from ends to means. The emotional reactions a work evokes are not ends in themselves but means of understanding the work and the light it sheds on other aspects of human experience.

WORLDMAKING

In *Ways of Worldmaking* (1978), Goodman returns to constructionalist themes first explored in *The Structure of Appearance*. Worlds, he contends, are made, not found. Because the elements of any group are alike in some respects and different in others, mere examination will not reveal whether two manifestations are of the same thing, or two things of the same kind. To settle such matters requires criteria of individuation and classification. Category schemes supply them. But category schemes are human constructs. In devising them, people demarcate the individuals and kinds that make up a world. Different demarcations yield divergent, but equally tenable world versions. One might characterize light as a stream of particles; another, as a sequence of waves. Each may be right relative to its own world-version, wrong relative to its rival's. Neither is right or wrong absolutely.

If overlapping world-versions all supervened on a single base, such differences would be ontologically innocuous. But world-versions do not supervene on a single basis. A physicalist version, for example, neither supervenes on nor underlies a phenomenalist version. Nor does any neutral version underlie them both. Because people can and do construct multiple, individually adequate but irreconcilable world-versions, there are, Goodman concludes many worlds, if any (Goodman 1978).

Worldmaking is not always deliberate. In *Ways of Worldmaking*, Goodman analyzes a series of psychological experiments and shows how, with only sparse cues, the visual system constructs the apparent motion it detects (Goodman 1978). Nor is worldmaking always discursive. Nonverbal schemes structure things in ways no description precisely captures. The arts as well as the sciences construct viable world-versions.

Despite Goodman's recognition of multiple ways of worldmaking and multiple worlds made, he does not contend that every version makes a world. Only right versions do. Rightness does not reduce to truth, for some truths are wrong, some falsehoods right, and some symbols right though neither true nor false. Rightness involves fitting and working—fitting with past cognitive practice and working to promote cognitive ends. Consistency, cogency, projectibility, and fairness of sample figure in the rightness of tenable world versions (Goodman 1978, Goodman and Elgin 1988).

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GORGIAS OF LEONTINI
(c. 485–c. 380 BCE)

Gorgias of Leontini (in Sicily) was a leading Greek rhetorician and Sophist of the fifth century BCE. He came to Athens on an diplomatic mission on behalf of Leontini in 427 B.C.E. and made an enormous personal success, delivering public orations as well as his official speech. He also toured the Greek cities as a celebrated teacher and public speaker, giving orations at the Olympic and Pythian games. Ancient sources associate him with the philosopher Empedocles (who may have been his teacher) and the rhetorician Isocrates (possibly his pupil). In addition to various sayings and fragments, three complete works by Gorgias have survived: *Encomium of Helen*, *Defense of Palamedes*, and *On Not Being or On Nature*. Gorgias is also depicted as a character in Plato's *Gorgias*, though how much evidence we can extract from this for his ideas or character is unclear. Whether Gorgias should be counted as a sophist is debatable. He was first and foremost a rhetorician, a teacher of public speaking, whereas the central subject of sophistic teaching was virtue. But the distinction was somewhat blurred, and Gorgias's ideas clearly belong to the sophistic movement, broadly construed.

Gorgias was not the first professional rhetorician; but his style was novel, and he was later seen as the real founder of the discipline. His language was notoriously elaborate, with a heavy use of antithesis and alliteration (see especially the *Helen* and the fragmentary *Funeral Oration*). At the same time, he specialized in improvisation: he would offer to answer any question posed by his audience or to speak extemporaneously on a suggested topic. He seems to have understood rhetoric as an all-powerful, value-neutral art (*technē*), consisting in a set of verbal techniques for the manipulation of an audience. As Plato reports it, he claimed that the art of persuasion was superior to all others because it enslaves all the rest—not by force, but with their own consent (*Philebus* 58a–b). Plato's *Gorgias* presents Gorgias as a genial, self-satisfied old gentleman, basically unreflective and blind to the morally problematic nature of such a craft. Plato's *Meno* also provides some intriguing scraps of information about Gorgias (who was Meno's teacher): he (a) disclaimed the teaching of virtue (95c), (b) held scientific

views, including a theory of how vision takes place (76c–d), and (c) held that the virtue of each kind of person (man, woman, child, slave, and so on) is different (71c–2b), suggesting that he may have advocated definition by an enumeration of species, in opposition to the Socratic search for a common denominator.

Of Gorgias's surviving works, the *Palamedes* is notable as an example of the rhetorical genre of *epideixis*: a set-piece speech presented as an advertisement, and perhaps used as a template for students to study. It argues on the basis of probability (*to eikos*), a characteristic rhetorical form of argument. Gorgias's other two surviving speeches might also have served as *epideixeis*: the sophists were traditionally described (for example, in Aristophanes' *Clouds*) as "making the weaker argument the stronger," and it is hard to think of a better way to display that skill than by proving that Helen of Troy was blameless (the *Helen*) or that nothing exists (*On Not Being*). But these texts are also more ambitious and philosophically interesting.

Gorgias's *Encomium of Helen* undertakes to free Helen of Troy from blame for having abandoned her husband for the Trojan prince Paris, triggering the Trojan War. His method is argument by the exhaustion of alternatives. Helen's action must have been caused either by fate, necessity and the will of the Gods, by force, by persuasion, or by erotic love. That an action caused by the force of another person cannot be blamed is hard to deny; Gorgias's strategy is to assimilate the other possible causes to cases of force. Divine forces are stronger than human will, so if Helen's action was caused by them she cannot be blamed. As for persuasion, Gorgias here launches into a hymn to the powers of speech (*logos*)—a passage that is outsized relative to the whole and may well give away the real purpose of the *Encomium*. *Logos*, he says, is a "mighty ruler," and though a small body it controls the actions of many larger ones. (Gorgias seems to assume a scientific account of speech as composed of tiny sound particles that physically enter the audience's body through sensory pores—as in Plato, *Meno* 76c–d.) Speech is to souls as drugs are to bodies, causing involuntary reactions: So persuasion is a kind of compulsion. What gives *logos* this power is, somehow, the reliance of the human mind on fallible opinion (*doxa*), which is necessitated by our limited access to the truth. Finally, *eros* is assimilated to involuntary perceptual reactions. We cannot help the way things appear to us: some sights terrify, others seduce, and actions driven by such reflexes are again compulsory.

The quality of argumentation in the *Helen* is inevitably uneven, but its ingenuity is remarkable. The upshot of the argument as a whole is much debated. The causes of action itemized by Gorgias, such as fate and the way things appear to us, are extremely general and able to cause a wide range of our actions. So the upshot seems to be that any one of our actions would appear as involuntary, if only its causal origins were known in full—a claim that still figures in arguments about determinism and free will.

But this claim is far from explicit in Gorgias's text. To complicate matters, Gorgias opens the speech by saying that the "adornment" (the virtue or best state) of a speech is truth; but he closes by describing the encomium as "a plaything for myself." This playful, self-subverting presentation leaves us to judge the arguments and their implications for ourselves. If anything about the *Helen* is unequivocally serious, it is the miniencomium to *logos*, with its conception of language as an instrument of manipulation, a conception the *Helen* itself aims to display.

The *On Not Being* has a complex structure, comprising three parts: Part I argues that nothing exists, Part II that if anything did exist we could not know it, and Part III that even if something existed and we could know it, we could not communicate it to one another. (In summarizing, I will freely combine points from the two somewhat garbled versions of the text that have come down to us: One is in the pseudo-Aristotelian *On Melissus, Xenophanes and Gorgias (MXG)*, the other in Sextus Empiricus, *Adversus Mathematicos* VII. The two differ substantially in places and neither can be exactly what Gorgias wrote.) Part I argues by the exhaustion of alternatives: for instance, Being (or "what is" or "the existent") must be eternal or generated or both, but each option leads to an impossibility; similarly, if Being exists, it must be either one or many, but each is argued to be impossible. Part II argues that things thought are not existent, and that, therefore, Being is not thought. Here Gorgias raises the perennial philosophical problem of reference to nonexistent objects: We can think of a man flying or chariots running over the sea, but it does not follow that any such things exist. Gorgias seems to infer, fallaciously, that existent things and objects of thought differ in the sense that nothing can be both. But perhaps his real point is just that thoughts and their objects are different in kind, and the connections between them are unreliable: contra both Parmenides and Protagoras, we can and do think what is not (Caston 2002). (The very obscure fragmentary saying

of Gorgias on being and seeming, DKB26, must be relevant here, but it is difficult to say what it adds.)

Part III of the *ONB* deals with language, and as with the *Helen*, we may here approach the real point of the exercise. Gorgias argues that just as sight and hearing have their own proper contents (colors, sounds), so speech is of words, which are different from sensory contents and from the things themselves. So how can speech make clear things different from itself? How can it reveal objects or sensations we are not already familiar with? And how can the same thought be shared by two different people?

The *ONB* has often been read as a parody of Parmenidean philosophy. There are clear echoes of certain arguments made by Parmenides and the other Eleatics, particularly in Part I. And the overall upshot of the *ONB* is, as Kerferd (1981) has noted, to sunder three things that Parmenides had argued must coincide: what is, what can be thought, and what can be spoken. The question, then, is whether the *ONB* is merely satirical, both satirical and serious (cf. DK82B12) but purely negative and critical, or intended as positive doctrine in its own right. As positive doctrine it seems to be self-refuting. Nevertheless, scholars have attempted to find interpretations of its conclusions which lend them some plausibility. Mourelatos (1987) has noted that Part III can be read as arguing for conclusions that complement those of the *Helen*. Language cannot communicate either the natures of things or the thoughts of the speaker; the remaining possibility is that it is to be understood not as a system of representations but simply as an instrument of behavioral manipulation. Alternatively, Parts II and III could perhaps be read as arguing only that mental and linguistic items are by nature distinct and different in kind from their referents (and from each other), and, therefore, are inherently fallible and defective in representing them.

Parts II and III are also often likened to Protagorean relativism as presented in Plato's *Theaetetus*, our other most important source for sophistic epistemology. However, the two positions are very different. There is nothing relativistic about Gorgias's conclusions; moreover Gorgias in effect denies the possibility of *true* opinion and speech, whereas for Protagoras their *falsity* is impossible. Nevertheless, there is a family resemblance insofar as both can be read as essentially critical positions. They repudiate the metaphysical ambitions of philosophers like Parmenides, denying the possibility of a knowledge distinct from opinion and a reality distinct from appearance.

See also Parmenides of Elea; Protagoras of Abdera; Sophists.

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GOTTSCHED, JOHANN CHRISTOPH
(1700–1766)

Philosopher, literary critic, and theoretician, Johann Christoph Gottsched was Christian Wolff's disciple and one of the architects of the German Aufklärung. Particularly conscious of Germany's cultural shortcomings, compared to France and England, Gottsched worked vigorously to reform German theater and poetry. Taking the ancients (Aristotle, Horace) as models, but also the French "Grand Siècle" (Racine, Molière, Boileau) and some few national examples (such as Martin Opitz), he wrote his *Versuch einer Critischen Dichtkunst* (1729, but often reedited until 1751) as a normative poetic theory destined to help form the taste of German writers and public alike. Gottsched's project, however, did not reduce

itself to this pedagogical goal: His poetics was meant to ground the rules of poetic taste on systematic philosophical foundations inherited for the most part from Gottfried Leibniz and Christian von Wolff. He saw it as imperative for both the philosopher and the serious poet that they know not merely the rules inherited from antiquity and French classicism, but that they also understand the reason underlying these rules. For Gottsched, criticism was a philosophical task, a part of Wolffian rationalism. In this sense, the *Critische Dichtkunst* prefigured the new aesthetical science set forth by Baumgarten a few years later.

Gottsched's theoretical positions are utterly rationalist. In keeping with Wolff and Leibniz, he conceives beauty as the clear yet conceptually indistinct representation of a perfection in an object—whether this object is natural, technical, or the result of poetic imagination. Being the perception of a perfection, the apprehension of beauty is accompanied by pleasure. Gottsched therefore rejects the subjective account of beauty: Aesthetic pleasure reduces itself to the perception of a perfection, the components of which could be made explicit. In other words, this perception could lead to rational knowledge and could thus be reduced to knowable rules. Every category of beauty, and every type of poetic or artistic beauty, rests on specific rules (those of architecture, of music, of painting, of tragedy, of epic) that nonetheless share some common fundamentals, namely, the notions of order, proportion, correlation between the parts and the whole, and the appropriateness of the rules to the specific function of the object.

The rules of poetry and liberal arts are therefore neither subjective nor variable; they are brought out by the best specialists of each domain and confirmed by experience and reflection. In this context, aesthetic taste depends on understanding as it judges the sensation of a beautiful thing. Good taste (that is, correct taste) consists, according to Gottsched, of "judging adequately, from a simple sensation, of the beauty of a thing for which we lack clear and distinct knowledge." This knowledge is "indistinct" because the person for whom this thing is pleasing is incapable of explaining the causes of the pleasure. Here, Gottsched's rationalism almost forces him into a contradiction: If taste is an indistinct judgment, does its improvement—which is the avowed goal of Gottsched's normative poetics—lead to the development and enrichment of aesthetic sensibility or does it rather perfect judgment and, hence, dissolve taste into knowledge? Only with Baumgarten's *Aesthetica*, and its notion of sensible

knowledge, will this problem, inherent to any aesthetic rationalism, find a credible answer.

In his analysis of the "poet's character," Gottsched applies the Wolffian theory of the mind's faculties to Boileau's classic conception of poetic production. For Gottsched, the "divine gift" traditionally attributed to the poet comes down to having a natural disposition for poetic imitation. Among the faculties the poet must have, wit (*ingenium, Witz*), or the capacity to easily perceive similarities between things, is the most important. But the mind must also be supported by a strong power of imagination, which Gottsched understands as the power to reproduce concepts we have already had on the occasion of present sensations and on the basis of the principle of resemblance, and perspicacity, which consists in perceiving nuances and differences within things.

Merely having these faculties, however, is insufficient: They must be the object of education. Moreover, imagination, perspicacity, and wit are not the poet's or the artist's only requisite talents; art (all the disciplines pertaining to the practice of a particular art), erudition (mythology, history, geography) and a profound knowledge of human psychology are also necessary to the artist's character. He must also develop his judgment (*Beurteilungskraft*), which serves reason as an instrument to control an overheated imagination; judgment keeps wit within the limits of verisimilitude and the natural. Finally, the poet's character rests on an honest and virtuous disposition of the mind that depicts morally wrong actions as ugly and revolting. On this issue, Gottsched's aesthetics concurs with one of the central tenets of the *Aufklärung*, which holds, drawing from a conception leading back to Horace, that poetry's mission is to please while providing moral instruction.

Even if imitation is the essence of poetry, the fable constitutes its "soul." There are three degrees of poetic imitation: the vivid portrayal of natural things, the imitation of characters, sentiments, and human passions, and the plot or "fable" (*Fabel*). Referring to Leibnizian metaphysics, Gottsched describes the fable as the tale of an event, rich in moral truth, that did not really happen but that could have taken place in some possible world. Poetic fiction is the "history of another world" that must nonetheless be submitted to the principle of verisimilitude, which Gottsched defines as concordance with the general order of nature. Ensues a tension between two principles, that of the fabulous (which satisfies the taste for novelty, strangeness, and remarkableness, but risks lapsing into the unconceivable and extravagant) and of

verisimilitude, on which rests poetry's credibility and its capacity to serve a morally edifying function.

Attempting to give more importance to the freedom of creative imagination, Swiss critics Johann Jakob Bodmer (*Critische Abhandlung von dem Wunderbaren in der Poesie*, 1740) and Johann Jakob Breitinger (*Critische Dichtkunst*, 1740) distanced themselves from Gottsched on this issue. Mobilizing Milton's *Paradise Lost* and Pseudo-Longinus' treatise on the sublime as guides for their reflection, they aimed to encourage the fabulous in poetry and to grant a certain autonomy to the "truth of imagination" vis-à-vis the "truth of understanding."

See also Aesthetics, History of; Aristotle; Baumgarten, Alexander Gottlieb; Boileau, Nicolas; Leibniz, Gottfried Wilhelm; Longinus (Pseudo); Milton, John; Wolff, Christian.

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Daniel Dumouchel (2005)

GOURNAY, MARIE LE JARS DE
(1565–1645)

Marie le Jars de Gournay was the editor of the first complete text of Michel Eyquem de Montaigne's *Essais*; author of feminist, moral, and religious tracts; and a literary writer and theorist. Born into an aristocratic family in Paris, she mastered Latin and translated Diogenes Laertius's *Life of Socrates* in her youth. At eighteen or nineteen, having read with enthusiasm Montaigne's *Essais,* books 1 and 2, she met with the author, which inspired her novel. Their friendship led to her becoming his "adopted daughter," which, in the sixteenth century, implied a literary partnership. Thus, in 1594, Montaigne's widow sent her the final manuscript of his *Essais,* which Gournay edited, later annotated, and published, together with a long "Préface," in 1595.

The "Préface" attempts to defend Montaigne against the main criticisms advanced by his contemporaries: (1) Against the charge that his Latinisms and neologisms did harm to the French language, Gournay stressed the importance of Montaigne's usages. Gournay would later make a name for herself as the protectoress of ancient French words and would defend the innovative, metaphorical use of language against Malherbe and other moderns. (2) In response to Dominique Baudius's and Étienne Pasquier's claim that Montaigne's frank discussion of love was indecent, a point Blaise Pascal would later take up, Gournay argued that the ancients rightly took such discussion as a prerequisite for the self-knowledge needed for virtue. (3) The charge of philosophical obscurity was countered with a skeptical attack against the critics' capacity for judgment: "The gift of judgment is the thing in the world that men possess in more varied proportion." (4) Gournay defended Montaigne's digressive style against the objection that it precluded treating a topic thoroughly and evidenced a lack of method. Since Gournay and Montaigne were steeped in skepticism, Gournay could hardly imagine Montaigne producing rigorous, linear proofs. (5) The accusation of heresy, leveled especially at the "Apologie de Raymond Sebond," was the criticism Gournay was most anxious to refute. Her defense of Montaigne's religious orthodoxy is of particular interest, since it rests on one of the clearer statements that we have of his fideism—a doctrine that she shared: "Who, likewise, could tolerate these new Titans of our century, these scalers of the heavens, who think that they will manage to know God by their own means?" "Judgment alone puts us in direct possession of God: which is to know nothing of Him and to worship Him on the basis of faith." (6) Montaigne's focus on the self and use of confessional autobiography had been attacked as vain and pointless. Gournay argued that Montaigne was instructing us in the Platonic art of self-examination; she was one of the first to see the epistemic and moral significance of the first-person philosophical voice, which would play such an important role in the works of René Descartes and Jean-Jacques Rousseau. (7) Beginning with the 1625 edition, Gournay countered the charge that Montaigne was ignorant of the sciences by providing a skeptical, humanist understanding of a "true science": That which aids us in conducting ourselves as "honnêtes hommes" and in leading a good life. The sub-

jects of which Montaigne might have been ignorant were "pure scholastic amusements."

After defending the Jesuits in a pamphlet, for which she was attacked in print, Gournay published a collection of classical translations, and a feminist tract, *Egalité des hommes et des femmes* (The Equality of Men and Women; 1622). *Egalité* is arguably the first modern philosophical response to the *querelle des femmes,* or "woman question." Gournay's innovative contribution was to combine (1) skeptical attacks, including the use of *reductio* arguments, against traditional views on the intellectual and moral inferiority of women with (2) evidence on behalf of the thesis of equality based on the authority of holy scripture, the early church fathers, and the ancient philosophers whom the church has recognized. As a Christian skeptic and fideist, Gournay saw (1) and (2) as consistent.

Gournay's moral essays reflect not only Pyrrhonism and fideism but the Christian stoicism that made up part of her *morale provisoire.* They appear in her collected works: *L'ombre de la Damoiselle de Gournay* (The Shadow of Mademoiselle de Gournay, 1626) and *Les advis ou Les presens de la Demoiselle de Gournay* (The Advice and Presents of Mademoiselle de Gournay, 1634; 1641).

She corresponded with Anna Maria van Schurman, Justus Lipsius, Saint Francis de Sales, La Mothe le Vayer. Abbé de Marolles, and Cardinal Richelieu. In her final years Gournay participated in the salons of the Duchesse de Longueville and the Comtesse de Soissons; her own salon was, arguably, the seed from which the French Academy grew.

See also Descartes, René; Diogenes Laertius; Feminism and the History of Philosophy; Fideism; La Mothe Le Vayer, François de; Lipsius, Justus; Montaigne, Michel Eyquem de; Pascal, Blaise; Rousseau, Jean-Jacques; Skepticism, History of; Women in the History of Philosophy.

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Eileen O'Neill (1996)

GRACIÁN Y MORALES, BALTASAR
(1601–1658)

Baltasar Gracián y Morales was a Spanish Jesuit and author of several baroque, obscure, laboriously polished books in which he expounded and illustrated conceptism, or metaphysical wit. Conceptism (from *concepto,* thought) is the quest for fine, brilliant, subtle thoughts expressed in antitheses, ambiguities, new words, and elaborate conceits.

Gracián published only one book under his real name, *El Comulgatorio* (Sanctuary meditations for priests and frequent communicants; 1655). A book of devotion, it enjoyed great success in several languages until the nineteenth century but is little used today. All his other books were published under pseudonyms without the permission of his superiors, for which offense he was disciplined because their subjects were thought too worldly for a priest, especially at a time when the Society of Jesus was struggling against Jansenism. The first was *El héroe* (1637), a portrait of a Christian political superman, similar to scores of books printed in Europe in the sixteenth and seventeenth centuries in answer to Niccolò Machiavelli's *The Prince.* Governance, then in the hands of absolutist rulers, was thought to be an art that could be taught in analytical character studies of the "exceptional man." Unfortunately, Gracián's model was Philip IV of Spain. However, in *El político* (1640) he took Ferdinand the Catholic as a more plausible subject for another panegyric on the Great Man. Such works fell from favor as government came to be conceived more democratically, but romanticism revived the cult of the hero, and Gracián's books were annotated by Napoleon Bonaparte and admired by Friedrich Nietzsche.

In *El discreto* (1646) Gracián continued his portraits of perfect types, descending to the level of the man of the world to describe the perfect gentleman as seen by provincial Spanish society. This book is remembered for its formula for the ideal life: First converse with the dead, then with the living, finally with oneself. In other words, first book learning, then travel and worldly experience, and last, meditation and preparation for death. From these three books, and others like them that remained unpublished, Gracián extracted an anthology of 300 aphorisms, published as *El Oráculo manual* (1647), or *Art of Worldly Wisdom.* These wise sayings have enjoyed constant success. La Rochefoucauld echoed many of them in his *Maximes,* and Arthur Schopenhauer translated them into German.

La agudeza y arte de ingenio (1642–1648) is a treatise on rhetoric and aesthetics that codifies the taste of the baroque age with its thirst for conceits, subtlety, eloquence, and artifice. Composed in a tortured hermetic style—the style Gracián praised as literary perfection—the book has never been translated into English. Literary historians consider it the beginning of the decadence of Spanish literature.

Gracián then wrote a quite unexpected book, for which his uneventful, sheltered existence offers no explanation but on which his fame rests. After extolling heroism, kingliness, savoir-faire, and poetic beauty in the works so far mentioned, he composed *El criticón* (1651–1657), a bitterly critical satire of the very society he had been exploring so complacently. It is a long philosophical novel, painstakingly allegorical and overadorned to the point of obscurity, which has been compared with the paintings of Hieronymus Bosch. A noble savage, Adrenio, is brought to Europe and shown all the inventions and refinements of civilization. Critilo, a man of the world, directs an "experiment" that becomes an inventory of human knowledge at that date, reviewing most of the questions that then interested moralists, scholars, and statesmen. The idea, later used by Blaise Pascal and Voltaire, was not new; such didactic allegories were already known in Spain, perhaps because Indians really had been taken on "conducted tours" of civilization there. What was striking was the extent to which Gracián's characters came to pessimistic conclusions; their judgments on civilization were uniformly unfavorable.

Long before Jean-Jacques Rousseau, Gracián said that, although man was created pure in the state of nature and left God's hands perfect, civilization corrupted and debased him. Yet, he added, as man grows older, he can acquire wisdom to free himself from slavery to worldly illusions, to begin the hard apprenticeship of renunciation and preparation for death. Gracián's pessimism was redeemed by faith in salvation beyond life. The world is not wholly bad; it is a mixture of true and false values, of misleading images and authentic shadows of eternal life. This world is a profoundly ambiguous tragicomic farce, with a concealed sense that is to be sought in another world of eternal being. This combination of extreme pessimism and a confident religious faith introduced a curious ambivalence into Gracián's view of the world, notably of the things that he most admired: social success, worldly glory, and political power. Perhaps on only one subject was he utterly pessimistic—woman, whom he called "a Satanic creature, vile, inferior." Schopenhauer agreed with him here, but on other matters the German misrepre-

sented the Spanish Jesuit's pessimism by taking it out of its religious context. To be sure, some critics have argued that Gracián's piety was pretense, designed to get his work past the Inquisition's censorship. Voltaire knew *El criticón,* so resemblances to *Candide* might not be accidental; but Gracián's clearest philosophical influence was over Schopenhauer and Nietzsche.

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Neil McInnes (1967)
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GRAMSCI, ANTONIO
(1891–1937)

Antonio Gramsci, the Italian socialist born in Sardinia, founded the Italian Communist Party in 1921. He turned from political action to philosophical study when the Fascists jailed him in 1926 in order, said the public prosecutor, "to stop that brain working for twenty years." That brain, one of the most gifted that communism has produced, could not be stopped even by the inhuman conditions of Benito Mussolini's prisons: Gramsci filled three thousand pages with writing on a vast range of philosophical and political subjects. His frail health undermined by ill treatment, he died in Rome a week after his commuted term ended.

From the thirty-two prison notebooks, devoted editors have extracted "books" by grouping fragments on connected topics. In addition, *L'ordine nuovo* (1954) is a collection of articles from a socialist newspaper of that name, *Letteratura e vita nazionale* (1950) contains book and drama reviews, and *Lettere dal carcere* (1947) are his letters from jail. The heroic conditions under which he worked, and his founding role in Italian communism, may be responsible for overestimation of Gramsci's contribution to philosophy, but there is no doubt of his erudition and critical powers.

His philosophical notes (they seldom attain essay length) go beyond defense of Marxist doctrine; they mean to be a refutation of the idealism of two eminent ex-Marxists, Benedetto Croce and Georges Sorel. His criticism of them is seldom hostile, and in fact implies a disparaging opinion of orthodox Marxist-Leninist thought. Gramsci's central thesis is that Karl Marx's "materialist" overturning of G. W. F. Hegel was not a once-for-all affair that left communism, in Friedrich Engels's phrase, the secure "heir of the classical German philosophy." It had to be a continuing effort, to be repeated by each generation. Better, it was a Giambattista Vico-style cycle in which the same work of philosophical synthesis recurred at ever-higher levels. Gramsci saw that official Marxist thought in his day was in danger of relapsing into that vulgar materialism from which Marx's Hegelian training had rescued socialism a century before. Thus, it needed a new blood transfusion from speculative philosophy, a synthesis with neo-Hegelian idealism, notably with Croce and Giovanni Gentile.

This diagnosis entailed departure from the standard Marxist view on how philosophy "culminated" in revolutionary action. The last of Marx's Theses on Ludwig Feuerbach—"the philosophers have only *interpreted* the world in various ways; the point however is to *change* it"—had been taken to mean that philosophy would be realized in, and replaced by, revolutionary action. The postrevolutionary world would have no room for mere speculation, and philosophy would become the ideological branch of the administration. Gramsci replied that

philosophy could not be realized in, and even less supplanted by, political action. If the proletariat were to be "the heir of the classical German philosophy" (and if it were not, the revolution would be a cultural failure), it would have to pursue some recognizably philosophical activity. Specifically, it would be bound to go on reckoning with speculative idealism, putting it back on its feet as Marx did with Hegel and as Gramsci hoped to do with Croce.

Any one philosophy or system could indeed "culminate," or be realized. In fact, if it were a significant cultural product and not reverie, it surely would be. Yet that realization, the passage from speculation to action, from theory to practice, was not the "end" of philosophy foreseen by many Marxists. Rather, it was the transposition of private thinking into historically effective mass beliefs and a new ethic. Thus, Gramsci's program was to synthesize V. I. Lenin and Croce, to produce a reinvigorated Marxist philosophy that could be translated into a mass faith "like the Protestant Reform or the French Enlightenment."

The victory of such a new ethic was the essence of revolution, which meant above all "a moral and intellectual reform" and the "creation of a new integral culture." In all this, Gramsci explicitly followed Sorel but, against him, he denied that a "revolution of ideas" could do without politics, as Lenin practices it. His defense of Leninism, and of political organization generally, was a genuine contribution to political theory. Incidentally, it involved a fresh assessment of Niccolò Machiavelli. Gramsci wanted to be "both Robespierre and Kant," and indeed he succeeded in combining—at least on paper and in jail—the tough-minded political practicality of communism with a liberal attachment to classical education and philosophical culture.

See also Communism; Croce, Benedetto; Engels, Friedrich; Feuerbach, Ludwig; Gentile, Giovanni; Hegel, Georg Wilhelm Friedrich; Lenin, Vladimir Il'ich; Machiavelli, Niccolò; Marx, Karl; Marxist Philosophy; Sorel, Georges; Vico, Giambattista.

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Neil McInnes (1967)
Bibliography updated by Philip Reed (2005)

GRAY, ASA
(1810–1888)

Asa Gray was a leading American interpreter of Charles Darwin's theory of evolution. Born in Sanquoit, in central New York, he became deeply interested in botany as a youth. Although he received a medical degree from Fairfield Medical School in 1831, he decided to devote his life to botanical studies, in which field he soon gained an international reputation. Harvard University appointed him Fisher professor of natural history in 1841, a post he held for over forty years. His writings both popularized the subject of botany and advanced it scientifically. Through his correspondence with Charles Darwin in 1856 and 1857, Gray obtained a preview of the theory of evolution by natural selection. When the *Origin of Species* was published, Gray wrote one of the first reviews, in the *American Journal of Science and Arts* (March 1860). This review, with several other essays on evolution, was reprinted under the title *Darwiniana* (1876).

Gray's attitude to Darwin's theory was open-minded but cautious. He regarded it as a plausible scientific hypothesis, although far from conclusively proved. As an explanation of the diversification of species, it was markedly superior to the doctrine of special creation. However, it did not really explain the origin of species because it failed to give a satisfactory account of the cause of variations. Gray thought that Darwin was often rash in drawing conclusions that outran the evidence, as when he asserted that all species must have descended from "four

or five primordial forms" and when he contended that man's mental powers must have had an evolutionary origin. This last contention "accumulates improbabilities beyond belief."

Against those who said that the Darwinian theory implied atheism, Gray argued that "it is neither atheistical in statement nor in intent." The theory could be given a nontheistic interpretation, but it could equally be given a theistic one. A central question was the presence or absence of design in nature as a whole, and this question was one for the natural theologian or the philosopher, not for the biologist. Gray himself favored a theistic interpretation, since the idea of a Designer of the universe "is most natural to the mind." It was not even true to say that Darwin's theory was mechanistic. It assumed that adaptations produced by natural selection are useful to organisms, enabling them to achieve certain ends, and this assumption clearly reintroduced purpose or teleology into natural history. "If purpose in this sense does not itself imply design, it is certainly compatible with it and suggestive of it."

Gray's cool analysis of Darwinism coupled with his espousal of theism irked some of Darwin's militantly agnostic supporters, though not Darwin himself, who valued Gray as a friend and searching critic.

See also Darwin, Charles Robert; Darwinism.

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GREEK ACADEMY

Academeca was the name of a public park, equipped with a gymnasium and lecture facilities, located about a mile northwest of the Dipylon Gate of ancient Athens. There, probably shortly after 387 BCE, Plato bought a house and estate and began to teach, so successfully that his school dominated the facilities of the area, was named after the park, and continued until Justinian's closure of the pagan schools of philosophy in 529.

CLASSIFICATION

The main philosophical contributions of the Academy had been made by the time of Antiochus's death (c. 68 BCE); the different phases in this period were classified into Old Academy and New Academy or, by some ancients, as Old (Plato and his immediate successors), Middle (marked by Arcesilaus in the middle of the third century BCE) and New (dominated by Carneades in the second century BCE). To this were sometimes added a Fourth Academy (Philo of Larissa, head 110/109–80 BCE) and a Fifth Academy (under his successor, Antiochus). Broadly speaking, the Old Academy was occupied with problems posed by Plato, Middle and New with aspects of skepticism, and the Fifth with the eclecticism introduced by Antiochus. The history of Middle Platonism and Neoplatonism is distinct from that of the Academy, which was, however, a notable Neoplatonic center under Proclus in the fifth century.

EVIDENCE

Plato is the only leading Academic whose published works have survived, and they are not primarily internal documents of the school; our knowledge of the doctrines of his successors and of the functioning of the Academy is tantalizingly limited to fragmentary references, opponents' criticisms, and later summaries.

ORGANIZATION

At first the organization may have been informal and fluid, with Plato's personality and interests forming the center of gravity. At some point this fused into a nonfee-paying (fees were instituted by Speusippus), nonresidential corporate society, possibly in the form of a religious guild (*thiasos*), joined in the common worship of the Muses and in pursuit of truth at their shrine of learning (*Mouseion*), which Plato built on his estate. There were regular dining and other formal ceremonies. Plato appointed his successor; thereafter, the members elected their head, who held the original estate for the society and who governed until his death.

TEACHING

Apparently the teaching varied to some extent among the junior and senior members of the society. Plato's own

writings indicated that he had a practical aim in training young men and inspiring them with his political ideals, but he also suggested that the process required much time and study; thus, we find that the most important members remained within the school, researching and teaching, for years or for a lifetime (for instance, Aristotle and Speusippus). Practical political contributions of the Academy therefore came from senior members who were advising rulers or drafting legal codes rather than from former students who had chosen political careers. See, for example, the details given by Plutarch in *Moralia* (1126 CD); however, the extent of Academic influence is in dispute (see E. Zeller, *Die Philosophie der Griechen* II, 420, n. 1). The *Republic* declares mathematics and dialectic to be the fundamental studies, thereby placing the Academy in opposition both to the literary education of the rival school of Isocrates and to the training in techniques characteristic of some professional sophists. These subjects were chosen not only because their object was real Being, as Plato thought, but also because their method forced students into a Socratic self-learning and willingness to follow a communal discussion wherever the rational argument led.

What is certain is that instruction did not consist in the propagation of orthodox doctrine. There is a hostility to the lecture system in Plato's dialogues, which, together with the notorious failure of his public lecture on the Good, suggests that the main activity of the Old Academy lay in discussions and seminars (of which there is also some contemporary evidence in a comic fragment of Epicrates). Aristotle's mention of unwritten tenets and ascription to Plato of certain doctrines which do not appear in the dialogues (such as the equation of Forms and Numbers, the principles of Unity and Indeterminate Duality, mathematical entities of intermediate status between Forms and phenomena) have led some scholars to posit an esoteric oral teaching of Plato's, and others to suggest that Plato did no oral teaching at all in the Academy.

Both extremes, however, run counter to evidence. Aristotle may be reflecting Plato's part in some exploratory debates with senior members, for while the young and inexperienced had to be nursed and stimulated along educational paths by Plato, it is clear that no consideration of orthodoxy froze research. For such stimulation Plato posed problems, such as accounting for the movements of the planets, which produced a variety of answers including, according to Simplicius, Eudoxus's famous hypothesis of concentric heavenly spheres. We have evidence of equally lively and uninhibited debate in the Old Academy on the theory of Forms, mathematical metaphysics, classification, soul, good, and pleasure. It was at this higher level that the Academy was most successful and influential; in the conflict of educational ideals for schooling the young, the literary education of Isocrates and the rhetorical schools completely defeated in the elementary and state schools the philosophical, scientifically based Academy. However, the latter throughout its history preserved the high ideals of a society dedicated to the disinterested and independent inquiry after knowledge, ideals that succeeding ages—from the Lyceum of Aristotle to the present day—have recognized as models and standards for their own institutes of advanced study.

OLD ACADEMY

The head of the society naturally influenced all members, so the history of the Old Academy is largely an account of Plato's pupils. The most brilliant was Aristotle, a member from his eighteenth year until Plato's death in 347 BCE; his philosophy stems from the Academy, where his earliest works were written. There is some evidence that he was still being considered for the headship at Speusippus's death in 339 BCE and that he finally broke away to found his own school four years later.

Mathematical research was particularly distinguished in the Old Academy. Theaetetus of Athens, tragically killed in battle in 369 BCE, succeeded in generalizing the theory of irrationals and in constructing and circumscribing the five regular solids, thereby laying the foundations of Euclid's solid geometry in Books 10 and 13. Still more important was Eudoxus of Cnidus, who with his pupils joined forces with Plato (c. 367 BCE) for a few years. Apart from the influential astronomical theory of concentric spheres, he is credited with a general theory of proportion and a method of exhaustion fundamental to Greek geometry. He criticized Plato's theory of Forms, arguing that Form, to be a cause, must be immanent in phenomena, as white is the cause of whiteness of that in which it is mixed. He apparently regarded Form as a kind of substance. This seems to have drawn reactions from Plato and Aristotle. Eudoxus's championship of hedonism likewise produced opposing arguments from Plato and Speusippus. Another astronomer, Philippus of Opus, is reported to have edited Plato's *Laws* and to have written its appendix, the *Epinomis*; whether written by him or by Plato, the latter is an important document of a stage in the Academy at which mathematical astronomy advanced from a propaedeutic science to the central science of Being and theology.

Heraclides of Pontus (c. 390–c. 310 BCE), temporary head of the Academy during Plato's third Sicilian journey, unsuccessful candidate in the election of 339 BCE, and later associated with the Lyceum, had a Pythagorean bias and was a prolific, learned, and elegant writer on a wide variety of subjects rather than an original thinker. He appears to have responded to the problem of the planets' motion, but it remains uncertain whether he partially anticipated Aristarchus's heliocentric system and posited the rotation of Earth on its axis, as was thought. He posited an atomic theory of irregular units of mass but attacked the mechanical atomic theory of his day, holding that matter was subject to a divine teleology.

Speusippus, who succeeded his uncle Plato in 347 BCE, may well have been the senior member or even a founder of the society. He and the third head, Xenocrates of Chalcedon (c. 396–314 BCE, head 339–314 BCE), another pupil of Plato's from his earliest years, were thought by Aristotle and others to be concerned with similar problems. Although neither was a great philosopher, a study of fragments of their writings reveals a development of trends apparent in Plato's later work, some positions between Plato and Aristotle, and some foreshadowing of later Platonism. Both, but especially Speusippus, were strongly influenced by the current Pythagorean fashions in the Academy. In the school debate over the division of Being into the three spheres of Forms, Mathematicals, and Physicals, Speusippus replaced Plato's Forms with mathematical entities and Xenocrates identified Forms and Mathematicals. Both were preoccupied with the derivation of a hierarchy of substances from mathematical first principles—Speusippus disjointedly, according to Aristotle, in that he abandoned the uniform interdependence of the whole universe on one set of first principles and assumed different principles for different kinds of substance in series. Xenocrates posited the Platonic Unity and Indeterminate Dyad (or continuum of opposites such as great and small). Good, which was derivative for Speusippus (coming at the end of becoming), was distinguished from both Unity and Being. Soul fell into the mathematical classification—as self-moving number for Xenocrates and seemingly as a form of extension for Speusippus, a theory of great importance for the later Stoic, Posidonius.

Another Pythagorean trait was the strong theological interpretation of their mathematical cosmology, also hierarchical in treatment, Xenocrates advocating the influential doctrine of *daimones,* animate beings between gods and men. In dealing with the Academic problem of real definition by *diaeresis* (division) and classification,

Speusippus suggested in an important work, *Homoia* (Resemblances), that definition by division was impossible without knowing all existing things, the essential nature of any one concept being constituted solely in its relation of likeness and difference to every other concept. Xenocrates foreshadowed Aristotle by asserting the logical and ontological priority of species over genus. In epistemology both continued the trend of allowing more cognitive importance to perception; Xenocrates, who had a weakness for triadic systematization, worked out spheres of the universe corresponding to cognitive powers: the sphere within the heavens as perceptible, that outside the heavens as intelligible, the heavens themselves as a mixture of both and thus objects of opinion. Both men were prolific writers on practical ethics; they held that happiness can come into being from virtue alone but that virtue is not the only good. Speusippus campaigned against pleasure as being contrary to both pain and good.

The next head, Polemon of Athens (elected 314 BCE), concentrated on conduct, elaborating Xenocrates's conception of happiness as life "in accordance with nature," a phrase which, especially through the Stoa, became the center of ethical debate. Polemon had more personal influence than philosophical originality, but he is of some importance for the Academy of the first century BCE. His friend, Crantor of Soli in Cilicia (c. 335–c. 275 BCE), wrote a famous work, *Peri Penthous* (On grief), a prototype of an ethical genre later popular, directed against the extreme views of the Stoics on pain and the affections.

MIDDLE AND NEW ACADEMIES

Crantor's reaction to the Stoa heralded a major change in the school. Until Crates of Athens (elected head 270 BCE), the main topics of inquiry were Platonic questions and developments. The next head, Arcesilaus of Pitane (316–241 BCE), is reputed to have concentrated on an attack on the Stoic theory of knowledge. He was probably reacting not only to an ontology and epistemology inimical to the Platonic tradition but even more to the dogmatic character of Stoicism, which he countered by an exaggerated form of Socratic skepticism: Not only did he know, like Socrates, that he knew nothing, but he is also said to have doubted whether he could ever know that he knew the truth. He imitated Socrates in writing nothing and taught mainly in open debate, introducing to the school the system of arguing on both sides of a question. Nevertheless, he saw to it that Plato's works were studied; and in the controversy with the Stoa, the Academy maintained that by "suspension of judgment" (*epoche*) they

were not inhibited in their main philosophic task of a continual search for truth, however unattainable, or from moral action, as a guide for which Arcesilaus recommended "the reasonable." The dialectical influence of Arcesilaus set the Academy firmly in the main stream of Greek skepticism, but it was an age of formalization through controversy. Arcesilaus helped to produce Chrysippus, the great fortifier of Stoicism; Chrysippus was in turn the whetstone of the most brilliant figure of the second century BCE, Carneades of Cyrene (214–129 BCE), who systematized a comprehensive and devastating skeptical attack against the whole philosophy of the dogmatic schools. But while Carneades had penetrating observations on sense perception, probability, causation, fatalism, and anthropocentric theology, he seems, both in method and content, to have drifted some way from the original Socratic-Platonic tradition.

Reaction began with Philo of Larissa (160/159–80 BCE, head from 110/109), Cicero's teacher, who, while maintaining skepticism against Stoic epistemology, reclaimed his Platonic ancestry. It was completed with Philo's pupil and opponent, Antiochus of Ascalon (c. 130–c. 68 BCE, head from c. 79 BCE), who came to think that the representatives of the New Academy had perverted the teaching of the Old Academy by maintaining that no truth could be grasped, thereby destroying any criterion of true and false and, in Antiochus's opinion, inhibiting action through denial of certainty. Antiochus reinstated a dogmatism whereby a criterion of truth arising from but not contained in the senses was grasped by the mind as self-evident. His reinterpretation of Platonism was marked by an eclecticism in ethics that enabled him to propose that the Stoa and Peripatos had merely followed the lead of the Old Academy, differing from it in terms rather than in substance.

In fact, the theories of morals of the three schools were all naturalist, and Antiochus's distorted arguments were facilitated by certain shared areas of discussion, covered by Polemo and the early Peripatos and Stoa, based on "the things according to nature" (*ta kata physin*) to which human beings had a natural affinity (*oikeiosis*). Doubtless there had been interchange of ideas, which was fostered even by the New Academy's insistence on arguing on both sides of the question, but Antiochus blurred the quite different approaches of the schools to a common area of dispute.

His thesis may have been further encouraged by the early "Platonic" works of Aristotle which were then popular, and influenced by the Stoic Panaetius, who had admired Plato and who gave greater prominence in his teaching than had earlier Stoics to the "intermediate natural things" (health, wealth, etc.), which, although the material of ethics, were held by Stoics to be in themselves of only relative value and morally neutral compared with the absolute value of the rational operation of virtue. Antiochus, however, maintained that the end of action, the happy life (*beata vita*), although possible through virtue alone, was completed (*beatissima*) by bodily and external goods. Thus Antiochus shared a graded axiology with the Old Academy and Peripatos; for him the difference between virtue and other goods was one of degree, for the Stoa there was a difference of kind. In a manner similar to some Stoic arguments, he held that the chief good was based on natural instincts for self-preservation and self-development, so that from the germ of virtues in the impulses of childhood man gradually attained knowledge of his own nature; but for Antiochus the perfection of human nature involved all parts of it, not only the highest, and also man's relationship to others and to the community.

This attempted dogmatic synthesis of the three great schools was of minor philosophical interest in itself, but of major importance for subsequent Greek thought. Apart from professional Academics, Antiochus profoundly influenced the popular expositor Cicero, some Stoics with doxographic interests like Arius Didymus, who taught at the court of Augustus, and Middle Platonists such as Albinus of Smyrna, whose lectures Galen attended in 151/152. Albinus's markedly eclectic epitome of Platonism (the *Didaskalikos*) still survives. Indeed, without the growth of syncretism initiated by Antiochus, the fusion that created the final explosion of ancient thought in Neoplatonism would not have been possible.

Throughout the long history of the Academy, the founder's works were studied and his birthday revered with celebrations. It is a remarkable tribute to his personality, philosophy, and educational ideals that through the very different phases of the school all members considered themselves his true heirs, so that one man's ideas stimulated his pupils over nine hundred years without in any way rigidifying their thought.

See also Alcinous; Antiochus of Ascalon; Arcesilaus; Aristotle; Carneades; Good, The; Neoplatonism; Philo of Larissa; Plato; Platonism and the Platonic Tradition; Plutarch of Chaeronea; Proclus; Sextus Empiricus; Simplicius; Skepticism, History of; Stoicism.

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See also H. J. Krämer, *Arete bei Platon und Aristoteles* (Heidelberg: C. Winter, 1959), and Konrad Gaiser, *Platons ungeschriebene Lehre* (Stuttgart: Klett, 1968). The latter contains a very convenient collection of *Testimonia Platonica: Quellentexte zur Schule und mündlichen Lehre Platons*, on pp. 441–557.

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GREEK DRAMA

When Plato spoke of an ancient quarrel between poetry and philosophy, and when Aristotle said that poetry is more serious and more philosophical than history, they were both thinking primarily of epic and dramatic poetry, especially of tragedy. The reason why the two great Greek philosophers paid so much attention to dramatic poetry is closely connected with the reasons why Greek tragedy continues to deserve the interest of philosophers today. An account of philosophical ideas in "Greek drama" can usefully begin with some consideration of ancient philosophical ideas about Greek drama.

PLATO AND ARISTOTLE

It is well known that Plato was hostile to what he regarded as the inflated pretensions of the poets as moral and religious teachers and to the arrogant claims made on their behalf by rhapsodes and expositors. In numerous dialogues (notably in *Apology, Ion,* and *Republic*) he reiterated the complaint that poets lack the knowledge that, he believed, can be achieved only by rigorous philosophizing and that is necessary for the understanding of the human situation and the ordering of human life. The poets pronounce on life's problems without being able to "give an account" (λόγον διδόναι) of themselves and their ideas. Plato might ironically allow that, like conventional statesmen, they have some divinely inspired glimpses of moral and political truth, but he insisted that they lack the true knowledge that is achieved by the philosopher after strenuous dialectical thought.

Tragedy is essentially a kind of rhetoric (*Gorgias* 502D), and Plato reviled it with all the passion that he displayed in his attacks on forensic and political oratory. All these are the arts of mere persuasion, and they are customarily used to persuade men of what is false. Plato explicitly held that most orators, politicians, and poets are dishonest or ignorant, or both, and even the most famous of them would be refused admission to the ideal republic.

One of Plato's most important grounds for despising literature was based on the theory of Forms. The poet deals in the concrete and particular; dialectic, like its mathematical archetype, is concerned with the abstract

and universal. It follows that even an honest poet must inevitably fail to achieve and convey knowledge and understanding, since he is operating at entirely the wrong level. He presents images of images; he and his audience are at two removes from the world of reality and truth (*Republic* 597E).

Aristotle, the philosopher of the concrete particular substance, with his keen interest in the actual particular specimen, was more sympathetic to poetry and literature. Poetry is philosophical because it portrays the nature of man in general by presenting particular individual men in such a way that each portrait throws light on other individuals, just as the biologist studies the genus or the species by attending in detail to actual particular specimens. A chronicle of "what Alcibiades did or suffered" tells us only about Alcibiades. Oedipus or Agamemnon is Man as well as *a* man. Aristotle regarded the poets as contributors to thought, knowledge, and understanding, not as mere entertainers.

The opposite views of Plato and Aristotle on the value of literature must not be allowed to hide the importance of a point on which they agreed. Plato's attack on poetry, like Aristotle's more sympathetic treatment, presupposes that there is an overlapping of function between philosophy and literature. Plato thought that the poets gave wrong answers to the questions and problems that he dealt with in his dialogues, but the very form of his attack implies his recognition that the poets are also concerned with those questions and problems. The old battle between philosophy and poetry could not take place at all unless the two parties shared at least a battleground.

This point is confirmed, and its importance is underlined, by further knowledge of the history of ancient literature and philosophy. It was only in the time of Plato and Aristotle themselves that there began to appear any very clear distinctions between philosophy, history, science, and imaginative literature. Homer had fulfilled all the functions that were later divided among historians, tragic and comic poets, philosophers, theologians, moralists, and scientists. Parmenides and Empedocles were poets as well as philosophers; they did not write both poetry and philosophy—their poetry was their philosophy. Heraclitus wrote in prose but in an oracular, literary manner. Hesiod is part of the history of philosophical and cosmological speculation as well as of the history of literature. Plato himself wrote philosophy that is also literature and, in spite of his own strictures, imaginative and dramatic literature.

MODERN VIEWS

Modern controversy about Greek tragedy has followed similar lines. Many scholars and critics have praised the Attic tragedians as religious and moral thinkers and prophets, thus accepting Plato's view of the nature of the aims and themes of the ancient plays while often strongly dissenting from his valuation of them. Others, by contrast, have denied that the tragedians either showed or meant to show any moral or religious depth or originality, and have presented them as "mere" poets and playwrights whose purpose was purely literary and dramatic and who used traditional mythological and religious material simply because it was traditional.

This dispute is misconceived and is based on a false dichotomy. It not only ignores the artificiality of any attempt to draw a sharp distinction between literature and philosophy in Greek times but also involves drawing a distinction between them that is too sharp to be faithful to the nature and function of literature and philosophy in any age, including our own. Both parties to the dispute share Plato's mistaken assumption that nothing can count as philosophical, religious, or moral thought unless it is explicitly and formally general and systematic. Aristotle's recognition that fifth-century tragedy illuminated morality and religion by a dramatic presentation of particular events and characters needs to be extended to literature in general. The themes of Greek tragedy are the themes of literature: Man, God, Nature, Chance, Freedom, Will, Fate, Necessity, and Good and Evil. Most, if not all, of these themes are also themes of great and permanent philosophical interest, and philosophers should not despise the contributions of dramatists, poets, and novelists to our understanding of them.

TRAGEDY

Aeschylus, Sophocles, and Euripides had much in common: they all drew their characters and plots from a common stock of religious mythology and historical legend inherited from Homer, and they all used their plays as means of presenting the relations between men and gods. The stories of the Trojan War, of Agamemnon and the House of Tantalus, of Oedipus and the House of Cadmus recur in the works of all three. (A "history play," such as *The Persians* of Aeschylus, is exceptional, although commentators have found historical and political allusions in many of the plays that are based on mythical themes.)

Aeschylus and Sophocles were relatively orthodox in their treatment of the traditional themes. The *Oresteia* of Aeschylus presents, through the story of the working out of a family curse, a study of the conflict between man's

efforts to choose and guide his own life and the almost irresistible weight of past events and external influences. Agamemnon "puts on the yoke of necessity" when he chose to sacrifice his daughter Iphigeneia rather than to risk the ruin of the Greek expedition against Troy. In that phrase and in that incident Aeschylus combines an awareness of the force of circumstance with a consciousness of the responsibility that a man bears for his own actions, however circumscribed they are by what lies outside his control. The yoke is a yoke of necessity; but it is Agamemnon who puts it on. In the same trilogy Aeschylus portrays the growth of revenge ("a kind of wild justice," as Bacon called it) into the cultivated plant of civil law. His *Prometheus Bound* is also concerned with conflict. The struggle between Prometheus and Zeus is also the struggle between man's aspiration after knowledge and power and the forces of nature and environment represented by the gods. Men pay in suffering for every step in understanding.

The *Oedipus Tyrannus* of Sophocles also shows the price that must be paid for knowledge and self-knowledge. The man who answered the riddle of the Sphinx finds, when he knows his own nature and his own circumstances, that not all knowledge is sweet, and blinds his eyes that have seen too much. And yet it was ignorance that led him to his tragic end. If he had known more and had known it sooner, he would have done better and fared better. In the *Antigone* we find the "conflict of right with right" that led to G. W. F. Hegel's definition of tragedy; the legitimate claims of Creon, the civil power, are set against Antigone's ardent loyalty to holy and unwritten laws.

Euripides used the same stock of mythical material but in a different spirit. He was a friend of Anaxagoras and a student of the sophists and orators, whose influence is seen in his set debates and rhetorical speeches. The sophistry of Hippolytus ("my tongue it was that swore; my heart is not forsworn") and the atheism of Bellerophon are only two examples of the "free thought" of some of his characters that shocked Aristophanes and other conventional Athenians. It was debated, and is still debated, whether Euripides was himself an atheist or a modernistic theologian. To the modern reader of the plays the question is of merely academic interest. In the *Hippolytus* and the *Bacchae* he vividly presents conflicts between Aphrodite and Artemis and between Dionysus and the forces of order and restraint. The impact of these conflicts on a modern reader is not much affected by questions about whether Euripides literally believed in the gods of the Greek pantheon or merely used them as personifications of forces in human nature that are as familiar to us as they were to his original audience.

In reading Greek tragedy, as in reading any work of imaginative literature, we must beware of attributing to the author the opinions and attitudes expressed by his characters. The best Greek tragedies are as dialectical as the works of Plato. The issues they deal with are too complex and subtle to allow a neat answer to be given to them in the speeches of any one character. The dramatist presents and portrays; he does not argue and declaim.

COMEDY

Attic comedy is of little more than historical interest from the philosophical point of view. The *Clouds* of Aristophanes pillories and parodies a "Socrates" who is made to represent all that was new and disturbing in contemporary Greek thought. Aristophanes shows here and in several other plays (especially in the *parabasis,* or address of the chorus to the audience on current topics) that he was a conservative who looked back to the golden days of Aeschylus and the other "men of Marathon." His satirical purpose could best be served by ignoring the great diversity in the movements of thought that he disliked: Pythagorean and Orphic mysticism, natural speculation, sophistic attacks on conventional morality and religion, and the revolutionary theology of Euripides.

Comedy, like tragedy, was religious in its origin, and Aristophanes, if read with caution, can contribute to our knowledge of the history of Greek religious thought. But no comic writer can be trusted very far as a source of information on philosophical or scientific thought, and in particular Aristophanes' account of Socrates needs more delicate handling than it has received from scholars preoccupied with the "Socratic question." What the *Clouds* does show is that philosophical speculation was of some interest to the general public in Athens, even if only as a butt of jokes and gibes. Socrates testifies in Plato's *Apology* that attacks by comic poets helped to foster prejudice against him.

The contest between Aeschylus and Euripides in the *Frogs* of Aristophanes is one of the earliest examples of literary criticism, and it preaches, as Plato did, that the poet's function is to edify and instruct his audience.

See also Anaxagoras of Clazomenae; Aristotle; Empedocles; Hegel, Georg Wilhelm Friedrich; Heraclitus of Ephesus; Homer; Humor; Literature, Philosophy of; Orphism; Parmenides of Elea; Plato; Pythagoras and Pythagoreanism; Socrates; Tragedy.

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Renford Bambrough (1967)
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GREEN, THOMAS HILL
(1836–1882)

Thomas Hill Green, the English idealist philosopher, was born the fourth son of a Church of England clergyman at Birkin in Yorkshire. His mother died when he was only a year old. Green received his early education from his father before going at the age of fourteen to Rugby School, which had been reorganized on distinctive lines by Thomas Arnold a few years earlier. The corporate side of life at Rugby had little appeal for Green, but his fellow scholars were already impressed by his seriousness and independence of mind. Academically, he was able but not outstanding. In 1855 he entered Balliol College, Oxford, where he was an undergraduate for the next four years. Green was only a moderate classical scholar, but he got first-class honors when he took the final examinations in

Literae Humaniores, preparation for which gave him his first serious work in philosophy. He was elected a fellow of Balliol in November 1860 but did not get a regular teaching post there for several years. In 1863 he refused an offer of the editorship of the *Times of India,* then being started in Bombay; in 1864 he was an unsuccessful candidate for a philosophy chair at the University of St. Andrews. In 1865 and 1866 he served as assistant to a Royal Commission investigating school education in England and Wales, working mainly in and around Birmingham. From 1866 onward he was heavily engaged at Balliol, where he became the first nonclerical tutor; by 1870, the year in which Benjamin Jowett became master, much of the administration of the college had fallen on his shoulders. He continued to serve as a tutor until 1878, when he was elected Whyte's professor of moral philosophy at the university.

By this time Green had married Charlotte Symonds (1871) and had published his first major philosophical work, the long critique of empiricism which constitutes the introduction to the edition of David Hume's works, which he produced with T. H. Grose. He had also begun to take an active part in social work and in local politics. From 1872 on he was prominent in the temperance movement (one of his brothers was a hopeless drunkard), and in 1876 he became a member of the Oxford town council, being the first active teacher in the university to hold such an office. He also played a major part in a movement to found a new high school in Oxford. Unfortunately, however, his health deteriorated sharply during these years, and matters were not improved by the added lecturing duties of the professorship, which Green undertook with characteristic thoroughness, writing out his lectures in full. He had long planned a major work on moral philosophy, but his *Prolegomena to Ethics* was still incomplete when he died in 1882. It was published by A. C. Bradley the following year. Green's other philosophical and miscellaneous writings were collected in three volumes by R. L. Nettleship, who also wrote the long memoir printed in Volume III.

Green has been described as the first professional philosopher in the modern sense; he was certainly one of the first specialized teachers of the subject in Oxford. But he exercised influence in many spheres outside philosophy. His work as a Balliol tutor did much to produce a distinctive type of Oxford graduate, unknown in the mid-nineteenth century: hardworking, intensely serious, aware to a surprising degree of social problems and realities. In politics he was important not only because of what he did to ease relations between "town and gown" in

Oxford but also for his pronounced radicalism: He was a strong supporter of John Bright against Lord Palmerston and of the cause of the North in the American Civil War. His essay "Liberal Legislation and Freedom of Contract" (1881) is important for its criticisms of pure laissez-faire liberalism and can be seen as anticipating the doctrine of the welfare state. Theologically, Green was not strikingly original, but the low value he set on dogma and historical tradition was certainly not without its effect. By insisting on the independent authority of philosophy he may well have persuaded many intending ordinands to take up other careers. Although very different in his philosophical views and immediate disciples from his contemporary Henry Sidgwick, he made much the same contribution to the secularization of Oxford as Sidgwick made to the secularization of Cambridge.

CRITIQUE OF "POPULAR PHILOSOPHY"

A useful point of entry into Green's philosophical thought is to be found in his early essay "Popular Philosophy in its Relation to Life," originally published in 1868. The "popular philosophy" of the title was that professed by the advanced thinkers of the time, whom Green explicitly compared with the ancient Sophists. Like the Sophists they were superficially clear and rhetorically persuasive; again like them, they owed their apparent success to a refusal to examine their basic notions. Yet these notions, when applied in the concrete, turned out to be wholly inadequate; they could not successfully be brought to bear on life, as understood in art or religion or moral practice. In "Popular Philosophy" Green set himself to demonstrate this conclusion only in the case of ethics, reviewing for this purpose the doctrines of Joseph Butler, David Hume, and Jean-Jacques Rousseau, but it was obvious that he had wider considerations in mind. When he spoke of the need for an "adequate theory," of which the philosophy of G. W. F. Hegel might offer a foretaste, he was implying that the philosophers he was considering were wrong not only in their ethical distinctions but also in their whole method and metaphysical outlook. Following John Locke, they assumed that truth could be arrived at by simple introspection; they had no notion of the difference between image and concept and hence no tenable theory of thinking. The statement of their theories presupposed a continuing self-identical subject, but the theories themselves had no room for any such thing. Nor, in practice, had they anything like an adequate grasp of the workings of the human mind, which they looked on as an isolated automaton mechan-

ically pursuing pleasure and seeking to avoid pain, instead of as an active agent whose interest and welfare were intimately bound up with those of others.

The corrective to popular philosophy, Green said at this stage, was to be found in "the deeper views of life which the contemplative poets originated" and in the notions of "evangelical religion," as well as in some of the better insights of Rousseau. It was not "'within his own breast'" that Wordsworth had looked to "read what he was," but to "the open scroll of the world, of the world, however, as written within and without by a self-conscious and self-determining spirit" (*Works,* Vol. III, p. 119). Similarly, the evangelical insistence on the sense of sin showed the superficiality of the moral philosophy of the Enlightenment, which could represent vice as an object of regret or distaste but never as an object of abomination. Much of Green's mature philosophy becomes intelligible if we bear these remarks in mind. He took neither poetry nor religion to be a substitute for philosophy, but nonetheless he felt deeply that both had important lessons to teach the philosopher.

CRITIQUES OF HUME AND NATURALISM

The more academic criticisms sketched in Green's early essay were elaborated in the introduction to his edition of Hume's works (1874). Green's view was that Hume was a major philosopher who had taken Locke's ill-thought-out assumptions to their logical conclusion and, in so doing, had revealed their absurdity. Hume's first principle was that nothing is real save feeling; Green attacked this view with the argument that to say that something is real is to relate it to other things and that relations are not given in feeling but are the work of the mind. Hume's attempt to ground "philosophical" in "natural" relations, that is, in what is given to sense, was a failure. So was his theory of the self as a succession of perceptions, for relating clearly demands an unchanging subject that relates. The argument of this passage was carried further in the first book of the *Prolegomena to Ethics,* where Green claimed that not only our consciousness of nature but also nature itself presuppose an "eternal," self-identical, and self-differentiating subject which is the source not only of the connections in thought but also of its material. A halfway position, such as Immanuel Kant had taken, was not intellectually defensible: The thing-in-itself and its empiricist counterpart, the sheerly given, remain unintelligible on this type of view.

Green's object in metaphysics was plainly to state an alternative to materialism, which struck him as both

insidiously attractive and intellectually preposterous. Much the same ambition informs his writings on ethics, in which field he again saw himself as developing an anti-naturalist position. In his critique of moral sense theories, which forms part of his general criticism of Hume, he represented the supporters of those views as one and all hedonists, on the ground that they made the passions the only spring of action and thought of reason as practically inert. Hence, his own first aim in the *Prolegomena* was to establish that human actions spring from *motives* and to show that motives are not "natural phenomena." He defined a motive (Sec. 87) as "an idea of an end, which a self-conscious subject presents to itself, and which it strives and tends to realise." The vital point here was the connection between motives and a continuing subject consciously pursuing good; human action, for Green, was entirely different from animal behavior, for although much of it had animal impulses as its basis, these impulses were transformed in being brought into consciousness and thought of in relation to long-term aims. As for the good with which action is concerned, Green said (ibid., Sec. 92) that "anything conceived in such a way that the agent acts for the sake of it, must be conceived as *his own* good, though he may conceive it as his own good only on account of his interest in others, and in spite of any amount of suffering on his own part incidental in its attainment." But in practice he had little to say about the connection of good with the satisfaction of the agent: The moral ideal must be realized in persons, but one person's claims to moral self-expression were as good as those of another, and moral progress came about with the realization that more and more persons and types of person were entitled to have their claims considered. Green made much use of the phrase "the common good" in speaking of the ultimate aim of moral action, but his alternative description of the end as the attainment of "human perfection" is in some ways more appropriate, provided it is added that he wanted to see human perfection realized without distinction of persons.

POLITICAL PHILOSOPHY

In ethics Green had clearly learned a lot from Hegel, although his general outlook remained more Kantian than Hegelian—both in theory and in practice he must be counted as a liberal moralist. His political philosophy also is in the liberal tradition, despite its rejection of such elements of older liberal political theory as the doctrine of the contract. The state, according to Green, is the product of will, not of force, insofar as the system of rights and duties it operates rests on a moral as opposed to a merely natural basis. Green was as emphatic in his political as in his ethical theory that rights cannot be created out of nothing, in the way Thomas Hobbes and Benedict Spinoza supposed. But although he thus saw the state as, in a sense, a moral organism, Green had no inclination to endow it with positive moral authority. The state might sometimes have to inhibit the freedom of particular men to enable others to be free at all, but the end of political action could only be to put citizens in a position to lead the good life. The liberalism he favored was thus in the end a negative liberalism, concerned with creating the minimum conditions in which people could exercise moral choice and, for the rest, leaving matters to their voluntary efforts.

Compared with that of his younger contemporary F. H. Bradley, Green's literary style was flat and uninteresting. The moral earnestness that is apparent in so much of his writing also has had much to do with its neglect by more recent philosophers. But however earnest he was, he was at the least estimate an influential thinker; to describe him, as C. D. Broad did, as "thoroughly second-rate" is to forget the extent to which his articulation of problems is still accepted, for example in political philosophy. Nor are his solutions entirely without interest, if only we can divest them of the stiff Victorian garments in which he chose to clothe them.

See also Bradley, Francis Herbert; Broad, Charlie Dunbar; Butler, Joseph; Empiricism; Enlightenment; Ethics, History of; General Will, The; Hegel, Georg Wilhelm Friedrich; Hobbes, Thomas; Hume, David; Idealism; Kant, Immanuel; Locke, John; Metaphysics; Naturalism; Rousseau, Jean-Jacques; Self; Sidgwick, Henry; Sophists; Spinoza, Benedict (Baruch) de.

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For Green's ethics, see W. D. Lamont, *Introduction to Green's Moral Philosophy* (London: Allen and Unwin, 1934). On his political views, compare A. J. M. Milne, *The Social Philosophy of English Idealism* (London: Allen and Unwin, 1962), and M. Richter, *The Politics of Conscience: T. H. Green and His Times* (London: Weidenfeld and Nicolson, 1964),

which also contains biographical details supplementing Nettleship's memoir in *Works,* Vol. III. Mrs. Humphry Ward's novel *Robert Elsmere* (1888) is dedicated to Green's memory, and one of its characters is said to portray him.

W. H. Walsh (1967)

GREGORY OF NAZIANZUS
(329/330–c. 390)

Gregory of Nazianzus, the poet, theologian, and bishop, was born at Arianzum in Cappadocia. Although his parents were Christians, he enjoyed an excellent classical education at Caesarea in Palestine and at the universities of Alexandria and Athens. He was from his earliest years a close friend of the other two Cappadocians, Gregory of Nyssa and Basil the Great. Baptized at about the age of thirty, he was ordained by his father, the local bishop—apparently against his will—and immediately fled. After his penitent return, Basil appointed him bishop of the isolated town of Sasima. However, Gregory refused to go and remained with his father at Nazianzus, staying on after his father's death in 374. After a period of monastic living he was approved as bishop of Constantinople under Emperor Theodosius, but distrust of his own administrative ability once again forced him to resign after a year. After a few years at Nazianzus, he finally retired to his estate at Arianzum and devoted his last years to writing; it was here, between 384 and 390, that he wrote his greatest poems.

Adequate study of Gregory is still hampered by the lack of a full critical edition of his works. The bulk is poetic (more than 16,000 lines). There are also 44 orations, including the important dogmatic ones (numbers 27–31, delivered in 380), and 244 authentic letters.

Gregory Nazianzen is the most literate, self-conscious stylist of the three Cappadocian Fathers, although perhaps not as profound as Gregory of Nyssa nor so immersed in ecclesiastical affairs as Basil the Great. Although he once compared philosophy to "the plagues of Egypt," his poetry shows the wide influences of all the Greek schools, and especially of the Stoic-Cynic. In morals Gregory reflects a sharply critical view of contemporary worldliness and sensuality; and his introspective poetry (especially the autobiographical "De Vita Sua") marks a new era in Christian self-awareness and is comparable to Augustine's *Confessions.* The bulk of his verse, however, is coldly classical and heavily didactic.

Gregory was fully aware (see *Oration* 20.17) of the role of speculation in theology. He contributed to Trini-

tarian theology by clearly defining the relations and properties of the three Persons of the Trinity. In Christology he insisted on the two distinct natures in Christ bound by a "union according to essence," copresent to each other by "circumincession"—a term later applied to the Persons of the Trinity. In developing traditional dogma, Gregory's discussion is sometimes sharper than either Basil's or Gregory of Nyssa's, although he is vague on the doctrines of hell and original sin.

See also Augustine, St.; Cynics; Gregory of Nyssa; Stoicism.

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GREGORY OF NYSSA
(c. 330–c. 394)

Gregory of Nyssa, the Christian theologian and Father of the Eastern church, was born in Cappadocia. Resisting the invitation of his brother, Basil the Great, to join his monastic community at Annesis, Gregory married and became a teacher of rhetoric. In 372 Basil, bishop of Caesarea, had Gregory appointed bishop of Nyssa; but Gregory was deposed in 374 by a local synod dominated by the Emperor Valens and the Arian party. Restored to his see in 377, Gregory began to grow closer to Basil's monas-

tic and theological ideals. After Basil's death in 379, Gregory engaged more and more in writing and in the vigorous administration of his diocese; he was an important figure at the councils convoked at Constantinople in 381, 383, and, just before his death, in 394. An ardent defender of the orthodox Trinitarian doctrine of Nicaea against the Arians and semi-Arians, he was also popular in court circles at Constantinople. Toward the end of his life, when his influence began to wane, he devoted himself to the deepening of the traditional Christian heritage of mystical theology; during this period, from about 390 until his death, he composed some of his most profound works, the *Commentary on the Song of Songs* and the *Life of Moses*, which represent the culmination of the process inaugurated in his earliest work, the *Treatise on Virginity* (c. 370).

Gregory's originality lay chiefly in the depth and mystical awareness he brought to the problem of human's knowledge of the Transcendent. Many of his works, such as the *Life of Moses*, can be understood on three levels: Moses represents the life of the true believer, the Christian philosopher, and the mystic attempting to find God in the universe. In his exposition of the Trinity and his discussion of God's nature, Gregory penetrated deeper than any other Eastern Father. The core of his theology is the historical perfection of humankind through the restoration of the divine image, regained by the Atonement and communicated through the church. In his doctrine of the *Apokatastasis*—the restoration of all people, even the damned, to the vision of God at the end of time—Gregory reveals his loyalty to Origen as well as his own attempt to create a harmonious structure of salvation history. Throughout his work we see the development of the doctrine of the spiritual or mystical senses (implying a direct intuition of God's presence) and an analysis of ecstasy that prepared the way for Dionysius the Areopagite, Maximus the Confessor, and later Byzantine mysticism.

In his epistemology Gregory is derivatively Neoplatonic, and his allegorical exegesis reflects the anthropology of Origen and Philo of Alexandria as well as the eclectic philosophy of Hellenistic Asia Minor. But Gregory never slavishly followed any master, and scholars like H. F. Cherniss go too far when they suggest that Gregory's theology was merely a question of giving Christian names to Plato's doctrines. Rather, the opposite view of Jean Daniélou and others seems closer to the truth: Gregory's theology represents a subtle transformation of Neoplatonism into authentic Christianity, whereby the intuitive vision and ethical achievement of the Christian mystic (in Daniélou's terminology, *epektasis*) was the culmination of the pagan philosopher's quest.

See also Mysticism, History of; Neoplatonism.

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GREGORY OF RIMINI
(c. 1300–1358)

Gregory of Rimini, a member of the Augustinian friars and one of the foremost thinkers of the fourteenth century, was born in Italy and died in Vienna, where he spent the last eighteen months of his life as general of the Augustinian order. A large part of his active career was spent at Paris, where he studied from 1323 to 1329. After teaching in Italy, he returned to Paris in 1341 and remained there for ten years. During this second sojourn in Paris he wrote his main work, a *Commentary on the Sentences.* None of the other writings ascribed to him, ranging from biblical commentaries to a treatise on the remission and intensification of forms, has survived.

Gregory's system was a reassertion of St. Augustine's teachings in fourteenth-century terms. He shared the contemporary awareness of the radical contingency of the created order and the unbridgeable gulf between God and his creatures that it entailed. He thereby followed William of Ockham and his confreres in rigorously confining natural knowledge to what could be verified and in excluding theological truths and evidence for God's existence from ratiocination. On the one hand, God was sovereignly free and man had no means of knowing what He might do; on the other, the knowledge accessible to man dealt only with contingencies and was ever liable to be superseded if God so willed. In consequence, there was no guarantee that the world was not infinite or eternal or that there was only one world; and even if its finiteness was accepted, God could still transform it. Gregory parted from the Ockhamists, however, in his refusal to allow this distinction between natural experience and God's will to undermine the traditional certainties. Even if natural knowledge was confined to practical experience, there still remained an inner realm of knowledge that was the source of all necessary truths and nonsensory principles. Similarly, although God was unconstrained

and his ways inscrutable, he still acted in accordance with his perfections.

Thus Gregory rebutted the Ockhamist assertions that God could cause a man to sin, or mislead him, or command a man to hate him: God's freedom could not violate his own nature as revealed in the Scriptures. Although Gregory subscribed to the current distinction between God's ordained power (*potentia ordinata*) and his absolute power (*potentia absoluta*), by which he could do anything without qualification, he never—unlike the Ockhamists—employed the latter to override dogma. Gregory accordingly adhered to the accepted dogmatic tenets whether they concerned God's foreknowledge, man's fallen state, or the theological virtues. Only in the case of the physical world did he acknowledge the possibility, both on epistemological and theological grounds, that the world could be other than it was: that it might be infinite or eternal. Gregory joined in the current reversion to the earlier view that theology was *sapientia* (wisdom) rather than *scientia* (scientific knowledge). It was distinguished by its inaccessibility to the nonbeliever, and faith, far from being communicable, was the barrier that divided the Christian from the infidel. In this, as in other ways, Gregory shared in the changed outlook of the time, while remaining true to the tradition of St. Augustine.

See also Augustine, St.; Augustinianism; Ockhamism; William of Ockham.

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GRICE, HERBERT PAUL

(1913–1988)

Herbert Paul Grice was born and educated in England. He taught at St. John's College Oxford until 1968, when he moved to the University of California–Berkeley. He taught there until his death. He published little until near the end of his life, but had a great influence through students and the wide circulation of unpublished manuscripts. His earliest work dealt with perception, but he subsequently moved to problems in language, ethics, and metaphysics. A concern with reason and rationality is a subtle thread which unites these investigations. His historical idols were Aristotle and Kant.

One early topic was a defense of the causal theory of perception. This defense required separating the scientific or specialist's part of the task of analyzing perception from that of the philosopher. This distinction relies on an underlying notion of analysis closely related to the analytic–synthetic distinction for which Grice and Strawson provided a brief spirited defense. Three subsequent papers represent intricate attempts to define meaning using only common sense psychological concepts such as intention, belief, and desire. If this program is successful it would provide a more elaborate defense of the analytic synthetic distinction.

Grice's best known and most influential contribution is the concept of a conversational implicature. A conversational implicature of an assertion is something that is conveyed to a thoughtful listener by the mode of expression rather than by the meanings of the words. These arise from the fact that conversation is normally governed by principles including cooperation, truthfulness, and informativeness, and that both parties are aware of these. The two best known applications of this concept are to perception and logic. Grice was concerned to provide an account of sense data discourse in terms of how things seemed to the perceiver. A common objection to this is that it is odd to say in a normal case of the perception of a table that it *seems* to the subject that a table is present. Grice's concept of conversational implicature can be invoked to explain the oddity as a result of the fact that a

stronger statement can be made, thus leaving room for the *seems* statement to be true.

The concept of conversational implication has been widely deployed in linguistics and artificial intelligence as well as in philosophy and is a continuing topic of research and debate. One major focus of discussion is the adequacy of the account when applied to quantitative statements, such as "John has two children." It is controversial whether this statement means that John has exactly two children, or whether it means that John has at least two children. In the latter case, interpreting an assertion of the statement as conveying that John has exactly two children is a matter of conversational implication.

Grice also scouts the possibility of defending the claim that the logician's material conditional is an adequate representation of the indicative conditional of English by explaining the apparent divergence as a matter of conversational implicatures. If one knows the truth values of P and Q then one can make a more informative statement than P⊃Q, so the only conversationally appropriate use of P⊃Q is when the speaker does not know the truth of either component, but only that they are so connected that the truth of P guarantees the truth of Q. The appropriate conversational use of P⊃Q requires a connection that is not part of the truth condition of the compound. The main objection to Grice's approach concedes that his account squares fairly well with the assertion of conditionals, but points out that it does nothing to ameliorate the implausible fact that on the material conditional account, to deny "if P then Q" implies both P and ~Q.

Part of the definition of a conversational implicature requires that the hearer should be able to reason out the intentions of the speaker and in conjunction with the conversational principles to discern the implicit message. This places an important role on reasoning, especially inasmuch as in typical cases the reasoning is not conscious in the hearer.

Grice devotes considerable energy to investigating rationality, reasoning, and reasons. Grice emphasizes that reasoning is typically directed to the goal of producing reasons relevant to some end in view. This intentional activity involves the ability to make reason-preserving transitions. Grice defines "reason preserving" analogous to the concept of "truth preserving" in deductive logic. A transition is reason-preserving just in case, for if one has reasons for the initial set of thoughts, beliefs, actions or intentions, then one does for the subsequent set as well.

Grice uses this general account of reasoning to investigate moral reasoning and moral reasons. He emphasizes the connections between reasons, actions, and freedom. Strong rational evaluation—which Grice sees as essential to freedom—involves the rational evaluation and selection of ends, including ultimate ends.

How do people choose ultimate ends? Grice answers that people should choose ends that have unrelativized value. Grice grants that the concept of unrelativized value requires defense. Typically, things have value only relative to ends and beneficiaries. A concern for the focus of relativization gives the value-concept a *bite* on a person; it ensures that the value-concept carries weight for that person. So how are people to understand unrelativized value?

Grice turns to final causation for a special kind of value. A tiger is a good tiger to the degree that it realizes the final end of tigers. Grice defines a good person as one who has, as part of their essential nature, an autonomous finality consisting in the exercise of rationality. Grice's philosophical psychology supports this conception of persons as end-setters. Freedom intimately involves the ability to adopt and eliminate ends. One does not (ideally) arbitrarily select and conform to ends; one does so for reasons. This makes being an end-setter an instance of unrelativized value; for to take a consideration as an ultimate justification of action is to see it as having value. Grice defines unrelativized value "in Aristotelian style [as] whatever would seem to possess such value in the eyes of a duly accredited judge; and a duly accredited judge might be identifiable as a good person operating in conditions of freedom." (*Aspects of Reason* 2001, p. 119) Of course, we are still talking about what is of value for and to persons. But the point was not to avoid this *relativization*; the point was to avoid relativization to this or that kind of person.

See also Aristotle; Conditionals; Kant, Immanuel; Perception; Rationality; Reason.

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Richard E. Grandy (1996, 2005)
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GROSSETESTE, PSEUDO-

See *Pseudo-Grosseteste*

GROSSETESTE, ROBERT
(c. 1168–1253)

Robert Grosseteste was one of the most influential Englishmen of his day—initiator of the English scientific tradition, one of the first chancellors of Oxford University, a famous teacher and commentator on the newly discovered works of Aristotle, an important translator from the Greek, friend to the mendicant orders, first lecturer to the Oxford Franciscans, and zealous bishop of England's largest diocese. However, his life is imperfectly known and much of his work remains unpublished. He was born of humble parents in the county of Suffolk between 1168 and 1175 and by 1190 had become *magister in artibus* at either Oxford or Paris. Sometime between 1190 and 1198 he was a member of the household of William de Vere, bishop of Hereford, and may have taught in the Hereford schools. After the bishop's death in 1198, Grosseteste was a member of the arts faculty at Oxford or possibly at Cambridge. He probably studied theology at Paris during the *suspendium clericorum,* 1209–1214. At some time between 1214 and 1221 he became chancellor of Oxford University. In 1229 he became the first lecturer to the Oxford Franciscans, leaving this post only on his elevation to the see of Lincoln in 1235. He was bishop of Lincoln until his death eighteen years later.

Grosseteste lived at a crucial period in intellectual history: The scientific and philosophical writings of the Muslims were just becoming known in Latin Europe and the works of the Hellenistic writers and the recently rediscovered works of Aristotle were being translated, disseminated, and lectured upon. As teacher, commentator, and translator, he took an active part in this movement. Basically Augustinian in outlook and relying heavily on the standard authors, he was nevertheless deeply influenced by Muslim learning, especially Avicenna and the astronomers, by the Jew Solomon ben Judah ibn Gabirol (Avicebrón), and by the newly found Aristotelian works. He never wrote a comprehensive philosophical work or devised a system, but he developed many characteristic views that have had a profound influence on the later development of both philosophy and science. The most important of his many philosophical works are *De Luce* (Light), *De Motu Corporali et Luce* (Corporal Motion and Light), *Hexameron,* and commentaries on Aristotle's *Posterior Analytics* and *Physics.*

LIGHT METAPHYSICS

Basic to Grosseteste's view of the universe is his metaphysics of light. He held that in the beginning God created the first corporeal form (*lux*), which had the property of instantaneously multiplying itself infinitely in every direction, and simple matter, an unextended substance. The original point of light was joined to unextended matter (since matter and form never exist separately) and in its expansion drew matter out into spatial dimensions. The resulting universe was a sphere extremely rare at the periphery but dense and opaque near the center. It was finite because a simple substance multiplied an infinite number of times would result in a finite quantity, and the matter of the periphery (the firmament) was completely actualized and capable of no further change.

When this perfect first body, containing only first matter and first form, had been created, it diffused its reflected light (*lumen*) back to the center, where the *lumen* gathered together the mass existing below the first body, again rarefying the outermost parts and making the center more dense. The second sphere was thus formed, as were, by a similar process, all thirteen spheres, including the four elements. On the outside of our universe, matter is completely actualized and capable of no further change, while at the center the degree of actualization is less and matter remains susceptible of taking on a variety of forms. From first form (light) every subsequent form is generated, both substantial and accidental, and every privation derives from the privation of light.

Since all things have in common first form and first matter, they are, in a sense, one. But each thing includes a hierarchy of form superadded to the original form of corporeity, making it the individual thing it is. Most of Grosseteste's other views were either derived from or imply his light metaphysics. He considered light the cause of local motion, the means by which the soul operates on the body (he denied that the soul is the form or perfection of the body), and the principle of intelligibility in the created universe.

THEORIES OF KNOWLEDGE

Grosseteste had two distinct theories of knowledge. The first, in the Augustinian tradition and strongly influenced by Avicenna, held that men may acquire knowledge by virtue of the intellect alone, without recourse to sense. The second held that certain knowledge may also be gained through sense perception. Although sense turns toward matter and is therefore unstable, imperfect, and subject to imaginative embellishments, it also follows reason, even though confusedly, and does not obscure the species it provides. Reason, which understands the principles of nature in a single manner, either corrects or completes whatever was lacking in the senses.

Both these ways of knowing involve another of Grosseteste's key concepts, the purgation of the mind. It is not until the desires of one's mind (*affectus mentis*) are purged of error that the gaze of one's mind (*aspectus mentis*) can be raised to the eternal and true and can overcome the delusions caused by corporeal phantasms. "Many men," Grosseteste said, "can prove by sure reasons that the Intelligences exist and that God exists but they do not understand the Divine Essence or the non-corporeity of the Intelligences.… Aristotle and others, who firmly knew by discursive reasoning that eternity was simple but saw it under the phantasms of temporal extension, have affirmed many improper things such as the perpetuity of time and motion and consequently the eternity of the world." In this quotation from the *Commentary on the Physics,* we see Grosseteste at once as one of the foremost critics of the dangers latent in the works of Aristotle and yet also among the leaders in introducing Aristotle's natural philosophy into western Europe.

INFINITY

One of Grosseteste's most original and influential teachings concerns infinite aggregates. He believed that "one infinite number can be related in any proportion,

numeral or non-numeral, to another infinite number." To God, infinite numbers are finite, and he determines the primary cubit (and every other measure) by a certain infinite number and a half-cubit by another infinite number half (to him) that of the cubit, and so on. But such a manner of measuring is possible only to one to whom the infinite is finite. Being finite, we must necessarily adopt a different manner of measuring, that is, by commensurable magnitudes as accidents of matter.

SCIENTIFIC METHOD

It is as a scientist and innovator in scientific method, however, that Grosseteste attracted the interest of the twentieth century. In his most important scientific writings he progressively developed a characteristic method of investigating nature that employed analysis (*resolutio*) and synthesis (*compositio*) in physical inquiries, first breaking down a problem into its simplest parts, then framing a hypothesis that would show how these elements are to be combined in order to produce the phenomenon under investigation. He also held that an experimental universal of provisional truth might be obtained by observing that a given effect always results from a particular cause, if one controlled his observation by eliminating any other possible cause of the effect.

In addition to this framework, Grosseteste used experiments as an integral part of his investigation: as aids in accomplishing his analysis, as suggestions in framing his explanatory hypothesis, and most important, as tests of the truth or falsity of a hypothesis. He also employed mathematics in his researches, holding that since light is the cause of local motion and the means by which superior bodies act on inferior ones, and that since light behaves according to geometric rules, therefore all local motion can be described mathematically. He denied, however, that mathematical entities have any objective being and insisted that they are simply abstractions from physical bodies and exist only in the minds of mathematicians.

Another of his basic principles was that of the subordination of sciences. A superior science, he said, may provide the cause for which the inferior science provides the effect. In the study of heavenly bodies, for instance, the sciences of mathematics, astronomy, and physics are concerned. Mathematicians abstract magnitudes from motion and matter and demonstrate the accidents per se with respect to magnitudes. Physicists, on the other hand, demonstrate the figured magnitudes in the sense that they belong to physical bodies. Astronomers have much in common with physicists, but whereas they might both be studying the same body—for instance, the moon—the physicist demonstrates that the predicate belongs to the subject by nature, while the astronomer does not care whether it belongs to it by nature or not.

Grosseteste wrote four works on astronomy. His work *De Sphaera* (On the Sphere) is a theoretical treatise. The other three works are primarily concerned with reforming the Julian calendar, which was nearly four days in error at that time. Using the works of Ptolemy, al-Battani, and Ibn Thebit, he worked out a program for calendar reform that continued to find supporters until it was largely incorporated into the Gregorian reform of 1582.

Grosseteste was in many ways the hinge between the early and late Middle Ages. He had at his disposal the standard late Roman authors and the recently introduced Greek and Arabic sources. His powerful, resourceful, and disciplined mind assimilated and transformed this material. He left many loose ends and sometimes failed to think through his positions; and in his scientific works, despite his methodological triumphs, he was not a notable experimenter. Still, so powerful was his thought that he influenced an uninterrupted succession of philosophers and scientists throughout Europe for 300 years after his death.

See also Aristotle; Augustinianism; Avicenna; Ibn Gabirol, Solomon ben Judah; Scientific Method; Sensa.

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GROSSETESTE, ROBERT [ADDENDUM]

Since the mid-1970s, further research into Grosseteste's biography has produced more uncertainty than any new detail. His putative birth date and his humble beginnings are unquestioned, but the first twenty years of his life remain obscure. How he became learned in the liberal arts is open to speculation. Doubtless he was a *magister in artibus* by 1190, but there is no evidence that he studied (or taught) at either Oxford or Paris during this time. His association with Hereford may explain his lifelong interest in natural philosophy, although no evidence has emerged supporting a subsequent teaching career there, nor anywhere else, between 1198 and 1225. The scholarship is divided as to whether Grosseteste actually studied theology at Paris between 1209 and 1214 because of a compelling case made recently that he may have studied there between 1225 and 1229.

This latter dating would certainly explain how Grosseteste gained access to the commentaries of Averroes that were disseminated in Paris soon after 1225. It has been well-established that the 1220s was a highly productive period when he began to engage seriously the writings of Aristotle and his Arabic commentators. Some scholars have also called his Oxford chancellorship into question: The documentary evidence is open to interpretation and can be read as if he never were chancellor; or if he were, he was not the first. After 1229 or 1230, the first documented date of Grosseteste as a teacher, the biographical evidence is more abundant and the chronology from this point until his death is unchallenged.

See also Aristotle; Averroes.

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GROTE, JOHN
(1813–1866)

John Grote, the English moral philosopher and epistemologist, was born at Beckenham in Kent. He was a younger brother of George Grote, the historian. Grote studied classics at Cambridge and became a fellow of Trinity College in 1837. He took orders in the Church of England and eventually obtained a church living at Trumpington, where he resided until his death. In 1855 he succeeded William Whewell as Knightbridge professor of moral philosophy at Cambridge. For a number of years an informal group, sometimes called the Grote Club, met regularly with him for philosophical discussion; Henry Sidgwick and John Venn were among its members.

Grote's writings were concerned primarily with ethics and theory of knowledge. He thought the former the more important study and intended the epistemological discussions in his *Exploratio Philosophica* to serve as prolegomena to his moral theory. Throughout his work he criticized the claim that only science or the "positive standpoint" could give us truth. Science treats perception simply as the action of one body on another, and it investigates the antecedents and concomitants of all thoughts and feelings indifferently. Hence it can give no adequate account of truth or falsity in thought. Philosophy, which is the study of thought and feelings as we are directly aware of them from within, can deal with truth and falsity, but it cannot give causal explanations. Hence the positive and the philosophical standpoints can lead us to truths that supplement each other. Grote argued with considerable acuteness that confusion of these standpoints was responsible for many of the difficulties of traditional theories of perception and knowledge, but he confessed himself unclear as to how they were related.

In ethics, Grote argued that utilitarianism overlooked the fact that man is essentially as active a creature as he is a sentient one. Concentrating only on human sentience, utilitarianism provides a theory of the good in feeling, but since it says little about right acting, it is unable to give an adequate account of the right distribution of good. The attempt to construct a positive science of morality is misguided and hopeless, since it omits the "ideal" element, or conception of what ought to be, which is central to morality. An ethical principle cannot be derived from facts alone, nor can it usefully be made true by definition; hence a basic intuition is required. There is, however, an important utilitarian element in morality, and that element provides a necessary check on possibly spurious intuitions. Grote suggested that the old conflict between utilitarianism and intuitionism should be seen as a conflict between partial views of a whole truth.

Grote held that the philosophical standpoint was more fundamental than the scientific. He gave a number of reasons for this. Underlying them is the view that the attempt to come to a rational understanding of the world implies the belief that the world is already rational, which implies in turn the belief that it is the creation of a mind. But mind, Grote held, can be understood as such only from the philosophical standpoint. The attempt to act morally in the world presupposes, similarly, a belief that the world is morally ordered, and this implies a belief in a moral governor. Grote interpreted these beliefs theistically. His development of them anticipated in many ways the absolute idealism of the generation after him. He argued that all truth is systematically interconnected; that truth is ultimately to be understood as coherence, rather than correspondence; and that the distinctions of perception and conception and of necessity and contingency are relative. In ethics he worked toward a view emphasizing self-development and man's duty in his station.

It has been said that Grote should be viewed as the first of the Cambridge analytic philosophers, and certainly his great respect for ordinary language and ordinary thought, his persistent attempts to find and remove logical confusions, his insistence on the importance of clarity, and his pursuit of it in detailed and painstaking criticism have obvious affinities with the work of that group. There is, however, little evidence to show that he had much direct influence on anyone, and his writing, which is difficult and prolix, has been very little studied despite its acuteness and considerable originality.

See also Epistemology; Ethics, History of; Intuitionism and Intuitionistic Logic; Sidgwick, Henry; Utilitarianism; Venn, John; Whewell, William.

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With the exception of *Exploratio Philosophica*, Vol. 1 (Cambridge, U.K.: Deighton, Bell, 1865), Grote's main writings were edited from his papers and published posthumously by his literary executor, J. B. Mayor. They are: *Examination of the Utilitarian Philosophy* (Cambridge, U.K., 1870); *Sermons* (Cambridge, U.K., 1872); *Treatise on the Moral Ideals* (Cambridge, U.K.: Deighton, Bell, 1876); and *Exploratio Philosophica*, Vol. 2 (Cambridge, U.K., 1900). There are also some papers, of which the most interesting is a series called "Glossology" in the *Journal of Philology,* 1872 and 1874. Further details may be found in Mayor's prefaces to the volumes he edited. There are no detailed secondary studies, but G. Watts Cunningham, *The Idealistic Argument* (New York: Century, 1933) has a chapter on Grote.

J. B. Schneewind (1967)

GROTIUS, HUGO
(1583–1645)

The Dutch jurist and statesman Hugo Grotius, or Huig de Groot, was born at Delft, of a distinguished Calvinist family. He entered the University of Leiden when he was eleven, graduating with great distinction at the age of fourteen. At fifteen he served as a member of a Dutch mission to France and obtained the degree of doctor of law at the University of Orléans. In 1601 Grotius was asked for a legal opinion by the Dutch East India Company in an international case, which appears to have spurred the writing of his pamphlet in defense of freedom of the seas (*Mare Liberum,* 1609) and generally stimulated his enduring interest in international law. In 1607 Grotius was appointed advocate general of the fisc of the provinces of Holland, Zeeland, and Friesland. In 1613 he became the pensionary for Rotterdam and went to Eng-

land as a member of a Dutch diplomatic mission. A bitter theological dispute, in which Grotius sided with the estates of Holland against orthodox Calvinism (supported by Prince Maurice of Holland) led to a special trial and the condemnation of Grotius to life imprisonment. During his imprisonment he wrote the famous pamphlet, *De Veritate Religionis Christianae* (Leiden, 1627). In 1621 Grotius escaped from prison and fled to France, where he wrote his great work *De Jure Belli ac Pacis* (1620–1625), dedicated to Louis XIII. Grotius later returned to Holland. From 1634 to 1644 he was Swedish ambassador to France. He was recalled to Sweden in 1644 and died in Rostock on his way back from Sweden to Holland shortly after.

Grotius's enduring influence upon legal science and, in particular, on the science of international law may be attributed to qualities somewhat comparable to those of John Locke. Both men formulated, articulated, and systematized, at a critical point in history, certain ideas and principles that suited the needs of a changing society.

But whereas Locke articulated the rights of the individual in a rapidly expanding, acquisitive, and increasingly antiabsolutist society, Grotius understood that the international society of burgeoning sovereign states had to find and abide by certain rules of conduct in war and peace, formalizing diplomatic relations and mutual respect for sovereignty. Since modern international society is still dominated by the legal and political supremacy of the national state, Grotius's classical treatise, *De Jure Belli ac Pacis,* is still an essential foundation for international law. The international order of the Middle Ages, based on the twin foundations of the ecclesiastical authority of the Church of Rome and the political authority of the emperors, had crumbled together with the social, economic, and spiritual conditions on which it was based. New kingdoms, dukedoms, principalities, and cities had emerged from the debris. Europe was torn by wars, big and small, motivated by religious, dynastic, political, and social conflicts. While Grotius wrote his principal work, the Thirty Years' War was raging in much of Europe, demonstrating the destructive effects of the lawlessness of a society that had not yet developed new rules of intercourse appropriate to the emerging society of sovereign nations. There was no prospect of reestablishing the international authority exercised by popes and emperors. There was no hope of abolishing or outlawing war. But there was an urgent need to establish a new code of behavior, and, more than that, a need to humanize the conduct of war even within modest limits. To lay the foundations for such a development was a gigantic task, a

task only for someone who could combine the qualities of philosopher, political scientist, jurist, humanist, and diplomat. That man was Hugo Grotius, a man of prodigious learning—theologian, philologist, historian, and poet, as well as jurist—who was also an active diplomat.

All his various interests are reflected in his great treatise, a rambling work ranging over many fields of human knowledge, studded with quotations and references to innumerable scholars and sources. *De Jure Belli ac Pacis* established a partially legalized system of international relations by blending certain general principles of political and moral philosophy with state practice. It is this combination that gives to Grotius's work the flexibility and durability that enabled subsequent generations to make use of it by emphasizing the one or the other aspect.

NATURAL LAW

Grotius was first a major exponent of the philosophy of natural law and of social contract. Second, he was an Aristotelian whose deepest and most abiding belief was in the power of reason and the rationality of man. Third, Grotius was a pragmatic diplomat who, through the observation and practice of diplomacy in a singularly disturbed and savage period, was fully aware of the practices of states in peace and war—and it was war that dominated both the life of the people and the thought of Grotius. But fourth, Grotius was a humanist in the spirit and tradition of his master, Erasmus of Rotterdam, a man who abhorred the brutality and lawlessness of war and violence, and whose principal purpose, therefore, was not only to civilize the conduct of war but also to place certain limitations upon its legality. He combined this last objective with his belief in reason and in natural order in the formulation of his famous theory of the *bellum iustum* (the just war).

As a natural law philosopher, Grotius was much closer to the Stoics than to the Scholastics. Like the former, he derived the postulates of natural law from principles of reason rather than of divine order. Such reason was founded in the human intellect. "Natural law is so immutable that it cannot be changed by God himself."

The natural law doctrine provided Grotius with the theoretical foundation for certain overriding principles of order in the relations between states. It also gave him faith in the rationality of man and in man's potentialities for developing a better society in accordance with the needs of social and international life. Grotius was, of course, well aware that there was in his time no law-giving authority superior to the will of the states. It was, therefore, necessary for him to find some principle that could bind the nations to a common standard of behavior. He found this principle in *pacta sunt servanda,* the respect for promises given and treaties signed. In the absence of an international sovereign authority, modern international lawyers, such as Dionisio Anzilotti and Hans Kelsen, have reaffirmed the same principle as the metalegal foundation of international law.

Grotius formulated a large number of other principles of natural law that inevitably share the weakness of all natural law teachings—that is, the sublimation of certain political postulates into immutable principles of order. Among Grotius's rules of natural law were respect for other people's property and the restitution of gain made from it, the reparation of any damage caused by a person's (or nation's) fault, as well as certain elementary principles of punishment. The political coloration of natural law is more evident in Grotius's postulate of the freedom of the seas. This postulate corresponded to the interests of the Netherlands as the world's leading maritime nation. It was opposed by the Englishman, John Selden (*Mare Clausum,* London, 1635), at a time when England was still struggling against stronger maritime nations.

SOCIAL CONTRACT

The other pillar of Grotius's legal philosophy was the theory of social contract, which also led him to emphasize the supremacy of the compact as the highest binding principle of law. Unlike later theorists of social contract, Grotius considered the contract as an actual fact of human history. In his view, the constitution of each state had been preceded by a social contract, by means of which each people had chosen the form of government they considered most suitable for themselves. While each people had the right to choose their own form of government, they forfeited the right to control or punish the ruler, however bad his government, once they had transferred their right of government to him. Generally, Grotius, like Thomas Hobbes, reflected not only the need of a disturbed society for strong governmental authority, but also the essentially absolutist and predemocratic character of government of that period. In his own official and diplomatic career Grotius represented autocratic governments.

INTERNATIONAL LAW

Aware of the insufficiency of natural law to supply more than certain general guiding principles, Grotius based the principal body of international law on *ius voluntarium* (the body of treaties and other engagements that form the

bulk of international state practice). Although a realist, Grotius was not a cynic. He believed not only in the essential rationality of man and peoples, but also in the necessity of progress from war to peace, from international anarchy to international order. His principal contribution in this respect was his theory of the *bellum iustum*. A major part of the second book of his treatise was devoted to the problems of the legality of war. For a war to be just, there must exist a legal cause for it. Essentially, there are only three types of just wars: Those that are conducted in defense against an actual or immediately threatening injury; those aimed at the recovery of what is legally due; and those inflicting punishment for a wrong done. Each of these categories allows for a great degree of latitude, especially in the absence of an impartial international judicial authority that can decide between conflicting claims.

Nevertheless, this emphasis on the need to justify war, and the limitation of its justification to causes that even today would be regarded as essentially defensive against wrongful injury, was a remarkable contribution to international order. It became obscured and forgotten during subsequent centuries of absolute national sovereignty, particularly during the nineteenth century when the aggressive national state celebrated its greatest triumphs, in practice as in theory. In modern time, the League of Nations Covenant and the United Nations Charter have attempted once again to distinguish between just and unjust wars. The future of humankind may well depend on the elaboration of an authoritative method of finding reliable and enforceable criteria for distinguishing between wars of aggression and wars of defense and on the establishment of an impartial forum to decide on claims for the reparation of wrongs alleged to be inflicted by one state on another.

International law in our own day is still essentially based on state practice as recorded in custom, treaties, and other international agreements; but these practices allow for the evolution of international law, not so much in the terminology of natural law as in the similarly conceived evocation of "general principles of law recognized by civilized nations." Some of these principles were applied, with dubious theoretical justification, in the Nuremberg and Tokyo trials of German and Japanese war criminals.

Grotius's doctrines were inevitably a mixture of reactionary and progressive principles. On the one hand he felt compelled to justify many barbarous practices of war, subsequently condemned in modern rules of warfare (yet surpassed in cruelty by modern war). Again, Grotius con-

curred with the great majority of legal and political philosophers in denying to the individual the right of resistance to an oppressive sovereign, although he affirmed the right of passive resistance of an individual against unjust wars. On the other hand, Grotius anticipated by centuries some of the principles of the Nuremberg Charter by regarding as justified a war waged to prevent the maltreatment by a state of its own subjects. And Grotius's concern with the individual stands in noble contrast to subsequent absolutist political theories.

In working and thinking within the limitations of his time, Grotius did not differ from any other philosopher, jurist, or political scientist. What is remarkable is that, in the midst of a war that threatened to undermine the whole fabric of European society, he developed principles and standards that can still serve as the basic themes for the struggle for international order in our time.

See also Aristotelianism; Hobbes, Thomas; Locke, John; Natural Law; Peace, War, and Philosophy; Philosophy of Law, History of; Political Philosophy, History of; Social Contract; Stoicism.

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GUILT

There are two main forms of the idea of "guilt"—moral guilt and legal or quasi-legal guilt. Originally these were not sharply distinguished, but enlightened thought requires that they should be. In outward substance the two often coincide. In committing a crime one is usually morally at fault, but the degree of one's guilt is not likely to be the same in the two respects in such instances. We may in any case be morally guilty and legally innocent—and vice versa. Few who consult this book have committed a crime, but who is there who has never done anything for which he may be morally reproached? Some of the most vicious things men do are well within the law. Nor would it be wise to legislate against all forms of moral evil—much of that would defeat the purpose of morality. One may also break the law and incur no moral blame. This might be because of unavoidable ignorance (of the law or of some matter of fact), but we could be blameless even in committing a crime deliberately. That would come about if we broke the law on conscientious grounds. Some of the people we admire most (religious or political martyrs, for example) have put religious or moral scruples before the claims of the law. They were not in all cases outwardly justified. The outward justification of resistance to the law is greatest under oppressive government. The duty to conform is very great where there are constitutional means of seeking redress or reform. Upholding constitutional procedure is normally much more important than righting a particular wrong. Resistance (but not of course normal opposition) is very extreme medicine in a democracy, and it is not always justified under tyranny. Persuasion is the best means of reform. But whether outwardly justified or not, a person is free from moral blame (and perhaps worthy of much praise) if he breaks the law in obedience to his own conscience.

MORAL GUILT AND DETERMINISM

Legal responsibility means liability to punishment, and legal guilt thus means that one has merited some punishment. This may be understood in a retributive, reformative, or deterrent sense. On the latter view, the commonest today where strictly legal or social issues are concerned, absolute freedom of choice is not presupposed. It is of course pointless to seek by punishment to deter someone who in no sense controls what he does—or to make him an example for others. We restrain the insane or the delirious. We do not punish them, and it is absurd to punish people for what they do by accident. But punishment is not made pointless when we act in character and wittingly do certain things even though, being the persons we are, we could not help doing them. Punishment as deterrence is consistent with determinism, for our conduct on other occasions—and the conduct of other persons—could be affected by punishment or the threat of it. But in moral matters punishment is a secondary issue. To be morally guilty is to have incurred moral disvalue or to be morally blameworthy. This may call for punishment or some other outward censure, but that is a further question.

Moral guilt is a more basic notion than punishability. It is a unique moral concept not to be merged in associated social and legal notions. Moral guilt presupposes freedom of a more radical kind than legal guilt and is hard to reconcile with any form of determinism. The moral evil it involves must be distinguished sharply from nonmoral evils like sickness, pain, error, and stupidity. I am not to blame for being ill or for failing to win a race, compose a poem, or solve a mathematical problem. I am to blame for moral failure. I cannot help the former failures, provided I try, if it is my duty. But it is hard to see how there could be moral failure if there is any sense in which I could not help it.

THE ASSUMPTION OF ABSOLUTE FREEDOM. But how strictly are these last words to be understood in the case of moral guilt? Is absolute freedom presupposed? If it is, are we ever guilty in the strictly moral sense? Is there not some continuity of character and conduct? Plainly there is such a continuity, and advocates of absolute freedom of choice as a moral requirement have therefore argued that moral praise or blame only apply on the occasions where there is a conflict between "duty and interest"—that is, between what we most want to do and what we think we ought to do. During much of one's life there is no such conflict, and we can therefore anticipate one another's actions with much confidence: we know what to expect of

people we have come to know. But character and duty will sometimes draw apart. To that extent, it is maintained, nothing affects the outcome but the act of choice itself. If we fail to make the effort of will—an absolutely free one in this case—to overcome some weakness of character, and if we thus follow the line of least resistance rather than the call of duty, we incur moral guilt. The degree of the guilt depends not on the outward features of the situation and the magnitude of the ill we do, or at least not directly so, but on the effort of will that would have been required to do right. But it should be noted well that the more outwardly vicious an act may be, the less is the effort needed to resist a temptation to do it, for one can normally presuppose much natural resistance to the act in one's own character. The less the effort required, the more we are to blame for not making it; the greater the effort we do make, the greater our moral worth.

It follows from this view that while we may, for practical and kindred purposes, censure misdeeds in their outward form, we need to be very chary of passing strictly moral judgments on other persons. If we have reason to believe (as is often the case) that someone has acted contrary to his moral convictions, we can impute to him some measure of blame, but how much is much harder to assess than the outwardly objectionable features of a situation. It is also much harder to assess the positive moral worth of another person than to assess his moral guilt. For we know in the latter case that the effort required was not forthcoming; in the former case it is harder to know how much to ascribe to natural good qualities of character, a benevolent or naturally plucky nature, and so on, and how much to free effort. Only the agent himself and God can know the full inner story.

THE FEELING OF GUILT

We must, however, distinguish "guilt" in the strict moral meaning from the sense of guilt. The latter is the feeling that accompanies the consciousness of being guilty. It is appropriate that we should feel remorse for wrongdoing, the proper tone of the feeling being determined by its appropriateness to the situation of guilt. There are kindred feelings appropriate to the wrongdoing we encounter or suspect in others, feelings or attitudes of blame and indignation. The feelings we actually have are not always appropriate to the situation, and there may thus be a sense of guilt out of all proportion to the facts of the case. Some people seem even to enjoy the sense of guilt and to cultivate it. Psychologists have helped us a great deal to understand these deviations and that other

curious aberration by which some people feel guilty for things they have not done at all.

PSYCHOLOGICAL REASONS. Some psychologists go further. They try to account for guilt entirely in terms of psychology. A common form of this attempt is that which ascribes guilt to an alleged "need for punishment." This need comes about through punishment or some other disapproval we suffer in infancy. Coming to expect punishment for certain acts, we feel distress when we wait for it without getting it over, and the strain and anxiety induced in this way is suppressed and operates subconsciously afterwards to produce the sense of guilt in mature experience. There is also the introjection into the "superego" of the relief experienced by those who punish us. These theories no doubt reflect states of mind which psychological investigation uncovers, and the layperson can appreciate much of them from common experience. But they seem nonetheless to be mainly concerned with aberrations and an unhealthy assumption of guilt, or perverse ways of dealing with it. The core of guilt is an ethical one, which psychology does not explain away.

COLLECTIVE VERSUS INDIVIDUAL GUILT

If guilt, in the proper sense, turns on deliberate wrongdoing, it seems that no one can be guilty for the act of another person—there can be no shared or collective or universal guilt. Guilt is incurred by the free choice of the individual. But many have questioned this. Among them are some sociologists who misrepresent in this way the dependence of the individual on society. But the main location of the idea of collective guilt is religion. Many forms of the doctrines of original sin and universal sin regard guilt as a pervasive state of humankind as a whole. It is the guilt of "man," not of this or that person as a whole. Others qualify this and speak of original sin which does not include original guilt. Others hold that while there can be no "great sin" and "little sin," there is inequality of guilt. But it is hard to reconcile the notion of universal sin or guilt, in any form, with elementary ethical convictions. Such notions can also do great harm, both by leading to victimization of the innocent—as in the treatment of Jews by the Nazis—and in undermining the sense of responsibility; for collective guilt is not the guilt of anyone in particular.

SOURCES OF DOCTRINES OF COLLECTIVE GUILT. Why then do such doctrines of collective guilt seem plausible? Mainly through religious confusions like the following. (1) The sense of religious unworthiness, the awe

felt in the presence of God, is mistaken for moral culpability. (2) Certain forms of religious experience are apt to be overwhelming, and the strain is eased at times by encapsulating the divine within the finite media or symbols by which it is known. This is the root of idolatry. The most grievous form of this is that by which the person himself becomes the idol—he aspires to make himself as God. But this distortion of religious experience tends to be conflated, in the heat of prophetic experience, with the expressly moral wickedness of putting one's own wishes before the proper claims of others. This encourages the notion of an unavoidable state of sin and guilt. (3) Guilt is what we seem most disposed to suppress, and at the unconscious level the confusions noted are apt to be intensified. (4) Religious doctrines have often been based on first-order religious utterances taken out of their full context and apart from the experience which prompted them. The figurative character of such utterances is also overlooked—for example, in interpretations of the metaphors of "bondage" or of "sin warring in all my members." (5) Wrongdoing has a cumulative influence that affects the state and the situation of persons irrespective of their own guilty actions; it thus tends to drive men in on themselves and hinder healthy relations with other persons—and with God. This also, or the misrepresentation of it, lies behind misleading doctrines of collective guilt. (6) The idea of universal guilt has often been made the pretext for evading the challenge of high ideals professed by religious people. This seems especially true of much Augustinian theology. (7) Religious confusions are deepened by confusions between the points of view of law—where the idea of corporated guilt has some place—and the point of view of morality.

Recent anthropology has thrown new light on the origin of the idea of guilt. There was at first little distinction between the points of view of law and of morality, both being merged in communal custom. Nor was heed adequately paid to whether the results of an act were those a person intended. The community was also more the bearer of guilt than the individual, and harsh judgments were thus passed on the innocent and bitter feuds perpetuated. But we should not allow this to determine for us how guilt must be understood in enlightened thought. Ethical notions are not jeopardized by having lowly and doubtful origins.

Religious thought today helps us to appreciate what is true and what is false in notions like collective guilt. But much recent sociology and some recent ethics go further and challenge the ultimacy of the ideas of guilt and responsibility. These are thought by some moralists and psychologists to be ideas we ought to have outgrown—"theological anachronisms." A sound ethical theory and better understanding of religion should correct these tendencies.

See also Determinism, A Historical Survey; Philosophy of Law, History of; Philosophy of Law, Problems of; Punishment.

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GUO XIANG
(c. 252–312 CE)

A champion of the Learning of the Mysterious (*Xuanxue*) or neo-Daoism that gained prominence in third-century China, Guo Xiang (c. 252–312 CE) is best known for his commentary to the *Zhuangzi*, which offers to reconcile orthodox teachings (*mingjiao*) with Daoist naturalness (*ziran*).

Like other neo-Daoist philosophers, notably Wang Bi (226–249), Guo recognizes the creative power of Dao; however, contrary to Wang, Guo rejects that "beings originate from nonbeing," which establishes Dao as the metaphysical ground of being (*Zhuangzi* commentary, chs. 2 and 23). The appeal to an anthropomorphic heaven or original substance as the source of creation should, according to Guo, be rejected, for it begs the question of the cause of its own being. Nonbeing, however, is not the answer, because nonbeing remains an abstraction and abstractions cannot bring about creation. Being and nonbeing are mutually exclusive, according to Guo, who writes "nonbeing cannot change into being" (*Zhuangzi* 22). Consequently, the only logical explanation of the origin of being is that "being spontaneously produces itself" (*Zhuangzi* 2).

This explanation introduces Guo's concept of "self-transformation," for which he is particularly famous. Whereas Wang Bi values nonbeing, Guo favors being. At the most basic ontological level, being is "so of itself" (*ziran*), and Guo believes that "we may know the causes of certain things and affairs near to us. But tracing their origin to the ultimate end, we find that without any cause, they of themselves come to be what they are. Being so of themselves, we can no longer question the reason of their being, but should accept them as they are" (*Zhuangzi* 14).

SELF-TRANSFORMATION AFFIRMS THE IMMANENCE OF DAO

Guo explains that the Dao pervades and informs nature as vital energy (*qi*) and that all beings are endowed with a "share" or "allotment" of the inexhaustible energy of Dao, and this defines their nature (*xing*) and capacity. Significantly, "benevolence and rightness" stem from nature (*Zhuangzi* 14); and, moreover, the state of *ziran* depicts an organized regime governed by principles and marked by interdependence and hierarchical order.

Given that individual *qi*-endowment varies, differences in capacity—for example, lifespan and intelligence—should be recognized. This is destiny (*ming*), in that "what one is born with is not something undue or vain" (*Zhuangzi* 5). This, then, begs the question: Is Guo—as many scholars hold—a fatalist?

Destiny dictates that one is born of sagely character or average capacity. Yet, Guo also attempts to distinguish *ming* as fact from value, and to affirm development in human flourishing. Fundamentally, differences in endowment do not constitute any basis for value judgment. Rather, as the *Zhuangzi* urges, what should be recognized is the "equality of things."

Unlike Wang Bi, who emphasizes the "one," Guo embraces the "many." Individuality and authenticity should be cherished (*Zhuangzi* 10). The Daoist goal can be defined as the realization of one's nature, and in particular the optimization of one's inborn capacity. As nature blossoms, "destiny" is fulfilled.

While this may not detract entirely from the charge of fatalism, Guo introduces a dynamic view of nature and destiny. The world of *ziran* is never static; it changes and renews itself constantly. Limits notwithstanding, one's potential should not be underestimated. The sage or person of Dao nourishes his nature and adapts to change, which brings out the meaning of nonaction (*wuwei*). Nonaction "does not mean folding one's arms and keeping quiet" (*Zhuangzi* 11). It is also not a technical skill; rather, nonaction stems from a discernment of *ziran*, which translates into a mode of being and a spirit of action, according to which one performs all functions.

Politically, nonaction means that the ruler enables the people to develop their nature and potential. Artificial restrictions and interference should be minimized, and because needs and circumstances change, sociopolitical practice should not be fossilized—timely adjustments ensure renewal and harmony in a dynamic realm. In this way Guo tries to reconcile the *mingjiao* (orthodox teachings) with *ziran*. Whereas the former refers to doctrines of propriety and government, the latter aspires towards transcendence and freedom from mundane concerns. Conflict arises, then, when orthodox teachings are seen to impinge on nature, or when transcendence is equated with renunciation. For Guo, however—because social and natural phenomena are governed by the same set of principles—*mingjiao* and *ziran* merge into one.

See also Chinese Philosophy: Daoism; Wang Bi.

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GURWITSCH, ARON
(1901–1973)

Aron Gurwitsch was one of the leading proponents of and contributors to phenomenology in the twentieth century. He was one of a small number of philosophers who brought phenomenology from Europe to the United States and led its growth into a significant presence there. Gurwitsch's main influence came through his expositions of Edmund Husserl's phenomenology and his original contributions that modified and supplemented Husserl's work.

Gurwitsch was born on January 17, in Vilnius, Lithuania (then a part of Russia), of parents who were descended from a long line of Jewish scholars. Following the pogroms of 1905 and 1906, the family moved in 1907 to Danzig where Gurwitsch received his early education. He began his university education at the University of Berlin in 1919, where he studied mathematics, physics, psychology, and philosophy; here he came under the guidance of the philosopher and psychologist Carl Stumpf. On Stumpf's suggestion, Gurwitsch went to the University of Freiburg in 1922 to attend some of Husserl's lectures. Gurwitsch was so influenced by Husserl's style of philosophizing that he decided to devote his life to the continuation and expansion of Husserl's phenomenology.

Gurwitsch left Berlin for the University of Frankfurt, where he studied with the psychiatrist Kurt Goldstein and the Gestalt psychologist Adhemar Gelb, whose studies of psychological pathologies stemming from brain injuries related to human capacity for abstraction, a topic in which Gurwitsch was interested. During this time Gurwitsch realized that Gestalt theory and phenomenology could benefit from one another. This led him to develop in his doctoral dissertation a field theory of sensory per-

ception in which he rejected Husserl's concept that a non-worldly, transcendental ego was at the basis of the human ability to experience a world and developed a nonegological conception of consciousness that was like the one found later in Jean Paul Sartre's work. The dissertation, *Phenomenologie der Thematik und des reinen Ich*, was published in 1929. Husserl was impressed by this work and there were regular contacts between them until 1933.

In 1929 Gurwitsch returned to Berlin, with a Prussian habilitation grant, where he worked on and essentially completed *Die mitmenschlichen Begegungen in der Milieuwelt* (1976). This work concerned basic problems of social phenomenology and contained an original approach to social perception that combined phenomenological and gestaltist insights. Due to the rise of National Socialism that led him to flee Germany and go to France in 1933, Gurwitsch did not publish this book, and it was published posthumously in 1976.

In 1933 and 1934 Gurwitsch began lecturing on Gestalt psychology and phenomenology at L'Institut d'Histoire des Sciences at the Sorbonne in Paris. These lectures were attended by Maurice Merleau-Ponty, whose major work, *Phenomenology of Perception*, incorporates much that he acquired from Gurwitsch. Gurwitsch's posthumously published *Esquisse de la phénoménologie constitutive* (2002) is based on that latter parts of these lectures. In Paris, in 1937, Gurwitsch met the sociologist and philosopher Alfred Schutz. Their correspondence from 1939 to 1959 has been published as *Philosophers in Exile* (1989). In addition to discussing and exploring intellectual topics, the letters contain a fascinating look at the difficulties of the lives of emigré scholars at that time. With the help of Schutz, who preceded him in 1939, Gurwitsch emigrated to the United States in 1940, and took a position at Brandeis University in 1948, first in mathematics and then, in 1951, in philosophy.

In the United States Gurwitsch began work on his magnum opus, *The Field of Consciousness*, published first in French translation in 1957, and then in the original English in 1964. In this work, Gurwitsch related phenomenology to the thought of William James and others, offered a criticism of various dualistic theories of perception, and gave a masterful account of Gestalt theory. This is followed by what became the most influential part of the work, his account of perceptual consciousness wherein the field of what one is aware is articulated into theme, thematic field, and margin. Building on Husserl's work, but abandoning what he took to be a dualism in Husserl's theory where higher level cognitive functions worked on lower level sensations to produce the object as

experienced (what Husserl called the "noema"), Gurwitsch creatively employed Gestalt theoretical concepts to analyze the structure of the focally perceived object (theme) as well as its relationship to the wider experienced context (thematic field) and to other co-conscious items that are not relevant to the theme and thematic field (margin). His account of the object as experienced (noema) was an alternative to Husserl's theory and led to considerable discussion in the secondary literature. A part of the whole manuscript that Gurwitsch wrote that was not published in *The Field of Consciousness* was posthumously published as *Marginal Consciousness* (1985) and contains detailed analyses of human awareness of the margin.

When Alfred Schutz—who held a position at the Graduate Faculty of the New School for Social Research in New York City—died in 1959, Gurwitsch became his successor, joining the phenomenologist Dorian Cairns, and taught there until his retirement in 1972. This was a time when phenomenology attracted much attention in the United States and the New School was a major center for research and study. Gurwitsch, Cairns—and, earlier, Schutz—were major influences on a new generation of phenomenologists. Gurwitsch helped found the Society for Phenomenology and Existential Philosophy (SPEP) in 1962, and later the Husserl Circle, two major forums for the presentation of phenomenological research. During this time he republished eighteen essays in *Studies in Phenomenology and Psychology* (1966). Another group of previously published and unpublished essays dating from 1937 came out posthumously in *Phenomenology and the Theory of Science* (1974). Along with some of Gurwitsch's influential original and critical work these two volumes contain some of the authoritative accounts of Husserl's philosophy that made Gurwitsch such a leading exponent and interpreter of Husserl's philosophy.

Gurwitsch's interests went beyond Husserl and phenomenology. He also wrote and prepared for publication *Leibniz: Philosophie des Panlogismus*, published posthumously in 1974 and wrote what was posthumously published as *Kants Theorie des Verstehens* (1991). Gurwitsch died on June 6, 1973.

See also Gestalt Theory; Phenomenology.

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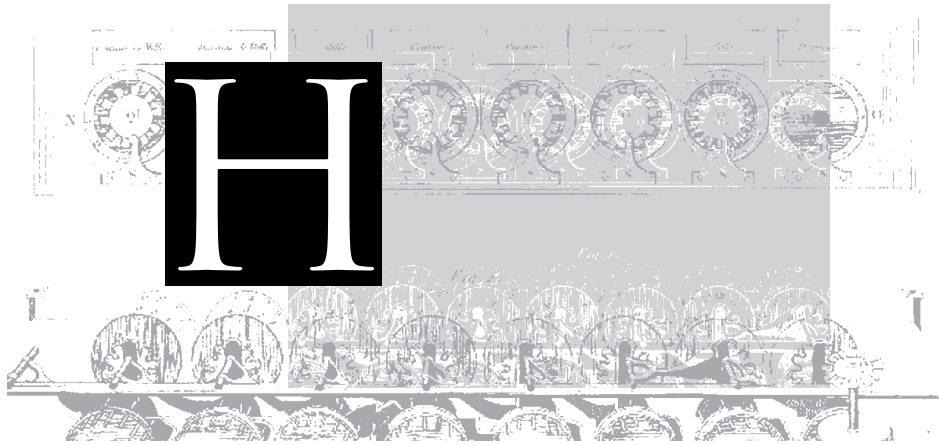
HABERMAS, JÜRGEN
(1929–)

Jürgen Habermas, the German philosopher and leading representative of the Frankfurt school of critical theory, was born in Düsseldorf. After World War II he studied in Göttingen, Zürich, and Bonn, where he submitted a dissertation on Friedrich von Schelling in 1954. From 1955 to 1959 he was Theodor Adorno's assistant at the Institute for Social Research in Frankfurt. After habilitating at Marburg University in 1961, he taught philosophy and sociology at the universities of Heidelberg and Frankfurt before becoming codirector of the Max Planck Institute in Starnberg. In 1983 he returned to the University of Frankfurt, where he was professor of philosophy until his retirement in 1994.

Habermas's life and work have remained deeply influenced by the traumatic events of his youth under National Socialism. From the time of his involvement with the German student movement in the 1960s he has been one of Germany's most prominent public intellectuals, speaking out on a wide array of issues, from violations of civil liberties and the attempted "historicizing" of the Holocaust to immigration policy and the manner of German reunification.

Habermas's scholarly work, which aspires to a comprehensive critical theory of contemporary society, ranges across many of the humanities and social sciences. His early and influential *Strukturwandel der Öffentlichkeit* (1962) was a historical, sociological, and philosophical account of the emergence and transformation of the liberal public sphere as a forum for critical public discussion of matters of general concern. While the historical structures of that sphere reflected the particular constellations of interests that gave rise to it, the idea it claimed to embody, the idea of legitimating political authority through rational discussion and reasoned agreement, remains central to democratic theory. Habermas returned to these themes three decades later in *Faktizität und Geltung* (1992), where he applied the idea of justification by appeal to generally acceptable reasons to the deliberations of free and equal citizens in a constitutional democracy. The primary function of the system of basic rights, he argued, is to secure personal and political autonomy; and the key to the latter is the institutionalization of the public use of reason in the legal-political domain.

One might read Habermas's extensive writings in the intervening decades as a protracted examination of the cultural, psychological, and social preconditions of and

barriers to accomplishing this. The essays of the early 1960s, a number of which were collected in *Theorie und Praxis* (1963), introduced the idea of studying society as a historically developing whole for purposes of enlightening political consciousness and guiding political practice. The methodology and epistemology behind this approach were elaborated in the later 1960s in *Zur Logik der Sozialwissenschaften* (1967) and *Erkenntnis und Interesse* (1968). A principal target in both books was the neopositivist thesis of the unity of scientific method, particularly the claim that the logic of inquiry in the human sciences is basically the same as in the natural sciences. The former work started from an examination of the nature and role of *Verstehen* in social inquiry and argued that access to symbolically prestructured object domains calls for interpretive procedures designed to grasp the meanings on which social interactions turn. Intersubjective meanings constitutive of sociocultural lifeworlds can neither be wholly objectified, as positivism supposes, nor simply reappropriated, as hermeneutics proposes. Psychoanalysis suggests an alternative approach, in which explanatory and interpretive procedures are combined with a critique of ideology in a historically oriented theory with practical intent.

In *Erkenntnis und Interesse* Habermas undertook a historical and systematic study of "the prehistory of modern positivism" in an attempt to free the ideas of reason and rationality from what he regarded as a "scientistic misunderstanding." Tracing the development of the critique of knowledge from Immanuel Kant through German idealism to Karl Marx, and its transformation into the methodology of science in early positivism, he elaborated his own position in critical encounters with three classic but flawed attempts to overcome positivism from within methodology: Charles Sanders Peirce's reflections on natural science, Wilhelm Dilthey's on cultural inquiry, and Sigmund Freud's on self-reflection. In each case he examined the roots of cognition in life and argued for an internal connection of knowledge with "anthropologically deep-seated" human interests. A key feature of this "quasi-transcendental" theory of cognitive interests was the basic distinction between the interest in prediction and control of objectified processes and the interests in mutual understanding and distortion-free communication with speaking and acting subjects.

There followed a series of studies of basic structures of communication, organized as a three-tiered research program. The ground level consisted of a general theory of communication in natural languages, a "universal pragmatics," as Habermas called it. This served as the foundation for a general theory of socialization in the form of a developmental account of the acquisition of communicative competence. Building on both of these, Habermas sketched a theory of sociocultural evolution as the historical development of forms of communicative interaction and mutual understanding. These accounts of communication, socialization, and social evolution enabled him to anchor moral theory in the theory of social action. Arguing that our basic moral intuitions spring from something deeper and more universal than contingent features of particular traditions, his discourse ethics sought to reconstruct the intuitive grasp of the normative presuppositions of social interaction possessed by competent social actors generally.

The work of the 1960s and 1970s culminated in the monumental *Theorie des kommunikativen Handelns* (1981), in which Habermas developed a concept of communicative rationality freed from the subjectivistic and individualistic premises of modern social and political theory, together with a two-level concept of society that integrated the competing paradigms of "lifeworld" and "system." On this basis he then sketched a critical theory of modern society that focused on "the colonization of the lifeworld" by forces arising from the economy and the state: systemic mechanisms such as money and power drive processes of social integration and symbolic reproduction out of domains in which they cannot be replaced. The phenomena that Max Weber pointed to in his vision of an "iron cage" and that Marxists have dealt with in terms of "reification" arises from an ever-increasing "monetarization" and "bureaucratization" of lifeworld relations. This relentless attack on the communicative infrastructures of society can be contained, he argued, only by a countervailing expansion of the areas of life coordinated via communication, and in particular by the subordination of economic and administrative subsystems to decisions arrived at in open and critical public debate. Thus, the antidote to colonization is democratization, and the key to the latter is an effectively functioning cultural and political public sphere. What distinguishes this critique of modernity from the welter of counterenlightenment critiques during the last two centuries is Habermas's unflinching defense of enlightenment rationality—a defense, to be sure, that is itself informed by the critique of rationalism and that emphasizes the ongoing, unfinished character of the project of enlightenment.

See also Adorno, Theodor; Critical Theory; Democracy; Dilthey, Wilhelm; Discourse Ethics; Enlightenment; Freud, Sigmund; Hermeneutics; Holocaust; Kant,

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Thomas McCarthy (1996)

HAECCEITISM

See *Modality, Philosophy and Metaphysics of*

HAECKEL, ERNST HEINRICH
(1834–1919)

Ernst Heinrich Haeckel, the German zoologist and monist philosopher, was born in Potsdam. He studied medicine and science at Würzburg, Berlin, and Vienna with such authorities as Johannes Müller, Rudolf Virchow, and R. A. Kölliker. After practicing medicine for a short time, he went to the University of Jena in 1862 to teach zoology.

Haeckel was the first noted German biologist to grant enthusiastic acceptance to organic evolution, and Charles Darwin gave him credit for propagating the theory of evolution in Germany. His views were the source of considerable controversy in biology, philosophy, and religion. He battled with his colleagues about their early hostility to Darwin's theory and their reluctance to include man and his consciousness in the evolutionary process. His dislike of the power of the church in social and political matters and his liberal opposition to Otto von Bismarck and other political figures resulted in many controversies; his rejection of free will, immortality, and the personality of God also antagonized many. Haeckel's achievements in zoology brought him academic offers from famous institutions, but he chose to remain at Jena, partly because of the academic freedom he found there.

His interests were broad; he published travel works and illustrated some of his own scientific essays. He founded the Monistic League to propagate his religious views. He had considerable popular success in science and was prominent in the movement to enlighten humankind about scientific developments.

SCIENTIFIC CONTRIBUTIONS

In biology Haeckel helped to publicize and promulgate what he called the "biogenetic law": "*Ontogenesis is a brief and rapid recapitulation of phylogenesis,* determined by the physiological functions of heredity (generation) and adaptation (maintenance)" (*The Riddle of the Universe,* New York, 1900, p. 81). He was a pioneer in drawing up genealogical schemata of the relationships between various orders of animals. Many of his major groupings are still accepted, although the finer divisions have undergone much revision. He was convinced of the essential unity of organic and inorganic nature, and argued that the simplest protoplasmic substances arose from inorganic carbonates through spontaneous generation. Individual primitive organisms, which Haeckel termed "monera," were differentiated out of these protoplasmic compounds. Haeckel believed that to reject this kind of spontaneous generation was tantamount to accepting a miraculous origin of life.

His theory of *gastraea* also received much attention. Haeckel argued that the entire animal world is made up of two groups: primitive unicellular animals, the protozoa, and multicellular animals with complex tissues, the metazoa. Haeckel believed that all the metazoa evolved, in accord with his biogenetic law, from one simple, long-extinct form, the *gastraea.* Although this theory of evolu-

tion from *gastraea* is no longer accepted, it influenced embryological research for nearly half a century.

DOCTRINE OF SUBSTANCE

Haeckel's conviction on the great importance of organic evolution led him into many other fields. His *Die Welträthsel* (Bonn, 1899; English translation by Joseph McCabe, *The Riddle of the Universe*) became a best-seller. The title derived from Emil Du Bois-Reymond's 1880 address to the Berlin Academy of Sciences on seven "world enigmas" (the nature of matter and force, the origin of motion, the origin of life, the order in nature, the origin of simple sensation and consciousness, rational thought and speech, and freedom of the will). Haeckel believed that his monistic outlook could resolve these problems, and others, leaving one "comprehensive riddle," the problem of substance. He insisted upon the essential unity of all substance, but also insisted that the "real character" of substance was as little understood as in the days of Anaximander and Empedocles. Indeed, it became "more mysterious and enigmatic" as more and more became known about its attributes and their evolutionary forms. Haeckel was especially opposed to theological dualism, but he also carefully distinguished his view from both materialistic and idealistic monisms.

Haeckel construed materialism as holding that atoms are "dead," and are moved only by external forces. He maintained instead that both matter and ether possess sensation and will in the lowest grade. They experience a dislike of strain, and struggle against it, and a liking of "condensation," for which they strive. Haeckel denied the existence of empty space and of action at a distance. Those parts of space not occupied with ponderable atoms are filled with ether; action is either the result of immediate contact or occurs through the mediation of ether.

On the other hand, Haeckel rejected any attempt to regard the world as immaterial or nonnatural. Infinitely extended matter and sensitive and thinking spirit, or energy, are two fundamental attributes of the all-embracing universal substance. Every living cell has psychic properties, and multicellular organisms have as their psychic functions the totality of the psychic properties of their parts. Although Haeckel insisted that his view of substance was Spinoza-like rather than materialistic, many of his specific views are similar to those of nineteenth-century materialism. His confidence that "consciousness, thought, and speculation" are "functions of the ganglionic cells of the cortex of the brain," his "hard" determinism, his mechanism, his complete rejection of the supernatural, and his enthusiasm for science all inclined his contemporaries to classify him as a materialist.

Haeckel, then, saw the world as an eternal evolution of substance, and man as part of that evolution. The "law of substance," a law of mechanical causality, established "the eternal persistence of matter and force, their unvarying constancy throughout the entire universe" (*The Riddle of the Universe,* p. 4). He regarded the laws of the conservation of energy and the conservation of matter as inseparable and as parts of his law of substance. Haeckel referred to "great eternal iron laws," and rejected all teleological views. The appearance of design in the world is a consequence of natural selection rather than of the action of a purposive agency.

Although Haeckel often emphasized the tentative nature of scientific conclusions and the necessity for the modification and improvement of hypotheses, on some issues he assumed the finality of certain scientific propositions, including many rejected today. He made this assumption most frequently in his polemics against the philosophic and religious views that he regarded as incompatible with science. Haeckel did not generally consider in detail the technical problems philosophers were debating, but tended rather to attack or to defend the conclusions of technical philosophers on the basis of the scientific results of his day and extrapolations from them.

THEORY OF KNOWLEDGE

Despite his insistence that much of philosophy was far too speculative and a priori, Haeckel held that both empiricism and rationalism are necessary to develop satisfactory knowledge. Although he was hostile to "pure metaphysics," he was also critical of those who advocated a "pure empiricism." The opposition between experimental science and philosophy must and can be overcome.

Haeckel held that the thing-in-itself lying behind knowable phenomena is unknown. He suggested that we need not trouble about this situation; we have no means for investigating the thing-in-itself, and are not even certain it exists. The only genuine knowledge is knowledge of nature, and it consists of "presentations" (combinations of sense impressions in the knowing subject) corresponding to external things. Comparative and critical observation tells us that normally the impressions received by the brain and sense organs from the outer world are the same for all rational people, and that normally the same presentations are formed. Those presentations are true that correspond to the knowable aspects of things, even though things-in-themselves" cannot be reached.

Haeckel's views on knowledge were closely connected to biological findings. He argued that the human sense activity, which forms the beginning of all knowledge, was slowly and gradually evolved from the other primates. The sense organs of all primates are structurally similar, and Haeckel insisted that these organs also function similarly, in a way describable by the same chemico-physical laws. The rod-shaped cells in the retina, the auditory cells in the ear, the olfactory cells in the nose, and the taste cells on the tongue were evolved from simple, undifferentiated cells of the skin. Invoking his biogenetic law, Haeckel concluded that man's higher sense organs were derived from the epidermis of lower animals. Our sense impressions are associated in the cortex of the brain so that isolated elements are united into integrated wholes. Haeckel called these integrated presentations "faith in the broad sense," because they go beyond our sense impressions. In this sense, science requires faith in the construction of both hypotheses and unifying theories. (In the main, Haeckel used "theory" to refer to hypotheses about a common cause for diverse phenomena.) However, he rejected religious faith, which he termed "faith in the narrower sense." He insisted that religious belief always means a belief in miracles and thus contradicts the "natural faith of reason." Even religious liberals, he contended, are forced into the acceptance of superstition, and their faith is no less irrational than the "crude spirit-faith of primitive fetishism."

PSYCHOLOGY

Haeckel attempted a scientific account of the soul. He regarded it as a natural phenomenon, so that psychology was a natural science, a part of physiology. Psychology was the "foundation and the postulate" of all the sciences, since knowledge of nature is "part of the life of the soul." The great difficulty in establishing a naturalistic psychology is that such a science presupposes a thorough knowledge of the human organism, especially the brain. Haeckel deplored the lack of biological training of the psychologists of his time. He insisted that psychic processes, like all others, are subject to the law of substance, and held that the prevalence of mind-body dualisms in psychology has led to a greater confusion of ideas there than in any other department of knowledge. Yet Haeckel did not insist on a nonintrospective psychology; he described the introspective method as "extremely valuable and indispensable." But it had to be supplemented by experimental methods.

Haeckel regarded consciousness as the "central mystery of psychology," and the citadel of all mystical and dualistic errors. He insisted that consciousness is a natural phenomenon, dependent upon a material substratum. He suggested that consciousness can perhaps best be conceived as "internal perception" and can be compared to the action of a mirror. The chief difficulty in the way of a scientific understanding of consciousness is that the subject and the object of knowledge are one and the same; our only source of knowledge of consciousness is consciousness itself. We can therefore only know the consciousness of others by comparing it with our own. This works rather well when the comparison is made between normal people, but the analogy may break down badly when a comparison is made between the normal and the abnormal, or between different evolutionary levels. However, the difference between the consciousness of humans and of other animals is a difference of degree only, not of kind. Haeckel thought it probable that consciousness arises with the centralization of the nervous system, and that the lower classes of animals lack that faculty. The province of unconscious psychic actions, reflex action, for example, is more extensive than that of conscious ones, but the two areas are closely connected.

The consciousness of man and of other mammals biologically close to man is changeable and is modified by both internal and external causes. Consciousness is dependent upon the normal development of certain organs and gradually develops in the child as those organs develop. Despite Haeckel's use of a "faculties" terminology, his views on psychology are often similar to those of recent functionalists.

ATTACK ON TRADITIONAL RELIGION

Haeckel's attack on supernatural religions had many facets. He unequivocally rejected revelation and theological faith. He was outspoken in combating the superstitions associated with the world's great religions. He scathingly attacked the influence of the church as an institution in politics and education. Indeed, he frequently coupled these problems, holding that the German government would not improve until it was free from church influence and its citizens received a better, more scientific, education. Haeckel even claimed that such questions as whether a monarchy is preferable to a republic and whether the constitution should be aristocratic or democratic are subordinate to the "supreme question": Shall the government be secular or dominated by the clergy? Haeckel was no respecter of religious heroes, prominent clerics, sacred myths, or widely held dogma. He tried to show that theological beliefs are

incompatible with scientific data, unreasonable, or merely dogmatic.

Haeckel's admiration for the views of Benedict Spinoza and Johann Wolfgang von Goethe and his belief that humankind's ethical aspirations needed some support led him to advocate a monistic religion. "The ethical craving of our emotion is satisfied by monism no less than the logical demand for causality on the part of reason." He had great respect for the ethical values of primitive Christianity, and felt that Christianity had been so influential in the social and political movements of civilized history that "we must appeal as much as possible to its existing institutions in the establishment of our monistic religion" (*The Riddle of the Universe*, p. 336). He maintained, therefore, that he sought a rational reformation, rather than a revolution, in religion. However, the extent of his criticisms of Christianity appear to be revolutionary.

Haeckel wanted to give rational support to the true, the good, and the beautiful, and he considered the relation of that trinity to prevailing Christian notions. Truth is to be found in the study of nature by means of critical observation and reflection, and hence revelation must be rejected. However, what "we call virtue, in our monistic religion coincides for the most part with the Christian idea of virtue," especially the Christianity of the first three centuries. Charity, toleration, compassion, and assistance are humanistic as well as Christian precepts, and are to be emphasized in the monistic religion.

On the other hand, Haeckel maintained that early Christianity preached the valuelessness of this-worldly things, because this life was merely a preparation for eternity. Hence the beautiful was of little consequence. Haeckel was especially interested in art forms in nature and believed that the microscope had newly aroused our aesthetic sense.

All forms of theism are to be opposed. A pantheism that identifies God and substance is necessarily "the world-system of the modern scientist." All scientists who think theism can be reconciled with science are, in Haeckel's view, either dishonest, or confused, or victims of sophistry. If atheism is construed as a denial of the existence of a personal and extramundane god or gods, then Haeckel agreed with Arthur Schopenhauer's remark that pantheism is only a polite form of atheism. In short, Haeckel's criticism of traditional religions was that their doctrines are often intellectually wrong; that they generate unrealistic hopes; and that the social, political, and educational consequences of supernaturalism are malignant. Haeckel's criticisms, especially of Roman Catholicism, are often strongly worded. Thus he wrote that the

obligatory celibacy of the clergy, auricular confession, and the sale of indulgences were designed for the purposes of strengthening the rule of the church over the "credulous masses and making as much material profit as possible out of them."

ETHICS AND SOCIAL VIEWS

In ethics, Haeckel felt that traditional theories often either emphasize altruism too much (as in the case of many religious views) or emphasize egoism too much (hedonisms). He held that there should be an "equal emphasis" on self-love and love of one's neighbor. The "highest aim of all ethics" is to reestablish a "natural equality" of egoism and altruism. Along with this should go an emphasis on the body as well as the soul; an emphasis on fair treatment of animals as well as humans. Haeckel believed that a recognition of human evolution would incline us to be more sympathetic to animals, and that Christian attitudes easily lead to cruelty toward animals. Haeckel regarded the family as the foundation of society and as a necessity for humanity as well as for the higher social animals, whereas Christianity, he believed, tends to disparage the family as a this-worldly phenomenon. Haeckel also opposed the tendency that he found in Christianity to make woman subordinate to man and to regard sexual intercourse as "unclean." He was especially hostile to the hypocrisy he believed is often found in the church toward sex.

Haeckel was much interested in social reform, holding that progress is a law of nature. He compared the rapid progress made in the natural sciences with the lack of progress in government, the administration of justice, education, and social and moral organization. He gave special attention to justice. He believed that students of jurisprudence need much more education in science than they usually receive, and that their knowledge of human nature is sadly deficient. Politicians too make practical decisions of great import with no scientific grounding in the appropriate areas. He also decried the many impediments to free inquiry, whether they stem from political reaction or from theological superstition. He was highly optimistic about the consequences of an improved system of education.

Many of Haeckel's views that caused violent disputes in the past are today widely accepted by educated people. Much of the antagonism toward him was centered on his insistence that man is a part of nature and in the evolutionary stream. Although large portions of the scientific part of Haeckel's worldview have since been rejected, much is still regarded as sound. His views on religion

would still be challenged by many; some, of course, find them mild.

See also Altruism; Darwin, Charles Robert; Empiricism; Evolutionary Theory; Goethe, Johann Wolfgang von; Hedonism; Justice; Materialism; Progress, The Idea of; Psychology; Rationalism; Schopenhauer, Arthur; Spinoza, Benedict (Baruch) de.

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HÄGERSTRÖM, AXEL
(1868–1939)

Axel Hägerström, the Swedish philosopher, was the son of an orthodox minister of the Swedish Lutheran church and grew up in an intensely religious atmosphere. With the intention of following his father's profession, in 1886 he began theological studies at Uppsala University, which was to remain his academic home throughout his life. His interests, however, were soon diverted from theology to philosophy. From 1893 to 1911 he was docent (roughly, assistant professor), and from 1911 to 1933 professor, of "practical philosophy" (philosophy of morals, law, and religion). During his student days the idealistic metaphysics of C. J. Boström was still influential in Uppsala, although this mode of thought was soon to be swept away by a kind of Neo-Kantianism. Hägerström's publications around the turn of the twentieth century mirror this situation. Under the influence of Immanuel Kant, he came to regard metaphysics as impossible and, going further than Kant, rejected the hypothesis of the *Ding an sich* (especially in *Kants Ethik,* Uppsala, 1902). Like Kant, he considered the pure Ego, the same in all individual minds, as somehow the principle of the reality given to us, as the source of the laws of logic, and also as the source of certain synthetic propositions a priori, such as the principle of causality. Gradually the role played by this pure Ego was taken over, in his thought, by "the concept of reality," which he treated in *Das Prinzip der Wissenschaft* (The principle of science; Uppsala, 1908) and *Botanisten och filosofen* (The botanist and the philosopher; Uppsala, 1910).

Speculation about the concept of reality was to remain a fundamental ingredient in his mature philosophy, but it gradually lost most of its original Kantian flavor. In 1909 Hägerström wrote his *Social teleologi i marxismen* (Social teleology in Marxism; Uppsala). Although this study is a sharp criticism of the Marxist philosophy of history, it seems evident that he was influenced by, or at least in strong sympathy with, certain other aspects of Marxism—its materialism and its views on the functions of ideologies. In his lectures Hägerström soon characterized his own outlook as "enlightened materialism." To give an adequate characterization of his philosophy in a few key words is difficult, for he himself never presented his views in a systematic fashion. His many philosophical writings are mostly devoted to rather special questions, and much of their space is taken by polemics against authors with whom he disagrees. The influences that molded his thought were diverse and seemingly somewhat incompatible. His final philosophi-

cal positions were, on the whole, as far to the left as possible of religion and of any philosophical system, such as that of Boström, that was akin to or gave support to religion. As his motto Hägerström once chose the Catonian paraphrase: "Besides, I think that metaphysics ought to be destroyed."

CRITIQUE OF "METAPHYSICS"

Like so many antimetaphysicians, Hägerström was prone to label any view opposed to his own as metaphysical. The word *metaphysics* as he used it remains somewhat vague as to connotation as well as to denotation. He held, however, that all metaphysical doctrines suffer from a common fundamental fault, that of (implicitly or explicitly) assuming that "reality itself is something real" (or "being is something that there is"). This assumption is as "absurd" as, for example, the assumption that triangularity is something triangular. Hägerström thought it possible to prove positively (1) that the spatiotemporal world of experience exists and (2) that nothing may exist outside this world. In his proof of (1) he made use of an "analysis of the concept of reality" and also of ideas reminiscent of René Descartes's *Cogito.* To deduce (2) from (1) he invoked the principle that two entities cannot exist "outside each other" except as parts of a spatiotemporal context. His materialistic conception of the world of experience does not exclude the existence of consciousness, but consciousness, in his opinion, is a quality of certain material bodies (the psychophysical organisms).

CRITIQUE OF "SUBJECTIVISM"

In an act of consciousness (awareness) we are always conscious of something. If C is a consciousness of O, then C and O are, according to Hägerström, always two distinct entities; and further, the fact that a consciousness of O exists does not imply that O is endowed with any special intrinsic quality (such as being "mental," being a "perception," or being an "idea"). To overlook this is, in his opinion, the fundamental "subjectivist" mistake, which he thinks he can trace in the majority of philosophical epistemologies. This mistake gives rise to a secondary "subjectivist" mistake, the assumption that our knowledge about our own acts of consciousness is the immediate knowledge from which our knowledge of the external world must be derived.

THEORY OF VALUE

Hägerström's first work in value theory was "Kritiska punkter i värdepsykologien" (Critical points in value psychology; in *Festskrift för E. O. Burman,* Uppsala, 1910), in which he raised objections to certain views of the Austrian school of value theory (Alexius Meinong, Christian von Ehrenfels, and others). He rejected especially their distinction between valuating emotive experiences and value judgments as theoretical judgments about the occurrence of such experiences. The value judgment, he claimed, is itself essentially emotive. By the time of his inaugural lecture, published as *Om Moraliska Föreställ-ningars Sanning* (On the truth of moral ideas; Uppsala, 1911), Hägerström had arrived at the "value-nihilistic" doctrine that was to remain one of the most characteristic traits of his philosophic position. Statements of value, such as "To lie is bad," are neither true nor false: They lack truth value. Of the many arguments by which he tried to corroborate this view, the following is typical: A statement is true (or false) if, and only if, the judgment (as a mental phenomenon) expressed by the statement is true (or false); a statement of value, however, does not express any genuine judgment, but an "association" between an "idea" (for instance, the idea of lying) and an emotion. In his work *Till frågan om den objektiva rättens begrepp* (On the question of the notion of law; Uppsala, 1917), he elaborated this view also with respect to deontic statements. A statement such as "I ought not to lie," or "It is my duty not to lie," corresponds, not to a judgment with a truth value, but to an association between an "idea" and a "conative impulse." In this respect deontic statements are closely akin to imperatives. The persistent illusion that value statements and deontic statements have a truth value is caused by the relative stability of the underlying associations, which are built up and supported by the suggestive influence of a number of factors in the social system (such as early education by parents and teachers and the pressure of public opinion).

Hägerström nourished the hope that the spreading of his value-nihilism would contribute to the creation of a more tolerant, more humane, and less vindictive morality. Since he believed that the task of the moral philosopher is to analyze the mental phenomena expressed by, for example, statements of value, and since he took emotions to be an essential constituent in such phenomena, he became deeply interested in the nature of emotion. In order to substantiate his value-nihilism, he thought it important to demonstrate the subjective character of emotions; being "subjective," emotion can not be a source of knowledge—for instance, knowledge of values. Like all mental phenomena, an emotive experience is either an act of being conscious (aware) of something or some combination of such acts. What might commonly be called an emotive experience, such as enjoying the prospect of going to the cinema, is a combination of

intellectual and purely emotive ingredients. The purely emotive experiences, such as a mere feeling of pleasure, consist in being conscious of a certain emotive quality (here a pleasure quality). In his earlier publications, Hägerström seems inclined to regard emotion as "subjective" because emotive qualities are qualities of the Ego. Later he experimented with a variety of explanations. According to one, emotion is "subjective" because the emotive qualities are experienced without "localization." Here, Hägerström invokes his principle that localization in the spatiotemporal context is essential to reality and objectivity, but the form of his argument remains somewhat vague. According to another of his somewhat puzzling explanations, emotion is "subjective" because the emotive qualities inhere in the psychophysical organism that has the emotion, and not in "external" objects.

In some of his works he assumed a "projection of emotive qualities onto external objects." When I look at a painting that pleases me, in his opinion, I project the quality of pleasure experienced by myself onto the painting: I perceive the painting as pleasant, just as I perceive it as square or as dark. On this view, the epistemological distinction that he wished to maintain between emotive qualities and, say, colors, becomes rather problematical. Some Swedish critics of his value theory have taken this view as starting point for their criticism—Einar Tegen, "The Basic Problem in the Theory of Value," in *Theoria* 10 (1944): 28–52; and Søren Halldén, *Emotive Propositions* (Stockholm, 1952).

LEGAL PHILOSOPHY

Hägerström began his mature work in legal philosophy with a criticism of a doctrine, common in nineteenth-century "legal positivism" (*Rechtspositivismus*), according to which "positive law" (as opposed to "natural law," *Naturrecht*) is somehow the expression of a will actually existing in society. His essay "Är gällande rätt uttryck av vilja?" (Is positive law an expression of will?) in *Festkrift tillägnad Vitalis Norström* (Göteborg, 1916) and his previously mentioned book *Till frågan om den objektiva rättens begrepp* are largely devoted to a painstaking criticism of this doctrine in its many varieties. Hägerström devoted much energy to the attempt to clarify the nature of positive law and those factors in "the social machinery" that uphold the law. He maintained that our common view of legal phenomena is blurred by "magical ideas" that can be traced far back in history. In *Der römische Obligationsbegriff im Lichte der allgemeinen römischen Rechtsanschauung* (The Roman notion of obligation in the light of the general Roman view of law; Vol. I, Uppsala, 1927; Vol.

II, Uppsala, 1941), he tried to demonstrate the magical element in ancient Roman law. He believed that such Roman concepts as *ius, dominium,* and *possessio* are magical ideas and that the old Roman legal acts, such as *mancipatio* and *stipulatio* are acts through which magical powers over things or persons are established.

CRITICAL HISTORY OF IDEAS

In his lectures (some of which have been posthumously published) Hägerström discussed, with a wealth of learning, the history of religious, philosophical, political, and legal ideas. The history of ideas appeared to him largely as the history of confusions and errors flowing from certain inborn mechanisms of the human mind. To explain them he used to point especially to certain thought processes that, in his opinion, almost inevitably take place when the emotions and the projection of emotive qualities interfere with intellectual operations.

INFLUENCE

In Sweden, and also in the neighboring Scandinavian countries, Hägerström has exercised great influence. With his pupil and colleague Adolf Phalén he became the founder of the so-called Uppsala school of philosophy, which flourished in the 1920s and 1930s and has had a lasting effect on the whole academic philosophical atmosphere in Sweden. Common to the members of this school—most of whom disagreed with much of Hägerström's own philosophy—were a distrust of metaphysical speculation and of epistemological subjectivism, a realistic (sometimes almost naively realistic) conception of the external world, an interest in the phenomenological analysis of mental acts and their contents, an emotive theory of value (of some kind or another), and an insistence on conceptual analysis as a central task of philosophy. Some of the original members of the Uppsala school became strongly influenced by the Cambridge school of analysis in England and by logical empiricism. Outside philosophy proper, Hägerström gave rise to a school of jurisprudence (Vilhelm Lundstedt, Karl Olivecrona, Alf Ross).

See also Appearance and Reality; Boström, Christopher Jacob; Ehrenfels, Christian Freiherr von; Kant, Immanuel; Marxism; Meinong, Alexius; Value and Valuation.

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HALEVI, YEHUDA
(c. 1075–1141)

Yehuda Halevi, or Judah ha-Levi, the philosopher of Judaism, was born in Toledo, Spain. In his youth he received an excellent grounding in biblical and rabbinic literature, as well as in the secular, particularly philosophic, disciplines. Halevi early displayed a marked poetic gift, which culminated in a body of Hebrew poetry noted for its adaptation of Arabic poetic forms to the Hebrew idiom and for its religious profundity. He practiced the profession of medicine for most of his life, residing in both Christian and Muslim Spain, a fact that may account for his excellent knowledge of Judaism's two descendant religions. His decision to leave for a perilous pilgrimage to Palestine was the result of his intense longing to see the Holy Land, a longing that is reflected in both his poetry and his philosophic work. Legend has it that he was killed in 1141 by an Arab horseman as he kissed the soil of the Temple Mount in Jerusalem, but there is no historic confirmation of this, since he cannot be traced beyond Egypt on his way to Palestine.

Yehuda Halevi's philosophic work *Kuzari: The Book of Proof and Argument in Defense of the Despised Faith*, written shortly before his departure for Palestine, uses as its framework the historically verified conversion to Judaism of the Khazar King Bulan II and most of his people about the year 740. This event had assumed almost legendary proportions by Yehuda Halevi's time, serving as a source of great religious satisfaction to the otherwise badly suppressed Jewish masses. In his work Yehuda Halevi reconstructed imaginatively the discussions that led to the king's conversion. At the beginning we are told that an angel has appeared to the king in his sleep and has informed him that the Creator was pleased with his intentions but not with his way of acting. In the hope of learning a better way of life the king calls in representatives of Aristotelian philosophy, Christianity, and Islam, but they all fail to satisfy him. The king did not originally plan to call on a representative of Judaism, judging this religion unworthy of serious consideration because of the misery of its adherents, but his dissatisfaction with the other presentations causes him to alter his decision and to

call for a rabbi. The discussion with the rabbi constitutes the rest of the volume.

The rabbi begins his presentation by asserting his belief in the God of Abraham, Isaac, and Jacob, who led the Israelites out of Egypt and whose intervention in the history of Israel has been continuous ever since. By beginning in this way, Yehuda Halevi broke sharply with the tradition of Aristotelian rationalism that characterized the bulk of medieval Jewish philosophy. He was very much aware of the profound abyss separating the God of the philosophers, who is self-contained, unmoved, and nonpersonal, from the personal and historic God of the Bible. For this reason he dispensed entirely with traditional proofs for the existence of God, the usual prolegomena of medieval Aristotelianism—whether Jewish, Christian, or Muslim—to the defense of the faith. For Yehuda Halevi it was history that was decisive. The God who reveals himself in the history of Israel could not have been reached by philosophical speculation but only by revelation. Similarly, Yehuda Halevi's interest in miracles reflected his view of history as the realm in which revelation takes place. The superiority of Judaism over its competitors follows, for Yehuda Halevi, from the public character of the Sinaitic revelation upon which Judaism is based. At Sinai, 600,000 men, women, and children were addressed by God, a mass revelation that no other religion can claim. This precludes the possibility of error or deception, a possibility that cannot be discounted in those instances where the revelation is restricted to one or to a few.

Yehuda Halevi's attitude toward the knotty problem of anthropomorphism also reflected his anti-Aristotelian orientation. Although he was not in sympathy with a literal interpretation of many of the terms applied to God by the biblical authors, realizing that this would lead to a humanization of God even to the extent of attributing corporeality to him, Yehuda Halevi was not willing to go the other extreme and strip God of all attributes, making it all but impossible to speak about him. There are events that can be experienced as proceeding from God directly. When biblical authors, such as the prophets, applied a term like *merciful* to God, they were referring to those actions of God that are experienced by man as merciful and as coming from God. Although the term *merciful* is therefore applicable more to the effects of God's actions than to his essence, to the extent that his actions are his discourse about God becomes possible.

The religious particularism that is fundamental to biblical religion was no source of embarrassment to Yehuda Halevi. The election of the people of Israel and of the land of Israel were fundamental concepts of his religious nationalism. This nationalism was based on the divine election of a people and a land for the proclamation to all humankind of those demands that God makes of all people, but for the special representation of which he has chosen one nation, whose suffering derives from its unfaithfulness to its mission. These themes permeate Yehuda Halevi's poetic works as much as they do his philosophical writings.

See also Aristotelianism; Nationalism; Rationalism.

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HAMANN, JOHANN GEORG
(1730–1788)

Johann Georg Hamann, the German Protestant thinker and critic of the Enlightenment, was born in Königsberg. In no sense a professional philosopher, and largely self-educated, he made his living as a secretary-translator and later as a government warehouse manager in Königsberg.

WRITINGS

Hamann's originality early caught the eye of such diverse figures as Johann Wolfgang von Goethe, G. W. F. Hegel, and Søren Kierkegaard, but his famous "darkness"—his opaque style—has daunted all but the most persistent investigators. Study of Hamann has long been dominated by Hegel's picture of him as an irrationalist and the paradigm of an individualist and also impeded by discouraging delays in the publication of complete editions of his works and letters. Following World War I, Hamann's influence on Kierkegaard began to be appreciated, but only more recently have scholars been able to expose enough of their subject so that the real dimensions of his thought could be guessed.

MEDITATIONS AND OCCASIONAL PIECES. Hamann's simplest writings were not intended for publication. These consist of his reflections following financial and spiritual crises he underwent on a business trip in 1758—*Biblische Betrachtungen* (Biblical meditations; 1758), *Gedanken über meinen Lebenslauf* (Thoughts on the course of my life; 1758–1759), and *Brocken* (Fragments; 1758). The *Sokratische Denkwürdigkeiten* (Socratic memorabilia; 1759) was his first public attack on the spirit of his century. A meditation on Socrates and his relation to Christ, it adumbrates the central concern of Hamann's intellectual career, the relation of philosophy to Christianity. Hamann saw himself as continuing the work of Martin Luther, under the different conditions of a later age. Whereas for Luther the problem had been the relation of faith to the "law," the established ecclesiastical and religious systems, the problem now concerned faith and philosophy.

Most of Hamann's writings were short occasional pieces. *Die Magi aus Morgenlande* (The Wise Men from the East; 1760), an essay on the symbolic meaning of eighteenth-century astronomical observations, earned him the sobriquet of the "Wise Man of the North." His reputation during his lifetime was largely based on such collections of essays as the *Kreuzzüge des Philologen* (Crusades of the philologian; 1762), which contains the influential "Aesthetica in Nuce" (Aesthetics in a nutshell), and on some political satires—*Lettre néologique et provinciale* (Neological and provincial letter; 1761), *Lettre perdue d'un sauvage du nord à un financier de Pe-kim* (Lost Letter of a savage of the north to a financier at Peking; 1773), and *Le kermes du nord* (The worm of the north; 1774). The sarcasm and irony characteristic of Hamann's style are readily apparent from some of his titles.

PHILOSOPHY AS CRITICISM

In what sense was Hamann a philosopher? Like Augustine, Anselm, Thomas Aquinas, Blaise Pascal, and Kierkegaard, Hamann is difficult to classify. His relation to philosophy was ambivalent and paradoxical. His thought moved between the twin figures of Socrates and the "Philologian." The figure of Socrates, the philosophical hero of the Enlightenment, Hamann adopted for his own purposes, to turn the symbol of the Enlightenment against itself and to call for a philosophical confession of ignorance in place of philosophical pretensions to knowledge. The term *Philologian* was selected for its ambiguity, in that it suggests both a "lover of the word" and a "lover of reason."

Like Socrates, Hamann considered man to be the crucial problem. (Hamann's famous simile compares self-knowledge to a "descent into hell," suggesting later explorations, by existentialism and depth psychology, into the anxieties and subconscious turmoil of the human psyche.) Like Socrates, he called for and practiced a critical and questioning philosophy; he especially appreciated the acid analyses of David Hume's reason. His answer to Immanuel Kant's criticism of metaphysics was a higher level of criticism, not "metaphysics" but "metacriticism." But as the Philologian, Hamann saw Socrates as a forerunner and prophet (although an unwitting one) of the Christ and philosophy as a discipline seen in its true light only in the context of Christianity.

CRITICISM OF THE ENLIGHTENMENT

Hamann's friends included many of the luminaries of the German Enlightenment, but personal relationships did not deter him from mounting the most severe criticism.

(He believed friendship was like Mount Etna, "fire in the bowels" but "snow on the head.")

What were Hamann's objections to the philosophy of the Enlightenment? He viewed as "idealistic vanity" the attempts of leading Enlightenment thinkers to base philosophy upon undeniable rational truths (Moses Mendelssohn), to speak of "pure" reason (Kant), to discover a "natural religion" (the deists), to penetrate the mystery of man's constitution and isolate the origin of man's linguistic capacities (Johann Gottfried Herder and others), and to separate the knowledge of God from its provenance in historical revelation (Gotthold Ephraim Lessing). Hamann valued Hume's skepticism but insisted that it illustrated not the glory but the bankruptcy of reason. Skepticism is a paradigm of the ambiguity of all human powers—reason so conceived and directed is self-destructive. Hume, he felt, performed a service for philosophy in demonstrating what happens when reason is conceived as purely analytical, stripped of its functions of comprehension and intuition and removed from its orientation in religion and its foundations in historical experience.

Hamann's objections to Enlightenment philosophy can be illustrated by two sexual images he employed (such images were characteristic of his style). The rationalism of the age was trying to strip truth of her clothes, or, to change the figure, was trying to divorce what Nature had joined together, to attain reality by removing all excrescences, such as tradition, history, and experiential particulars. For Hamann truth appeared most authentically as "enfleshed" and therefore embodied in a unity of reason, faith, and sensual experience. He was skeptical of abstractions and saw language as the means by which the reason is confused as well as the means by which it expresses itself (the "seducer" as well as the "helpmeet" of man). He insisted on the wisdom and religious depth inherent in the naive vernacular, in imagery, and in myth. A "coincidence of opposites" was to be expected in the present world, even where the opposites seemed to be the most surprising and paradoxical—flesh and spirit, God and man, sensual language and transcendent conceptuality, history and reason. The most radical skepticism conceals a surreptitious credulity, and the most notorious agnosticism a covert religion.

QUARRELS WITH OTHER THINKERS

Hamann's belief that the Enlightenment was sacrificing the concreteness, historicity, and earthiness of reality to the paramount desire of rationalism to systematize initiated his quarrel with such thinkers as Herder,

Mendelssohn, Kant, and Lessing as well as obscure lesser lights. *Philologische Einfälle und Zweifel über eine akademische Preisschrift* (Philological ideas and doubts about a writing which received an academic prize; 1772) attacks Herder's prize-winning essay on the origin of language; *Golgatha und Scheblimini* (1784) is a criticism of Mendelssohn's theory of "natural religion" and its relation to church and state; *KONXOMPAX* (1779) contains a satire on Lessing's dichotomy between the knowledge of God and the knowledge of "accidents" of history.

CRITICISM OF KANT

Hamann's evaluations of Kant's *Critique of Pure Reason* are found in his letters and in several essays, one of which is called "Metacritik über den Purismum der Vernunft" (Metacritique of the purism of the reason; 1784). The issue between these thinkers is the extent to which reason can be "pure" (that is, devoid of experience). Hamann objected not only to Kant's overvaluation of formal knowledge but also to the belief that Kant demonstrated that in some respects reason can be separated from sense experience.

LANGUAGE

To Hamann, demonstration of a separation between reason and sense experience is impossible because it depends on language, or mental symbols, the "purity" of which is ambiguous. This ambiguity cannot be removed (and the old Platonic ideal of knowledge of forms refurbished) by the double maneuver of surrendering knowledge of reality itself and locating the forms of space and time in the knowing ego, known to be emptied of fallible sense experience. The mark of such an "emptiness" (absence of sense experience) would be a synthetic judgment a priori, and according to Kant this would be based on the pure forms of sensible intuition. However, to Hamann these forms of intuition, which he took to be types of *language*, cannot be demonstrated to be pure, because language contains the capacity to create what may be an illusion. "Not only does the entire capacity to think rest upon language … but language is also in the middle of the misunderstanding of reason with itself." The forms of intuition are not simply passive channels for the content of experience, but active forms of language (or of symbols) that have the power to deceive the mind and create the illusion that they are a priori and necessary.

In the new picture of being that Hamann offered as an alternative to his age, man is seen as a creature of flesh and blood ("the heart beats before the head thinks"), history as a living communication of the meaning of man's existence ("a continuing sign"), and the world as the "language" of God ("speech to the creature through the creation"). The metaphor of "language" points to the symbolic nature of the world, which is not to be exhausted in its material significance, deified in a pantheism, or transcended by reason in a Platonic dualism.

INFLUENCE

Scholarly interest in Hamann has focused upon his influence on the Sturm und Drang and Romantic movements and on such figures as F. H. Jacobi, Friedrich von Schelling, Hegel, and Friedrich Schleiermacher; upon his role as a forerunner of existentialism; upon his pioneering exploration of the nature of human sexuality (see his *Versuch einer Sibylle über die Ehe* [Essay of a sibyl on marriage; 1775] and *Schürze von Feigenblättern* [Skirts of fig leaves; 1777]); upon his influence on religious thought, such as the Movement of Awakening (*Erweckungsbewegung*, a revival of intellectual pietism) and neoorthodoxy; upon his contributions to a philosophy of language; and upon his reconception of reason as essentially historical.

See also Anselm, St.; Augustine, St.; Enlightenment; Existentialism; Goethe, Johann Wolfgang von; Hegel, Georg Wilhelm Friedrich; Herder, Johann Gottfried; Hume, David; Kant, Immanuel; Kierkegaard, Søren Aabye; Lessing, Gotthold Ephraim; Luther, Martin; Mendelssohn, Moses; Pascal, Blaise; Philosophy of Language; Philosophy of Sex; Reason; Schelling, Friedrich Wilhelm Joseph von; Schleiermacher, Friedrich Daniel Ernst; Skepticism; Socrates; Thomas Aquinas, St.; Unconscious.

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HAMELIN, OCTAVE
(1856–1907)

Ernst Heinrich Haeckel, the French idealist philosopher, carried further the neocriticism of Charles Renouvier and Jules Lachelier. Renouvier had criticized the categories of Immanuel Kant, maintaining that the category of relation really included all the others. He had also criticized the fact that Kant had not included personality in the categories, though he should have, since the will determines thought no less than does speculative reason. Thought, according to Renouvier, manifests relation in two ways—in the relations of its elements to each other, and in the relation of judgment to consciousness. The latter relation is always unique because consciousness displays its spontaneity in the synthesis of the objects which it posits.

Hamelin started from a similar position; in fact, he always declared himself a disciple of Renouvier. However, Renouvier had taken account of contingency and discontinuity, and for him the pursuit of truth involved a recurrent dilemma, in which a free choice or wager was presented to the seeker. Hamelin, by contrast, was much more intransigently rationalistic, and in this he was influenced by Lachelier. A priori thinking pervaded Hamelin's system, and he envisaged a reality made entirely transparent and intelligible by a process of rational deduction. "Knowledge will no longer be seen as the invasion of the subject by alien elements, but as a putting into action by the subject of his potentialities."

Such an idealistic system requires some principle that accounts for change yet allows change to remain compatible with the necessity of rational deduction. In Hamelin's system this principle is correlation, and following G. W. F. Hegel, Hamelin pictured a dialectical evolution of reality through the synthesis of complementary opposites. This movement is from abstract elements toward the constitution of concrete reality—toward the constitution, indeed, of conscious personality—and not, as in Hegel, toward the indefinite pursuit of an Absolute. Hamelin's philosophy was a highly ingenious, if perhaps unsuccessful attempt to do away with the dilemma that dogged nineteenth-century French philosophy, the dilemma of a necessary realm of thought and a contingent domain of occurrences. Hamelin brought contingency, freedom, and personal consciousness within his dialectical system, making them the necessary outcome of incomplete, abstract categories that invoke them. They make their appearance, moreover, as the product of the dialectical process and as the coming to fruition of a hitherto inchoate reality.

Hamelin deduced the categories, or elements of representation, according to this dialectical principle. Relation is the synthesis of being and nonbeing, as that which consists in interdependence. The antithesis of relation is what is essentially independent, number. Number and relation are synthesized in time. Space stands in antithesis to time since its parts, though separate, are also simultaneous and reversible. The space-time antithesis is transcended in motion, still a quantitative concept, which finds its opposite in what is unaffected by it, quality. Motion and quality are synthesized in modification (*altération*), which is the movement of quality. Modification is contrasted with a kind of resistance to change that tends to perpetuate the initial state, and this is specification, or the notion of class or species. Out of the interaction of modification and specification comes causality, or change brought about in beings through their sharing the world with other beings. Opposed to causality is a principle of persistence within the self, which is finality. The ultimate synthesis is in independence and self-sufficiency,

which is expressed as free becoming and is an active system, or conscious self.

The characteristic of Hamelin's philosophy is its strictly a priori derivation of the concrete and individual consciousness from general and abstract elements. There is a kind of dynamism of incomplete abstraction working toward its own fulfillment and specification as successive logical demands are met. The element of contingency, which is inescapable in reality, finds its way into the system in the freedom of the individual consciousness: "What provides the explanation of consciousness is the need to choose."

Hamelin proceeded as far as anyone could in the idealistic direction. His no longer fashionable metaphysical deduction of the world through a series of necessary relations has met with some criticism from more recent French philosophers, whose tendency has been rather to see meaningful experiences as involving a compromise between a world of brute facts, which is prereflective, and a mind that almost necessarily orders them, albeit according to its own requirements and in the light of its own tasks.

See also Appearance and Reality; A Priori and A Posteriori; Hegel, Georg Wilhelm Friedrich; Idealism; Kant, Immanuel; Lachelier, Jules; Renouvier, Charles Bernard.

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HAMILTON, WILLIAM
(1788–1856)

William Hamilton, the Scottish philosopher and logician, was born in Glasgow and was educated at Glasgow, at Edinburgh, and at Balliol College, Oxford, where he took his B.A. in 1811. After leaving Oxford he studied law and in 1813 was admitted to the Scottish bar. He was appointed professor of civil history at the University of Edinburgh in 1821 and was elected to the chair of logic and metaphysics in 1836. Hamilton, a man of stupendous erudition, was strongly influenced by Thomas Reid and Immanuel Kant.

PSYCHOLOGY

Hamilton divided "mental modifications, or phenomena" into three classes—the phenomena of knowledge or cognition; the phenomena of feeling, of pleasure and pain; and the phenomena of will or desire, the exertive or connative powers. Knowledge, feeling, and will or desire cannot exist independently of one another. Every state of mind is a combination of all three, although proportions may vary. We can conceive of a being who knows one thing or another but is totally devoid of feeling, desire, and volition; or of a being capable of knowledge and feeling only; but not of a being having the capacity for pleasure and pain and the capacity to will, but lacking the faculty of knowledge.

Mental phenomena are included under the phenomenon of consciousness. When one knows, he knows or is conscious that he knows; when one feels, he knows or is conscious that he feels; and when one desires, he knows or is conscious that he desires. Consciousness is not something in addition to knowledge, feeling, and desire, but the general condition of their existence. It is a relation between a knowing (or conscious, or intelligent) subject and an object of knowledge, in this case a modification of the mind. Although Hamilton sometimes denied the possibility of unconscious mental states, at other times he argued that "the mind exerts energies, and is the subject of modifications, of neither of which it is conscious" (*Lectures on Metaphysics,* Lecture 18).

PERCEPTION

In perception, according to Hamilton, we have an immediate or presentative rather than a mediate or representative knowledge of the object. In presentative cognition a thing is known in itself rather than via something other than itself. When I see a cat I come to know the animal in itself as contrasted with, for example, my knowledge of a past event, which is acquired through testimonials and other means distinct from the event thus cognized. I may have representative knowledge of the past, the future, and the merely possible, as in imagination. Immediate presentative knowledge is of that which exists here and now. Perception is the faculty presentative of the phenomena of the nonego (matter), and self-consciousness is the fac-

ulty presentative of the phenomena of the ego (mind). A thing is known in itself only if it be known as actually existing in its when (now) and its where (here). Perception has for its objects the primary qualities of bodies. Knowledge of secondary qualities is never immediate, in that all we can know of them is that some unknown external cause is responsible for the "present affections of the conscious subject." Thus Hamilton agreed with Thomas Reid that we have a "direct notion" of primary qualities but only relative notions of the secondary qualities of things.

In perception we are intuitively aware of the duality of ego and nonego. This is an immediate, primitive datum of consciousness, to whose existence the natural realist (or natural dualist—both terms were used by Hamilton to designate holders of views like his own) is implicitly committed. Perception is not inference. We do not first become aware of some mode of consciousness and then infer from this awareness the present existence of a physical object as cause of that modification. Nor are we aware of an inner representation or referent from which we conclude the existence of an object referred to or represented. Representative theories of perception presuppose what on their own terms could not be the case. In order to know that *A* refers to or represents or is a sign of *B,* it must be possible to gain knowledge of the existence and nature of *B* independently of our knowledge of the existence and nature of *A.*

RELATIVITY OF KNOWLEDGE

Granting that our senses inform us of the existence and the nature of physical objects, just what information do they provide us with? Hamilton held that our knowledge of mind and of matter is relative and conditioned and that "of existence absolutely and in itself, we know nothing" (*Lectures on Metaphysics,* Lecture 8). Our knowledge of the ego as well as of the nonego is purely phenomenal. The self is known to us only via the phenomena of the immediate introspective awareness of the flow of experience. In external perception we come to know about physical objects only as they appear to us through the senses. A physical object as known is that which appears to us as extended, solid, divisible, figured, colored, hot or cold. Thus, "matter" or "body" is a name for a certain set of appearances or phenomena, but these must be regarded as appearances *of* something. This something, however, is inconceivable apart from its phenomena, absolutely and in itself, out of relation to a knower. By virtue of a "law of thought" we are compelled to think of something absolute, unknown, and unknowable as the

subject, substance, or substratum of the relative, the phenomenal, the known. The same reasoning applies to mind.

That a thing or a quality of a thing is known in itself does not mean that it is known in its "absolute existence" out of relation to the knower, for this is impossible. Hamilton meant, presumably, only that it is not known through a process of inference from signs or representations. All knowledge is relative in that in order to be known a thing must be related to the knower, the relation being precisely that of the knower to the known. But this is trivial. Hamilton pointed out that the way a thing appears to us in perception is relative in another sense— it is a function not only of the objective qualities of the thing, but of the medium and the sense organs as well. When I perceive a book, the phenomena or appearances of the external object are a resultant of the contributions of the book, of the intervening medium, and of the sense organs. Consequently my knowledge of the book is modified through certain intermediate agencies and must be relative. But, as J. S. Mill pointed out in *An Examination,* this conclusion does not follow; rather than entailing the relativity of all knowledge of physical objects, the considerations adduced show at most that that part of the knowledge that is not contributed by the book itself is relative.

PHILOSOPHY OF THE CONDITIONED

To think of a thing is necessarily to think of it as a thing of a certain sort, to classify it, to subsume it under a concept. Thought imposes conditions on its object. Therefore the conditioned is the only possible object of knowledge. The absolute, the nonrelative, the unconditioned is inconceivable; all we can know is *that* it is, not *what* it is. Although many things are inconceivable to us, nonetheless we know that some of them must be true. Hamilton claimed that, given the principles of contradiction and excluded middle, all actual thought lies between two extremes, each of which is inconceivable. The extremes represent that which is absolute or unconditioned. One of these absolutes we know must be true because they are mutually contradictory; but since both are inconceivable we cannot know which is true. "The Conditioned is the mean between two extremes—two unconditionates, exclusive of each other neither of which can be conceived as possible, but of which … one must be admitted as necessary" (*Discussions,* p. 22). The weakness of the human mind thus restricts its objects of positive thought to the mean. As illustration Hamilton argued that space must either be bounded or unbounded. One

alternative must be true, but both cannot be, even though we cannot positively conceive of either one. Similarly we cannot conceive of an absolute beginning of time or of an infinite regress. We cannot conceive of an absolute end of time or of an infinite prolongation, although one or the other must be admitted to be true.

LOGIC

Hamilton regarded his doctrine of the quantification of the predicate as his most important contribution to logic. The doctrine is based on the self-evident truth that we can operate rationally only with what we already understand. This in turn leads to the postulate that we ought to be able to state explicitly what is thought implicitly. When we make a judgment we always implicitly understand the quantity of the predicate as well as the quantity of the subject. Since the predicate is always quantified in thought, and since every quantity is either all or some or none, we always regard the predicate of a judgment as denoting all, some, or none of the objects in its extension. The proposition "All men are animals" must mean either that all men are all animals (all men and only men are animals), or that all men are some animals (all men, but not men only, are animals) "Some animals are carnivorous" becomes "Some animals are some carnivorous," which is to be understood as some and some only, that is, some animals are carnivorous and some are not. Among the advantages of this innovation, according to Hamilton, are the reduction of propositions to equations, the simplification of the doctrine of conversion, the abolition of the figured syllogism and the consequent manifestation of the absurdity of reducing syllogisms of other figures to the first.

Since in Hamilton's view logic is the science of the laws that of necessity govern all valid thought, criticisms of him drawn from psychological considerations are relevant. It comes as something of a surprise to the beginner in logic that conversion of the universal affirmative "All *S* is *P*" is only by limitation to "Some *P* is *S*." But in Hamilton's view this should be obvious to all and should not represent a new idea as in fact it does.

See also Kant, Immanuel; Logic, History of; Perception; Phenomenology; Psychology; Reid, Thomas.

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HAMPSHIRE, STUART NEWTON
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Stuart Newton Hampshire, born in Lincolnshire, England, was a fellow of All Souls College and of New College, Oxford, and then Grote professor of mind and logic at University College, London (1960–1963); he also was professor of philosophy at Princeton University. From 1970 to 1984 he taught at Wadham College, Oxford; in 1984 he joined the faculty of Stanford University, becoming emeritus in 1990. Hampshire's contribution to philosophy, while clearly belonging to the main current of contemporary work in the English language, was highly individual. His work displays a broad and systematic outlook, concerned with bringing together views in the theory of knowledge, metaphysics, the philosophy of mind, ethics, and aesthetics. Among influences outside philosophy itself, it shows a particular awareness of psychoanalysis and of the history and criticism of literature and painting. His philosophical style is distinctive, a sensitive blend of the argumentative and the exploratory, which can be seen as the product of two contrasting influences: a sympathy with the outlook of Friedrich Waismann (himself influenced by Ludwig Wittgenstein) that there can be no proofs in philosophy, together with a respect

for the aim of J. L. Austin and other recent philosophers to reach definite results by definite methods.

Hampshire showed a constant interest in the connections between meaning and confirmation. To this extent, there are links between his concerns and those of logical positivism, and a relatively early paper, "Logical Form," shows a recognizably positivist spirit in explaining differences of form in terms of differences in methods of confirmation. However, Hampshire's views were never positivist. In particular, he was not so much concerned to assign a privileged possibility of certainty to some special class of statements but rather to explore the various certainty conditions of different classes of statement.

The connections between meaning and certainty conditions have been particularly explored with reference to psychological statements. Hampshire rejected the possibility of Cartesian statements of immediate experience, independent of any bodily conditions. He emphasized both the need of communication with other persons for self-knowledge ("The Analogy of Feeling") and the dependence of the subject's sense of his identity on his being a physical agent in a physical environment. This idea is treated in detail in *Thought and Action*, where some influence of Jean-Paul Sartre and of Maurice Merleau-Ponty can be seen. While stressing the connections between mental concepts and physical agency, Hampshire sought at the same time to give an intelligible place to introspection and to the possibility of incorrigible declarations by a speaker of his own mental states, particularly in the case of intentions: Besides *Thought and Action*, see "Self-Knowledge and the Will" and the important article "On Referring and Intending." In line with this is his rejection of any thoroughgoing behaviorist analyses of psychological concepts (review of Gilbert Ryle's *Concept of Mind*) and his interesting account of the notion of a *disposition* as applied to human character ("Dispositions"), an account later elaborated in psychoanalytical terms (in "Disposition and Memory"). Human dispositions must be distinguished logically from merely "dispositional properties," such as are possessed by material objects: Dispositional properties can exist without having been manifested, but ascription of human dispositions implies some actual manifestations of them in the life of the individual. Moreover, the understanding of a human disposition is of a different character, being basically historical or genetical. Psychoanalysis is taken to reveal a basic way of understanding the individual's disposition, as rooted in his early experiences and consisting in the generalization to a class of situations of primitive responses; the influence of the primitive situations is to be seen in terms of unconscious memory. These ideas provide a link between the concept of a disposition and those of rationality and freedom; control over one's dispositions may be increased by self-knowledge, the understanding of how they have come about.

The emphasis on the psychoanalytical type of account of dispositions—that is, a genetical account—is a particular application of the wider view that human activities must be understood historically. This view has had an important influence on Hampshire's outlook on ethics, which rests on two points—that any comprehensible system of ethics must be grounded in a view of human nature and that all views of human nature are historically conditioned and essentially revisable. However, the historical changes in views of human nature or "the powers of the mind" are comprehensible only against a background of something identified, under any view, as essential to human nature, and this Hampshire finds in the possibility of self-conscious intentional action. From this point of view, Hampshire seeks to illuminate two basic (and, he would hold, permanent) distinctions: that between art and other human activities and that between human actions and mere events. Art is connected with the absence of an intentional project (see "Logic and Appreciation"); the appreciation of art is a process of free exploration. The distinction between actions and mere events involves his theory of freedom, which turns on a basic distinction between decision and prediction, and on the claim that there is an ineliminable human power of "standing back" from any prediction of one's future actions, the situation thus being changed (see *Thought and Action* and "Decision, Intention and Certainty"). Whether this has the consequence that determinism is impossible is perhaps not entirely clear; it is notable that Hampshire treated these questions in an illuminating book on Benedict de Spinoza, and his sympathy for a Spinozist connection of freedom and knowledge, rather than a supposed freedom of the will, certainly continued (see "Spinoza and the Idea of Freedom").

See also Austin, John Langshaw; Freedom; Logical Positivism; Merleau-Ponty, Maurice; Perception, Contemporary Views; Philosophy of Mind; Propositions, Judgments, Sentences, and Statements; Ryle, Gilbert; Self-Knowledge; Spinoza, Benedict (Baruch) de; Wittgenstein, Ludwig Josef Johann.

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HANAFI, HASSAN
(1935–)

Born in Cairo, Hanafi studied first in Egypt but obtained his PhD in Paris (1966), working with Robert Brunschvig on a thesis entitled *Les méthodes de l'exégèse: Essai sur les fondements de la compréhension, 'Ilm usūl al-fiqh*. Hanafi has been a professor of philosophy in Cairo University since 1967 and has written many substantial works, three of which are particularly significant. He produced a study in five volumes on political theory, *From Dogma to Revolution* (in Arabic, 1985), an eight volume inquiry (in Arabic) on the links between religion and revolution in Egypt that focuses also on contemporary Islamic trends (*Religion and Revolution in Egypt*, 1989). The perspective of the foundation of an "Islamic left" leading through religion to a reconstruction of politics is outlined in the book and represents the main political approach of the author. The collected papers of *Islam in the Modern World* (1996) (two volumes) cover a wide range of topics from philosophy and theology to sociology and politics.

Hanafi's philosophical method is grounded in phenomenology and hermeneutics and he is particularly effective in applying this method to Islam. Consciousness and history acquire great importance accordingly. Islam is not merely a religion, according to him, but above all an ideology that connects the temporal and the sacred. Thus the outward (social and practical) and the inner (related to conscience) dimensions of human reality are but two aspects of the same phenomenon. Theology must become anthropology in order to allow humanity to make faith the tool of transformation of economic and social relations. The translation of theology into anthropology needs firstly the Husserlian *epoché* on God's essence; and secondly a new orientation of the object of theology. The center of revelation as the science of God is no longer God but humanity. Revelation is the science of humanity because humans are its objects and interlocutors. In this transformation of theology into anthropology, God keeps his value as telos, the goal of human activity in front of which all are equal. God is not logos, but praxis; not an idea, but a form of practice. Consequently, in Hanafi's view, Islam is a religion of revolution and justice prompting everybody to refuse any subordination to oppressive power and to claim the liberation of the world and its people in the name of God.

Hanafi criticizes Orientalism as a science aimed at colonial submission. He believes that the Third World's peoples have to develop a science of Occidentalism in order to get a fresh cultural, political, and philosophical

stance. Then they will be able to join Europe and North America in its modernity and recover their role in universal history (these ideas are discussed in Hanafi's *Introduction to the Science of Occidentalism*, in Arabic, 1991). From the perspective of intellectual recovery, Hanafi believes a new interpretation of Islamic heritage (turāth) is vitally important, because the reconstruction of a historical consciousness—namely tradition—is the direct path to development. Among the applications of this new reading are an inquiry into the traditional science of *hadith* (the traditional sayings of the Prophet) which Hanafi acknowledges has a historical character, and into Qur'anic exegesis that is envisaged to require an interpretation linked not only to explanation, but also to understanding, and not only to knowledge, but also to awareness.

See also Hermeneutics; Islamic Philosophy; Justice; Revelation.

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Massimo Campanini (2005)

HAN FEI
(c. 280?–233 BCE)

Han Fei, the outstanding authority of the Legalist school of Chinese philosophy during the Warring States Period (403–221 BCE), lived some two centuries or more later than Confucius, Laozi, and Mozi. His works consist of fifty-five treatises. He was an aristocrat of the state of Han, in the northwest, where a movement of political reform had arisen. In the rest of the Chinese kingdom, Confucianism, Mohism, and Daoism still maintained the theory of government by customary morality, religious sanctions, and personal virtuous example or even "inaction" (or "nonaction") by the ruler. Since the traditional feudal system had collapsed generally throughout China, new thinkers spoke of government by positive law, exaltation of the state at the expense of the individual, and possession of supreme power by the ruler. Out of these thoughts of his predecessors, Han Fei made a comprehensive synthesis and formed his unique doctrine of legalism. This doctrine was greatly admired by the ruler of the state of Qin, who by its adoption eventually became the first emperor of the unified Qin Empire. Han Fei had been invited to the court of Qin, but he was forced to commit suicide by Li Si, chief minister of Qin and former associate of Han Fei. Although they had studied together under Xunzi, the exponent of a reformed Confucianism, political jealousy overcame Li Si.

Han Fei accepted only one point of Xunzi's philosophy, that human nature is originally evil. He then insisted that all men act from selfish motives and that a system of rewards and punishments can provide an effective control for the government, for there is no one who does not fear punishment and welcome rewards. The ruler can then rule the state through a set of severe laws without his own interference. In economics, too, the government should adopt a laissez-faire policy, leaving people alone to carry on free competition; this will cause them to be more active and frugal, with the result that production will increase. Thus, Han Fei reinterpreted the inaction principle of Laozi in such a way that the sovereign, like the helmsman of a great ship, simply makes slight movements with the "two handles" of reward and punishment, and the whole state follows his desires and dictates.

While "statecraft" serves to keep the sovereign in power, laws are to be obeyed by the people. Han Fei said: "The intelligent ruler sees to it that his subjects do not allow their minds to wander beyond the scope of law; nor perform acts of favoritism within it" (*Works,* Treatise II). He also observed: "In the state of the intelligent ruler there is no literature of books and records, but the laws serve as teachings. There are no sayings of the early kings, but the officials act as teachers." Once laws have been established everyone should obey them; no heterodox doctrines of private individuals and traditional authorities should prevail. This led the first emperor to practice totalitarian regimentation, "burning the books and burying the literati" (*Works,* Treatise XIX).

It was Han Fei who supplied a rational explanation for revolutionary changes from the old order. He

asserted: "Affairs go according to their time and preparations are made in accordance with affairs.… The sage does not aim at practising antiquity and does not model himself upon what is considered to be permanently correct" (ibid.). Indeed, history does not repeat itself. Politics, therefore, must look always to the present and to changing circumstances rather than to any static idea or ideal. In a word, Han Fei can be regarded as a radical positivist or perhaps as the extreme realist of ancient China.

See also Chinese Philosophy; Confucius; Laozi; Mozi; Xunzi.

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Nai Z. Zia (1967)
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HAN FEI TZU

See *Han Fei*

HAN YU
(768–824)

Han Yu lived in a time when the Chinese Tang empire (618–907) was threatened by military separatism but enjoyed cultural creativity and economic expansion. He became a major writer in his youth and had a successful official career late in his life. He was an innovative poet and essayist and the chief champion of the *guwen* movement that paved the way for a fundamental change of prose style. More unusual for a writer, Han played a leading role in a crucial philosophical redirection.

As a thinker, Han's most important idea was that Confucianism is the sole legitimate teaching for human conduct, to the exclusion of Buddhism and Daoism. This was an extreme position in his own time, but it exerted profound influence throughout later Chinese history. Han presented this view most forcefully in his famous essay "Essentials of the Moral Way" (*Yuan Dao*). This essay asserts that the only Dao is the one based on everyday life, which is the Confucian Way discovered and developed by ancient sage-kings. What are the teachings of these sages? Han declares:

> To love universally, which is called humanity; to apply this in the proper manner, which is called rightness; to act according to these, which is called the Way; to [follow the Way and] become self-sufficient without seeking anything outside, which is called virtue. The *Book of Poetry*, the *Book of History* … are their writings; rites and music, punishments and government, their methods. Their people were the four classes of scholar-officials, farmers, artisans, and merchants; their relationships were those of sovereign and subject, father and son, teacher and friend, guest and host, elder and younger brother, and husband and wife. Their clothing was hemp and silk; their dwellings halls and houses; their food grain and rice, fruit and vegetables, fish and meat (de Bary, et al. 1960, pp. 378–379 with minor changes).

A key point here is the all-embracing and this-worldly nature of the Confucian Way. Han made his point by going so far as to include people's clothing and food as part of the Way.

In his treatise, Han not only rejects all teachings that attempt to find the meaning of life outside or beyond the social order prescribed by Confucian sages, but also asserts that Confucianism values spiritual life as well. However, the Confucian mode of self-cultivation is intrinsically linked to mundane life; spiritual purification should be a basis for bettering, not transcending, the world. In another essay, Han gives his picture of Confucian spirituality. It is essentially a reconfiguration of ideas prevalent mainly during the Han era (206 BCE–220 CE), and failed to win the approval of the later thinkers taking up his program of Confucian renewal.

The chief target of Han's intellectual campaign was Buddhism—the dominant religion of medieval China—which because of its foreign origins conflicted with Confucian values in many fronts. Yet the true significance of his thought shows more clearly in his criticism of Dao-

ism. Han categorically disagreed with the anticivilization attitudes in the *Laozi* and the *Zhuangzi*. He held that in constructing what is now called the Confucian order, ancient sage-kings saved humankind from a state of chaos and savagery; the Daoist calls for a return to the innocent primeval age, he believed, were absurd. Han also accused the religious Daoists, with their search for immortality and a secluded life, of deserting their inviolable duties as members of the human community. By taking an almost unique position against Buddhism, religious Daoism, and philosophical Daoism simultaneously, Han was assailing a view predominant in China since the early third century CE, that Daoism and Buddhism brought to light questions concerning the fundamental essence of the world and the spirituality of individuals whereas Confucianism had practical uses in building a proper sociopolitical order. Han put forward a new vision: that a proper human society can only be built upon Confucian principles in toto.

Han wrote only a few formal essays on philosophical issues, but often expressed his views in other genres and in highly literary manners. He was an original thinker who had effective weapons with which to send his message. Han challenged a fundamental intellectual premise of medieval China, and opened the way for the eventual formation of "the Learning of Principle" (*lixue*)—or neo-Confucianism—in the eleventh century. If the word "pioneer" means anything in historical account, Han was a most significant pioneer.

See also Confucius; Li Ao.

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HAPPINESS

As an object of philosophical inquiry, the concept of happiness is as old as philosophy itself. It was central to the ethical thought of the Greeks, most famously Aristotle, and was restored to this position of prominence by the nineteenth-century utilitarians. Whether a principal theme or not, the pursuit of happiness plays some role in virtually all ethical traditions. Indeed, few would deny that happiness is one of the important goals in life, if not the only one. Through the twentieth century and into the twenty-first, both philosophers and psychologists have continued to ask questions about happiness. These questions fall into two broad categories: (1) The nature of happiness—in what does it consist? (2) The value of happiness—what is its role in a theory of ethics or of the good life?

WHAT HAPPINESS IS

The terms *happy* and *happiness* are used in many different ways, and it is important to identify the precise concept that is of philosophical interest. We often speak about being happy with or about something, where this means roughly regarding it favorably or having a positive attitude toward it. The object of such an attitude can, in principle, be anything: a state of oneself or a state of the world. We also speak about feeling happy, where this is an occurrent state of mind characteristically accompanied by energy, vitality, and buoyancy of spirit. Both of these notions need to be distinguished from that of being happy or having a happy life. When philosophers investigate the nature or value of happiness, it is this concept of a happy life that they have in mind.

Accounts of the nature of happiness can be partitioned initially along a subjective–objective dimension. An analysis is subjective if it makes a person's happiness depend, at least in part, on attitudes or feelings. Conversely, it is objective if happiness is taken to be entirely independent of these subjective states so that someone could be happy even if neither feeling happy nor having a positive attitude toward the conditions of life.

The best-known example of an objective conception of happiness is Aristotle's. According to Aristotle, eudaimonia consists in the excellent functioning of the soul, thus the exercise of virtue. While Aristotle allowed, as does common sense, that a person's happiness could also be affected by external goods and circumstances, the stronger view that virtue is not only necessary for happiness but also sufficient was affirmed by the Stoics. Both views, however, have seemed counterintuitive to many. If virtue is necessary for happiness, how is it possible (as it seems to be) for vicious people to be happy? And if virtue is sufficient, then would we not be compelled to call the virtuous happy even if they are consumed by torment and suffering? The seemingly paradoxical implications of linking virtue and happiness in either of these ways has led some commentators on Aristotle to the conclusion

that what he means by eudaimonia is not adequately captured by our concept of happiness, so that the Greek term he uses should really be translated in some other way, possibly as *well-being*.

However this might be, when the utilitarians revived interest in happiness as an object of ethical inquiry, they assumed a subjective analysis of its nature. For Jeremy Bentham, John Stuart Mill, and Henry Sidgwick, happiness consisted in pleasure and the absence of pain or a surplus of pleasure over pain. The hedonism they espoused represents one of the main options for a subjective analysis of happiness. On the simplest version of it, a person's hedonic state at a particular time is determined by the balance of agreeable and disagreeable feelings at that time. Happiness is then a matter of the longer-term tendencies of these hedonic balances: The greater and more enduring the balance of positive over negative states, the happier the person. In recent years this reduction of happiness to positive and negative affect has been one prominent theme in the emerging field of hedonic or positive psychology. Indeed, a hedonistic or affective state analysis of happiness is now most commonly defended by psychologists such as Daniel Kahneman, though it still has its philosophical advocates as well.

However, many philosophers attracted to the project of a subjective analysis of happiness have found the hedonistic account unsatisfactory. For one thing, the usual sources of pleasure seem too short-term and episodic to tell the whole story of whether a person is happy. The idea that happiness over a lifetime, or a considerable stretch of a life, can be computed simply by adding up episodes of positive and negative affect and finding the balance neglects the role of more global factors, such as the pursuit and achievement of long-term goals or projects. Indeed, there is good empirical evidence that even very intense pleasures on particular occasions add relatively little to a person's overall happiness compared with more stable and enduring sources of fulfillment or satisfaction. Furthermore, there seems to be a cognitive or judgmental aspect to happiness that is not captured by this exclusive focus on occurrent feelings. It seems plausible to think that how happy a person is must have something to do with how well that person thinks life is going, either as a whole or in important sectors (such as work, family, and health). Developing this line of thought has led philosophers and psychologists to develop a conception of happiness as life-satisfaction. This conception is still subjective since it takes someone's happiness to be a matter of how the person thinks life is faring given that person's interests and values. But it makes happiness more a matter of judgment than of feeling. Among psychologists Ed Diener has been the principal exponent of this life-satisfaction view.

So there are two principal subjective analyses of happiness: in terms of affective states or life-satisfaction. Each seems to capture a dimension of the phenomenon that eludes the other. On the one hand we would be reluctant to call anyone happy whose dominant state of mind tended toward the gloomy, dejected, or depressed. Here the affective state account seems to yield the intuitively right result. On the other hand we would be similarly reluctant if the subject were to report that in every important sector, life was failing to measure up to aspirations and expectations for it. This time the life-satisfaction account seems to be on the right track. Perhaps, then, the best theory of the nature of happiness will be a hybrid that takes both dimensions into account, looking for a preponderance of positive affect over time together with an endorsement of the conditions of one's life. Such a theory will not yield a determinate result if these dimensions can come apart, as seems both logically and psychologically possible. But in that case the right response might be to question whether our common notion of happiness is internally unified or whether it looks to both of these factors. If the latter is the case, then the hybrid theory might just be the best fit for it.

WHY HAPPINESS MATTERS: WELL-BEING

Whether construed objectively or subjectively, happiness has been thought to be normatively important either as a part of the good life or as an ethically valuable goal. When inquiring into the role of happiness in the good life, we must be mindful of the multiple ambiguities of this latter notion. A good life is a life high in some particular type of value, but there are many such types (such as aesthetic, perfectionist, and ethical). The dimension of value to which happiness seems most relevant is prudential: the value of a life for the person who is living it. But *prudential value* is a piece of technical philosophical terminology; its ordinary language equivalent is well-being.

Is happiness equivalent to well-being, thus to a good life, in this particular sense? There is some reason to think so. After all, we commonly wish people happiness at critical junctures in their lives, such as birthdays and anniversaries, seeming to imply that this is the best, most optimistic, hope we can have for them. Furthermore, there is much plausibility in the idea that any other of our life's conditions—health, income, job, family—is of little or no value if it does not make us happy. Perhaps then, as

Mill claimed, "happiness is desirable, and the only thing desirable, as an end; all other things being only desirable as a means to that end" (Mill 1969, p. 234).

But there is also reason to doubt the equation of happiness and well-being, especially if we assume a subjective conception of happiness. For one thing, since on either version of a subjective analysis happiness is a state of mind, it can in principle be synthesized in the manner made famous by Robert Nozick's science-fiction example of the experience machine. But we would be reluctant to think that the good life for a person could consist in a thorough-going illusion completely divorced from reality. In addition, people's subjective responses to their lives are notoriously subject to manipulation through such mechanisms as oppression and socialization. As a result, people's self-assessments of happiness will be dependent on their expectations for themselves, which may be artificially lowered through internalized conceptions of their social role or status. In order to correct for these distortions, some philosophers have suggested that self-assessed happiness is a reliable indicator of well-being only under conditions of information and autonomy. Others have taken the further step of suggesting that real or genuine happiness consists in the subject's endorsement of the right kinds of objects or states of affairs—those with independent value. Taking this route will lead to a hybrid subjective/objective theory, not of happiness (which is still interpreted subjectively), but of well-being.

WHY HAPPINESS MATTERS: ETHICS

As noted at the outset, happiness has been a central theme in ethical theories, both ancient and modern. The most natural route to treating happiness as an intrinsic ethical good is through its role in well-being. The argument would then be something like this: Well-being matters in its own right, happiness is at least an essential ingredient in well-being, therefore happiness matters in its own right. Some such argument, in one form or another, seems to have influenced both the Greeks and the utilitarians. However, it is also possible in principle (though perhaps less plausible) to hold that happiness is intrinsically valuable just in its own right, independently of its connection to well-being.

Where well-being is concerned, there is an easy answer to the question *whose* happiness matters: my happiness is central to my well-being, yours to yours, and so on. But the question takes on a more acute importance when we turn to ethics. For the Greeks, and for some contemporary versions of virtue ethics, the primary focus is on showing the agent how to live a good—that is to say,

happy—life. The link to the happiness of others is then through the account of the virtues necessary for the agent's own happiness. This argumentative route, needless to say, is plausible only if we presuppose an objective conception of happiness.

For the utilitarians, by contrast, everyone's happiness is equally valuable: As Mill put it, citing Bentham, "everybody to count for one, nobody for more than one" (Mill 1969, p. 257). Another way of stating this contrast is that for the virtue theorists, happiness provides an agent-relative goal: Everyone has an ultimate reason to pursue their own happiness. For the utilitarians happiness provides an agent-neutral goal: Everyone has an ultimate reason to promote happiness, regardless of whose it is. In this respect Kant's deontological theory occupied the middle ground: We have no duty to pursue our own happiness (since Kant thought that we inevitably did that anyway), but we do have a duty to promote the happiness of others.

See also Aristotle; Bentham, Jeremy; Eudaimonia; Kant, Immanuel; Intrinsic Value; Mill, John Stuart; Nozick, Robert; Self-Interest; Sidgwick, Henry; Stoicism; Utilitarianism; Value and Valuation.

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L. W. Sumner (2005)

HARDING, SANDRA
(1935–)

Sandra Harding is an American philosopher of science whose research interests include feminist and postcolonial theories, epistemology, and science studies. She received her PhD from New York University in 1973 and is a professor in the Graduate School of Education and Information Studies at UCLA. She is a former coeditor of *Signs: Journal of Women in Culture and Society* and former director of the UCLA Center for the Study of Women. Harding has authored four books and numerous articles and edited eight anthologies. She is best known for her work in developing feminist-standpoint theory. Initially focused on illuminating the gendered contexts of science, Harding has gone on to investigate other aspects of the social and cultural contexts of science, including its "racial" and colonialist contexts. Seeking to explore ways in which science can become a more significant force for human well-being, her work has analyzed various social and political contexts of science, including its implication in the exploitation of nature, non-Western cultures, and women.

Harding's work in the 1980s helped shape the landscape of developing feminist epistemology and feminist science. *Discovering Reality*, coedited with Merrill Hintikka (1983), and Harding's *The Science Question in Feminism* (1986) were groundbreaking efforts applying gender to epistemology and the philosophy of science. In *The Science Question*, Harding analyzes then-current feminist epistemologies and their ability to justify feminist science critiques. Although she urges ambivalence toward the frameworks, she suggests that feminist-standpoint theory is the most promising. Standpoint theory traces its roots to Hegel's argument, later developed in Marxist theory, that divisions in power yield corresponding divisions in worldviews: those in dominant positions have a distorted worldview that suggests their privilege is "natural," and those subordinated have the potential to achieve a less distorted view of the relevant social relations. Early feminist-standpoint theory proposed that men and women are, respectively, disadvantaged and potentially advantaged in this sense and stressed the role of the women's movement in helping women achieve a less distorted, feminist standpoint.

In *The Science Question* Harding identifies several problems in then-current versions of feminist-standpoint theory. One is that the theory assumes that there are experiences that are unique to women *qua* women, but Harding argues that is unlikely given differences in race, class, sexuality, and culture, among other factors. Another problem she notes is that there are as many standpoints as there are substantial divisions in power, unbridgeable chasms between the worldviews of those in dominant positions and those subordinated in a social hierarchy.

In *Whose Science? Whose Knowledge? Thinking from Women's Lives* (1991), Harding argues that those politically advantaged can and should come to understand the lives and perspectives of those not. This broadening of the notion of a standpoint has several consequences. It allows Harding to argue not that women as a group have an epistemic advantage over scientists but that, if scientists were to begin to research from the perspective of *women's* lives, new questions would emerge, along with data and theories that would prove more fruitful scientifically and socially. Harding also embraces the implication of multiple standpoints and contends that these are not unbridgeable. Each of us can work to "reinvent ourselves as 'others'" both to understand other standpoints and better understand the partiality and specificity of our own perspectives.

These several lines of argument come together in Harding's account of objectivity. In contrast to a traditional emphasis on a scientist or scholar's detachment from social contexts, Harding advocates what she calls "strong objectivity." To be objective in this sense requires a "robust reflexivity" that would oblige scientists and philosophers of science seek an understanding of the parochialism of the contexts within which their science and culture have coevolved. In *Is Science Multicultural? Postcolonialisms, Feminisms, and Epistemologies* (1998), Harding maintains that such reflexivity requires literacy in the sociology of science and social histories of science literatures, postcolonial and feminist science studies, and other critical science literatures. Only when scientists and science studies scholars achieve such reflexivity, Harding argues, will it be possible for the sciences to change in ways that will enable them to become an unproblematic and significant force for human well-being.

See also Feminism and the History of Philosophy; Feminist Epistemology; Feminist Philosophy; Feminist Philosophy of Science; Hegel, Georg Wilhelm Friedrich; Marxist Philosophy; Philosophy of Science, History of; Women in the History of Philosophy.

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Lynn Hankinson Nelson (2005)

HARE, RICHARD M.
(1919–2002)

Richard M. Hare, the White's Professor of Moral Philosophy at Oxford University from 1966 to 1983, is famous as the inventor of universal prescriptivism. This is a metaethical doctrine, a thesis about what moral words mean. But Hare uses his metaethic to generate an ethic. Anyone who employs the moral concepts consistently in full awareness of the facts must wind up a utilitarian. Hare claims that his utilitarianism is the product of conceptual analysis rather than of moral intuition. To rely on intuitions is a philosophical sin, since it leads to relativism (Hare 1981). His theory is developed in three books, *The Language of Morals* (1952), *Freedom and Reason* (1963), and *Moral Thinking* (1981).

Prescriptivism is a variant of noncognitivism. Moral judgments are action guiding, and the explanation of this is that they are prescriptive: They are not primarily designed to state facts but to prescribe actions. They are more akin to orders than statements or propositions. Nevertheless, moral judgments do have descriptive content, though this will depend upon the moral opinions of the speaker (Hare 1963). Thus, if Captain Bligh says that Burkitt is a scoundrel, we can assume he is disobedient. Indeed, even words such as ought have descriptive content, though this too will vary with the moral opinions of the speaker. Typically, the descriptive content of an ought judgment will consist in the factual considerations—the reasons—that can be advanced in its support. Thus, if Bligh asserts that Burkitt ought to be flogged, this will be because it would be an act of punishing disobedience. That the flogging would be such an act is the descriptive content of "Burkitt ought to be flogged." (Whence it follows that, if Burkitt has not been disobedient, the ought judgment will be factually false.) In Hare's view moral judgments are universalizable. Thus, if Bligh thinks that Burkitt ought to be flogged, he is committed to the view that anyone in relevantly similar circumstances—anyone who has been similarly disobedient to a king's officer—ought to be flogged likewise. He must assent to the imperative "Let me be flogged in the hypothetical case in which I am in Burkitt's position!"—which includes having committed Burkitt's heinous acts of disobedience (Hare 1963). Finally, moral judgments are overriding. They take precedence over any other imperatives the subject may accept. Thus, if Bligh thinks himself morally obliged to have Burkitt flogged, this takes precedence over his aesthetic obligation not to sully the pure air of the Pacific with Burkitt's distasteful groans. Sincere moral commitment entails action. Weakness of the will as traditionally conceived is not a genuine possibility. Thus, Hare reinstates the Socratic paradox that we cannot willingly do wrong (Hare 1952, 1963).

What about utilitarianism? Hare first points out that the metaethic generates a method for refuting moral "conjectures." Bligh considers the maxim "I ought to have Burkitt flogged." He universalizes this to derive the principle that anyone in relevantly similar circumstances ought to be flogged likewise. This in turn entails the imperative "Let me be flogged if I am in Burkitt's position!" But Bligh cannot assent to this unless he is a fanatic—someone who prefers flogging the disobedient to remaining unflogged himself. Thus, Bligh must rescind his original "ought" (Hare 1963). But this is only a method for vetoing moral maxims and a method, moreover, that leads to moral paralysis. As Hare himself points out, a guilty prisoner could challenge the judge to universalize the maxim that the accused ought to be put away and derive the imperative "Let me be imprisoned if I am

in the accused shoes!"—an imperative she could accept only if she had a fanatical preference for imprisoning the guilty rather than staying out of jail herself (Hare 1963). Nonfanatical judges would have to give up sentencing and justice would founder! But Hare offers a utilitarian solution. The correct course is to go the rounds of the affected parties and opt for the action that is subject to the weakest veto[es]. Thus, the judge must take into account the likely depredations of the prisoner and ask herself whether she can accept such imperatives as "Let me be robbed if the prisoner is released and allowed to carry on with his course of crime and I am one of his victims!" If not, and if the vetoes of the prisoner's potential victims outweigh his preference not to go to jail, then to jail he must go. The criminal-justice system can survive without fanaticism, and Hare's method becomes utilitarian. But does Hare derive utilitarianism from his conceptual analysis or assume utilitarianism to rescue that analysis from disaster (Roxbee Cox 1986)?

The fanatic remains a problem. She can consistently subscribe to a persecuting principle if she assents to the imperatives in which she is on the sharp end. In *Moral Thinking* Hare deprives her of this possibility. He claims it is a conceptual truth that if I fully represent to myself what an unpleasant experience is like for someone—an experience that they would prefer to stop—I now acquire an equally strong preference not to have that experience were I in their shoes. Hence, a fanatic who fully represents to herself the sufferings of her potential victims cannot assent to the imperative that she should suffer were she in their position. For she has a preference as strong as theirs that she should not. If, however, Hare's conceptual truth is neither conceptual nor a truth, then fanaticism remains an option (Seanor and Fotion 1991).

See also Metaethics; Noncognitivism; Utilitarianism.

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Moral Thinking: Its Levels, Methods, and Point. Oxford: Clarendon Press, 1981. Hare draws a distinction between intuitive and critical thinking and invents a conceptual truth to dispose of the fanatic. Only amoralists can avoid utilitarianism.

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Seanor, D., and N. Fotion, eds. *Hare and Critics: Essays on Moral Thinking with Comments by R. M. Hare.* Oxford: Clarendon Press, 1991. The best essays are by Brandt, Singer, Gibbard, and Vendler. Hudson's essay lists some of the important criticisms Hare has faced. Extensive bibliography.

Singer, P. *Practical Ethics.* 2nd ed. Cambridge, U.K.: Cambridge University Press, 1993. Hare's method is applied to practical affairs by his most gifted disciple.

Taylor, C. C. W. "Critical Notice of R. M. Hare's *Freedom and Reason.*" *Mind* 74 (1965): 280–290. Still perhaps the best critique of Hare.

Charles R. Pigden (1996)

HARMAN, GILBERT
(1938–)

Gilbert Harman was born in 1938, graduated from Swarthmore College in 1960, and received his PhD from Harvard in 1963, where W. V. Quine was his dissertation advisor. He is distinctive in being a leading contributor across a broad range of subdisciplines of philosophy: epistemology, ethics, philosophy of language, philosophy of mind, and metaphysics. This entry reviews only a few of his many important contributions.

Harman has been perhaps the most significant contemporary defender of moral relativism. According to Harman, moral right and wrong are akin to motion: They are *relative* to a framework and no framework is privileged. Harman appeals effectively to two sorts of consideration in developing his position. First, like J. L. Mackie, he is impressed by the degree of moral diversity across and even within populations. Second, complementarily, Harman defends moral naturalism—the view, roughly, that morality is fundamentally continuous with the natural sciences.

In rejecting moral nonnaturalism, Harman claims that the postulation of nonnatural moral properties is unjustified: They would be explanatorily impotent. Could not a sui generis fact of, say, torture's being bad explain, at least, our belief that torture is bad? Harman argues that there are other better ways of explaining such a belief, in terms of conventions and other social arrange-

ments—arrangements to which we are normally exposed as we develop.

Holding that moral disagreement is widespread, Harman accordingly argues—as a kind of inference to the best explanation—to the conclusion that there are no absolute moral facts, beyond the facts about what holds relative to one or another framework. Different people can, without ignorance (or related independently specifiable failings), find one or another ultimate moral demand inapplicable in their own case. But because a moral demand is said to apply only if the agent either accepts it or rejects it only out of ignorance, then ultimate moral demands may apply only selectively, to some agents and not to others.

A related aspect of Harman's moral relativism is thus his motivational internalism: If morality is understood as the product of a framework constituted by psychological states (and, in particular, by the agreement, plans, and conventions emerging therefrom), then it will be easier to understand how morality could have that motivational force.

It should be noted, too, that, although he distinguishes them, Harman embraces forms of each of *normative moral relativism*, *moral judgment relativism*, and *metaethical relativism*. Normative moral relativism holds, roughly, that people can be subject to different ultimate moral demands. Moral judgment relativism claims, in effect, that moral judgments implicitly refer to a person, group, or set of moral demands. And according to metaethical relativism, conflicting moral judgments about a particular case can in a way both be right.

In epistemology, Harman has long defended a view that has elements of foundationalism and elements of coherentism. Harman's is a kind of "foundations" theory in which everything a person accepts at a given time is foundational and needs no justification except when there are conflicts. Accordingly, knowledge is best understood "when skepticism is turned on its head": starting from what we know, we diagnose what goes wrong with arguments for radical skepticism. For Harman, a key insight is that knowledge is essentially inferential: Inference is a matter of increasing the coherence of one's overall state—reasoning consists in trying to obtain a reflective equilibrium (though he is concerned about possible instabilities in this process)—and coherence is partly a matter of explanation.

If inference to the best explanation is to have the central role in our cognition that it appears to have, it will have to be understood as a sort of explanatory inference.

So Harman defends the adequacy of that sort of inference. In enumerative induction we generalize observed regularities; but according to Harman all such cases of induction are really cases of inference to the best explanation. So, at a minimum, inference to the best explanation is not in general any less legitimate than induction.

This emphasis on the role of inference in knowledge is related to Harman's focus on inference in its own right. He draws a sharp division between logic and inference. For Harman, there is, for example, no such thing as deductive inference and the search for an inductive logic is the product of confusion. Reasoning is change in view; logic is the theory of implication.

Consider *modus ponens*. This exceptionless rule of logic cannot serve as a principle about how to change one's view: sometimes, when one believes *P* and believes that *if P, then Q*, what one should do is to give up one's belief that *P*. Moreover, although according to the rules of logic inconsistent premises *imply* any proposition, it's not the case that inconsistent beliefs permit one to *infer* any proposition. The distinction between inference and logic coheres well with Harman's views about the fundamentally *explanatory* character of inference to the best explanation (see above).

In philosophy of mind, Harman was a seminal proponent of what has come to be known as intentionalism about experiential states. Harman holds that there is no phenomenal difference between such states without an intentional difference. They have accordingly come to be viewed as individuated by their representational or intentional character: what makes the state what it is is that it is about what it is about. That perceptual experience should not be understood as individuated by (what others would call) its *qualitative* character instead is seen as sustained by the *transparency* of experience. Introspection does not seem to reveal the nature of experiences themselves, only that of their external objects.

This brief review cannot do justice to the richness and range of Harman's work. We have not so much as touched on his important discussions of meaning and analyticity (and his brilliant exposition—really, development—of Quine's views on the subject), on his contributions to conceptual-role functionalism in philosophy of mind, or on his more recent argument that work in social psychology supports eliminativism about the central posits of any virtue theory. Still, some sense of the scope and significance of Harman's contributions should have emerged.

See also Epistemology; Ethics; Metaphysics; Philosophy of Language; Philosophy of Mind.

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David Sosa (2005)

HARNACK, CARL GUSTAV ADOLF VON

(1851–1930)

Carl Gustav Adolf von Harnack, the German church historian and theologian, was born at Dorpat (now Tartu) in Estonia, where his father, Theodosius Harnack, was a professor of practical theology at the German-dominated university. Carl Harnack studied at Dorpat and then at Leipzig, becoming a *Privatdozent* there in 1876. He held chairs at Giessen from 1879 and Marburg from 1886 before going, in 1888, to Berlin, where he was a professor until his retirement, in 1924. He died at Heidelberg.

Harnack has come to be regarded as the typical representative of liberal theology. Following Albrecht Ritschl and the members of his school, Harnack stressed the ethical teaching of Christianity and avoided the more speculative flights of theology, but he went further than his predecessors in the direction of an undogmatic, practical statement of the Christian faith. Harnack's appointment to the chair at Berlin was opposed by conservative elements in the Lutheran Church, but by the time he retired he had trained a whole generation of students in the ways of liberal theology and in what he believed to be the unprejudiced pursuit of theological truth. His last years were spent in opposing the nascent "dialectical theology" of the school of Karl Barth, which he saw as threatening the scientific character of the discipline.

THE PROBLEM OF DOGMA

The vigor with which Harnack advocated the cause of liberal theology was matched by his vast erudition. Few Protestant scholars have equaled his knowledge of early Christian history and literature. One of Harnack's major works, the monumental *Lehrbuch der Dogmengeschichte* (3 vols., Freiburg, 1886–1889; many subsequent eds. published at Tübingen; 3rd ed. translated as *History of Dogma,* 7 vols., London, 1894–1899), not only gives a detailed account of the history of Christian dogma, especially in the early formative centuries, but also expounds a definite thesis concerning the nature and development of this dogma.

As Harnack understood it, religion is primarily a practical affair and aims at the right ordering of life. In Christianity, the power of achieving a well-ordered or blessed life had its origin in Jesus Christ and the revelation of God that he brought. But although religion has this practical character, it also implies certain beliefs concerning God, man, and the world; the religious man seeks to make his beliefs explicit and to formulate them in propositions. This happens especially when a religious community comes into being and subscription to the basic beliefs of the community is made the condition of membership—hence the rise of dogma in the early church.

However, Harnack regarded this development as a perversion of the original teaching of Jesus, obscuring its essentially practical character and destroying its spontaneity. On the whole, he saw the history of Christian thought as one of deterioration, a falling away from the original truth rather than an unfolding of it. The process began when the primitive preachers made Jesus himself, as the supernatural Christ, the center of their message, rather than simply repeating Jesus' teaching about the kingdom of God, which Harnack understood as an ethical ideal. The transformation of Christianity into dogma accelerated in the Hellenistic world; the extreme case can be seen in the Gnostic sects, where the supposedly original gospel of Jesus was altogether absorbed into Hellenistic philosophy. With the Reformation an attempt was made to emancipate Christianity from dogma, but it was only partially successful, and dogma persisted into Protestantism.

THE ESSENTIALS OF CHRISTIANITY

In a series of popular lectures, which attracted huge audiences at the university of Berlin in the winter of 1899/1900 and was subsequently published as *Das Wesen des Christentums* (Leipzig, 1900; translated as *What Is Christianity?*, London, 1901), Harnack expounded what he believed to be the core of the Christian religion, set free from the encrustations of dogma that had been laid down through the centuries. The core is to be reached by penetrating back to the teaching of Jesus himself, and Harnack represented this teaching as proclaiming the fatherhood of God, the infinite worth of the human soul, and the ethical ideal of the kingdom of God. The supposedly original gospel of Jesus is also claimed to be the only version of Christianity that can make sense for modern minds, since it is free from theological and metaphysical mystifications.

Harnack's views once commanded a wide following, but this, however, has declined sharply in more recent times, owing to the criticism of such scholars as Alfred Loisy, Albert Schweitzer, and Karl Barth.

See also Barth, Karl; Liberalism; Loisy, Alfred; Reformation; Ritschl, Albrecht Benjamin.

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John Macquarrie (1967)

HARRINGTON, JAMES
(1611–1677)

The English political philosopher and publicist James Harrington was the eldest son of Sir Sapcote Harrington, of Rand, Lincolnshire. As such, he belonged to a junior branch of a family that had been prominent from the days of Richard I. An erudite man, Harrington must have acquired his great knowledge of languages, literature, and history largely independently, since he spent only two or three years at Oxford and in the Middle Temple and took no degree. During the 1630s he traveled extensively on the Continent and served in an English volunteer regiment in the forces of one of the palatine electors. From these experiences, and especially from a visit to Venice, he gathered much of the data that later formed the raw material for his political theory.

When civil war broke out in England, Harrington took a neutral position, despite his republican sympathies, because of his personal regard for the king, and at one point attempted the role of mediator between royal and parliamentary interests. But after Charles I's execution in 1649 he devoted himself to the construction of a republican political theory, which culminated in 1656 in the publication of his major work, *The Commonwealth of Oceana,* a blueprint for a perfect republic.

He was imprisoned by Charles II in 1661 on a false charge of treason. His mind became deranged while he was in prison, and he never fully recovered his faculties

after his release. He died at his Westminster home in 1677.

Although *Oceana* has the form of a utopia, Harrington stands squarely in the British empiricist tradition. Even Niccolò Machiavelli, whom he admired as "the only Polititian of later Ages," he criticized for violating the canons of empiricism by using such concepts as "virtue" and "corruption," which Harrington held to be meaningless as analytical tools.

Harrington's own concepts are sociological, rather than psychological or ethical. A stable governmental system always represents the dominant property-owning groups of a society. Where political and economic power are held by the same hands, and a single person controls three-fourths of all the property, the political system will be an absolute monarchy. If a few hold three-fourths of the property, it will be a mixed monarchy. If property is so dispersed that no monopoly vests in a single social interest, the system will be a republic, or "commonwealth."

Harrington made no moral ranking of the forms of government. Words such as *tyranny, oligarchy, anarchy* he used descriptively rather than evaluatively, to signify unstable governmental forms that do not match their foundations, those in which power is held incommensurately to the distribution of property. The theoretical question that preoccupied him was stability, and the chief cause of revolution and civil war he identified as an incongruence between social balance and form of government. Conflict he viewed as a mechanism for bringing the two into close proportion. He was not an economic determinist, however, for he thought it just as possible to "frame the foundation unto the Government" as the reverse.

Like Machiavelli, Harrington preferred the republican system to all others. He wrote of "that *Reason* which is the interest of mankind, or of the whole," as "a Law of Nature," and described "the publick interest of a commonwealth" as "nearest that of mankind." Since he espoused a radically hedonic view of human motivation, this must mean he preferred republics because in them the things men enjoy are more widely distributed than in systems with a narrower property base. Not absolute equality but a middle-class order is implied, however. For "leveling" impedes economic growth and the social accumulation of the riches humankind desire.

More sanguine than Machiavelli, Harrington thought it possible to create a perfectly stable and unchanging republic. It could be maintained by an "equal Agrarian" law, fixing forever a middle-class distribution of property, and by arranging a suitable balance of interests in the organization of the government through such devices as separation of powers, division of the legislature, and rotation in office.

See also Empiricism; Machiavelli, Niccolò; Social and Political Philosophy.

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William T. Bluhm (1967)
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HARRIS, WILLIAM TORREY
(1835–1909)

The American philosopher and educator William Torrey Harris was born in North Killingly (now part of Putnam), Connecticut. He attended preparatory schools in his native state and entered Yale College. There he was led to philosophy by Bronson Alcott's "Conversations" on Platonism, which convinced him of "the ideality of the material world" through "insight and reliance on reason." He left Yale in his junior year, dissatisfied with the deficiency of modern science and literature in the curriculum, and went to St. Louis.

In St. Louis, where Harris taught school for eight years and was an administrator for fourteen, he met Henry C. Brokmeyer, a Prussian immigrant who had acquired an enthusiasm for G. W. F. Hegel from reading F.

H. Hedge's *Prose Writers of Germany* (1847) during some disputatious months at Brown University. In 1858, Harris, Brokmeyer, and a few friends began meeting informally as a Kant Club to find the root of Hegel's thought. Harris imported a copy of Hegel's larger *Logic* and encouraged Brokmeyer to undertake a translation, which was never satisfactorily finished but was circulated in manuscript. After the Civil War, adherents of the Kant Club joined the St. Louis Philosophical Society, organized in 1866 with Brokmeyer as president, Harris as secretary, and Denton Snider, G. H. Howison, A. E. Kroeger, and Thomas Davidson among the leading members.

When the editor of the *North American Review* rejected one of Harris's articles as "the mere dry husk of Hegelianism," Harris and the St. Louis Society founded the *Journal of Speculative Philosophy.* Edited by Harris from 1867 to 1893, the *Journal* published numerous translations of German philosophers, particularly Hegel, and original essays by Ralph Waldo Emerson, J. H. Stirling, James Ward, William James, John Dewey, and C. S. Peirce. In defending Hegel's views in America, Harris and Brokmeyer had been preceded by a group of Ohioans that included J. B. Stallo and August Willich, who became "auxiliaries" of the St. Louis Society, as did Emerson, Henry James Sr., Karl Rosenkranz, and Ludwig Feuerbach. But Harris was outstanding among American philosophers up to 1900 as an active public lecturer, a leader of the St. Louis movement and of the Concord School of Philosophy from 1879 to 1887, U.S. commissioner of education from 1889 to 1906, editor of America's first regular journal devoted to philosophy, and author of some five hundred articles and of a book on Hegel's *Phenomenology* and *Logic.*

Like Hegel, Harris saw philosophy as a science concerned with necessary factors in experience related systematically to a first principle. Reflection on sensible objects and their changes, he believed, immediately reveals two necessary factors with which philosophy is concerned, space and time. Both are "infinites" in that they are conditions of all experience. From a parallel analysis he concluded that there are three grades or stages of knowing. The first concentrates on the object and the surface of things as isolated and independent. The second sees how things exist only in relation to other things and thus concentrates on their dependence, on what they are not when taken by themselves as separate and isolated. The third "discovers the independence and self-relation underlying all dependence and relativity"; in discovering what is self-related it discovers "the infinite." These mutually related stages are to be found in every aspect of expe-

rience, and since there are no things-in-themselves behind experience, they characterize all aspects of our world. Harris thus attempted to put into plain English the main features of Hegel's dialectic. Through Brokmeyer, Harris came to believe that such dialectic illuminated the Civil War (legal right would be unified with moral right), American politics, and even problems of school administration—a use of philosophy that pleased the practical, institution-minded members of the St. Louis movement.

Proceeding dialectically from "seeming" to "truth," Harris analyzed causality and concluded that it incorporates space and time in a higher unity but also implies a "self-separation" of energy whereby a cause sends a stream of influence to other things. Without such self-separation a cause could not act upon something to bring about an effect. So conceived, causality must be grounded in "self-activity," which is necessarily self-related and thus independent, free, and creative. Ultimately, in Harris's view, the only authentic self-activity is God, conceived by Harris, following Aristotle and Hegel, as the unmoved motion and self-contained existence of Reason, which, as Reason, is also personal. Like Hegel, Harris believed that philosophy approaches Absolute Reason through conceptual analysis to first principles, whereas religion receives the Absolute "into the heart" through symbols.

As a corollary to the presupposition of relatedness in self-activity, Harris saw education as the self-development of the individual mediated through the salient traditions of civilization. With the self-development of the individual in view, he linked public schools with democracy, conceived of as self-government involving woman's suffrage and separation of religion from the state. With the traditions of civilization in mind, he criticized excessive vocationalism. Along similar lines, his social philosophy viewed civilized freedom as the will of the individual effectuated in such institutions as family, civil society, state, and the Invisible Church, the "absolute institution" uniting all people of all time. In spite of his stress on institutions, Harris apparently gave some kind of precedence to "self-activity" *simpliciter*; he admired the ruthless individualism of the "gilded age" and condemned socialism in all its aspects.

See also Absolute, The; Aristotle; Dewey, John; Emerson, Ralph Waldo; Feuerbach, Ludwig Andreas; Hegel, Georg Wilhelm Friedrich; Hegelianism; Howison, George Holmes; Idealism; James, Henry; James, William; Peirce, Charles Sanders; Rosenkranz, Johann Karl Friedrich; Ward, James.

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Loyd D. Easton (1967)

HART, HERBERT LIONEL ADOLPHUS
(1907–1992)

Herbert Lionel Adolphus, professor of jurisprudence at Oxford University (1952–1968), was the most important and influential philosopher of law of the twentieth century. Bringing to bear the linguistic approach to philosophy championed by Wittgenstein and Hart's Oxford colleague, J. L. Austin, Hart transformed jurisprudence into the vibrant discipline it had been at the time of Jeremy Bentham and his student, John Austin. He revealed the law to be a fertile ground for addressing age-old philosophical questions on a wide range of topics, for example, the analysis of causation, human action and intention, responsibility and rights, and the very nature of morality. Ronald Dworkin, who succeeded Hart in the Oxford Chair, nicely expressed this feature of his predecessor's work in a speech delivered at Hart's memorial service: "Herbert showed how philosophy can be tutor to law, how lawyers' questions about punishment and cause and definition have philosophical dimensions that it is irresponsible to ignore. He also showed how law can be tutor to philosophy, how legal problems, discriminations and attitudes can help philosophers in formulating and attacking those same ancient philosophical puzzles." (Hart, Jenifer, p. 213). Although Hart's writings cover a wide range of topics, his most memorable and influential contributions were in four main areas: causation, the the-ory of punishment, the moral limits of the law, and the concept of law.

CAUSATION

Causation in the Law (1959), written with A. M. Honore, is an impressive and original analysis of causation as it figures in Anglo-American legal systems. The authors proceed from the premise that then-extant philosophical analyses of cause and effect were largely inadequate because they focused on causation in science, where the concern is to establish causal laws and generalizations. Within the domain of law (and analogously morals), however, causation is more particularistic in nature, concerned with whether, for example, the defendant caused the death of the victim. Assessing such claims requires appeal to an array of different principles and individuating features, and attention to central or paradigm cases in which causal responsibility is confidently assessed. These factors are all in various complex ways connected with ordinary understandings of causation as these are reflected in our linguistic practices. It is here, perhaps more than anywhere else, that Hart's debt to J. L. Austin's "ordinary language philosophy" is in evidence. This is a method in which, as Hart later said in *The Concept of Law*, "We are using a sharpened awareness of words to sharpen our perception of the phenomena" (Austin 1956–1957, p. 8).

THEORY OF PUNISHMENT

Punishment and Responsibility (1968) is a collection of essays in which Hart develops a distinctive theory of punishment. The account was motivated by two factors. First, there is the potential for abuse seemingly inherent in utilitarian theories of punishment. In the right circumstances, they appear to sanction excessive punishment, as well as punishment of the innocent. Second, there was Hart's utter rejection of Kantian retributivist theories that view punishment as warranted independently of any good that might be brought about through its exercise. In a characteristic effort to seek compromise, Hart sought the middle ground between the two theories. Retributivist principles should influence the distribution of punishment: Only the guilty should be punished and only to the degree that they deserve. But the utilitarian goal of general deterrence remains to justify the overall practice.

THE LAW'S MORAL LIMITS

Law, Liberty and Morality (1963) represents a brilliant statement of Hart's liberal views regarding the role of law in enforcing morality, views that echo those of his distin-

guished liberal predecessor, John Stuart Mill. The book summarizes and extends Hart's contribution to a famous debate with Lord Patrick Devlin who, in response to an official call for legalizing prostitution and homosexuality in England, argued that a society has a right to enforce its morals because a solid moral foundation is as essential to its survival as a firm political structure. In Devlin's view, society has as much a right to enforce its morals through legal means as it has the right to protect itself through laws against sedition and treason. Hart was thoroughly repelled by Devlin's legal moralism. There is little reason, he argued, to believe that failure to enforce widely shared moral beliefs inevitably leads to social disintegration. Devlin also fails to recognize the distinction between positive morality (the morality widely shared within a society) and critical morality (more enlightened, rational standards for assessing both human conduct and, crucially, a society's positive morality). Most importantly, Devlin fails to appreciate the important role of the latter in challenging positive morality and in keeping alive the animating spirit of morality—the belief that certain standards of behavior should be followed, not because they are widely accepted and enforced, but because adhering to them voluntarily is the right thing to do. In Hart's view, critical morality includes a mixture of principles and values, some of which have utilitarian roots, others of which are of a more deontological bent. These standards, he thought, reveal that the coercive hand of the law should be used only to prevent palpable harm to others, or for the sake of a limited set of paternalistic goals.

THE CONCEPT OF LAW

Hart's most memorable work was undoubtedly in the area of general legal theory, where "Positivism and the Separation of Law and Morals" (1957–1958) and *The Concept of Law* (1961) stand as monumental contributions to our understanding of law and legal systems. These works develop a modern version of the legal positivism espoused by Bentham and Austin. Much as those two theorists had done, Hart sought to explain law as it *is*, not as it *ought to be*. In his view, natural law theories confuse these two issues, thus leading not only to philosophical confusion, but to anarchism (this law is not as it ought to be; therefore it is not really law and I am free to disregard it) or reactionary thinking (this is the law; therefore it must be as it ought to be and I must obey). The latter mind-set was of particular concern to Hart because it led, he thought, to a dimming of the vitally important sense that, for all its aura of majesty and

authority, law's demands must always remain open to moral critique and challenge.

Though he shared this overall positivistic approach to law and legal analysis with Bentham and Austin, Hart departed dramatically from them on a number of other fronts. Most importantly, he thoroughly rejected their command theory according to which law is comprised of the general commands of an habitually obeyed sovereign whose directives are backed up with threat of sanction. The command theory reduces law to "the gunman situation writ large" (1994, p. 7), that is, it views our situation under law as analogous to being obliged to surrender our money to a gun-toting robber. But we do not always view laws this way. Many of us take a more "internal point of view" (1994, p. 89) toward them. While we may feel obliged to hand over our money to the gunman, many—especially the officials of the legal system—view laws as imposing legitimate reasons for action. Furthermore, not all laws demand or prohibit conduct. Rather they facilitate our doing certain good things, such as entering into contracts and creating valid wills. As such, they are grossly mischaracterized if conceived as orders backed by threats.

CONCLUSION

So law is not the gunman situation writ large: It is the "union of primary and secondary rules" (1994, p. 99). Unlike the standards of morality and the social mores of etiquette and fashion, legal systems have a formal structure created by the interplay of primary rules (of duty and obligation) and certain fundamental secondary rules (rules about other rules). Every legal system contains a secondary rule of recognition that specifies criteria of validity—for example, parliamentary enactment or conformity with a Charter of Rights—which all other rules of the system must meet if they are to count among its binding laws. There will also be secondary rules of change, through which existing rules are altered or replaced, and secondary rules of adjudication, which regulate the enforcement and application of legal rules, most notably by judges. These fundamental secondary rules are social rules whose existence and content depend crucially on the behavior of the officials who use them in the everyday workings of the system.

Understood in this way, law can be seen to be a human, social creation. Its existence and content are matters of social fact, determined by what is, not by what ought to be. Despite his firm commitment to this positivistic view of law's content, Hart was prepared to concede that there is a kernel of truth in rival natural law

theories. Law is a social institution whose existence depends on its acceptance; but there would be no reason to accept law were it somehow devoid of "minimum forms of protection for persons, property and promises" (1994, p. 199). There is therefore a "natural necessity" (1994, p. 199) that legal systems contain this minimum content. Beyond this humble minimum, however, Hart was not prepared to venture, thus affirming his conviction that the law, by its very nature, may fail to meet our moral expectations of it.

See also Analytic Jurisprudence; Austin, John; Austin, John Langshaw; Bentham, Jeremy; Causation; Dworkin, Ronald; Historical School of Jurisprudence; Legal Positivism; Mill, John Stuart; Natural Law; Paradigm-Case Argument; Philosophy of Law, History of; Philosophy of Law, Problems of; Punishment; Rights; Wittgenstein, Ludwig Josef Johann.

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W. J. Waluchow (2005)

HARTLEY, DAVID
(1705–1757)

David Hartley, the association psychologist and moral philosopher, was born in Luddenden, Halifax, England, and was educated at the Bradford grammar school and Jesus College, Cambridge. He was elected a fellow of Jesus but lost his fellowship when he married. He did not take holy orders, probably because of doctrinal scruples. Although he never received a medical degree either, he became a physician and practiced medicine in, successively, Newark, Bury St. Edmunds, London, and Bath. He was a friend of bishops Butler, Law, and Warburton.

Hartley's contribution to philosophy is his treatise *Observations on Man, His Frame, His Duty and His Expectations* (London, 1749). The first part, called "Observations on the Frame of the Human Body and Mind," is Hartley's exposition of the doctrines of vibration, association, and the seven classes of intellectual pleasures and pains. The second part, called "Observations on the Duty and Expectations of Mankind," consists of arguments for the existence of God, a defense of the truth of Christianity, a set of rules of conduct, and an estimate of our legitimate expectations in this life and hereafter.

Hartley's merit lies not in innovation but in consolidation. Borrowing several doctrines from his predecessors, he offers a comprehensive account of human nature. He treats mind and body as parts of a coordinate system capable of influencing each other. Thus, his work is a mixture of speculative physiology and psychology. While his conclusions may be criticized for their lack of an experimental basis (although he appeals frequently to

experience), he nonetheless deserves credit for supporting the conceptual ideal of a unitary system of mind and body. Hartley's theory of knowledge is John Locke's, offered in a context of religious sentiment. Despite the role that association plays in Hartley's philosophy, there is no mention of David Hume in his pages. By freeing the doctrines of learning by experience and of psychological association from skeptical associations, Hartley gave them a respectability that assured them a general currency.

The three aspects of human nature that Hartley wished to explain are sensation, motion, and the generation of ideas. With regard to sensation, he wanted to account for the way in which impressions on the senses register perceptions in the mind. He postulated, first, that the "white medullary substance" of the brain, the spinal marrow, and nerves is the immediate instrument of sensation. He then claimed that when an external object is impressed on the senses, it occasions, first in the nerves linking the senses and the brain and then in the brain, vibrations of the infinitesimal medullary particles. These vibrations are the means of conveying the sensation to the brain.

From this account of sensation, Hartley moved on to his account of the origin of ideas. Sensations may remain in the mind for a short time after the sensible object has been removed from the vicinity of the senses. By being often repeated, sensations leave in the mind certain vestiges, types, or images of themselves. These images are the simple ideas of sensation, the materials from which complex ideas are made. Once the mind is supplied with simple ideas, the association of sensations and ideas may come into play. The first requirement is that we must have a given set of sensations "a sufficient number of times." These sensations then acquire such a power over their corresponding ideas that when any member of the set is impressed on the senses, it is able to excite in the mind the rest of the corresponding ideas that belong to the set. In this way simple ideas collect and become a complex idea.

In addition to arguing for an association of sensations and corresponding sets of ideas, Hartley also argued for a kind of association that depends on the sensory vibrations. Regularly occurring sensory vibrations leave behind in the nerves miniatures of themselves which he calls "vibratiuncles"; and even as a general sensation is able to call up a corresponding set of ideas in the mind, so a sensory vibration is able to call up a corresponding set of vibratiuncles in the nerves. Similarly, a complex idea may call into being the set of vibratiuncles appropriate to the complex of sensations with which the idea corresponds. Hartley claimed that some of the vibratiuncles

attending upon complex ideas may be as vivid as any of the sensory vibrations excited by the direct action of objects.

In his account of human motion, Hartley again made use of the "white medullary substance" of the brain, spinal marrow, and nerves. He postulated this substance as the immediate instrument of motion. The motor nerves link brain and muscles; motion results as vibrations pass from the brain along the motor nerves and issue in muscular action. Briefly stated, then, Hartley's general theory of motion is that when objects are impressed in the senses, the vibrations excited in the sensory nerves spill over to the motor nerves by way of the brain and the higher ganglia; this process has a consequent effect on the muscles, and a motion results. According to Hartley, there are two sorts of motion, automatic and voluntary. They are distinguished by the fact that automatic motion depends on sensation, and voluntary motion depends on ideas.

Hartley makes "automatic motion" cover a varied class, which includes such motions as the heart's beating, crying, and voluntary actions that have become habitual through repetition. Heartbeats can be fitted into his theory only by the vaguest references to the spillover effect of the vibrations occasioned by sensation and by the additional suggestion that the circulation of the blood may also cause the heart to beat. The "motion" that best conforms to the theory is a fit of crying that results from a frightening experience or from the pain of being injured. In his theory of motion, Hartley did not intend "sensation" always to be the equivalent of "perception." For instance, the motion of breathing is excited in a newborn infant by cold air and the rough handling of the midwife, sensations which, for the infant, are not perceptions of anything.

In contrast to the automatic motions that depend on sensation, there are the voluntary motions which depend on ideas. A person's will consists of one of his ideas associated with sensory and motor vibratiuncles that are strong enough to excite the motor vibrations which, in turn, issue in muscular action. A voluntary action, for Hartley, is one that follows after an idea in the mind and not as a consequence of some outside force. He made it clear that "voluntary" must not mean "uncaused," and he argued that we have no "power of doing different things, the previous circumstances remaining the same." Indeed, he stigmatizes such an account of freedom as "philosophical freedom." He freely acknowledged that he was a mechanist, but he held that practical freedom does exist, in the sense that the causes of actions may sometimes

originate within a person. Nevertheless, he staunchly maintained that human action cannot be exempted from the reasonable and useful belief that everything has a cause. Indeed, he subscribed to this belief even though he knew that many of his readers would think him a greater friend to religion if he had not stated it explicitly.

Hartley distinguished seven different classes of pleasures and pains that may accompany our sensations (and consequently our ideas), and thus reinforce their affective power, namely the following: (1) those of Sensation, as they arise from impressions made on our external senses; (2) those of Imagination, as they arise from natural beauty and deformity; (3) those of Ambition, as they arise from the opinions of others concerning ourselves; (4) those of Self-Interest, as they arise from our possession (or want) of the means of happiness; (5) those of Sympathy, as they arise from the pleasures and pains of our fellow creatures; (6) those of Theopathy, as they arise from affections excited by our contemplation of Deity; and (7) those of the Moral Sense, as they arise from our awareness of moral beauty and deformity.

The classes of pleasures and pains are here arranged in an ascending order of value, from least to most valuable; and from this scale, Hartley derived the rule of life. The pleasures of sensation, imagination, ambition, and self-interest are not in themselves worthy of pursuit. But the pleasures of sympathy are worthy of pursuit in themselves and set a proper limit to our interest in the first four classes of pleasure. Moreover, the pleasures of sympathy are consistent with those of theopathy and the moral sense. Together, these last three classes of pleasure constitute, as a whole, the worthiest object of human pursuit that can be found.

See also Butler, Joseph; Locke, John; Pain; Pleasure; Priestley, Joseph; Psychology; Sensa.

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The dissemination of Hartley's doctrines was aided by his enthusiastic admirer and younger contemporary, the scientist Joseph Priestley. Priestley published an abridged version of the *Observations* under the title *Hartley's Theory of the Human Mind on the Principle of Association of Ideas* (London: J. Johnson, 1775). While Priestley omitted the theory of vibrations, it is said that he was inclined to believe in it. Hartley is also the author of an *Enquiry into the Origin of the Human Appetites and Affections* (Lincoln, England, 1747). See also G. S. Brett, *A History of Psychology,* 3 vols. (London: G. Allen, 1912–1921), Vol. II, pp. 278–286, and Howard C. Warren, *A History of the Association Psychology* (New York: Scribners, 1921), pp. 50–64.

Elmer Sprague (1967)

HARTMANN, EDUARD VON
(1842–1906)

The German pessimistic philosopher Karl Robert Eduard von Hartmann was born in Berlin, the son of a Prussian artillery officer. Von Hartmann entered a school for artillery officers, but a knee injury in 1861 that aggravated older rheumatic ailments barred him from a military career and left him a lifelong semi-invalid. After two years devoted to musical composition and painting, he turned to an intensive study of philosophy. By 1867 von Hartmann had nearly finished his *Die Philosophie des Unbewussten* (Berlin, 1869; 9th ed. translated by W. C. Coupland as *The Philosophy of the Unconscious,* 3 vols., London, 1884). This work brought him prompt and widespread recognition, and the rest of his professional life was devoted to a long series of books that amplified and in some details modified its views, and applied them to various fields of philosophy and problems of contemporary culture. Before his death he had published the first volume of an eight-volume *System of Philosophy* (*System der Philosophie im Grundriss,* Bad Sachsa, 1907–1909). Unlike Arthur Schopenhauer's, von Hartmann's pessimism did not keep him from two happy and fruitful marriages.

INFLUENCES OF VON HARTMANN

Although he is generally regarded as a follower of Schopenhauer, von Hartmann found Schopenhauer's intense morbidity and his intuitive procedure temperamentally alien, and he corrected a basic incompatibility between Schopenhauer's Kantian phenomenalism and his Platonism by imposing upon the doctrine of the "will to live" a Hegelian but nondialectical doctrine of an intelligible categorial structure. Von Hartmann also acknowledged an indebtedness to the early Friedrich Schelling for his theory of the unconscious, to the later Schelling for the process in which nature and consciousness emerge from unconscious potencies, and to Gottfried Wilhelm Leibniz for the synthesis of individualism and monism. In *Die Philosophie des Unbewussten* von Hartmann built these influences into a system inductively grounded upon the data provided by the natural and historical sciences.

WILL AND IDEAS

Although Schopenhauer's concept of Will is needed to explain the dynamism of the world process, it cannot, according to von Hartmann, explain the world order. G. W. F. Hegel's dialectic is absurd, but his concept of the notion is required to explain world order, even though it

cannot account for the process by which, according to both Schopenhauer and Hegel, self-consciousness comes into being out of the unconscious. Ideas define the "what" of the world; Will determines its "that." The opposition of Will to the ordering of the Ideas brings about the emergence of consciousness and individuals.

Individuation results from the conflict of purposes into which the universal Will is driven through its resistance to its logical counterpart, the Ideas. Consciousness is required to emancipate the Ideas from bondage to the Will and its torments. Since space and time are the "sole principium individuationis known to us" (*Philosophy of the Unconscious,* Vol. II, p. 230), the result is a phenomenal but real evolutionary process of nature involving the greatest possible emergence of purposes. Consciousness, when it attains its maturity, will "suffice to hurl back the total actual volition into nothingness, by which the *process* and the *world ceases* … without any residuum whatever." (Von Hartmann suggested later, in Volume III, that the undifferentiated, substantial Will might continue to proliferate other orders of consciousness after this destruction.)

In this differentiation between the Unconscious Will and the Ideas, three orders of being must therefore be distinguished: (*a*) the metaphysical order of the unconscious; (*b*) the objective phenomenal-real order of nature; and (*c*) the subjective-ideal order of consciousness. The physiological unconscious in the second order ("the resting molecular predispositions of the central organs of the nervous system," *Die moderne Psychologie,* Bad Sachsa, 1901, p. 76), provides an unconscious ground for the total consciousness of an organism; conscious perception, in turn, is the bond by which knowledge of the transcendent but phenomenal-real order becomes possible.

CATEGORIES

In his *Kategorienlehre* (Berlin, 1896) von Hartmann distinguished between categorial concepts and the categorial functions of which they are the conscious representations. These unconscious rational functions assure that the concepts establish a relationship between phenomena and the thing-in-itself. There are innumerable categories, distinguishable as categories of sense and thought. There are two kinds of sense categories: sensations, which include quality, intensive quantity, extensive quantity (for example, temporality), and perceptions (that is, spatiality). The categories of thought include the primary category of relation, the categories of reflective thought (comparing, distinguishing, measuring, modality, and

others), and the categories of speculative thought (causality, finality, substantiality).

TELEOLOGY

Von Hartmann rejected both the irrational intuitionism of Schopenhauer and the mechanistic and materialistic assumptions of much of the science of his day. His own view of nature was teleological, an interpretation he undertook to demonstrate mathematically by a calculation of probabilities (he estimated the probability of eyesight being produced by mere mechanical processes as less than $15/10^7$) and also by analogies with alleged facts of experience. Instincts are unconsciously purposive, for example, and unconscious ideation in the nerve endings must be assumed to explain the slightest voluntary bodily movements. It is noteworthy that von Hartmann was one of the first to criticize Darwinism, arguing that evolution requires a vitalism and a "heterogeneous generation" of new variations within the germ cells of existing forms of life.

PESSIMISM

Among the factors that account for the great popularity of *The Philosophy of the Unconscious,* the most important is von Hartmann's restatement and justification of philosophical pessimism in the third volume. He regarded Immanuel Kant, not Schopenhauer, as the father of his pessimism: This is not the worst of all possible worlds; indeed, the infinite purposiveness of the particulars in it makes it the best of all possible worlds. Nevertheless, it can be shown that it would be better if there were no world at all, and, paradoxically, the purposiveness of this world is moving to that end.

The argument for pessimism in *The Philosophy of the Unconscious* consists of a remarkable combination of neurological and psychological considerations with commonsense considerations about the misery in the world. Pessimism results from the successive dispelling of three stages of optimistic illusion. The first stage is that happiness has already actually been attained in the present stage of the world; the second is that happiness can be attained in a transcendent life after death; and the third is that happiness will be attained in a future state of this world.

In a later historical and critical essay on pessimism, *Zur Geschichte und Begrundung der Pessimismus* (Berlin, 1888), von Hartmann modified this sweeping argument for the misery of the world by setting up five criteria of value (*Wertmassstäbe*): pleasure, purposiveness, beauty, morality, and religiosity. His pessimistic theory of the

Weltlustbilanz, he now claimed, was based on only the first criterion, and he described his theory as a "eudae-monological pessimism" but a "teleological-evolutionary optimism" in the nonhedonistic fields of value. He still held that efforts to assess values always involve the subjective, hedonistic component, and therefore involve a balance of misery.

Von Hartmann was concerned with showing that, far from making ethics and religion impossible, pessimism is the only foundation for a tenable ethical system and that it provides as well the wider teleological perspective from which religion, including contemporary Christianity, can be evaluated. In his *Phänomenologie des sittlichen Bewusstseins* (Berlin, 1879) he tried to show that all previous efforts to provide a philosophical basis for ethics, whether hedonistic, or built upon formal principles (which, he held, inevitably collapse into an ethics of ends), or socially oriented like utilitarianism and social democracy, had failed because they are untrue of man and the universe. The proper goal, which unites all lesser ethical ends, can only be a cooperative participation in the cultural process contributing to the satisfaction of all particular wills and, therefore, contributing ipso facto to the termination of the universe.

This conclusion anticipates von Hartmann's religious thought. The ethics of pessimism becomes a cosmic drama of redemption. The goal of the absolute religion of the future must be to save God, as Will, from the agony involved in his own inevitable creativity. The essence of vital Christianity, according to von Hartmann, lies in its pessimism about the present world, and liberal Protestantism is the last dying phase of Christian ethics because, by adhering to a faith in social progress, it has lapsed into the first stage of optimism.

Although the unorthodox nature and clear forcefulness of von Hartmann's thought drew a popular following, much critical comment was directed at his paradoxical theory of the unconscious, his criticism of religion, and the incompatibility between his pessimism and his idealistic ethics and philosophy of religion.

Except for a brief attempt to revive interest in von Hartmann's work during the years after his death, it has been largely neglected. He has been hailed as the last of the great speculative idealists, as a philosopher of science who opposed the mechanistic materialism of his time and anticipated the vitalism of the twentieth century, and as a psychologist who introduced the unconscious as a decisive mental factor. His criticism of the human predicament, along with Schopenhauer's, prepared the way for more complete, intensified forms of pessimism and nihilism in the twentieth century.

See also Beauty; Categories; Darwinism; Determinism, A Historical Survey; Hegel, Georg Wilhelm Friedrich; Idealism; Kant, Immanuel; Leibniz, Gottfried Wilhelm; Nihilism; Pessimism and Optimism; Pleasure; Schelling, Friedrich Wilhelm Joseph von; Schopenhauer, Arthur; Teleology; Unconscious.

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L. E. Loemker (1967)

HARTMANN, NICOLAI
(1882–1950)

Nicolai Hartmann, the German realist philosopher, was born in Riga, Latvia, and educated at St. Petersburg, Dorpat, and Marburg. He was a professor at Marburg from 1920 to 1925, at Cologne from 1925 to 1931, at Berlin from 1931 to 1945, and at Göttingen from 1945 until his death.

THE WORK AND THE MAN

The typical German philosopher since the mid-1850s gives generous assistance to anyone wishing to become acquainted with his main ideas. He will have published at least one work on a philosopher of the past, who, with the regrettable exception of a few Greeks, turns out to be either German himself or mediocre and, with no exception at all, proves to be someone who could have been the professor's disciple or apostate. By simply observing what the author lauds and damns, stresses and omits, one may gather in concentrated form the materials for a portrait, not of the sitter, to be sure, but of the artist himself. This is true of even so eminently fair a German philosopher as Nicolai Hartmann. In his essays on the history of philosophy, "Zur Methode der Philosophie-geschichte" (1910) and "Der philosophische Gedanke und seine Geschichte" (1936), Hartmann advocated an approach to the history of philosophy in line with that to the history of science (these essays, as well as all others referred to, are reprinted in *Kleinere Schriften*). The history of philosophy is to be presented not as the coming to be and passing away of personal systems but as the progressive accumulation of impersonal insights. Yet many of Hartmann's numerous studies in the history of philosophy show that what he valued as impersonal, objective clarifications and solutions of the past more often than not anticipated views of his own.

In writing his first historical work, *Platos Logik des Seins* (Plato's logic of being; Giessen, 1909), which was his earliest publication as well, Hartmann was so immersed in the neo-Kantianism of Hermann Cohen and Paul Natorp that he viewed Plato's ideas as absolute hypotheses in the neo-Kantian sense of foundational positions taken by thought in its work of constituting reality. His two-volume work on German idealism, on the other hand, particularly the volume on G. W. F. Hegel (1929), bears witness to his accomplished liberation from idealism and the emergence of his main anti–neo-Kantian positions. What he valued in Hegel's philosophy was not its systematic character but its aporetics; not its specula-

tive idealist position but its being, as aporetics, prior to any position; not the Absolute and its self-realization—not even its dialectic, though Hartmann was fascinated and irritated by it, like a skilled craftsman in the presence of genius—but a sort of theory of emergence, describing and exploring, rather than constructing and deducing, basic strata and modes of Being and their interrelations; not the theological and teleological monism of the Spirit, with a capital *S*, but the discovery—or, rather, rediscovery, since Giambattista Vico had been forgotten—of the objective spirit, with a small *s*, that is, superindividual powers such as languages, moral customs, legal systems, into which individual consciousnesses are born and within which they carve their little niches.

Thus, in the end the Hartmannian Hegel is, in method, an aporetician who prefers careful analyses of problems to traditional solutions and, in subject matter, an ontologist engaged in describing a multitude of modes and strata of Being. In brief, what is alive in Hegel is Hartmann, for aporetics, particularly an aporetic epistemology "this side of realism and idealism," an ontological pluralism, and the categorial exploration of the real world, including the spirit as its highest stratum, describe all but one of the major commitments of Hartmann. The exception is his axiology, an exploration of the realm of values, a program that Max Scheler had designed in open battle against the Kantian formalism in ethics but whose execution had to wait for Hartmann's *Ethics*, the only major work of his translated into English.

In his *Grundzüge einer Metaphysik der Erkenntnis* (Outlines of a metaphysic of knowledge; Berlin, 1921), Hartmann presented in book form, for the first time, his aporetic and ontological epistemology. The book, published six years before Martin Heidegger's *Sein und Zeit*, caused quite a stir precisely because it heralded the Continental renaissance of ontology by asserting that epistemology is based on ontology and not the other way around. Almost all of Hartmann's subsequent books are in ontology, with his trilogy *Zur Grundlegung der Ontologie* (Foundations of ontology; Berlin, 1935), *Möglichkeit und Wirklichkeit* (Possibility and reality; Berlin, 1938), and *Der Aufbau der realen Welt* (The structure of the real world; Berlin, 1940) forming his ontological *opus maximum*. To these might be added his *Philosophie der Natur, Abriss der speziellen Kategorienlehre* (Philosophy of nature, outlines of the special doctrine of categories), which he began in 1927 but did not publish until 1950 (Berlin). In fact, his own philosophical work follows the plan he wished the history of philosophy to follow; there is much steady progress and expansion. The germs of his

central ideas—many of them images rather than concepts—can be seen even in his early neo-Kantian writings. For example, so typical an image as that of "the strata" and their hierarchy, basic to his later ontology, is already germinally active in his early *Zur Methode der Philosophiegeschichte* of 1909.

There was only one revolution in Hartmann's thinking. This was the revolution against the neo-Kantian idealism of his philosophical youth. It must have been a matter of profound travail for him, even though he was undoubtedly helped by certain select aspects of Edmund Husserl's phenomenology, in particular its Platonizing intuition of essences and its program for a merely descriptive reappropriation of experience. Whatever one may think of Hartmann's ontology philosophically, one cannot help being awed by his self-liberation from the grand German tradition of transcendental idealism, a liberation much more strenuous to a German than to Anglo-Saxons such as Bertrand Russell and George Edward Moore or Americans such as John Dewey, all of whom, to be sure, had somewhat similar conversions. These other conversions, however, were returns to the main current of their national philosophical traditions, whereas Hartmann's went counter to the main current of his. Indeed, even the severest critic of Hartmann's philosophy will respect the man himself. His philosophy reveals him to have been a careful, disciplined, honest, and sober conservative, kept by his common sense from philosophical extravaganza, but kept also from asking or appreciating radically revolutionary questions of either the existentialist or the new empiricist kind. Though as a person he was unmistakably German, his way of doing and writing philosophy was not at all typical of recent German philosophers. He cherished discussions and admitted to having learned from his students. He wrote not in the attitude of "the reader be damned" but with true courtesy toward his public, not to awe with profundity of learning but to guide with lucidity and thoroughness.

PHILOSOPHICAL POSITIONS

In presenting Hartmann's major positions it is advisable to begin with his conception of aporetics as philosophical method, not only because Hartmann himself put it at the beginning of his "Systematische Selbstdarstellung" (in *Deutsche systematische Philosophie nach ihren Gestaltern*, edited by Hermann Schwarz, Vol. I, Berlin, 1933; reprinted in *Kleinere Schriften*, Vol. I), but also because it is that part of Hartmann's philosophy that philosophers of the English tradition should find the most congenial.

APORETICS AND EPISTEMOLOGY. Aporetics is the unraveling of problems (aporia) into their strands; their presentation as clear-cut issues, preferably in the form of antinomies; and the weighing of the pros and cons of apparent solutions. There are some philosophical problems—the metaphysical problems—that will turn out to be in principle insoluble. Yet their unraveling is still useful, for as some part of the issues may turn out to be soluble, their discussion will contribute to the location and diagnosis of the unmanageable remainder. Aporetics is the central business of philosophy, all too often abandoned in favor of system building. Hartmann did not tire of pointing out that aporetics is what the Platonic dialogues and the best pages of Aristotle exemplify. However, this will hardly suffice in the age of science, when the nature of philosophy and philosophical problems is itself an aporia. Rather, one would wish to know what, if anything, distinguishes philosophical from logical or scientific problems. One would wish to know, besides, what it is that makes some philosophical issues insoluble and what the criteria are in terms of which some answers are solutions and some are not. Hartmann saw philosophical problems as arising from what he took to be the facts and from the contradictions they appear to harbor. His philosophical method, then, consisted really of two parts, a phenomenological presentation of the facts and an aporetic discussion of their implicit contradictions.

A typical example of Hartmann's descriptive-phenomenological and aporetic method may be found in his *Grundzüge einer Metaphysik der Erkenntnis*. No merely descriptive account of experience can plausibly deny that the objects known by a consciousness are experienced as existing independently of their being known. This fact, however, harbors in itself riddles in the form of flagrant contradictions: Consciousness, in knowing an object, transcends itself, yet anything known to consciousness is thereby a content of consciousness—that is, is immanent—and consciousness never transcends itself. The same riddle, but formulated from the side of the object, concerns the influence of the object on the subject. On the one hand, the object must break into a consciousness and produce an image of itself; on the other, the object must remain outside the subject, for it is, as object, something transcendent and indifferent to its being known by a subject.

Hartmann neither questioned the nature of the facts he supposed himself to be describing nor entertained any suspicion that the antinomies he found in those facts might be due to the sort of language he used in describing them. Instead, he proceeded from knowing to being.

The epistemic aporias are essentially ontic aporias, for both the object and the subject are beings (*Ansichseiendes*). The object is not exhausted in its being an object of a subject. Like a nocturnal thief caught in a sudden glare of light, it emerges out of an unredeemably transobjective and metarational background, a background that is in part beyond any human cognition, even beyond any possible sort of cognition. In knowing an object the subject knows "a thing that is," a being. In turn, the consciousness that knows the object is itself something not exhausted by its being a subject. It emerges out of a transsubjective and metarational medium; it is itself "a thing that is, a mode of Being." Hence, the epistemic relation between knower and known is really an ontic relation holding between one being and another, and the problems in epistemology are, or issue in, problems in ontology. As beings, both subject and object are ontologically homogeneous and are members of a context of Being (*Seinszusammenhang*). Within this context their relationship, so puzzling when taken in epistemological abstraction, becomes conceptually manageable, though an insoluble, and hence metaphysical, problem remains. This problem, however, concerns not the fact *that*, but rather how, subject and object stand in relation to each other.

In short, by seeing both subject and object as *Ansichseiendes*, Hartmann believed himself to have discovered that they are ultimately members of one matrix and context of Being. This is supposed to explain that they are related, though the how of their relation remains mysterious. Thus, the Hartmannian turn from epistemology to ontology looks suspiciously like a piece of verbal magic, as if a biologist, puzzled by the relation between males and females, proposed to solve the puzzle by calling both males and females "sexuals" and hence members of the sex context, thus "explaining" that they have sexual relations, though still wondering how they have them. Hartmann's reduction of epistemology to ontology is a piece of philosophical verbal magic if "subject" and "object" have empirical meaning, as "male" and "female" do. But if "subject" and "object" have no empirical meaning, what sort of meaning do they have? This basic question is unasked, and one cannot help wondering if the main use of the terms is not to engender the antinomies without which epistemologists would be out of work. In sum, Hartmann's phenomenological emphasis on descriptive facts seems to bring philosophical problems closer to empirical ones, whereas his aporetic emphasis on antinomies seems to bring them closer to logical ones. It is this basic ambivalence in his conception of philosophical method that cannot but be reflected in his conception of ontology.

ONTOLOGY. If there was anything twentieth- and twenty-first-century ontologists have had in common it is their unquestioning belief that the term *Being* is the name of something or other. What is debated is rather what *Being* is a name of: a quality or feature shared by all beings (and if so, whether this class, as *summum genus*, is distinguished from other classes merely by its higher degree of universality); some relation that any *x*, in order "to be a being," must have to be a subject, or man, or God; or an individual being who is the ground of all beings. Since they have not questioned that "Being" is a name, these ontologists, like their predecessors, have a problem concerning the unity of Being. Protons and principles, nations and numbers, salads and sentences are all said to have some sort of Being, and yet, because they *are* so differently, the ontologist is compelled to admit different kinds of Being. But this would make Being itself the genus of these kinds, just another class concept, albeit more abstract or universal, depriving ontology, in the process, of its metaphysical weight and attraction. In this predicament ontologists have chosen a linguistic escape. Instead of talking of kinds of Being, they prefer to talk of modes of Being. They thus believe themselves to be preserving the unity of Being in the variety of beings without prostituting Being to a mere class name—and a name, of course, it must be.

To a degree, Hartmann shared with the most outspoken ontologists of the mid-twentieth century, the existentialists, both the referential use of "Being" and the preservation of the unity of Being via modes. However, he was at once simpler and more confused than they. Heidegger, for example, made the most of the distinction between Being and beings, between *das Sein* and *das Seiende*, and, correspondingly, between ontological and ontic investigations. But Hartmann, at least in his pre-Heideggerian writings (such as *Grundzüge einer Metaphysik der Erkenntnis*), seems to have been rather uncertain about this difference and to have used the term *ontological* for any investigation concerned with beings. This makes the concept of ontology simpler, as it keeps the white whale of Being from perturbing the Ahab of beings, but it also makes the concept more confused, as one is now at a loss to distinguish between ontology and science, both of which have to do with beings. In his pre-Heideggerian *Grundzüge*, Hartmann was similarly apt to be very cavalier about the problem of the unity of Being, and he spoke of modes and strata of Being as if they were merely basic kinds of beings. Even though in his later works all this appears to have changed, presumably under the influence of Heidegger's *Sein und Zeit*, and Hartmann no longer slid terminologically from "beings" to "Being"

as he had in the *Grundzüge* (p. 182), conceptually the distinction between Being and beings and the problem of the unity of Being remain rather vague and were for him hardly the matter of primary philosophical concern they were for Heidegger.

Hartmann distinguished between two basic modes of Being (*Seinsweisen*), very much as the American new realists distinguished between existence and subsistence twenty years before him. One mode of Being consists of particulars, localizable in time and space, the other of universals—for example, essences, values, numbers. The former are real, the latter ideal; both are equally objective and independent of the subject. The ideals are logically prior to the reals, for a real is what it is only by virtue of an essence present in it (or valuable only by virtue of a value present in it). This apriority of ideal entities, however, does not exclude their being possible objects of experience, ideals being given in intuition just as reals are in perception. (Here "perception" and, it would seem, "intuition" must be used generously enough to include the emotional, for, following Max Scheler, Hartmann asserted valuables, if not values themselves, to be experienced emotionally rather than cognitionally.) Nor does the apriority of ideal entities exclude the possibility that the intuitional acts in which they are experienced are, *in ordo essendi*, grounded on the perceptual acts in which reals are experienced. As in Husserl, then, the a priori is not opposed to, but is rather part of, the empirical.

Within each of the two basic modes of Being, Hartmann distinguished between several strata of Being (*Seinsschichten*). The strata of reality correspond to the distinctions between inorganic nature, organic nature, consciousness, and superindividual culture (*Geist*)—all of them reals, but the last two also agents and carriers of ideals. Each stratum has basic, so-called categorial features, which it is the task of regional ontologies to lay bare. The strata form a hierarchy in which one stratum's dependence on the existence of another and partial freedom (autonomy) from the other's laws mark the higher from the lower. The working out of these regional ontologies through categorial analyses was one of Hartmann's central preoccupations, especially in *Der Aufbau der realen Welt*.

The distinctions between the two modes of Being and between the several strata within each mode were related by Hartmann to the traditional three modalities of possibility, reality, and necessity. Originally these are ontological modalities: It is beings that are possible, real, or necessary (*Seinkönnen, Sein, Seinmüssen*). Only derivatively are they distinctions concerning validity or certainty of knowledge. The many-dimensional relations of the ontological modalities to the modes and strata of Being, on the one hand, and to judgment and knowledge, on the other, are explored in *Möglichkeit und Wirklichkeit*, the most complex and difficult of Hartmann's works.

The revolution of the *Grundzüge einer Metaphysik der Erkenntnis*, making epistemology ontological, revenges itself upon Hartmann's ontology, making it epistemological. A being is primarily understood as that which is *an sich* (in itself), and this *an sich*, the traditional substance of ontology, is defined epistemologically as that which is indifferent to its being known by a subject. Moreover, this *an sich* is either that of reals or that of ideals. Reality and ideality, the two basic modes of Being, become two basic classes of beings. The genus common to both is the *an sich*. Thus, Hartmann appears to have slipped back into class concepts and some sort of taxonomy, half epistemological, half empirical. As with the modes, so with the strata: It is not at all clear what distinguishes strata of Being from kinds of beings. The several strata of reality seem to be related to reality as so many classes are to a genus. Finally, it is not at all clear what distinguishes the concept of a stratum from that of a mode. The two modes of Being, reality and ideality, are themselves related to each other in a multidimensional hierarchical order, very much like the strata, and it would therefore seem that the main difference between mode of Being and stratum of Being is, as with class concepts, the degree of abstractness or universality. In fact, in his *Ethics* Hartmann dealt with ideality as if it were just another stratum and not a mode. If the modes and strata of Being were just kinds of beings, it would follow that ontology is empirical and that the categories are concepts, like any other class concept but more universal. Here lies, as was hinted before, a crucial difficulty of Hartmann's ontology, a difficulty that is shared, mutatis mutandis, by Samuel Alexander's and Alfred North Whitehead's conceptions of categories and that reflects some really basic indecision on their respective conceptions of philosophy. Categories, as Hartmann conceived them, are descriptive of the behavior of different kinds of beings, yet are supposed to be different in kind, not just in the degree of universality, from both the class concepts of ordinary experience—such as "tree" or "rodent"—and the functional concepts of science. At the same time, categories are supposed to be related—and it seems, in some sense, necessarily related—to both. But neither difference nor relation is clearly worked out, and Hartmann's ontology, like Alexander's and Whitehead's cosmologies, continues to hover between the empirical and the a priori as well as between science and ordinary experience.

ETHICS. Indecision of this and other sorts haunts Hartmann's *Ethics*. Moral philosophy must not be casuistry; it must not try to teach what one ought to do in a particular situation. Rather, it should give the general criteria for a universal ethic. This sounds Kantian enough. But whereas Immanuel Kant used it as a steppingstone to philosophically central investigations concerning the logical nature and the transcendental foundation, if any, of these principles, Hartmann veered off in a very different direction. Somewhat like a course in art appreciation, ethics is supposed to make men sensitive to the wealth of values present in the world. This, however, makes Hartmann uncomfortable; it is not academically respectable. The task of moral philosophy is, rather, to present clearly, force into consciousness, and "establish" values, raising to the plane of science what was a mere affair of feeling. How are the two conceptions of moral philosophy—that of making explicit universal principles of what ought to be done and that of raising value feelings to the plane of science—to be united? What one ought to do can be gauged only if one has an insight into what is valuable in life.

In fact, however, this synthesis of the Kantian apriority of moral principles with the manifoldness of values, "which [Friedrich] Nietzsche had discerned only to let it melt away in historical relativism," is only a secondary aim of Hartmann's *Ethics*. Its central task is an analysis of the content of values, an elaborate axiology exploring the multitude of values and their relations to each other, to the ought, and to the real. This is the main body and the core of Hartmann's work in moral philosophy. It fills the second volume of the *Ethics*; the third is devoted to the problem of the freedom of the will. The first volume, besides developing his conception of moral philosophy, is a phenomenology of morality. Typical moral philosophies of the past are discussed with the aim of discovering in each of them a sound insight into some partial aspect of the moral phenomenon. Kant, for example, is said to have seen very clearly that ethical principles do not have the empirical sort of universality. They are a priori. Yet Kant's uncritical use of the Aristotelian form-matter dualism made him equate the a priori with the formal, and his epistemology made him equate the formal with the (transcendentally) subjective. Against this Kantian formalism and subjectivism Hartmann's axiology asserts an a priori of objective content—that is, of values as ideal entities that are intuitable.

It may, of course, be argued against this value objectivism that a judgment like "*x* is valuable" or "*x* is more valuable than *y*" will at some time and by some people be considered true and at some other time and by some other people false without there appearing to be any universal criteria of distinguishing, or any method of testing, the truth or falsity of these rival claims. But Hartmann answers this and other relativistic arguments by comparing the intuitional sense of values with a source of light. Light will penetrate darkness and illumine objects according to the strength of its source and will reveal the below and above of objects according to the position of its source, none of this preventing the objects and their spatial relations from being objective and knowable. This comparison assumes what was to be proved. It assumes that any particular sense of values is able to determine its own weaknesses with respect to all other possible senses of values, quite unlike a particular source of light, whose characteristics could not be objectively determined were it not for the sun and the light of day and the knowledge thus made possible. Hartmann's methodological reliance on an intuitional sense of values leaves his readers without a theoretical basis upon which to check and argue the truth or falsity of his observations in the realm of values. One cannot help being pleased with them as one might be with the descriptions of a foreign though somewhat familiar country, but since the recommended means of transportation is in no public domain, the country might as well be Cockaigne. There is no use arguing with the Baedeker of Cockaigne: Anyone may write his own. However, Hartmann's actual work in describing values is far superior to the account he gives of its method, and it is likely that this second volume of his *Ethics* will be found not only enjoyable but also useful.

Hartmann defined freedom of the will as independence from any determination that is constraint without this independence becoming indetermination. Indetermination is not only ontologically impossible; above all, it has once and for all been overcome in the Kantian conception of freedom as autonomy. Indeed, to Hartmann any determination that is not autonomy is constraint, and therefore autonomy fulfills the requirements of a definition of freedom of will. It is logically impossible for a will, insofar as it determines itself, to be either constrained or undetermined. If this is what freedom of will is, how can there be such a thing?

Hartmann's answer has two parts. The first is general, in terms of the hierarchy of ontological strata. Hartmann had asserted that the mark of a stratum's being higher than another is, in part, its autonomy—that is, the emergence of a new sort of determination or law. Autonomy is, then, a general ontological feature to be found, by definition, in any stratum but the lowest, and the auton-

omy called freedom of will is only a particular type of this general feature. Very much like theories of emergence, such as these of Alexander and Whitehead, which assume the miracle of emergence to be less miraculous if it is repeated, Hartmann's theory explains freedom of will as moral autonomy by making autonomy a universal ontological feature and then describing moral autonomy as a species of it.

The second part of his answer is concerned with this specific nature of moral autonomy. The will, in order to be free, must not be determined by the causal apparatus of nature, nor must it be determined finalistically by values and the corresponding oughts they confront us with. In either case the will would be determined by something outside it; that is, it would be constrained. However, if there were only these two kinds of determination, the causal determination of nature and the finalistic determination of values, then a will independent of nature would be one determined by the ought, and a will independent of the ought would be one determined by nature (indetermination being ontologically impossible); in either case the will would not be free. This is the most basic of Hartmann's aporias connected with the freedom of will. Hartmann proposed to solve it by positing a third kind of determination, whose nature he admitted to be completely inscrutable and metaphysical, a determination that belongs to the person itself, a self-determination through which an agent commits himself to the realization of value. Only such a third kind of determination, above both nature and value, explains the possibility of freedom of will.

Quite apart from the mistaken identification of determination and constraint, what seems particularly objectionable is Hartmann's suggestion of a kind of determination that is in principle inscrutable as a solution to the basic aporia of free will. Postulating an unknowable x as the solution to a problem is like shouting "victory" to undo defeat. In his escape from Kant's conception of autonomy as self-legislation of rational beings Hartmann fell under the spell of a supposed metaphysical ground in which a person and his decision making are taken to be rooted—a romanticism somewhat like Jean-Paul Sartre's "dreadful freedom," which on closer inspection turns out to be mere whim.

The absence of religious thought in Hartmann's philosophy is conspicuous. Value realism offers logical difficulties to theology, and it is, besides, more naturally connected with a life attitude whose religiosity—if this word can here be used—lies in value commitments and not in a personal relation to God. Thus, Hartmann's value

realism, as well as his pro-scientific persuasions and his empirically colored ontology, makes his proximity to atheism quite understandable. Very much unlike his beloved German idealists, who expressed the main existential spring of their philosophical energy in the problem of the "relation of the infinite and the finite," Hartmann was energized by no such preoccupations. His were intellectual aporias, not existential quandaries.

Hartmann's influence on German philosophy, though for a while considerable, was unable to stem the tide of existentialism. With the mid-twentieth-century return of German philosophy to a more sober and rational style, a new esteem for Hartmann began to develop in Germany. In the English-speaking world in the same period his *Ethics* was greeted with respect and then allowed to disappear, leaving hardly a trace. His only notable influence in fields other than ethics seems to have been on W. M. Urban, but as Urban's books have been ignored, Hartmann's effect in English-speaking countries has been limited to such indirect sources as Mario Bunge's somewhat Hartmannian books. Perhaps the sobriety, carefulness, and common sense of his general philosophical style are too much in the English and American tradition to attract our interest, and his logical and analytic naïvetés too numerous to hold it. It will take some time before these naïvetés are overlooked for the sake of his insights in the realm of values.

See also Alexander, Samuel; A Priori and A Posteriori; Aristotle; Being; Cohen, Hermann; Dewey, John; Ethics, History of; Existentialism; Hegel, Georg Wilhelm Friedrich; Heidegger, Martin; History and Historiography of Philosophy; Husserl, Edmund; Idealism; Kant, Immanuel; Moore, George Edward; Natorp, Paul; New Realism; Nietzsche, Friedrich; Ontology, History of; Plato; Neo-Kantianism; Platonism and the Platonic Tradition; Realism; Russell, Bertrand Arthur William; Scheler, Max; Value and Valuation; Vico, Giambattista; Whitehead, Alfred North.

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Walter Cerf (1967)
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HARVEY, WILLIAM
(1578–1657)

William Harvey, the English doctor and anatomist, was the demonstrator of the principle of the circulation of the blood. He was born at Folkstone, Kent, and educated at King's School, Canterbury, and Gonville and Caius College, Cambridge. After taking his B.A. in 1597, he left Cambridge for Padua, where he worked with the anatomist Fabrizzi d'Acquapendente (often Latinized as Fabrizio of Aquapendente). Fabrizzi had observed the valves in the veins, although he had not understood their function; Harvey told Robert Boyle that he had developed his theory of the circulation of the blood by reflecting on the operation of these valves, perhaps while still at Padua. In 1602 Harvey graduated from Padua with a medical degree and incorporated as an M.D. of Cambridge. Taking up practice in London, he was married in 1604 to Elizabeth Browne, daughter of the physician to James I. He was elected fellow of the Royal College of Physicians in 1607, and two years later was appointed physician to St. Bartholomew's College, a position he held for thirty-four years. In 1616, when he began to lecture as Lumleian lecturer in surgery of the Royal College of Physicians (a post he assumed in 1615), he was already expounding his theory of the circulation of the blood, although he did not publish his *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus* (An anatomical exercise concerning the motion of the heart and the blood) until 1628. Appointed Physician Extraordinary to James I in 1618, and in 1631 to Charles I, Harvey was identified with the royalist cause during the Civil War. In 1642 his London house was ransacked by Parliamentary troops who destroyed notes and specimens. Charles I appointed him warden of Merton College, Oxford, in 1645.

After the Civil War Harvey lived a secluded life, retiring from practice and devoting himself to embryological research. Pleading age, he declined the presidency of the Royal College of Physicians in 1654, and in 1656 resigned from his Lumleian lectureship. He died at Roehampton.

There has been considerable dispute as to whether the discovery of the circulation of the blood can properly be ascribed to Harvey. As early as 1543, Andreas Vesalius had expressed doubts about the traditional Galenic account, according to which blood was made in the liver, flowed through the veins, and was then excreted, except for a small part that passed through minute channels in the septum to the right ventricle and so into the arteries. Vesalius complained that he could not find the channels through the septum. Michael Servetus (1511–1553), Andrea Cesalpino (1519–1603), and especially Matteo Realdo Colombo (1516–1559) all gave a reasonably accurate picture of the flow of blood through the lungs—the so-called lesser circulation. But none of them recognized that the entire blood supply circulated through the body.

Harvey used the comparative method. Confused by the rapidity of movements within a living human body, he dissected such cold-blooded animals as toads and shrimps, in which movement is slower. Many of his con-

temporaries criticized him on the ground that what was true of the lower animals had no application to man. But for Harvey, as for Aristotle, man formed part of the animal kingdom.

Harvey's great importance lies in the fact that he used the concepts of mechanics in his analysis of physiological processes. He described the working of the heart in the language of pumps; he applied mathematical calculations to show that the body could not possibly manufacture the quantity of blood which, according to Galen's theory, would have to flow through it. The fact that blood still had a quasi-mystical significance made his matter-of-fact approach particularly significant.

Harvey's work greatly influenced many early modern philosophers, including René Descartes and Thomas Hobbes (otherwise so different), who both put Harvey on a level with Galileo Galilei. They saw that Harvey had broken down the barrier between the animal and the human body, and between the processes of the body and the processes of mechanics. Thus Harvey's discovery gave empirical support to their mechanistic hypotheses. Descartes objected, however, that Harvey had not shown from first principles that the blood must necessarily circulate; he had been content to say that the heart is in fact a pump and that the blood does in fact circulate. Harvey replied to Descartes in his letters to the French anatomist Jean Riolan, who had rejected Harvey's theory. These letters were included in *Exercitationes Duae Anatomicae de Circulatione Sanguinis, ad Johannem Riolanum Filium Parisiensem* (Two anatomical exercises concerning the circulation of the blood, addressed to Jean Riolan Jr., of Paris; 1649).

Scientific truth, Harvey argued, is to be discovered by direct observation. "No more certain demonstration or means of gaining faith can be adduced than examination by the senses, than ocular demonstration." In this respect, Harvey compares biology favorably with astronomy. The astronomer, he suggests, argues from appearances. He cannot see what happens in an eclipse; all he actually sees is one disc sliding across another, whereas the biologist can see the heart beating in a shrimp. Observation shows us that the blood circulates, and that is enough for the biologist. This is a classic statement of the attitude of the observational biologist, in opposition to the Cartesian mathematico-physical conception of science. The *Letters to Riolan* also contain Harvey's criticisms of the attempt to explain physiological functioning in terms of "spirits." "Persons of limited information when they are at a loss to assign a cause for anything, very commonly reply that it is done by the spirits."

Harvey's other major work is contained in his *Exercitationes Duae Anatomicae de Generatione Animalium* (Two anatomical exercises concerning the generation of animals; 1651). Although this work was important in developing the view that each living thing is produced from an egg, as opposed to the doctrine of spontaneous generation, it lacks the scientific assurance of the *De Motu Cordis*. The fact that Harvey had to rely upon the unaided eye very much limited his achievement in this area. The first work of any consequence carried out with a microscope was done in 1660 by Marcello Malpighi, who took Harvey's theory as his point of departure.

See also Aristotle; Biology; Boyle, Robert; Descartes, René; Galileo Galilei; Hobbes, Thomas; Philosophy of Biology.

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John Passmore (1967)

HATANO SEIICHI
(1877–1950)

Hatano Seiichi, the Japanese historian of philosophy and philosopher of religion, was born in Nagano and died in Tokyo. He studied at Tokyo University, where his thinking was formed by Raphael von Koeber, a pupil of Eduard von Hartmann. He wrote his doctoral thesis, "A Study of Spinoza" (1904), in German. In 1901 he had published *Seiyo tetsugaku shiyo* (Outline of the history of Western philosophy; Tokyo), a book whose scholarship established his reputation. He went to Germany in 1904 and studied under Carl Gustav Adolf von Harnack and Otto Pfleiderer at Berlin for two years, then under Wilhelm Windelband at Heidelberg. He also developed his studies of Protestant theology (he had been baptized in 1902) under J. Weiss, Ernst Troeltsch, and A. Deissmann. Their lectures prepared him to be a temporary replacement for Anesaki Masaharu, Tokyo University's well-known historian of religion. From his lecture notes he published *Kirisutokyō no kigen* (The origin of Christianity; Tokyo, 1908). In a much later book, *Genshi kirisutokyō* (Primitive Christianity; Tokyo, 1950), he rose above the historico-textual criticism of his early days to present a more thorough study of the essence of Christianity. But at the beginning of the twentieth century this type of work was a novelty in Japan.

In 1917 he resigned from Waseda University, where he had taught for many years, and at the invitation of Nishida Kitarō, the leading philosopher of Japan, he joined the staff of Kyoto University; he taught there until he retired in 1947. Subsequently he became the president of Tamagawa University in Tokyo. At Kyoto he had the chair of science of religion, and from 1922 he held the chair of Christianity. Hatano developed his philosophy of religion in four books (all published in Japanese, in Tokyo): "The Essence and Fundamental Problem of Philosophy of Religion" (1920); "Philosophy of Religion" (1935); "Introduction to Philosophy of Religion" (1940); *Time and Eternity* (Japanese edition, 1943; English edition, 1963). His main idea is that the comparative study of religion presupposes a philosophy of religion because values are a necessary element of that science. As philosophy, religion must start from the reality of the religious experience of God; this experience is first an experience of the God of power, then a quest for the God of truth, and finally an experience of the God of love. Hatano distinguishes three kinds of time: the natural, encompassing the realm of nature; the cultural, characterized by eros; and the eternal, in which agape, or Christian love, triumphs. Original, too, are his observations on the "about-to-come" future (*shōrai*) and the distant future (*mirai*). The first is implicitly part of our present; it is the future we are making, the supplier of being. The second is time that will never be experienced by the subject. Clearly Hatano is much influenced by Christian ideas and takes almost nothing from the Oriental climate of thought; even so this type of philosophy of religion was and still is very influential in Japanese thought.

See also Harnack, Carl Gustav Adolf von; Hartmann, Eduard von; Japanese Philosophy; Nishida Kitarō; Philosophy of Religion; Troeltsch, Ernst; Windelband, Wilhelm.

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Gino K. Piovesana, S.J. (1967)

HAYASHI RAZAN
(1583–1657)

Hayashi Razan, the Japanese Confucianist, helped establish the Zhu Xi (Japanese: Shushi) school as the state doctrine of the Tokugawa government (1603–1867), which played an important role in shaping the national character. Hayashi, who was born in Kyoto, began studying Confucianism at the age of twenty-two, under Fujiwara Seika (1561–1619) and like his teacher abandoned Buddhism for the Neo-Confucianism of the twelfth-century Chinese philosopher Zhu Xi. Fujiwara recommended his talented pupil to Tokugawa Ieyasu as official adviser, a post Hayashi continued to fill under Ieyasu's successors. Through his son Gahō (1618–1680) and grandson Hōkō (1644–1732), both erudite Neo-Confucianists, Hayashi's influence spread. Gahō and Hōkō became hereditary heads of the Confucianist college (Shōheikō) of Edo (Tokyo), center of Japan's orthodox Zhu Xi-ism. Hayashi is credited with an important role in the various codes promulgated by the Tokugawa to reorganize the country under strict military rule. That he also determined educational policy is beyond dispute.

Hayashi, in contrast to his master Fujiwara, was very intolerant toward other doctrines—specifically, Wang Yangming Confucianism, Laozi, Buddhism, Christianity. Thus he is noted more for his negative polemics than for developing Zhu Xi's ideas, which he followed rather faithfully. An instance of deviation from Zhu Xi is Hayashi's almost monistic conception of *ri,* the principle, together with *ki,* the material-force. He came near to identifying these two basic concepts, thus approaching the rival school of Wang Yangming. Nevertheless, he sharply criticized Wang Yangming's "intuitive knowledge" and Kaibara Ekken's views. Hayashi disapproved of Laozi's emphasis on the "Nameless," or the Way understood as the indescribable Great One, intent as he was on stressing social relationships. For Buddhism's escape from society and neglect of loyalty and filial piety he had nothing but scorn, fighting until his death against influential Buddhist monks. His strictures on Christianity were many (Christians were then being persecuted and banished from Japan). He focused, however, on ethical questions and social differences neglected by Christianity. Only with Shintoism did he desire compromise and amalgamation.

See also Buddhism; Confucius; Japanese Philosophy; Kaibara Ekken; Laozi; Wang Yangming; Zhu Xi (Chu Hsi).

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Gino K. Piovesana, S.J. (1967)

HAZLITT, WILLIAM
(1778–1830)

William Hazlitt, the English essayist, journalist, and critic, began his literary career as a "metaphysician," and the principles of his youthful philosophical writing survived to govern his thought during the years when a more brilliant prose style won him fame. Born at Maidstone, Kent, the son of a Dissenting minister, Hazlitt kept faith politically with his Unitarian heritage, but at an early age revolted against his father's rationalistic theology. After trying unsuccessfully to become a painter, he turned in his thirties to journalism and to popular lecturing, and until his death made his living in London as a writer for periodicals. Twice unhappily married, always the fierce defender of both the French Revolution and Napoleon Bonaparte, Hazlitt succeeded in alienating most of his friends and much of his public, although his critical influence on the literature of his time was perhaps second only to Samuel Taylor Coleridge's. Unlike Coleridge, his erstwhile friend and mentor, Hazlitt did not ground his thought in a version of the new Idealism; he stands alone in his age as a romantic thinker who developed a critique of empiricism that nonetheless supported the values and methods of the empiricist tradition.

Hazlitt continued the redefinition of the individual begun by William Godwin in *Political Justice* (1793). Four years before his first meeting with Coleridge in 1798, and while still a student at Hackney College in London, Hazlitt conceived his "metaphysical discovery"—a refutation of necessary egoism. Actually, his position had been anticipated by Joseph Butler and David Hume, but his arguments were original in his insistence on imagination—a power inseparable yet distinct from present sensation and past feeling—as the source of voluntary action, and even of self-consciousness.

His first book—*An Essay on the Principles of Human Action,* to which was added *Some Remarks on the Systems of Hartley and Helvétius* (1805)—argued that ideas of good determine conscious pleasure and self-interest, not the reverse, and that the same "reasoning imagination," which alone can unify sensations from moment to moment, is responsible for all the mind's "associations" except those arising from mere contiguity in experience. In his lectures at the Russell Institution in 1812 on the "Rise and Progress of Modern Philosophy," this line of thought inevitably led Hazlitt to challenge all epistemology, including George Berkeley's and Hume's, that relied on the Lockean premise of "simple" impressions in perception. To perceive the simplest object requires a "general idea," or some act of mind to "comprehend" objects in their sameness or wholeness before qualities can be differentiated. Failure to recognize an activity of mind inhering in sense perception itself had led, he believed, to the vain war between philosophies of "Necessity" and of "Liberty"—between a mechanism or materialism that reduced mind to sensation and an idealism like Immanuel Kant's that mistook man's formative consciousness for a power of will essentially free of sensory experience.

Hazlitt also came to oppose, then, the transcendentalism that Coleridge introduced from Germany. As is clear from a *Prospectus* (1809) for his projected history of English philosophy, Hazlitt saw himself as a loyal reformer of empiricism, although he admittedly left unresolved the central problem of the degree to which ideas are determined by the mind itself, on the one hand, and by "nature" on the other. In part, it was his belief that this dualism must remain intractable to reason which made him forsake formal analysis for the "familiar style" of his literary journalism. Averse to system and always more concerned with the cultural impact of ideas, he began, after 1812, to turn from an analysis of the formal problem to an exploration of the interaction of mind and world in experience as it is known by the self in life or realized by "genius" in the arts. Still affirming that "the mind is one," he made his theme the "everlasting contradiction" of man's nature—the "action and reaction" between the mind and the passional self as dialectical functions of the same unity of consciousness.

From his awareness of this conflict in consciousness Hazlitt forged no metaphysic of his own beyond a vague vitalist belief that "the spirit of life and motion" gave the mind a radical "sympathy" with the physical world. In religion he seems to have remained a modest agnostic, certain only that God is intellectually unknowable. Hazlitt thought that only in the aesthetic mode of imagination could the mind transcend experience, and even then it could attain to no intuition beyond "the soul of nature." The insistence that "passion" is the source both of man's freedom and of his bondage—a bondage to individual "character" that nonetheless implies the freedom of the self to sympathize with other selfhood—underlies Hazlitt's polemic on all fronts; it links his criticism of Thomas Robert Malthus and the utilitarians to his aesthetic theory that organic particularity is the basis of value in the arts.

In the England of 1830, when Hazlitt died impoverished in London, a humanism so darkly paradoxical found little favor; but his powers as a thinker have been increasingly recognized, and he appears today as the versatile Montaigne of his age, often prefiguring in his essays the dynamicist philosophies of Friedrich Nietzsche, Henri Bergson, William James, and Sigmund Freud.

See also Bergson, Henri; Berkeley, George; Butler, Joseph; Coleridge, Samuel Taylor; Empiricism; Freud, Sigmund; Godwin, William; Humanism; Hume, David; Idealism; James, William; Kant, Immanuel; Malthus, Thomas Robert; Montaigne, Michel Eyquem de; Nietzsche, Friedrich.

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John Kinnaird (1967)

HEAT, SENSATIONS OF

See *Pain*

HEAVEN AND HELL, DOCTRINES OF

One of the most basic and existentially engaging of all questions has to do with the possibilities for human happiness and fulfillment on the one hand, and misery and loss on the other. Christian theology has returned the striking answer that the possibilities are truly extreme. According to Christian theology, the world is such that humans can experience perfect happiness, delight, and satisfaction, and do so forever. Indeed, that is just what human beings were created for: an eternal relationship with God that will fulfill humankind's best potentialities and aspirations. But the flip side of this is also possible—namely, that people may fail to achieve this relationship with God and thereby come to utter ruin and misery, a condition that is also believed to be eternal.

So understood, heaven and hell have provided an important moral source for European culture for the better part of two millennia. Not only have they served as moral sanctions that assure people that they are ultimately accountable for their actions, but heaven and hell also have been central to the majestic vision of life and its meaning that flows from belief in a God of perfect character and infinite power.

The fundamental logic of these beliefs is not unique to Christianity and European culture—it is common to Judaism and Islam as well. Of course the details differ in important respects, especially with respect to the crucial issue of the conditions for achieving heaven. In other

words, one's beliefs about the nature and conditions of salvation will be closely connected to one's conception of heaven and hell. But the point for emphasis is that belief in heaven and hell are not peripheral to theology, but are integral to traditional theistic faith, whether Jewish, Christian, or Muslim.

HISTORICAL DEVELOPMENTS OF THE DOCTRINES

Belief in an afterlife is either absent or ambiguous in early Jewish scripture. And even where that belief occurs, it is not always clear that there is a distinction between the fate of the righteous and that of the wicked. *Sheol*, the place of the dead, was conceived to be a place of shadowy existence without clear moral distinctions. A more developed view of the afterlife grew out the Jewish understanding of their covenant with God. While the possibility of punishment for disobedience to the covenant was always recognized, such punishment was understood as confined to this world. Increasing awareness of the injustices of this world led to calls for moral distinctions in the afterlife that would rectify the wrongs of this life, of which the book of Job is perhaps the most famous example. Belief in a double resurrection—of the wicked as well as the righteous, after which the wicked will be punished—emerged later in some Jewish scriptural texts. In extrabiblical literature, heaven and hell have been matters of considerable speculation among rabbis during both the time before the rise of Christianity and Islam, and after.

In the New Testament scriptures there is also significant diversity, and some texts appear to teach that the wicked will be annihilated whereas others appear to teach that all will eventually be reconciled to God. The view that came to predominate in Christian theology—also based on numerous New Testament texts—is that all will be resurrected, but that the wicked, perhaps constituting the majority of humanity, will be banished from the presence of God and forever lost in the misery of hell.

Many notable traditional theologians have conceived of hell as an eternal punishment that is justly imposed on sinners. In the Christian tradition, Augustine, Aquinas, Anselm, and Jonathan Edwards are among those who have formulated influential arguments in favor of this conception of hell. Anselm formulated his version of this argument in his famous account of the purpose of the atonement of Christ. People owe God total and perfect honor, Anselm argued, so any sin against him puts them in infinite debt to him that accordingly deserves infinite punishment. Edwards developed a similar argument by appealing to God's infinite nature. Because God is infinite in his loveliness, honor, and authority, Edward's believes that a person's obligation to love and honor God is likewise infinite. To fail in this obligation is to merit infinite consequences. Moreover, traditional theologians typically held that repentance after death is impossible, and consequently, no one may escape from hell.

In elaborating the punishment view of hell, traditional theologians often distinguished between the "pains of sense" and the "pain of loss." The former of these was typically understood to include literal fire of agonizing intensity, whereas the latter emphasized the unhappiness that naturally results from being separated from God, the true source of all joy and happiness. This picture of hell, along with its corresponding vision of heaven as a place of unbounded delight, has not only haunted the popular imagination but has also been a powerful source of inspiration for classic works of art, both visual and literary.

Despite its important role in both theology and the broader culture, belief in heaven and hell has been in decline in the European and North American world ever since the onset of modernity. The reasons for this decline are complex and are no doubt related to the more general defection from religious belief during this same period. The doctrine of hell, in particular, has lost credibility among believers as well as unbelievers largely because many see it as morally implausible.

CONTEMPORARY ACCOUNTS OF THE DOCTRINE

Both heaven and hell, however, have received renewed attention from contemporary philosophers as part of the revival of interest in philosophy of religion. A number of philosophers have moved beyond issues germane to generic theism to explore issues generated by distinctively Christian belief, including Trinity, incarnation, atonement, and the nature of salvation. Heaven and hell are closely connected to these beliefs, especially those pertaining to salvation. Heaven and hell have also played an important role in discussion of the perennial problem of evil and the project of theodicy. Whereas hell is typically seen as a particularly difficult aspect of the problem because it involves the prospect of eternal recalcitrant evil, heaven is often invoked as an essential component of a satisfactory theodicy. Only the hope of eternal life, it is argued, provides adequate grounds to believe the horrific tragedies of this life may be fully healed and redeemed.

Much of the contemporary discussion of hell has centered on the traditional arguments defending the claim that eternal torment is the just punishment for

human sin. Among those who have subjected these arguments to searching critical scrutiny are Marilyn Adams, Jonathan Kvanvig, and Charles Seymour. This critique begins by contesting the claim that human sin could ever be infinitely serious. Even the most notorious of sinners, such as Hitler, have done only finite evil and caused finite harm, however enormous it is. Next, it is contended that a just punishment should fit the crime. Thus, if God is perfectly just, he cannot punish human sin with infinite punishment. So eternal hell cannot be defended as a just punishment for sins committed in this life. There is a general consensus among contemporary philosophers that this critique is sound, so those who affirm the doctrine of eternal hell have turned to other arguments to make moral sense of it.

The most common strategy is to appeal to libertarian freedom to show how eternal hell can be compatible with God's perfect love and power. That is, it is contended that people have the freedom to reject God, even to the point of being forever separated from him. C. S. Lewis famously summed up the essence of this view in his remark that the doors of hell are locked from the inside. In the same vein, Richard Swinburne has defended the doctrine of hell on the grounds that people may, over time, form the sort of character that can no longer choose God and the good. Those who take this position thus typically affirm the pain of loss, but downplay or deny the pains of sense.

Kvanvig (1993) has defended a variation on this position that he calls the "issuant conception of hell." His position is so called because he believes the doctrine of hell should issue from the same character of God as the doctrine of heaven—namely, his love. It is a mistake, he thinks, to stress love only with reference to heaven, while emphasizing justice in connection with hell. The final choice everyone faces, according to Kvanvig, is either a relationship with God or annihilation, for to choose to live independently of God is in fact to choose annihilation, because living independently of God is actually impossible. Of course, God prefers that all persons accept his love, but he respects the freedom of those who reject a relationship with him.

However, not all who reject God choose annihilation in a clear and settled way. It is precisely because of his love that he allows them to remain in existence. Kvanvig's view is accordingly a "composite" view because it allows for both eternal separation as well as annihilation. God need not force people to choose either a relationship with him or extinction, so this allows the option of everlasting separation from him.

Seymour has focused on human choice in developing a defense of eternal hell that he calls "the freedom view." His fundamental definition of hell is that it is "an eternal existence, all of whose moments are on the whole bad" (Swinburne 1983). For this to be true of hell, he thinks it is not enough for hell to have the pain of loss—it must also include pains of sense. His appeal to freedom is crucial for he rejects the traditional arguments for the claim that sins committed in this life could be sufficiently serious to warrant eternal punishment. Rather, it is the continuing choice to sin that keeps sinners in the perpetual pains of hell.

Seymour believes that sinners can in principle repent and would be accepted by God if they did, so if they remain in hell it is due to their choice to persist in sin.

CONTEMPORARY CHALLENGES TO HEAVEN AND HELL

A growing number of Christian philosophers are challenging the doctrine of eternal hell in favor of a doctrine of universal salvation. Some Muslim thinkers have also advanced the speculation that all may be saved in the end. Not surprisingly, Christian philosophers who challenge eternal hell typically focus on libertarian freedom and the crucial role it plays in the contemporary defense of the doctrine.

Thomas Talbott (2003) has mounted a sustained attack on the doctrine of eternal hell, building his case on both biblical and philosophical grounds. In his biblical arguments, he has attempted to show that the New Testament is best interpreted as affirming that all will eventually be saved. He thereby aims to undermine one of the main pillars of the orthodox view of hell—namely, the contention that scripture requires Christians to believe it. Talbott's philosophical case against eternal hell largely focuses on his claim that the idea of choosing hell is finally incoherent.

His argument for this claim hinges on his account of what is involved in freely choosing an eternal destiny. In short, such a choice must be fully informed, and once the person making the choice gets what he or she wants, then it must be the case that the choice can never be regretted. This means that the person must be free from ignorance and illusion both in the initial choice as well as later. One must fully understand what has been chosen while freely persisting in that choice.

Given these conditions, Talbott thinks there is an obvious and important asymmetry between choosing fellowship with God as an eternal destiny, on the one hand,

and choosing hell as an eternal destiny on the other. Whereas the first of these obviously is possible, the latter is not. The reason for this is because there is no intelligible motive for choosing hell if one is free of ignorance and illusion. One may temporarily choose evil under the illusion that so choosing will make one happy. But God will eventually shatter this illusion by making one ever more miserable until the point is reached that one must repent and turn to God. Thus, Talbott affirms the view that universalism is necessarily true, in contrast to the more common claims that universalism is possibly true or probably true.

Marilyn Adams has also criticized the reliance on libertarian freedom in traditional theodicy, contending that its proponents exaggerate the dignity of human nature as something so sacrosanct that not even God may legitimately interfere with it. She sees this tendency particularly in the doctrine of hell, especially in the mild versions, which hold that hell is simply the natural consequence of freely choosing to reject God and the love he offers. Adams complains that advocates of mild hell tend to assume that God and human adults are moral peers in their insistence that they have the right to resist God and choose evil instead. As she sees it, this is not the appropriate sort of respect for God to pay to the likes of humans.

Indeed, the deeper difficulty here is that free will approaches underestimate what she calls the "size gap" between Divine and created persons. Whereas free will approaches picture the relationship between God and human persons with the analogy of parents and adolescent or adult children, Adams thinks it is better modeled by the relationship between a mother and an infant or a toddler. In the latter relationship, there is little if any sense that the child is free and responsible and that it would be wrong to interfere with his choices. This nicely serves Adams's view that God can save everyone in the end, and relieves her of the worry of how God may accomplish this without violating human freedom. If God needs to causally determine some things in order to prevent the everlasting ruin of some of his children, this should not be seen as an insult to our dignity.

The philosophical credibility of the doctrine of hell will largely depend on one's judgments about the nature and value of freedom as well as one's views of moral psychology. Those who disagree with Adams will argue that freedom is of sufficient value itself—or is the means to other goods of sufficient value—and that God will not override it to save us. In a similar vein, Talbott's critics, including the present writer, have argued that there are,

contrary to his claims, intelligible motives for the choice of eternal damnation. Indeed, an essential component of freedom is people's ability to deceive themselves and turn away from the truth. If so, then God may not be able to shatter people's illusions without destroying their freedom.

Whereas the choice of heaven is easier to grasp from the standpoint of moral psychology because it is the choice of true happiness and fulfillment, some have argued that the notion of eternal joy is a dubious notion. Bernard Williams (1993) has made the case that the notion of eternal joy is incoherent because any life of endless duration would inevitably become boring, no matter how delightful the experiences it offered. Defenders of heaven have responded to this challenge in various ways, depending on how they conceive of the life everlasting. Two broadly different accounts of heaven have been prominent in the Christian tradition. On one end of the spectrum is the theocentric vision, which emphasizes the beatific vision as a timeless experience of contemplating the infinitely fascinating reality of God in all his aspects. On the other end of the spectrum is the anthropocentric view, which pictures heaven in terms familiar to this life, purged of course of the evil and suffering that currently mar human happiness.

However these debates continue and whatever resolutions may be achieved, it is apparent the renewed interest in heaven and hell brings into vivid focus some of the most profound issues that animate the philosophical enterprise. Not only the nature and ground of people's moral commitments, but their understanding of the meaning of their lives and their various configurations of joy and sorrow, hinge on what is believed about heaven and hell.

See also Immortality.

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Jerry L. Walls (2005)

HEBBEL, CHRISTIAN FRIEDRICH
(1813–1863)

Christian Friedrich Hebbel, the German poet and playwright, was born in Wesselburen in the duchy of Holstein and died in Vienna. His father, an impoverished bricklayer who became destitute as a result of having guaranteed a loan that was defaulted, hated this son who showed no aptitude for earning a living. The boy's mother was more indulgent and protected him from the brutality of the father. It was thus possible for young Hebbel to keep alive his consuming passion for learning. At the age of fourteen he was employed as a clerk by a parish official named Mohr, who allowed him to use his library. Mohr treated Hebbel as a common servant, however, and for this Hebbel never forgave him.

Through the good offices of Amalie Schoppe, the editor of a popular magazine, Hebbel received enough money to go to Hamburg in order to try to complete his fragmentary education. There he met Elise Lensing, a seamstress ten years his senior who cherished an abiding love for him; over the years she gave him clothes, lodging, money, and two sons, both of whom died young. Hebbel, who was ridden by his demon to acquire learning and develop himself as a writer, refused to marry Elise. Instead, he went on to study at the universities of Heidelberg and Munich. In the late winter of 1839, he made the arduous trip from Munich back to Hamburg on foot. In the same year he completed his first play, *Judith,* which he cited as his chief accomplishment when he applied for a travel stipend to King Christian VIII of Denmark. The king granted the stipend, and Hebbel went to Paris and from there to Rome. Because his resources were dwindling, he struck out for Germany by way of Vienna, where he met the talented actress Christine Enghaus, to whom he became engaged after three months. Whether or not Hebbel was largely influenced in this decision by the prospect of financial and social security, the marriage was a happy one and enabled Hebbel to take a place of honor in artistic and intellectual circles. His early death must be attributed in large measure to the hardships he had endured in order to realize his genius.

With the desperate seriousness of the self-educated man, Hebbel dedicated himself to presenting in artistic form his solution, sometimes characterized as "pantragic," of what he considered the ultimate philosophical problem, the incomprehensible escape of the individual from the Absolute or Idea, man's freedom in relation to God.

In Hebbel's dualism individual forms exist only by virtue of having differentiated themselves from the Absolute. Their struggle to maintain themselves as separate entities is a rebellion, the primeval sin of individuation. The sinfulness of the individual consists merely in the fact that he exists, and it is in no way dependent upon the nature or direction of his individual will. For his sinfulness the individual must be punished; he will have to submerge his particular being in the undifferentiated whole. The more splendid, vigorous, and powerful he is, the greater is the threat he poses to the Absolute and the more tragic is the struggle, which can end in only one way. There is only one necessity—that the Absolute maintain itself. However, although the existence of individual forms threatens the Whole, it is precisely the process of individuation that gives life to this closed system. If it were not for the mysterious freedom of the individual forms, the Absolute would become rigid and lifeless. The total life process is dependent on the metabolic flow of individual forms, which may appear at one point; may be submerged forever; or may, whether they retain their identities or their elements enter into new combinations, reappear at another point only to lose individuality again in the never-ending compact flux of history, compact because nothing new enters the universe and nothing leaves it.

It is the common task of philosophy and art, particularly drama and more specifically Hebbel's drama, to describe and make understandable this supreme philosophical problem. Philosophy must fail in its part of the common task, to determine the original cause of individuation, because this ultimate cause is unfathomable. But

the drama is not concerned with this question. It accepts individuation as the prime condition of life and presents the tragic struggle of the All and the one in a way that makes it comprehensible to aesthetic intuition. In the drama the metaphysical breach is closed; the defeat of the tragic hero mirrors the cosmic process.

In order to achieve his aim, Hebbel sets the action of his plays at critical times in history, for at such times the relation of the individual to the Whole is most poignantly manifested. In some plays—for example, *Judith, Maria Magdalene, Herodes und Mariamne*—the prevailing form of the Idea is shown to be on the verge of breaking up. In others—*Genoveva, Agnes Bernauer, Gyges und sein Ring*—the prevailing form of the Idea, although threatened, affirms itself and persists. In both instances, whether the individual is opposed to the Idea or is an instrument of it, the end is tragic, and all individuals meet the same fate—they are crushed and absorbed by the Whole.

Hebbel always insisted that despite obvious parallels he had evolved his metaphysical truths independently of the romantic nature philosophy of German idealism. For a long time, in the absence of specific evidence to the contrary, many literary historians accepted this assertion. Recent research, however, has shown that Hebbel had early steeped himself in certain writings of Gotthilf Heinrich von Schubert, the natural scientist and philosopher, and Ludwig Feuerbach. The ideas he found there he experienced with such intensity that he incorporated them into his own psychic structure although his pride as a self-taught man did not allow him to acknowledge his debt.

See also Absolute, The; Feuerbach, Ludwig Andreas; Idealism.

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HEDONISM

Hedonism (Greek, ἡδονή, "pleasure") is a term that refers to either of two distinct but related views, one a thesis in normative ethics, the other a generalization about human psychology.

ETHICAL HEDONISM

The first view, called "ethical hedonism," affirms that only pleasure is intrinsically desirable and that only displeasure (or pain) is intrinsically undesirable. More fully stated, it is the thesis that only pleasant states of mind are desirable in themselves; that only unpleasant states of mind are undesirable in themselves; and that one state of affairs is more desirable in itself than another state of affairs if and only if it contains more (in some sense) pleasant states of mind than the other (the quantity of value in a state of affairs being measured by the quantity of pleasure in it).

This thesis has been defended by a distinguished line of philosophers from the early Greeks to the present, including Aristippus, Epicurus, John Locke, Thomas Hobbes, David Hume, Jeremy Bentham, J. S. Mill, and Henry Sidgwick. Other philosophers have thought that happiness is the only thing that is intrinsically desirable; and if saying that a man is happy at a given time is the same as saying that he is experiencing pleasure at the time, then their names could be added to this roster. Many philosophers, however, have thought that happiness is different from pleasure, and there has been disagreement and confusion about what "happy" and "pleasant" mean.

The hedonist thesis was a part of traditional utilitarianism, as represented, for instance, by Bentham and Mill, with their "greatest happiness principle." These writers

combined the generic principle of utilitarianism—namely, that an act is morally right if performing it would produce, or could reasonably be expected by the agent to produce, at least as much intrinsic goodness in the world as any other act the agent could perform at the time—with the thesis of hedonism about what is intrinsically good. Traditional utilitarianism is thus a species of utilitarianism that is defined as asserting just the "generic thesis"; other kinds of utilitarianism (for example, that of G. E. Moore) reject hedonism. Unlike utilitarianism, ethical hedonism is not at all a proposal about which acts are morally right; it is only an affirmation about which states of affairs are intrinsically good or desirable.

What is meant by saying that a state of affairs is intrinsically desirable, as opposed to simply desirable, is that it is desirable, good, worthwhile, worthy of choice, when *taken by itself,* viewed abstractly, and in particular considered without reference to consequences. Many things (for example, a visit to the dentist) are worthwhile in view of their consequences, which nobody would say are intrinsically desirable. The hedonist does not deny that other things are desirable; he denies only that they are intrinsically worthwhile. He agrees that something can be desirable instrumentally—as a means to an end—even when it is not intrinsically desirable. (A thing can, of course, be both intrinsically and instrumentally desirable: pleasant experiences can be good in themselves and also instrumentally good, if, for example, they are relaxing and enable one to work better on the following day.) He does add, however, that something is instrumentally desirable only to the extent that it is a means to later pleasure, since a thing can be instrumentally desirable only if it is a means to attaining the intrinsically desirable.

When consequences are taken into account, the hedonist's view about what states of affairs are desirable is apt to differ very little from the view of the nonhedonist. In fact, if one reads various writers' accounts of the "good life," one finds that they are pretty much alike, whether the author professes to be a hedonist or a nonhedonist. Thus, Epicurus, for instance, advocated a simple life devoted to philosophical reflection, with a diet of bread, cheese, and milk, and with its tranquility unendangered by surging bodily passions. And J. S. Mill affirmed that having a good character is "part" of a person's happiness, so that according to him, character is intrinsically good after all by virtue of the fact that it is a part of happiness. Some hedonists, however, have advocated a more distinctive ideal for living: the Greek Aristippus thought that physical enjoyments are the richest source of pleasure and should be fully cultivated.

The meaning of the hedonist's thesis, of course, depends on what is meant by "pleasure." It is true that the associations of the word *pleasure* are such that if an English-speaking person says he favors a "life of pleasure," he is naturally taken to be advocating a life dedicated to the sensory enjoyments—wine, women, and song. Hedonists have not intended the term to carry this implication, however, and the strict meaning of the term does not. It is perfectly correct for a student to say, "I got a great deal of pleasure out of writing that paper." To say that an experience is pleasant (for example, "a pleasant evening"), is, in a strict sense, simply to say that one enjoyed it, or that one enjoyed himself during it. Thus, hedonism is done least injustice if it is taken as simply saying that an intrinsically desirable state of affairs is always a state of consciousness in which the person is enjoying himself in one way or another. Since reflection, reading, and creation are activities that people often enjoy, the hedonist means to include these activities, or states of mind, in the category of "pleasures," just as much as the so-called passive enjoyments, such as eating, drinking, and sex.

Hedonists have often disagreed about the proper analysis of "pleasure" or "enjoyment." Epicurus, for instance, said that pleasure is simply the absence of painful want or longing. Moreover, since the early 1900s, psychologists have also disagreed substantially on this point, some holding that pleasure is a special kind of sensation, others that it is a quality of certain kinds of feeling, and so forth. In recent years a considerable body of philosophical literature has accumulated on the subject of the analysis of "pleasant." While a generally accepted conclusion has not yet been reached, it is plausible to say that a person is enjoying himself (that is, his state of mind is pleasant) if and only if at the time he likes his experience or activity *for itself,* in the sense that, aside from moral considerations or considerations of consequences or of the possibility that something he likes even better could be substituted, he does not wish to change it and in fact would wish to avoid changing it if such a change impended. If this interpretation is accepted, the thesis of hedonism becomes the affirmation that a state of affairs is intrinsically desirable if and only if it is, or contains, an activity or experience which, at the time, the person likes for itself; and one state of affairs is more desirable intrinsically than another if it is, or contains, an experience or activity which, at the time, is liked better for itself. States of affairs which the hedonist thesis apparently rules as being only instrumentally rather than intrinsically desirable, from the point of view of a particular person, are such things as fame after his death and states of knowl-

edge and character (since the latter are not experiences or activities at all, but capacities or dispositions).

PSYCHOLOGICAL HEDONISM

Many (but not all) ethical hedonists have supported their ethical affirmation of hedonism by an appeal to a psychological doctrine known as "psychological hedonism." This theory historically has taken rather different forms; the significance of each for ethical hedonism must be assessed separately. The element common to them is the assertion that actions or desires are determined by pleasures or displeasures, whether prospective, actual, or past. The importance of the theory, however, transcends its relation to ethical hedonism: certain psychologists today are inclined to accept some form of it as a correct account of human motivation.

GOAL IS PLEASURE. The first and historically most important form of the theory of psychological hedonism may be called the "goal is pleasure" theory, according to which a person is motivated to produce one state of affairs in preference to another if and only if he thinks it will be more pleasant, or less unpleasant, for himself. This thesis, of course, is not intended to be a generalization about simple reflex or habitual behavior. The "belief" in question need not be explicit in the sense of having been verbally formulated before action; it may be an unformulated assumption. The theory is not simply about purposive action; it is also a theory about desire: a person is asserted to want one thing more than another if and only if he thinks its occurrence will be more pleasant for him.

The relation of this form of psychological hedonism to ethical hedonism may be explained by the following argument, often used by ethical hedonists. It is assumed as a major premise that something is intrinsically desirable if and only if it is something that people desire for itself. The minor premise is the "goal is pleasure" theory—namely, that people want only pleasure for itself. It is therefore concluded that pleasure is the only thing that is intrinsically desirable. The third-century writer Diogenes Laërtius said of Epicurus that "as proof that pleasure is the end he adduces the fact that living things, so soon as they are born, are well content with pleasure and are at enmity with pain, by the prompting of nature and apart from reason."

Contemporary ethical hedonists seldom appeal to the "goal is pleasure" theory to support their views, partly because the theory seems incompatible with obvious facts. For instance, political figures seem to take a strong interest in securing favorable notice in books on history

that will appear after their death. This motivation obviously does not depend on the belief that the future event will be pleasant for them personally. Again, individuals often appear to risk personal loss for some moral principle or in order not to forsake a friend (this is illustrated by Dean Acheson's famous remark, "I will never turn my back on Alger Hiss"). Adherents of the "goal is pleasure" theory tend to explain such facts by saying that the individual would be unhappy in the future—and knows he would be—if he failed to live by his principle or forsook his friend; hence, the action is motivated by a calculation of personal pleasure after all. What the theory must hold, though, is that a belief to this effect, at least vaguely espoused by the agent, is a necessary condition of the motivation; and this seems implausible. Adherents of the theory may be confusing two things: the agent's belief that a certain future situation will be relatively more pleasant for him, and the agent's thought of that future situation being attractive or repugnant now. A person may say, "I *am unhappy with the idea* of dropping my friendship with *X,* in whose integrity I believe." This statement may be true and also an important clue to understanding his behavior. But this is very different from saying, "I'll continue my friendship with Mr. X *because I think I'll be less happy* if I don't," a kind of statement that would ordinarily be taken as proof that the person did not care about his friend. Adherents of the theory may always argue that the reasoning required by their theory takes place unconsciously, but the postulation of this is ad hoc, the only reason for it being that it saves the theory from conflict with observation.

MOTIVATION BY PLEASANT THOUGHTS. As suggested above, adherents of the "goal is pleasure" form of psychological hedonism sometimes confuse it with a different thesis which we may call the "motivation by pleasant thoughts" theory. This theory is the assertion that a person will choose to do A rather than B or will prefer A to B (whether an action or a situation), if and only if the thought of A (with its expected consequences) is more attractive, or less repugnant, than the thought of B (with its expected consequences). This theory is not obviously false: indeed, as a proposal about preference it could be an analytic proposition that sets forth one test we use to decide whether a person prefers one thing to another. As a proposal about action it is clearly a synthetic proposition. As such, it may not be able to explain the fact (if it is a fact) that sometimes the thought of doing A is not more attractive or less repugnant than the thought of doing B, but the agent simply decides to do A (perhaps he is required to make up his mind between the two).

Even if this form of psychological hedonism is true, however, it gives no support to ethical hedonism, since it sets no restrictions on the *kind* of goal which may be attractive or repulsive to a person. If support of ethical hedonism requires a demonstration that people desire only pleasure, then the present theory does not provide such support. For assuming that desiring a thing *means* finding the idea of it pleasant or attractive, it does not follow that only the idea of pleasure itself is attractive. Hence, it does not follow that only pleasure is desired, and it is therefore no part of the "motivation by pleasant thoughts" theory to assert that only pleasure is desired.

CONDITIONING BY PLEASANT EXPERIENCES. The third form of psychological hedonism, the "conditioning by pleasant experiences" theory, is a theory about the causal conditions of a person's wants or values. Roughly, it asserts that at least one's fundamental values can be correlated with past enjoyments or rewards, that these enjoyments are at least part of the causal explanation of the values, and that a person's values can be controlled by manipulating his enjoyments. If a person values ice cream, it is because in the past he has enjoyed ice cream (and not been made sick by it). The truth of this theory is hardly open to question insofar as it merely affirms that past enjoyments have some influence on likes and values; but its truth can be widely questioned if the theory is claimed to give a complete account of likes and values, which, according to experimental evidence, seem to be influenced by numerous factors. Acceptance of the theory, however, does not commit one to assert that persons desire only pleasure. The theory is consistent with saying that people want and value things such as posthumous fame or being a generous or courageous person. All the theory claims is that *whatever* values one has have been acquired because of past enjoyments or punishments of one sort or another—perhaps the enjoyment of parental praise or the punishment of parental reproaches.

FURTHER ARGUMENTS IN SUPPORT OF ETHICAL HEDONISM

Acceptable psychological theory, as we have seen, does not indicate that people desire only pleasure or things they think will be pleasant for them, or that people prefer *A* to *B* if and only if they think *A* will be more pleasant to them than *B*. Ethical hedonism, therefore, cannot appeal to psychological theory in support of its thesis.

Ethical hedonists sometimes rely on one or more of three other lines of argument in support of their view. The first line of reasoning is simply that ethical hedonism

is an analytic truth that is true by definition. Locke, for instance, defined "good" as that "which is apt to cause or increase pleasure," and Benedict Spinoza defined it as "every kind of pleasure, and all that conduces thereto." The flaw in this contention, however, is that many people have at least thought either that some things other than pleasure are intrinsically good or that some kinds of pleasure are intrinsically bad. In the face of this, it is not easily claimed that "intrinsically good" simply *means* pleasant.

The second line of reasoning, which is more substantial, starts from the premise that it is usually agreed that at least some forms of pleasure are intrinsically good and proceeds by contesting the claim that anything else is intrinsically good. If the claims on behalf of other things are successfully refuted, it is concluded that ethical hedonism is left holding the field. The assessment of this line of reasoning is obviously a complex matter, since it presupposes conclusions about how to adjudicate ethical disputes. There is space here only to mention some examples frequently debated by hedonists and their opponents.

Critics of hedonism often urge that some kinds of pleasure are intrinsically bad—for example, malicious pleasure in the suffering of another person. And, they say, some unpleasant experiences are intrinsically good—for example, the punishment of one who has been cruel to another. Furthermore, it may be claimed that various things in addition to pleasure are intrinsically good: knowledge, certain traits of character, kindly or courageous deeds, life itself (at least the survival of mind with memory) even if it is not positively pleasant, being the object of respect or love on the part of other persons, being remembered after death, achievement, whether intellectual or aesthetic. Anyone who accepts any of these points cannot, strictly speaking, be an ethical hedonist.

A third, more practical, line of reasoning by hedonists has been the contention that their view makes possible scientific and objective evaluations of social planning which other views do not. For instance, if the question arises whether a certain tariff should be raised, the hedonist may say that his theory enables us (in principle at least) to decide objectively whether the tariff will do good, for we have only to decide whether a greater net sum of pleasures will be produced with or without the tariff.

This conception has come in for a great deal of criticism in recent decades, some of it unfair. One criticism, which appears repeatedly in the writings of economists, makes the point that we can know nothing about the

mental states of other persons, since there is no way of observing them directly; hence, the whole idea that theoretically an individual could determine the effects of a tariff on the happiness of anyone but himself is absurd. This criticism probably goes too far, but questions concerning other minds cannot be evaluated here. A more forcible objection is the following. If "is pleasant" is analyzed as meaning "is an experience liked at the time by the person, for itself," then presumably *A*'s experience can be said to be pleasanter than *B*'s, if *A* likes his experience more intensely. In theory, then, we might show that a tariff on bicycles would do more harm than good, if we could match every pleasant experience it would produce with an experience at least equally pleasant (one liked at least equally as intensely) and of at least equal duration, which the tariff prevents, *and* if in addition it costs us pleasures that are not matched with those it produces, or if some of the pleasures it costs us are more intense than the matching pleasures it produces, and the reverse is not the case. So far a decision could be reached, in principle at least. But it is possible that things might be too complex to permit such a simple matching. It might be that we would be forced to compare a more intense but brief pleasure with a less intense pleasure of greater duration; and it is not clear what would be meant by saying that one such experience "contains more pleasure" than the other. Thus, it is not clear that in principle the comparison could be made, except in special favorable situations. In this respect, however, the hedonist seems correct on one point: there is no other theory of the intrinsically desirable which makes such evaluations more scientific or more objective.

See also Aristippus of Cyrene; Bentham, Jeremy; Consequentialism; Diogenes Laertius; Epicurus; Happiness; Hobbes, Thomas; Hume, David; Locke, John; Mill, John Stuart; Moore, George Edward; Pleasure; Sidgwick, Henry; Utilitarianism; Value and Valuation.

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Richard B. Brandt (1967)

HEGEL, GEORG WILHELM FRIEDRICH
(1770–1831)

Georg Wilhelm Friedrich Hegel, the German idealist philosopher, was born at Stuttgart and entered the theological seminary at the University of Tübingen in 1788. Among his fellow students were Friedrich von Schelling and the poet Friedrich Hölderlin. After graduating he became, in 1793, a resident tutor in the home of an aristocratic family at Bern, and in 1796 he took a similar post in Frankfurt. In 1800 he went to Jena, where Schelling had succeeded Johann Gottlieb Fichte as professor of philosophy and was developing an idealist philosophy of nature and metaphysics. Having been accepted as a teacher at Jena on the strength of his dissertation, *De Orbitis Planetarum* (1801), Hegel collaborated with Schelling in editing the philosophical journal *Kritisches Journal der Philosophie* and published his first book, *Differenz des Fichte'schen und Schelling'schen Systems der Philosophie* (1801). Notable articles by Hegel in the *Kritisches Journal* were "Glauben und Wissen" (1802) and "Über die wissenschaftlichen Behandlungsarten des Naturrechts" (1802–1803). At Jena, Hegel wrote his first major work, *Phänomenologie des Geistes* (*Phenomenology of Mind*, Würzburg and Bamberg, 1807). Completed about the time of Napoleon Bonaparte's victory over the Prussians at Jena in 1806, it was not published until 1807, after Hegel had left Jena to become editor of a daily paper at Bamberg in Bavaria.

In 1808, Hegel was appointed headmaster of a school in Nuremberg, a post he held until 1816. While at Nuremberg, Hegel published his *Wissenschaft der Logik* (*Science of Logic*)—Vol. I, *Die objective Logik* (2 vols., Nuremberg, 1812–1813, and Vol. II, *Die subjective Logik oder Lehre vom Begriff* (Nuremberg, 1816). From 1816 to 1818, Hegel was professor of philosophy at Heidelberg. There he published *Encyklopädie der philosophischen Wissenschaften im Grundrisse* (*Encyclopedia of the Philosophical Sciences in Outline*) in 1817. In 1818, Hegel was appointed professor at the University of Berlin, where he became famous and influential. *Naturrecht und Staatswissenschaft im Grundrisse* (*Philosophy of Right*) appeared there in 1821; a second edition, edited by E. Gans as *Grundlinien der Philosophie des Rechts*, was published in Berlin in 1833. In 1827 a second, much enlarged edition of the *Encyclopedia* appeared.

Hegel died during a cholera epidemic in 1831. After his death a group of his friends compiled an edition of his works in eighteen volumes (Berlin, 1832–1840). Several of Hegel's works were published for the first time in this edition: *Vorlesungen über die Aesthetik* (Lectures on aesthetics; translated as *The Philosophy of Fine Art*, edited by H. G. Hotho, 2 vols., 1835–1838); *Vorlesungen über die Philosophie der Geschichte* (*Lectures on the Philosophy of History*, edited by E. Gans, 1837); *Vorlesungen über die Philosophie der Religion* (*Lectures on the Philosophy of Religion*, edited by Philipp Marheineke, 2 vols., 1832); and *Vorlesungen über die Geschichte der Philosophie* (*Lectures on the History of Philosophy*, edited by K. L. Michelet, 2 vols., 1833–1836). This edition also contains notes taken by students of Hegel's comments on the *Encyclopedia* and on *Philosophy of Right*, which he was in the habit of using as textbooks.

In his biography, *Georg Wilhelm Friedrich Hegels Leben* (Berlin, 1844), Karl Rosenkranz referred to and quoted from the manuscripts of works written by Hegel prior to the publication of the *Phenomenology of Mind*. Not all the manuscripts known to Rosenkranz have survived, but toward the end of the nineteenth century Wilhelm Dilthey made a study of those that have and published an account and discussion of them in the *Proceedings of the Berlin Academy* in 1905. This has since received the title *Die Jugendgeschichte Hegels* and is reprinted in the fourth volume of Dilthey's collected works. Dilthey's pupil and editor, Herman Nohl, then published, under the title *Hegels theologische Jugendschriften*, the text of a great part of what Hegel had written while he was at Bern and Frankfurt. The chief of the writings unpublished during Hegel's lifetime are the essay

"Das Leben Jesu" ("Life of Jesus," 1795), *Die Positivität der christlichen Religion* (*The Positivity of the Christian Religion*, 1796), and *Der Geist des Christentums und sein Schicksal* (*Spirit of Christianity and Its Destiny*, 1799). In 1915, Hans Ehrenberg and Herbert Link published, under the title *Hegels erstes System* (Heidelberg, 1915), an early version, written at Jena but never published by Hegel, of what later became the system sketched in the *Encyclopedia*. Since then Georg Lasson (*Hegels Jenenser Logik*, Leipzig, 1923) and Johannes Hoffmeister (*Hegels Jenenser Realphilosophie*, 2 vols., Leipzig, 1932) have published still other writings that Hegel had left unpublished. Thus, much more is now known about Hegel's writings and philosophical development than was generally known in the nineteenth century.

MAIN THEMES OF HEGEL'S PHILOSOPHY

MIND. In the preface to the *Phenomenology*, Hegel wrote that only mind (*Geist*) is real, and he constantly reiterated this view. (I have translated Hegel's *Geist* as "mind," in agreement with William Wallace's view that "to average English ears the word Spiritual would carry us over the medium line into the proper land of religiosity"—*Hegel's Philosophy of Mind*, Oxford, 1894, p. 1.) Thus, he must be regarded as a philosophical idealist. He wrote rather slightingly of George Berkeley, however, whose works he does not seem to have studied closely, and is sometimes described as an objective idealist in order to absolve him from suspicion of the subjective idealism that has often been attributed to Berkeley. Hegel's idealism presupposed the work of Immanuel Kant and was influenced by Fichte and Schelling, but his early unpublished writings show that he had preoccupations of his own, independent of his famous German predecessors.

When Hegel said that only mind is real, he did not mean that material things do not exist and that only minds do. Mind was not, in Hegel's view, a plurality of immaterial substances but a system of individuals actively developing their potentialities by embodying them in increasingly complex forms. A fundamental feature of mind, according to Hegel, is freedom, and nothing that is partial or finite can be wholly free. The mind that is the only reality is therefore infinite. Furthermore, no one is free unless he is conscious of what he is doing, and infinite mind is therefore self-conscious mind. Artists and statesmen, merchants and saints, all busy themselves with their more or less partial tasks without necessarily concerning themselves with what it is that they are doing. According to Hegel, it is the function of the philosopher

to make men conscious of what art and politics, commerce and religion, are, so that mind can exert itself to its utmost range and thus become absolute. Like Pythagoras, Plotinus, and Benedict de Spinoza, Hegel was a philosopher who held that philosophy is an activity that purifies and frees the mind.

DIALECTIC. Hegel is, of course, famous for his dialectical method, but it is enormously difficult to explain this in a brief compass. It should first be noted that Hegel set out his systematic writings in dialectical triads comprising a thesis, antithesis, and synthesis. Thus, he divided his *Encyclopedia*, in which he expounded his system as a whole, into three fundamental division sections—"Logic," "Philosophy of Nature," and "Philosophy of Mind." In the first he expounded the categories as developing forms of thought; in the second, he said "the Idea" is considered in its "otherness" (*Anderssein*) or externality; and in the third, mind is considered as existing "for itself," as conscious of itself and of the institutions it has given rise to. Within these main divisions there are further triadic subdivisions, although a very large number of subdivisions are not of this nature. It is therefore clear that Hegel himself regarded his whole work as a dialectical construction, with thought and nature as opposites united in mind and society, in the artistic and religious products of man, and, ultimately, in the activity of philosophical self-consciousness.

Hegel's system, then, has a dialectical structure, but what is his dialectical method? Hegel, like Spinoza, held that error resides in incompleteness and abstraction, but, unlike Spinoza, he held that the incompleteness and abstraction can be recognized by the contradictions they generate. It is the business of the philosopher, he held, to bring out the contradictions latent in partial or abstract views and to emphasize and elaborate them in such a way that less partial and less abstract views can be constructed that nevertheless retain in themselves what there was of truth in the original views. The same method is to be brought to bear on the less partial and less abstract views in their turn and to be pressed as thoroughly as it can be. This method of pressing and accentuating contradictions is not to be used merely to discard error but also to preserve truth. Because of the happy circumstance that in German *aufheben* means both "to cancel" and "to preserve"—its literal meaning is "to lift up"—Hegel was able to express this aspect of his view with brevity and acuity. The concept or view that is *aufgehoben* is transcended without being wholly discarded. Hegel's *Phenomenology of Mind* was an account of how various human attitudes—reliance on sense experience, the belief in sub-

stance, otherworldliness, strenuous moralism, and so on—all have some point and are yet contradictory, leading to the conclusion that "truth is a bacchanalian revel where not a member is sober," as Hegel put it in the Preface. His *Logic* gave an account of how the categories are related in this way. In his *Lectures on the History of Philosophy* he sought to show that the major philosophical outlooks from that of the Ionians on are, on the one hand, positive contributions that we could not do without and, on the other hand, contradictions that we have to overcome.

HISTORY. Another feature of Hegel's philosophy is its concern with history. Much as Hegel admired Plato's philosophy, he held that it was impossible to be a Platonist in the nineteenth century, when the philosophical context differed so greatly from that of Plato's day. In his *Lectures on the Philosophy of History*, Hegel argued that the history of man in the concrete was as much a progression as the history of his thought. This he deduced from the thesis that mind is of its very nature free. Thus, each historical epoch, according to Hegel, embodied some aspect of or stage in the development of man's free mind, and it would be absurd for an individual to go counter to his time except insofar as he was preparing the way for future epochs. Hegel borrowed this "progressivism," as it may be called, from the philosophers of the Enlightenment. It has greatly influenced Marxism.

CHRISTIANITY. Hegel thought his system provided a defense of Christianity, and both supporters and opponents of his system have taken this view of it. Those known as right Hegelians considered Hegel's apologetic successful, whereas the left Hegelians argued that his Christianity had been only superficial and his Christian terminology a disguise for something very different. In his system Hegel placed philosophy above religion in the dialectical scale, and this may give some support for the interpretations of the left. Yet there is ambiguity in Hegel's view on this, as on other important matters. On one hand, he held that only infinite mind is real; on the other hand, he held that infinite mind cannot be distinct from or beyond the finite and partial. He thought that these views were not incompatible, but it has been argued that the second is a denial of the first and, hence, a denial of any form of theism.

This entry will briefly describe Hegel's early works that were posthumously published in *Hegels theologische Jugendschriften*. It will continue with an account of the *Phenomenology of Mind*, Hegel's first important book,

and conclude with a brief discussion of the Hegelian system based chiefly on the *Encyclopedia*.

EARLY UNPUBLISHED WRITINGS

"LIFE OF JESUS." Even before he wrote his "Life of Jesus," Hegel had written some comments on Christianity in which he criticized it for its belief in the efficacy of prayer and had contrasted it, to its detriment, with the this-worldly, social religion of the Greeks. Jesus, he held, was obscurantist and narrow-minded in comparison with Socrates. In the "Life of Jesus" it almost seems as if Hegel had decided to rewrite the Gospels in the form of a Kantian manifesto. He began by claiming that God is pure reason. He described Jesus as the son of Joseph and Mary. The only miracles Hegel mentioned he interpreted naturalistically, bringing the work to an end with the death and burial of Jesus. The central theme is the conflict between the virtuous Jesus acting dutifully for the sake of the moral law and the Jewish priesthood calling for the meticulous observance of a set of irrational rules said to be commanded by God. Jesus is depicted as saying to the Pharisees, "When you regard your ecclesiastical statutes and positive commands as the supreme law given to mankind, you fail to understand the dignity of man and the power he has of creating out of himself the idea of the divinity and knowledge of his will." This improbable allocution is typical of the way in which this work denudes the Gospel narrative of what is individual and poetical.

THE POSITIVITY OF THE CHRISTIAN RELIGION. The theme of *The Positivity of the Christian Religion*—the place in the Christian religion of the rational, on the one hand, and of the merely factual and historical, on the other—was already raised in the "Life of Jesus." Developing the implications of the then current distinctions between natural law and positive law and between natural religion and positive religion, Hegel argued that the positive element rested on authority and was not wholly based on the dignity of man. In Christianity, according to Hegel, the main positive element was provided by Judaism, a highly authoritarian religion. But Jesus himself brought elements of positivity into the rational morality that it was his prime aim to teach; he could not have obtained a hearing from the Jews of his day if he had not claimed God's authority for his teachings. "Jesus therefore demands attention for his teachings, not because they are adapted to the moral needs of our spirit, but because they are God's will" (*Early Theological Writings*, p. 76). In claiming to be the Messiah, Jesus was using the language his listeners would understand. His followers, from a nat-

ural interest in the details of his life, developed these positive elements into Christianity. They appealed to miracles as proofs of Jesus' divinity and virtue, and instead of revering him for his teaching about virtue, they revered his teaching about virtue because of the miracles he was supposed to have performed.

Hegel asked how it happened that the pagan religion of the Greeks and Romans was overcome by Christianity. His answer was that at the periods of their greatness the Greeks and Romans were free peoples each individual of which regarded his own good as inseparable from the good of his community. When they lost their freedom, they lost the motives that bound them to their fellows; government and authority were now imposed from without, weighing down upon isolated individuals who came to regard their lives as individual possessions to be preserved irrespective of the social whole that alone gave them meaning.

> Thus the despotism of the Roman emperors had chased the human spirit from the earth and spread a misery which compelled men to seek and expect happiness in heaven; robbed of freedom, their spirit, their eternal and absolute element, was forced to take flight to the deity. [The doctrine of] God's objectivity is a counterpart to the corruption and slavery of man. (ibid., pp. 162–163)

THE SPIRIT OF CHRISTIANITY. In *The Spirit of Christianity* Hegel continued and sharpened his attack on Judaism, which he regarded as a religion of domination. He now criticized Kantian ethics as well, however, finding in it elements of the same positivity he had criticized in the Jewish religion and had seen as a contamination in the teachings of Jesus. Kant had contrasted his rational religion with the religion of the Siberian shamans on the ground that these primitive men, as well as some civilized prelates and puritans, irrationally worshiped alien forces that they regarded as exerting domination over men. But according to Hegel, the difference between the believers in these positive creeds and the follower of the religion approved by Kant is "not that the former make themselves slaves, while the latter is free, but that the former have their lord outside themselves, while the latter carries his lord in himself, yet at the same time is his own slave" (ibid., p. 211). Hegel here first used the word *morality* (*Moralität*) as a pejorative description of the Kantian morality, which he now considered to be a submission of man's inclinations, including his impulses and his feelings of love, to a universal reason held to be free from and above all passion. He held that virtue demands more than

this and that in the Sermon on the Mount Jesus made higher demands. "The Sermon does not teach reverence for the laws; on the contrary, it exhibits that which fulfils the law but annuls it as law and so is something higher than obedience to law and makes law superfluous" (ibid., p. 212). Thus, duty takes a lower place than love. "Jesus makes a general demand on his hearers to surrender their rights, to lift themselves above the whole sphere of justice or injustice by love, for in love there vanish not only rights but also the feeling of inequality and the hatred of enemies which this feeling's imperative demand for equality implies" (ibid., p. 218). Hegel here saw in the ethics of the Sermon on the Mount and in the conduct of Jesus something of the "beautiful soul" described by Johann Wolfgang von Goethe in *Wilhelm Meister*. Jesus retained his dignity by refusing to defend himself or to uphold his rights.

Hegel went on to discuss with subtlety the possible consequences for the individual and for other men of resistance to evil, on the one hand, and of withdrawal from conflict, on the other. In this part of the work the beginnings of dialectical method as it was used a few years later in *Phenomenology of Mind* may already be discerned.

PHENOMENOLOGY OF MIND

The *Phenomenology* is the most obscure and the most interesting of Hegel's works. On the title page it is described as a "System of Science, Part I. The Phenomenology of Mind," but this arrangement of Hegel's system was not continued in the *Encyclopedia*, where the section headed "Phenomenology of Mind" is contained in the third part and deals with only some of the topics of the original *Phenomenology*. Hegel put the *Phenomenology* together rather hastily and was uncertain what to call it. Different copies of the first edition have slightly differing titles, and what seems like a new title, "Science of the Experience of Consciousness," is placed after the preface and before the introduction. Insofar as there is a central theme, it consists of an account of the various stages of human consciousness from mere sense awareness to absolute knowledge, but there are many digressions into topics of current interest, such as Goethe's description of the "beautiful soul," the Reign of Terror, and F. J. Gall's phrenology. The difference between the dialectical progression of the *Phenomenology* and of the *Encyclopedia* was cited soon after Hegel's death as evidence of the inadequacy of the dialectical method (C. F. Bachmann, *Über Hegels System und die Nothwendigkeit einer nochmaligen Umgestaltung der Philosophie*, Leipzig, 1833). In the twentieth century Marxists preferred the *Phenomenology* to Hegel's other writings because Karl Marx himself admired it and because of its account of how man develops by transforming the natural world through his labor. Existentialists have preferred it to the later system because of its account of man as maker of himself; no doubt they are also impressed by Hegel's references to death and the fear of death.

The *Phenomenology* begins with a dialectical discussion of sense perception in which it is argued that knowledge of physical things presupposes the view that the physical world consists of forces interacting according to laws. Hegel maintained that knowledge of such a world is really a type of self-knowledge, since in penetrating to the forces behind phenomena we become aware of what we ourselves have devised and put there. "Behind the so-called curtain which is to hide the internal constitution of things, there is nothing to be seen unless *we ourselves* go behind." The physical world of scientific theory presupposes self-conscious beings. When he analyzed self-consciousness, Hegel argued that it presupposed a plurality of living and desiring beings each of whom seeks to subdue the world to his own wishes, to make it part of himself.

MASTER AND SLAVE. No individual will rest satisfied with a conquest that fails to secure the conscious acknowledgment of other men. Hence, there is a struggle for both power and recognition. In this struggle some will take greater risks than their competitors; those who risk the least will become the slaves or bondsmen of those who face death by risking their lives. In order to preserve his life, the slave submits to the master, who regards the slave as nothing but a means to his own designs. The slave is forced to work, whereas the master can enjoy leisure in the knowledge that the slave is reshaping the natural world to provide the products of his labor for the master to consume. Thus, the master's leisure protects him from experience of the negativity of nature, whereas the slave, in struggling with nature's recalcitrance, learns its secrets and puts mind into it. The master, in consuming, destroys; the slave, in working, creates. But the master's consumption depends upon the slave's work and is thus impermanent, whereas the slave's labor passes into things that have a permanent existence. Hegel argued, too, that the slave's work in transforming the natural world is a consequence of his fear of the master, who can kill him. Death is overcome by the works of civilization. The man who risks his life and becomes the first master breaks the bonds of nature and starts the process that will incorporate mind into it.

It is not surprising that this section in the *Phenomenology* has greatly interested Marxists. Both Georg Lukács, in *Der junge Hegel*, and Herbert Marcuse, in *Reason and Revolution* (2nd ed., London and New York, 1955), contrived to discuss it without mentioning Hegel's emphasis on the fear of death. In *Introduction à la lecture de Hegel*, Alexandre Kojève brought out the importance of the fear of death and showed, too, that Hegel was here concerned with the transition from nature to history, from mere life to thought, from animality to freedom.

THE UNHAPPY CONSCIOUSNESS. The next dialectical transition is from mind that is attempting to master nature to mind that seeks freedom and independence in itself, that says, "It is in thinking that I am free because I am not in another but remain completely with myself alone," an attitude exemplified in stoicism. But stoicism passes over into skepticism, for the stoic finds freedom in himself as a rational, thinking being, whereas the skeptic, pushing freedom still further, uses thought to dissipate its own categories. This, according to Hegel, was the state of mind that prevailed when the Roman Empire was dissolving. Christianity was an attempt on the part of men in intellectual despair to find stability in an eternal and infinite God.

Hegel called this frame of mind the unhappy consciousness. The individual is divided within himself, conscious of his own isolation, attributing all that is good to the activity of God. What Hegel said here was elaborated from a passage in *The Positivity of the Christian Religion* describing how the eternal and absolute in man had been "forced to take flight to the Deity." The unhappy consciousness was regarded by Hegel as a characteristic of both Judaism and Christianity and as the condition of all men at all times who believe in a transcendent God before whom they are as nothing. It is a stage on the way to higher forms of self-mastery.

It will be noted that in this part of the *Phenomenology* Hegel passed from epistemology through a sort of speculative sociology to an account of historical stages in human consciousness. According to Rosenkranz, Hegel, in his last years, used to refer to the *Phenomenology* as his philosophical "voyage of discovery," and it does seem that the course of the argument, although arresting, was not altogether foreseen. Josiah Royce was right when he said that in this book Hegel described "in serial order, some varieties of experience which … are at once characteristic of the general evolution of the higher intellectual life, and are examples of the transition from common sense naiveté to philosophical reflection and to the threshold of

an idealistic system" (*Lectures on Modern Idealism*, edited by J. Loewenberg, New Haven, 1919, p. 139).

REASON AS "OBJECTIVITY." After discussing certain scientific theories of his time under the heading "Reason as Observer," Hegel went on to consider some of the ways in which reason becomes practical. He depicted the man who, like Faust, tries to make the passing moment stay. When this attempt fails, as inevitably it must, ideals are sought in a spirit of sentimental disillusionment, but such romantic crusades are never really serious. In reaction to this frivolity there develops a taste for the hard intellectual pursuits of disinterested scholarship, the concern for "objectivity," for facts, for "the thing itself." But these allegedly disinterested researchers actually go into a sort of intellectual jungle (*das geistige Thierreich*) where, deceiving one another and themselves, they tear one another to pieces in the service of truth. It soon emerges that it is not the facts that matter but a certain proprietorship that scholars working in their special fields claim over the facts.

THE DIALECTIC OF MORALITY. In the next part of the *Phenomenology*, titled "Mind," Hegel considered how the mind of man is embodied in his rules and institutions. This part constitutes both an account of the main types of moral attitude and a philosophy of history. These two lines of thought come together insofar as Hegel regarded the historical development from the Greek and Roman civilizations through early and medieval Christianity to Protestantism and the French Revolution as an unfolding of the main aspects and stages of freedom and, hence, as a dialectical actualization of what was merely latent and implicit in the morality of the ancient world. This unfolding is dialectical because it proceeds by oscillations and because it is made possible by conflict, in the ancient world by the conflict between the gods of the family and the laws of the city and in the modern world by the conflict between the claims of the individual and the demands of society.

In this part Hegel gave indications of the doctrine of alienation that attracted Marx in the 1840s. In building his civilization, man creates institutions and rules that are simultaneously his own products and alien constraints upon him. He may not even understand them, so that they appear strange to him. It was Hegel's view, of course, that without these institutions and rules and without the restrictions upon willfulness that they impose, mind could not reach its higher levels.

RELIGION AND ABSOLUTE KNOWLEDGE. In the last two parts of the *Phenomenology*, Hegel presented the dialectic of religion and the passage to absolute knowledge. In the earlier developments of mind the individual has to find his place in the natural world and in society, but in religion he gains consciousness of the Absolute Being. This is first approached in the primitive religions of nature, in which men worship trees, streams, or animals. Next come those forms of religion in which the Absolute Being is approached through such works of art as temples and statues. This type of religion reached a high level in ancient Greece, but when God was represented in human form, he came to be regarded as merely human and hence was lost sight of in the tragic heroes of Greek drama. As the religious element was discarded from tragedy, it gave way to comedy, in which the contingencies of human life were paraded and criticized, and God was completely ignored in favor of human self-knowledge. "The individual self is the negative force through and in which the gods … disappear."

This skeptical and sophisticated humanism is succeeded by Christianity, in which God is revealed to man in Christ. Here the human and the divine are no longer sundered, and God is seen to be present in the world. But it is easy to overemphasize the historical features of Christianity and, as Hegel put it, to neglect the spiritual revelation in the attempt to uncover the often commonplace ideas of the early Christians and to gain knowledge of the mere externality and particularity of Jesus. Thus, no religious experience, not even that of Christianity, can bring absolute knowledge. The historical element in Christianity, although necessary in order to avoid regarding the Absolute Being as apart from the world, is nevertheless inseparable from perception and imagination. The events of the Gospels are, so to speak, pictured or represented. Religion therefore leads on but is subordinate to the supreme form of knowledge, the philosophical, in which human history is "conceived history, the recollection of the Absolute Mind and its graveyard, the actuality, truth and certainty of its throne, without which it would be for ever alone and devoid of life." In these last words of the *Phenomenology*, Hegel made it clear that the course of history, philosophically conceived, was in his view the incarnation of the Absolute Mind. Apart from the history of man God would be alone and lifeless (*das leblose Einsame*). It would seem, indeed, that without the historical development of man and his freedom there would be no God.

THE HEGELIAN SYSTEM

It has already been mentioned that before writing the *Phenomenology*, Hegel had written but had left unpublished some attempts at a complete system of philosophy and that the *Phenomenology* was described on its title page as the first part of a system of science. It turned out that the *Science of Logic* (1812–1816) became the first part of Hegel's final system. A shortened and revised version of the *Science of Logic* appeared in 1817 as the first part of the *Encyclopedia*, a book intended for use at his lectures. A second, very much elaborated edition of the *Encyclopedia* appeared in 1827, and a third in 1830. This last edition was reprinted in the edition of Hegel's collected works published soon after his death, with inserted "additions" taken from the notebooks of students who had attended Hegel's lectures. These additions, which are most frequent in the first and second parts of the *Encyclopedia*, help greatly in the understanding of Hegel's argument but do not have quite the authority of the main text. Such additions are less frequent at the end, since the editors considered that the *Philosophy of Right*, first published in 1821, and some of the sets of lectures, provide commentary of this sort.

THE *ENCYCLOPEDIA*. The *Encyclopedia* starts with a discussion of "Logic"—a revision of *Science of Logic*—and proceeds to the sections "Philosophy of Nature" and "Philosophy of Mind." The transition from the "Logic" to the "Philosophy of Nature" is not easy to understand. There are statements that say that the idea decides to allow nature to go forth freely from itself (Sec. 244), that "Nature has come to pass as the Idea in the form of otherness" (Sec. 247), and that nature is "the unresolved contradiction" (Sec. 248). The last main heading in the "Philosophy of Nature" is "The Animal Organism." Toward the end of this section there is an account of the individual animal as having "an original sickness" and "an innate germ of death" (Sec. 375), which leads to the assertion that with the subjectivity of living organisms the "outside-itself-ness" (*Aussersichsein*) of nature is transcended by the "interiority" (*Insichsein*) of actuality (Sec. 376).

Hegel later claimed (Sec. 381) that mind presupposes nature but is "the truth [of nature] and its absolute ground [*deren absolut Erstes*]." He also stated that the essence of mind is freedom (Sec. 382). A fundamental comment on the dominating triadic division must be made before going further into the details of the system. The revised "Science of Logic" that appeared in the *Encyclopedia* was concerned with the categories of thought,

proceeding from the most inadequate and abstract to the most concrete and adequate, from being to the Absolute Idea. The inadequacies of the abstract categories show themselves through the contradictions they give rise to. Being is more abstract than becoming; becoming, more abstract than being-for-self; these early categories, more abstract than the latter categories of life, and so on.

But Hegel was always concerned with the categories of thought and their relations to one another. When he wrote that the idea decided to allow nature to go forth freely from itself, was he saying that thought is the Divine Being that created nature? The religious overtones that accompany Hegel's major transitions cannot be ignored, but those who wish to interpret him naturalistically—an interpretation his early writings and the *Phenomenology* may well justify—can take the view that the decision and the free going forth are meant to indicate that nature is not deducible from the categories of thought, that there is a contingency about it that no system of logic and no elaboration of concepts can eliminate. In *Subjekt-Objekt* (Berlin, 1951) Ernst Bloch suggested that the free decision of the Absolute Idea is reminiscent of the arbitrary act of an absolute monarch, and he quoted a passage from Schelling's *Philosophie und Religion* (Tübingen, 1804) which held that "the descent of finite things from the Absolute" is a "primal accident [*Urzufall*]."

In the third part of the *Encyclopedia*, Hegel described mind as it develops in the natural world, mind as it transforms the natural world in creating the works of civilization, and mind fully aware of itself in the complete self-consciousness of philosophical thought. The "Logic" culminates in the Absolute Idea, the most adequate category but still a category. In the "Philosophy of Nature," where there is no Absolute, the culminating point consists of mortal individuals belonging to persisting animal species. The "Philosophy of Mind" culminates in Absolute Mind, the consciousness man gains of himself through understanding his own history in a civilization that he has imposed upon the contingencies of nature.

"**LOGIC.**" Like the Hegelian system as a whole, each of its three main sections—"Logic," "Philosophy of Nature," and "Philosophy of Mind"—is again divided into three. The "Logic" is divided into the "Doctrine of Being," the "Doctrine of Essence," and the "Doctrine of the Concept [*Begriff*]." The difficulties in presenting a comprehensible summary of Hegel's views are at their greatest in relation to the "Logic," and all that will be attempted is an indication of a few of Hegel's most characteristic views.

"*Doctrine of Being.*" In the "Doctrine of Being" Hegel was concerned with the most abstract categories. Being itself, the most abstract of all, amounts to the same as nothing. Like Bertrand Russell in his theory of descriptions, Hegel held that nothing can be said to be unless some characteristic is attributed to it; hence, in Hegel's terminology being leads on to determinate being, which involves the notion of quality. On the ground that a quality is something distinct from other qualities, Hegel argued that quality implies the category of a unit (*das Eins*) and that this in turn leads on to quantity. This part of the "Logic" was completed by transitions to degree and measure.

Hegel's object in the "Doctrine of Being" was to show that these categories are not independent of one another but develop from one to the other in an ascending order of adequacy. We know more about something when we know the proportions of its parts than when we know only how many parts it has, that it is, or that it is something or other. An important element in this part of the "Logic" is Hegel's criticism of infinite numerical series as the false infinite and his contrast between the false and the true infinite, which is not an incompletable progression of similar items but a completed, complex whole of supplementary parts. The true infinite is not to be reached by attempting the impossible task of moving from one finite to the next but must comprise the finite.

"*Doctrine of Essence.*" The "Doctrine of Essence" is concerned with such distinctions as that between a thing's nature and its appearances, forces and their manifestations, form and matter. Hegel exploited the difficulties ("contradictions") that arise when these oppositions are so accentuated that we are left with featureless essences, on the one hand, and unattached appearances, on the other. Typical of his treatment of these topics is his claim that "the explanation of an appearance in terms of a force is an empty tautology" (Sec. 136) and his assertion that as a man's outward actions are, so his inner aims and intentions must be (Sec. 140).

"*Doctrine of the Concept.*" A prominent feature in the "Doctrine of the Concept" is Hegel's critical treatment and reorganization of the traditional formal logic. Thus, he classified judgments in terms of his own division of "Logic" into being, essence, and concept. The classification progresses from the mere factual attribution of a quality, through disjunctive and necessary judgments in which the predicate belongs essentially to the subject, to judgments of value that assert that a thing is good or bad just because it is that individual thing. Judgments gain in adequacy as they advance from mere factual attribution

to attribution for reasons contained in the subject. Hence, the more developed forms of judgment are indistinguishable from inferences. In his account of the syllogism Hegel placed inferences in which the terms are only contingently connected at the bottom of a scale leading up to the disjunctive syllogism, in which a genus is exhaustively specified.

Although Hegel retained the terms and distinctions of the traditional formal logic, the use he made of them was highly original. Instead of setting out the types of judgment and the figures and moods of the syllogism as equally valid forms, he regarded judgment as implicit inference and inference as ordered in a scale of ascending rationality. This conception of logic influenced such later writers as Christoff Sigwart and R. H. Lotze and was developed in both F. H. Bradley's *Principles of Logic* (London, 1883) and Bernard Bosanquet's *Logic: The Morphology of Knowledge* (2 vols., Oxford, 1888).

The argument of Hegel's "Logic" can be very briefly summarized. The least that can be said about anything is that it is. More is said about it when it is qualified, numbered, or measured; still more is said about it when it is explained in terms of essences, grounds, or causes. Most is said about it when it is placed in the context of life, purpose, will, and value.

"PHILOSOPHY OF NATURE." At the end of the eighteenth and the beginning of the nineteenth century there was a great deal of philosophizing about nature. Electricity was held to have cosmic significance, and Schelling made much of the opposition between positive and negative poles. Poets as dissimilar as William Blake and Goethe rejected what they regarded as the unduly quantitative physics of Isaac Newton. Spinoza was revived, and among German poets and philosophers much was said about the *έν καί πᾶν*, the one and the all. It is not surprising, therefore, that Hegel's dissertation of 1801, *De Orbitis Planetarum*, was critical of Newton and sought to provide an a priori justification of Johannes Kepler's laws. At the end of the dissertation Hegel mentioned some numerological accounts of the distances and number of the planets and expressed the opinion that if Plato was right in the *Timaeus*, there could be no planet between Mars and Jupiter. Hegel did not then know that Ceres, an asteroid between these two planets, had been discovered at the beginning of the year. However, even after he had heard of this discovery and of the discovery of several other asteroids soon after, he continued to hope that philosophical reasons could be given for the positions of the heavenly bodies. In an addition to Section 270 of the *Encyclopedia*, Hegel tried to show that these asteroids filled a gap that would otherwise have been unreasonable. The addition ends with the words: "Specialists do not think about such matters. But a time will come when in this science there will be a demand for concepts of the Reason."

It should be mentioned here that Hegel accepted and developed Kant's distinction between the reason and the understanding. According to Hegel, the understanding, although a necessary stage of thought, is less philosophical than the reason. To think in terms of the understanding, as is done in mathematics, the natural sciences, and traditional metaphysics, is to think in terms of fixed and uncriticized categories, to think undialectically or in prephilosophical terms. The reason moves dialectically toward completeness in terms of fluid categories that constantly amend themselves. Thus, when Hegel wanted astronomers to pay attention to "concepts of Reason," he wanted astronomy to take its place within a system of philosophy. This place must be a subordinate one, for Hegel wrote in the Introduction to the "Philosophy of Nature" (Sec. 248): "Even if arbitrary will, the contingency of mind, leads on to wickedness, this is nevertheless something infinitely higher than the regular movements of the planets or than the innocence of the plants: for what goes wrong in that way is nevertheless mind." Here Hegel was emphasizing the gulf between mind and nature, even though he held that the understanding does not give a complete knowledge of nature.

Mechanics. The three main divisions of the "Philosophy of Nature" are concerned with mechanics, physics, and organic nature. The astronomical theories expounded in the first part have already been touched upon. This part also contains a brief discussion of space and time. Following Kant, Hegel regarded them both as "forms of sensibility," or, more strikingly, as "the non-sensible sensible." Although he regarded arithmetic and geometry as sciences of the understanding, he considered the possibility of a philosophical mathematics at the level of measure or proportion (mass).

Physics. The second part of the "Philosophy of Nature" moves through various triads from light, the elements, sound, heat, to electricity and chemical combination. Hegel commented upon the philosophical significance of each form of matter. The comment on heat is characteristic:

Heat is the re-establishment of matter in its formlessness, its fluidity, the triumph of its abstract homogeneity over its specific determinations…. Formally, that is in relation to spatial

determinations in general, heat therefore appears expansive, as cancelling the limitations which the specification of the indifferent occupation of space is. (Sec. 303)

That is, when heat spreads out from a heated thing, that thing is not confined to one place, as it would be if it were not heated. Or as Hegel put it in the next section, heat is the "real negation of what is specific and exclusive in body."

Organic nature. In the last main triad of the "Philosophy of Nature," Hegel passed from geological nature through vegetable nature to the animal organism. The most interesting part of this triad is the last, in which Hegel discussed animal species and their relationships. He seems to have thought that violent death is, in the animal world, "the natural fate of the individual" and that because of the contingency of nature animal life is "uncertain, anxious, and unhappy" (Sec. 369). But other members of the same species are not only hostile to the individual; they are also, like him, continuations of the species, and, hence, the individual feels a need to unite himself to the species (*Gattung*) and to continue it by copulation (*Begattung*)—the play on words is, of course, deliberate. Thus, Hegel seems to have held that animal sexual union is not merely a contingent affair. On the other hand, since the new individuals produced in this way only repeat the features of their parents and other ancestors, their constant reproduction is an instance of the false infinite, not of the true infinite in which completeness and perfection are achieved.

"PHILOSOPHY OF MIND." The major triad in the "Philosophy of Mind" consists of "Subjective Mind," "Objective Mind," and "Absolute Mind."

"Subjective Mind." Under the heading "Subjective Mind" and the subheading "Anthropology," Hegel dealt with the soul as a natural entity in the physical world; the soul as a sensitive, feeling being; and the soul as a being that can express itself and act upon the world through its body. The upright body, the hand "as the absolute tool" (Sec. 411), the mouth, and the power of weeping and laughing all enable man to express in nature—to externalize—his thoughts and feelings. Furthermore, the world has effects upon man's body that are internalized by him—Hegel here made a play on the word *Erinnerung*, which means "recollection" but, if taken in the literal sense of its German etymology, can be taken to mean "internalization." When the organism reacts to immediate stimuli in the light of its own experience, mind has

evolved beyond the mere animal level and has reached the stage of consciousness.

Hegel discussed the next moment of subjective mind under the heading of the "Phenomenology of Mind," going through the main phases distinguished in the earlier chapters of his book with that title—namely, sense experience, perception, understanding, desire, the self-consciousness that recognizes others (containing the discussion of master and slave), reason.

The third triad of subjective mind, which is headed "Psychology," contains descriptions of such intellectual functions as intention, representation, recollection, imagination, memory, and thought and descriptions of the practical drives, impulses, and seekings after satisfaction.

This part ends with a brief section headed "Free Mind." Here it is asserted that the unity of theoretical and practical mind is free will. Hegel meant that human freedom is possible only on the dual basis of thought and impulse and consists of the rationalizing and systematizing of the impulses and passions. "This will to freedom," he said, "is no longer an impulse that demands satisfaction, but the character—the mind's consciousness grown into something non-impulsive" (Sec. 482).

"Objective Mind." At the very end of his discussion of subjective mind Hegel wrote that the freedom which is the culmination of subjective mind is only a concept, "a principle of mind and heart destined to develop into the objective phase, into legal, moral, religious and scientific actuality" (Sec. 482). The rest of the system is therefore concerned with the ways in which the human will, in which thought and impulse ("mind and heart") are combined in freedom, becomes effective (this is the idea behind the word *actuality*, which translates *Wirklichkeit*) in the public world, the world in which men act and in which their thoughts and deeds give rise to rules, institutions, and organizations. These rules, institutions, and organizations are independent of each man and thus may be regarded as kinds of objects, though not as physical objects. Men build up in the natural world a world other than the natural world by working on nature and transforming it and by creating systems of property, economic organizations, class differentiations, and the like. The triad that makes up objective mind comprises law (*Recht*), subjective morality (as Wallace translated *Moralität*), and social morality (as Wallace translated *Sittlichkeit*; T. M. Knox translated it as "ethical life"). The first part covers legal rights and duties as exemplified in property, contract, and punishment. The second is concerned largely with the morality of intention and conscience—the term *Moralität* was used by Hegel somewhat

pejoratively to mean a sort of ethics (of which Kant was, in his view, the chief exponent) in which the agent is unduly governed by the subjective and internal aspects of decision and action.

The third part is itself a triad. The first stage of social morality is the family, "the natural or immediate phase" of objective mind (*Philosophy of Right*, Sec. 152). When members of the family have matured, they detach themselves from it and enter the world of independent men who compete in an economic arena free from tribal allegiances. This phase of social life Hegel called "civil society." It is the world of intelligent, responsible individuals in their business relationships, free from irrational tribal loyalties, allowing their connections with one another to be formed by the coincidence of wants in a market of wide extent. Indeed, it is the aspect of human society that the classical economists, whom Hegel admired, had analyzed and justified. But civil society cannot exist as a mere market, for markets need to be policed, whereas trades and industries themselves find common concerns that unite the individuals in corporations of various kinds.

There is thus a double necessity for the state—as the upholder of fair dealing and as the ultimate curb on the selfishness of corporations within civil society. In the *Encyclopedia*, Hegel wrote of "the unification of the family principle with that of Civil Society" and described it as a unification of the love that is essential to the family with the conscious universality that is the mark of civil society (Sec. 535). In the *Philosophy of Right* (Sec. 257) the state was described as "the actuality [*Wirklichkeit*] of the ethical Idea"—that is, as its effective embodiment. In the same section of the *Philosophy of Right*, Hegel wrote that "the mind of a nation (Athene for instance) is the divine, knowing and willing itself," and in an addition to Section 258 is the famous phrase "The march of God in the world, that is what the State is." But this section has been misunderstood. In the sentence before that in which he had written that the state is divine, Hegel had said, with the family in mind, "The *Penates* are inward gods, gods of the underworld," so that it is not only to the state that he attributed divinity. Furthermore, in the same addition as that in which he claimed that the state is "the march of God in the world," he said that the state "stands on earth and so in the sphere of caprice, chance and error, and bad behaviour may disfigure it in many respects." Hegel's main concern was, as he stated, to analyze the state at its best. Although, like Aristotle, he regarded the state as the highest social achievement of man, he also held, again like Aristotle, that within the state there should be guarantees against arbitrariness and despotism. He did not take a

favorable view of "popular suffrage" on the grounds that "in large states it leads inevitably to electoral indifference" and that "election falls into the power of a few, of a caucus" (*Philosophy of Right*, Sec. 311). He strongly believed that all important interests should be represented and thought that there should be a constitutional monarchy with considerable powers advised by an upper and a lower house.

This brings us to the most controversial part of Hegel's account of objective mind, his philosophy of history. Whatever else is involved in his view that the state is man's highest social achievement, it undoubtedly implies that there is no superior body or group by which its claims may be assessed. States are necessarily independent beings. Their relations are regulated to some degree by custom, and there is an international law that regulates dealings between subjects of different states and requires adherence to treaties, as if they were a sort of contract. When the vital interests of states clash, however, there is no alternative except war. War between states, Hegel had said in his "Die Verfassung Deutschlands" ("Constitution of Germany," 1802; first published in *Schriften zur Politik und Rechtsphilosophie*, edited by Georg Lasson, 2nd ed., Leipzig, 1923), does not decide which of the rights of the conflicting states is the true right—for both are—"but which right has to give way to the other." Hegel believed that war performs the function of keeping before the minds of men the realities of death and destruction. He held that states are individuals and that all individuals persist in their existence by ensuring that other individuals recognize them as they recognize the others. The very concept of a state therefore requires that there be a plurality of them, and this makes war a part of the system of states even though war is not their natural condition but an interruption of the normal state of peace. Hegel argued that since war is a relation between states and not a relation of individual men to one another, the rights and interests of noncombatants should be maintained to the utmost. For the same reason he was in favor of professional armies and against conscription or any form of levy en masse.

Each nation is limited by geographical and other accidental features and hence can build up only a particular culture and can have only a particular, not a universal, history. Thus, nations, when they reach the level of statehood, make their contribution to the whole in the part they play in world history (*Encyclopedia*, Sec. 548). World history is not wholly an affair of chance or contingency; as the work of mind it could not be. Therefore, the history of the world has a rational structure, and any his-

torical writing that ignored this "would be only an imbecile mental divagation, not as good as a fairy-tale" (Sec. 549). This rational structure, according to Hegel, is the development of freedom.

"Absolute Mind." The triad that completes the Hegelian system is composed of art, revealed religion, and philosophy. It will be remembered that at the end of the *Phenomenology* Hegel proceeded from the religion of nature to the religion of art and then to the philosophical knowledge of the history of the world. In the *Encyclopedia* art is given what seems to be a more independent status, but the details of the argument hardly bear out the general scheme, since the transitional sections describe a transition from objective mind to religion, as in the *Phenomenology*. Thus, in the concluding sections of the *Encyclopedia* art is regarded as an inadequate form of religion, religion as a more adequate form of art, philosophy as religion freed from picture thinking and wholly rationalized, and all three as manifestations of Absolute Mind. Art is the embodiment of Absolute Mind in material things fashioned by the artist, who, in a sense, is thus "the master of the God" (*Encyclopedia*, Sec. 560). In classical art the embodiment takes place without any antithesis between the embodiment and the mind that is embodied. In the art of the sublime, which preceded classical art, the Absolute Mind is regarded as something that defies embodiment and remains forever beyond and behind the sensible forms that succeed only in symbolizing it. The defect of artistic representation is that the sensible symbols may be taken to refer to another world beyond, which is as limited as this world is falsely taken to be. Thus, men worship idols or even bones, "which point to the unspiritual objectivity of that other world" (ibid., Sec. 562).

God is therefore not something grander and more powerful than the natural world yet fundamentally like it, nor is he something beyond the world that must remain forever inaccessible to man. God is manifested in the world, and this is the truth that revealed religion has expressed most adequately in the Christian doctrine of the Incarnation. Without this doctrine God would still be regarded as beyond the world and, thus, as incomplete and finite. Even with this doctrine he is conceived of through the medium of particular historical events that introduce an element of contingency and irrelevance into our conception of him. In philosophy the artist's external vision and the mystic's internal vision are united in a mode of thought in which there is no further conflict. The philosopher who achieves ultimate self-knowledge is freed from the conflicts that inevitably disturb the infe-

rior levels of knowledge. By philosophizing to the end, he has made himself free (ibid., Sec. 576).

THE DIALECTICAL METHOD

CONTRADICTION. It is now necessary to give more detailed attention to Hegel's dialectical method. There are interpreters of Hegel who say that Hegel denied the principle of contradiction in that he held that contradictories can both exist and that contradictory propositions can therefore both be true. Others deny this interpretation, maintaining, instead that, according to Hegel, since contradiction is a mark of inadequacy and falsehood, contradictions are to be found in the lower categories but are absent from or resolved in the Absolute Idea. This view is summed up in Michael Oakeshott's reference to "the element of self-contradiction inherent in all abstraction" (*Experience and Its Modes*, Cambridge, 1933, p. 328). Those who take the first view can quote some convincing passages from Hegel's *Science of Logic*. For example, there he wrote that "all things are in themselves contradictory," that "movement is existing contradiction itself," and that "only insofar as something has contradiction in itself does it move, have impulse or activity."

If Hegel had rejected the principle of contradiction in the sense that that principle is understood by formal logicians, his case would indeed be serious, for it follows from the rejection of this principle that any proposition can be true and false and that there is thus no means of distinguishing truth from falsehood. It is important, therefore, to see whether Hegel did reject the principle of contradiction in this sense and whether its rejection is part of his dialectical method. That these questions are not easy to answer becomes apparent if we consult some of the commentators on the passages I have just quoted. J. M. E. McTaggart, in his *Commentary on Hegel's Logic*, was dissatisfied with the whole section and claimed that in it Hegel had allowed himself to be too much influenced by Schelling's view on polarity and opposition. "The whole point of the dialectic," McTaggart protested, "is that the perception of a contradiction is a reason for abandoning the category which we find contradictory." Indeed, he found this part of the *Logic* so unsatisfactory that he proposed to amend the sequence of categories by leaving out contradiction altogether.

McTaggart said nothing, however, about Hegel's statement that there are existing contradictions. G. R. G. Mure, in his *A Study of Hegel's Logic*, did not evade this difficulty. Examining Hegel's text more closely than McTaggart had done, he pointed out that on the ground that "the contradictory cannot be imagined or thought"

Hegel rejected the commonsense view that things cannot be self-contradictory but that thought can be. Mure called attention, too, to Hegel's statement that self-contradiction is not a mere disease of thought but something it must pass through on its way to truth. Furthermore, according to Hegel, it is finite things that are self-contradictory, and they are contradictory not in relation to one another but by virtue of their relation to what is infinite: Hegel "is not suggesting that Big Ben can now read both 9 p.m. and not 9 p.m." (p. 105). Although this is an improvement on McTaggart, it left out of account Hegel's statement that for something to move, it must be both here and not here at the same time. What Hegel said about movement is not altogether unlike Mure's example of Big Ben. So the difficulty remains.

In the "Logic" sections of the *Encyclopedia,* which was written later than the *Science of Logic,* contradiction is not a separate category at all. Perhaps the reason for this difference is that Hegel had second thoughts and gave up the idea of contradiction in the nature of things. But although contradiction is no longer a category in the *Encyclopedia*, Hegel still sometimes wrote as if there were contradictions in the nature of things. For example, he stated that although such concepts as "square circle," "many-sided circle," and "straight curve" are self-contradictory, geometers nevertheless regard circles as polygons composed of very short sides and "the center and circumference of a circle as opposite and contradictory to one another" (*Encyclopedia*, Sec. 119). Hegel also suggested that polarity in physics goes against the ordinary logic—but he used the word *opposition* (*Entgegensetzung*) rather than *contradiction* (*Widerspruch*).

In *Geschichte der neueren Philosophie* (Heidelberg, 1901, Vol. VIII, Part 2) Kuno Fischer tried to overcome the difficulty by distinguishing between two sorts of contradiction, "necessary contradiction" and "impossible contradiction." The example of a square circle illustrates the notion of an impossible contradiction, a *contradictio in adjecto*, for it is impossible for the same thing to be both circular and square. When a circle is regarded as a many-sided polygon, however, the contradiction is not *in adjecto* but in *subjecto*, for the circle is then being regarded as in the process of being formed or generated from these many sides. This, Fischer held, is the contradiction involved in all becoming (the first concrete category of the "Logic," the synthesis of being and nothing). Fischer's suggestion is therefore that there is not a vicious or stultifying contradiction involved in becoming or in movement, contradictory though they must in some sense be. But although this may be a correct exposition of

Hegel's view, it is hardly a defense of it, since it merely repeats without explaining his claim that there are contradictions in the objective world.

By drawing this distinction, Fischer has nevertheless raised the question whether Hegel intended the word *contradiction* to be used in the way it is used in formal logic. The answer is clear enough. Hegel did not regard formal logic as a philosophical science, and he therefore rejected any idea that its categories should dominate philosophical thought. Thus, the fact that the word *contradiction* is used in a certain way by formal logicians was not for him a reason for confining himself to that meaning. When Hegel was advocating the dialectical method, he had in mind a method in which oppositions, conflicts, tensions, and refutations were courted rather than avoided or evaded. Hegel was a student of the classical, laissez-faire economists who held that wealth would be maximized by the free play of competition. In this view if traders and producers ceased to compete with one another, the whole level of economic life would be lowered. General prosperity could be reached only at the expense of labor and anxiety. So it is, Hegel believed, with the categories of our thought, the systems of philosophers, and the forms of life and society. There is no tranquillity to be had by withdrawal and isolation. Our categories compete with one another, and out of their competition emerges something better than either of them could have accomplished alone. But it is not possible for the superior category to go into retirement, for without the spur of competition it would fall into decay.

Furthermore, just as competition requires the competitors to continue in business—for if one destroys the others, there is monopoly and stagnation—so the competing categories cannot be swallowed up and lost in the Absolute Idea but must all play their part in maintaining its life and stability. There is nothing fanciful in this comparison. Indeed, it gains support from Hegel's "System der Sittlichkeit" of 1802 ("System of Morality"; in *Schriften zur Politik und Rechtsphilosophie*, edited by Georg Lasson, 2nd ed., Leipzig, 1923), in which it is quite clear that Hegel's systematic thinking was influenced by his understanding of economic theory. For example, in this essay he developed the triad need–labor–enjoyment and described labor as "the destruction of the object … but in such a way that another is put in its place." Here Hegel compared labor with knowledge and undoubtedly had in mind (in accord with his tendency to take German words in the sense of their roots) the element of negation (*nicht*) in the word for destruction (*Vernichtung*). The

destruction of the natural object is the creation of an artificial one.

NEGATION. Negation, indeed, is the vital notion in Hegel's account of the dialectic. In the Preface to the *Phenomenology* Hegel wrote, "The life of God and divine knowledge may, if we wish, be described as love disporting with itself; but this idea is degraded into mere edification and insipidity if it lacks the seriousness, the pain, the patience and the labour of the negative." "Seriousness," "pain," "patience," and "labor" would be strange words to use of the negative symbol of formal logic. Expressed in theological-economic terms Hegel's view is that God cannot be a mere consumer, for there is no consumption without labor, and labor has to face a recalcitrant nature that has to be understood and humored. Thus, there is no God apart from nature. In moral terms there is no good without evil, and in logical terms there is no truth without error. These, according to Hegel, are central truths of dialectics.

But surely, it will be said, this conflicts with such obvious facts as that there are some who consume without working, that in mathematics there are sequences of necessarily true propositions with no admixture of falsity, and that some things—for example, conscientious action—are good without qualification. As to the first point, Hegel argued in the *Phenomenology* that the master who consumes what his slave produces for him destroys what he consumes, whereas the slave shapes the external world in such a way that mind is embodied in it. Hence, the slave is on the road to freedom, whereas the master, who does not work, destroys without creating. As to mathematics, Hegel was inclined to hold it in contempt. There is no space here to consider the strange things he said about it, and it need only be remarked that he held that philosophical truth is utterly different from mathematical truth in that false philosophical views are taken up into true philosophy whereas false mathematics is not taken up into true mathematics. As to the alleged unmixed goodness of conscientious action (the Kantian "good will"), Hegel held that the morality of conscience contained in itself the seeds of willfulness and arbitrariness, for the most atrocious deeds can be defended on the ground that the man who committed them genuinely thought them right. Obedience to one's own conscience, Hegel thought, is an advance over obedience to the commands of an external lord but is nevertheless an unstable basis for morality.

Several ways in which the negative element is important in Hegel's method have been discussed. There is the

conceptual competition without which thought must decay. Then, there is the polar character of certain fundamental notions that makes the one unthinkable without its opposite. At the prephilosophical level Hegel gave above and below, right and left, father and son, as examples. At the philosophical level his examples, were good and bad, master and slave, thought and nature. But not only do these opposites require each other; they also pass into each other. Good will can pass over into atrocity; philosophical truth is the result of errors that supplement each other; the master satisfies his desires but becomes dependent upon the labor of the slave in order to do so; and the slave, by work, controls his desires and develops a rational will. The life of thought in conceptual conflict, the mutual dependence of polar opposites, and the instability or oscillations of philosophical and moral attitudes are different sorts of dialectic that Hegel emphasized on different occasions. If they have anything in common, it is the activity of negation.

There are two other aspects of the dialectic to discuss, the role of reason and understanding and the role of skepticism.

REASON AND UNDERSTANDING. First, Hegel, following Kant, contrasted the reason, the source of dialectical thinking, with the understanding, the predialectical mode of thought. The understanding, as Hegel saw it, is the type of thinking that prevails in common sense, in the natural sciences, and in mathematics and those types of philosophy that are argued in quasi-scientific or quasi-mathematical ways. Fixed categories are uncritically adhered to, demonstrations are produced (only to be demolished), analyses are made, and distinctions are drawn. Analyzing and distinguishing are necessary foundations of philosophical activity but only to prepare the way for the more sinuous and subtle method of the dialectic. Once an analysis has been made, the elements of it are seen to conflict and collide as well as to cohere. First, the understanding isolates, then comes the Reason's negative moment of criticism or conflict, and after that its speculative moment of synthesis. It should be mentioned that distinctions somewhat similar to the distinction between the understanding and the reason had already been made by Plato when he distinguished between the highest knowledge and knowledge in the various sciences, by Spinoza in his second and third kinds of knowledge, by Blaise Pascal with his *esprit de géometrie* and *esprit de finesse*, by David Hume with his reason and imagination, and by Edmund Burke when he contrasted the abstract rationalism of the Enlightenment with the organic, evolutionary view of society that he preferred. These distinc-

tions are not all quite like that drawn by Hegel, but in his theory there is something corresponding to each of them.

SKEPTICISM. Second, Hegel thought that skepticism was an important forerunner and essential ingredient of the dialectical method. In a review of a book by G. E. Schulze that appeared in 1802, Hegel wrote appreciatively of the skepticism of Sextus Empiricus and of the skeptical features in the philosophy of Parmenides, of whom he wrote, "This skepticism, which in its pure *explicit* form comes forward in Parmenides, is to be found *implicit* in every genuinely philosophical system, for it is the free aspect [*die freie Seite*] of every philosophy" ("Verhältnis des Skeptizismus zur Philosophie," in *Kritisches Journal der Philosophie* 2 (1802): 1–74; quoted from *Sämtliche Werke*, edited by Georg Lasson, Vol. I, pp. 174–175). In the same essay Hegel wrote that when Spinoza held that God is the immanent but not the transcendent cause of the world, he was equating the cause with the effect, even though the very notion of an effect implies that it is distinct from the cause. Hegel agreed with Spinoza's equation but concluded that it shows that the reason can accept the principle of contradiction only as a formal principle. In "genuine" philosophy cause and effect are seen as both distinct and identical.

Hegel illustrated his comment that skepticism is "the free aspect" of philosophy in the following way. Dogmatists, he said, regard individual men as objects in the power of rules, laws, and customs. The more the dogmatists study man, the more they show him in subjection to these forces. When, however, the skeptics attack dogmatism, "they raise the freedom of Reason above this necessity of nature." An example of this is the way in which Europeans came to question their own concepts of law and morals when they were brought face to face with cultures very different from their own. When such skeptics as Montaigne mockingly insisted on these differences, men became more conscious of their own institutions and recognized the possibility of changing them. In theoretically breaking down men's traditional views and institutions, the skeptic frees men from the unconscious power of these views and institutions. Hegel repeated his general assessment of skepticism in the *Encyclopedia* (Sec. 81, addition 2) and in his *Lectures on the History of Philosophy*. In these lectures Hegel said that skepticism is "the demonstration that all that is determinate and finite is unstable." Hegel went on to say that "positive philosophy," by which he meant philosophy that is not content to remain in total skepticism, "has the negative to Scepticism in itself; thus it does not oppose, nor is it outside of it, for Scepticism is a moment in it" (Haldane and Simpson, 1955, Vol. II, p. 330).

FREEDOM

From what has just been said, it is clear that Hegel's account of dialectic and of reason is closely linked with his view of freedom. The exercise of thought in its most developed forms involves the negation of what had seemed firm and certain and the opening up of new possibilities. That mind is freedom applies both to the understanding and the reason, since both are spontaneous activities that interpret and arrange. But because the understanding is confined to a fixed system of categories, it is less free than the reason that criticizes, stretches, and transforms the categories of the understanding.

Freedom is, of course, logically connected with will, and according to Hegel, will is as essential to mind as intellect is. Reference has already been made to Section 482 of the *Encyclopedia*, in which Hegel asserted that the unity of theoretical and practical mind is free will. In the preceding sections he had argued that thought presupposes mind as practical, since classifying and explaining are activities through which the world is, so to speak, appropriated by the mind. In the sections of the *Encyclopedia* in which he expounded the categories of cognition and of will, Hegel endeavored to show that mere cognition is at a lower stage than will and that will is thus the actuality of what is only potential in knowledge. He also argued that the freedom and necessity that are opposed to each other are abstractions and that what is concrete must combine both. The very nature of necessity, he continued, presupposes a will on which it is a constraint.

At the logical-metaphysical level, therefore, Hegel held a view that implied that freedom is essential to mind, both the presupposition and outcome of intelligence, and in its concrete form inseparable from constraint and necessity. This view of the matter pervaded his account of freedom in the social and political sphere. Freedom is not something merely opposed to constraint; on the contrary, it presupposes and requires restraint. This is true of concrete freedom. However, abstract or negative freedom, when it is more than a moment in actual or positive freedom, is a purely destructive force. Hegel considered that this negative freedom played a large part in the French Revolution. The old corporations and institutions were destroyed in such a frenzy of annihilation that it took several years for new institutions to be created and recognized as authoritative. Furthermore, when the conflicting interests in society are overcome, individuals come to be treated as equal, undifferentiated, replaceable, and

expendable units. The events of the Reign of Terror thus led Hegel to hold that purely negative freedom was associated with force and death. The logical connections are not altogether clear, but it may well be that the links between egalitarianism, antinomianism, violence, and contempt for human life are not wholly accidental.

Freedom, according to Hegel, is something that has to be achieved, and it therefore would be impossible in the absence of opposition and negation. Hence, although negative freedom in its abstract form is a "fury of destruction," it is a necessary element in concrete freedom. Free will is not the liberty of indifference but the rational organization of the feelings and impulses.

Rationality is not a power that could reside in an isolated individual, however. To be rational, the individual must draw upon the resources of an organized and differentiated society and must be "formed" and educated to do this. His will is then in harmony with the ends of the various social groups by which he has been influenced and, in civilized societies, with the more complex ends of the state. In conforming to these pressures and in obeying the laws of the state, the individual is achieving his own rational ends and in so doing is free.

Hegel, like Jean-Jacques Rousseau, also held that an individual might be free even when he was being coerced, for although he might dislike the force applied against him, this dislike would be an expression of his particular whims, not of his rational insight, as can be seen when he approves of the imposition of a like force upon other people in like circumstances. Insofar as the criminal who is being punished would wish others to be punished who committed a like crime against him, he wills his own punishment.

FREEDOM IN HISTORY. Hegel considered that the history of the human race is a development from less to greater freedom and from less adequate forms of freedom to freedom in its perfection. Thus, his philosophy of history can be understood only in terms of his conception of freedom. In the Oriental world there was no freedom for the subjects and only an arbitrary, irrational freedom for the despot who ruled over them. In the classical world of Greece and Rome there was a more adequate conception of freedom, and more men achieved freedom than in the Oriental despotisms. In the Greek city-state the citizens often regarded themselves as finding their fulfillment in the achievements of their city, apart from which they conceived of no life for themselves. Indeed, they might accept personal defeat and misfortune and submit to what they called destiny and still regard themselves as free in so

doing. Of course, there were slaves who had no part in this activity and had no freedom.

Christianity offered the prospect of freedom to all men, a freedom, furthermore, that transcended the given social order. In what Hegel called the Germanic world—that is, the Christian civilization that grew out of Protestantism—this latest form of freedom was being realized in the manifold institutions of Europe and America and in the states in which these institutions flourished and by which they were regulated and protected. In Christianity the individual is regarded as of infinite value, as a candidate for eternal salvation, and although the emphasis on subjective freedom can lead, as it did in the French Revolution, to contempt for social institutions, it comprises the form and aspect of freedom that gives its special quality to modern civilization, with its romantic art, romantic love, and support for the rights of conscience (*Philosophy of Right*, Sec. 124).

It is apparent from the foregoing that Hegel rejected the liberal view that man is free to the extent that he is guaranteed a sphere within which he can do what he wishes without interference from others who are guaranteed a like position. Such freedom he stigmatized as negative, abstract, or merely willful. Men enjoy concrete freedom when the various orders and groups of civilized life are maintained in and by the state. In this passage of the *Lectures on the Philosophy of History* (Hoffmeister, Vol. XVIIIA, p.111) Hegel also emphasized that in submitting their private wills to the laws of the state and to the rules of its subordinate but free institutions, men were submitting their passions to the control of reason. Thus, the argument comes full circle. The theoretical reason is inseparable from will and from freedom; necessity and negative freedom are only abstractions; in concrete freedom the negative, destructive element is held in check and rendered fruitful by being realized in institutions; the individual enjoys concrete freedom when he is educated to live in a civilized state and to be guided by the reason that permeates it.

There is no space here to criticize this view in any detail, for in a way it is a cross-section of the whole Hegelian metaphysic. It should be noted, however, that when a critic maintains that real freedom is what Hegel called negative or abstract freedom and when he goes on to maintain that "concrete freedom" is not freedom but indoctrinated submission, then he is criticizing Hegel's terminology rather than the substance of his view. To say that freedom consists of a willing acceptance of the tasks imposed by a civilized state is certainly to extend and perhaps to distort the ordinary senses of the term and to cap-

ture a word from the liberal vocabulary for use in a far from liberal scheme of concepts. It was Hegel's view, however, that the thoughts that the liberal phraseology expressed necessarily move in the directions he described and that societies themselves, the embodiments of men's thoughts and aims, move in these directions, too.

AESTHETIC THEORY

We have already seen that Hegel discussed the nature of art and of beauty toward the end of both the *Phenomenology* and the *Encyclopedia*. Art, according to Hegel, is one of the manifestations of Absolute Mind, of which religion and philosophy are the other two. Thus, although art presupposes the civilized life of the state, it also transcends it. In his lengthy *Vorlesungen über die Aesthetik* (Lectures on aesthetics) Hegel developed his theories of art and beauty in great detail. The lectures possess great power and attraction, and so much of their value resides in the details that a summary treatment is bound to be difficult.

THREE STYLES OF ART. Hegel's account of beauty is a modification of Friedrich Schiller's view, in his *Letters on the Aesthetic Education of Mankind* (1795), that beauty is the mediation between the sensible and the rational. According to Hegel, beauty is the rational rendered sensible, the sensible appearance being the form in which the rational content is made manifest. This sensible embodiment of the rational, he held, can take place in three principal ways: symbolic art, classical art, and romantic art.

Symbolic art. In the first and least adequate form, symbolic art, the sensible shape merely symbolizes the rational content without penetrating and transforming it. A lion may symbolize courage; a bird, the soul; or a temple, the presence of a god who nevertheless remains a mystery. Thus, in symbolic art the sensible object refers away from itself to a rationality that is enigmatically and mysteriously beyond it. In thus referring away from the sensible symbol to something vast and merely adumbrated, symbolic art sometimes achieves the sublime.

Classical art. In classical art, the second form of sensible embodiment, the sensible expression is adequate to the idea that it gives expression to and does not point vaguely beyond itself. This is typified in sculptures of the human body so formed that the divine ideal is realized in the stone, not merely hinted at. A temple makes us think of the god but is not the god. In a statue of Apollo the god is visible and tangible in the stone. Hegel pointed out that works of classical art have independence and completeness, so that when they have been created, it seems that

there is nothing more left to do done. "Nothing more beautiful," he wrote, "can be or become."

Romantic art. Christianity, however, with its emphasis on the infinite value of the individual and upon subjective freedom, made classical art seem somewhat unsatisfactory. More is required than works of art in which reason, as Hegel put it, "stands in quiet and blessedness in bodily form." When the self and its inner life are regarded as of infinite value, the forms of art must move on from balance and harmony to the storm and turmoil of the subjective. According to Hegel, it is in romantic art that this progress to subjectivity and self-consciousness is achieved. Romantic art turns its back on the quiet and balanced beauty of the classical and "weaves the inner life of beauty into the contingency of the external form, and allows full scope to the emphatic features of the unbeautiful." In romantic art, as in symbolic art, there is much that is bizarre and even grotesque, but romantic art is on a higher level than symbolic art because the mind expressed in it is more complex and sophisticated. And in romantic art the mind has achieved a greater measure of freedom than in classical art because romantic art is less involved in and hampered by the sensible embodiment.

PRODUCTS OF ART. Hegel's view of the three main types of beauty is closely linked with his view of the main types of artistic product. Hegel divided the arts into architecture, sculpture, painting, music, and poetry. Works in any of these mediums may be produced in the symbolic, classical, or romantic styles, but, according to Hegel, architecture is particularly appropriate to symbolic art, sculpture to classical art, and painting, music, and poetry to romantic art.

Architecture. Architecture, Hegel held, is the basic art, the art that men first practice, for its material is mindless and its forms depend upon the weight and physical properties of this mindless medium. The architecture of early men, by bringing them together to worship the gods in temples, served to bring unity into their societies. Hegel imagined the men who built the first temples as they cleared the ground on which to build them, and he described this as "clearing the undergrowth of finitude."

Sculpture. In architecture a house is provided for the god, and the god is prepared for and expected. He is not, however, embodied or manifested in the stones of a mere building. In classical sculpture the god is embodied in the stone in such a way that all the parts of the statue combine in expressing and proclaiming him. Hence, it is not a mindless symbol of the mind beyond but a unified

expression of it. Hegel contrasted the stiff regularity of Egyptian sculpture with the harmonious independence of the Greek, the acme of classical art. In Christian sculpture this Greek ideal does not predominate, and even when, as with Michelangelo, it is fully understood and mastered, it is associated with "the kind of inspiration that is found in romantic art."

Painting, music, and poetry. The three romantic arts of painting, music, and poetry differ from the arts of sculpture and architecture, according to Hegel, by being more "ideal." One thing he seems to have meant was that the productions of these arts are not three-dimensional like the productions of architecture and sculpture. Painting, of course, is two-dimensional, and Hegel thought it is more ideal than sculpture because it is further removed from the solid substance of material things. He appears to have argued that the painter transforms to an extent that the sculptor has no need to do. In reducing the three dimensions to two, space is somehow rendered more "inward" and "subjective," and the first step has been taken on the road to poetry.

The next step toward subjectivity is taken by music, which abandons all the dimensions of space as well as the senses of sight and touch. Hearing, according to Hegel, is a "more subjective" sense than sight because it is less practical and more contemplative.

In poetry the sensible elements of music, the notes or tones, are replaced by words that stand for thoughts. "The art of poetry," Hegel wrote, "is the universal art of mind that has become free and is no longer dependent upon external sensible material for its realization." Within poetry as a whole he distinguished epic, lyric, and dramatic poetry. Hegel's account of dramatic poetry is particularly interesting. "In tragedy," he wrote, "individuals destroy themselves through the onesidedness of their upright will and character, or they are forced to resign themselves and identify themselves with a course of action to which they are fundamentally opposed." In comedy, on the other hand, there is no such reconciliation; the characters pursue courses of action that have only subjective significance. Indeed, in comedy, according to Hegel, the subjectivity characteristic of romantic art is taken to such an extreme that all unity is dissolved; with it goes beauty, too. In comedy there is merely a series of subjective interests playing against one another, as opposed to the aim of all art, which is the revelation of the eternal and divine in sensible form.

NATURAL BEAUTY. The discussion has thus far been confined to the beauty of works of art (*das Kunstschöne*).

It is with this that by far the greater part of the "Lectures on Aesthetics" is concerned. In the second chapter, however, Hegel did say something about natural beauty (*das Naturschöne*). He discussed the notions of regularity, symmetry, harmony, and conformity to law and also the beauty claimed for plants, animals, and human beings. He concluded his discussion of the subject with some comments on how natural beauty falls short of artistic beauty. Plants and animals, he granted, are more beautiful than inanimate natural objects, but what we see of them is their outward coverings, not the soul that works within, for that is concealed by the visible feathers, hair, scales, fur, and the like that cover them. Hegel referred to natural beauty as the "prose of the world." Although Hegel did not altogether deny the beauty of nature, it is clear that he ranked it very low. Indeed, the structure of his system made this inevitable, for it is the self-conscious achievements of man that form its culmination.

It would seem that the triadic divisions of the "Lectures on Aesthetics" constrained and even corrupted Hegel's argument. An example of this occurs in his account of dramatic poetry, into which he introduced a species called "drama," the function of which was to add one species to tragedy and comedy and thus make three species of dramatic poetry.

Hegel also tended to confuse conceptual and historical relationships. For example, the distinction between symbolic, classical, and romantic art was intended to be made on conceptual grounds, but, on the other hand, Hegel had in mind historical progression. Here, as elsewhere, Hegel confused historical types, such as romanticism, with conceptual types, such as tragedy, which have no necessary temporal sequence. Perhaps the most interesting case of this is Hegel's suggestion that art comes to an end with the highest flights of romanticism. We have already seen that Hegel brought his account of dramatic poetry to an end with comedy, the most subjective of all art forms. At the very end of the "Lectures on Aesthetics" he said that "in this culmination comedy is leading straight to the dissolution of art in general." It is unlikely that Hegel believed that art was coming to an end, any more than he believed that with the Prussian state, history was coming to an end. Yet in each case he argued in such a way as to suggest that the culmination of a conceptual sequence must also be the conclusion of a historical progress. Insofar as he held that history was the movement of the Divine in the world, it was natural to make this identification, extravagant as it is. Bosanquet, who denied that Hegel believed that art was on the point of final dissolution, held that he did foresee that it was

about to suffer an eclipse in the new form of society. "But we must claim extraordinary insight for him, who, still under the spell of Schiller and Goethe, described the present exhaustion of the art-impulse and the conditions hostile to it in language approaching that of John Ruskin and William Morris" (*A History of Aesthetic*, 4th ed., London, 1917, p. 361).

PHILOSOPHY OF RELIGION

A few commentators have regarded Hegel's philosophy as atheistic, but most have considered it to be either theistic or pantheistic. Certainly religious expressions abound in his writings, even in the *Logic*. It has been shown how closely he associated art with religion and how he applied religious epithets to the state. It was also pointed out that the *Phenomenology* might with some justification be interpreted in atheistic terms. It would be obviously overstraining the evidence, however, to interpret Hegel's mature system in this way, for in the system religion is a form of Absolute Mind, along with art and philosophy, which is the supreme expression of the Absolute Mind. According to Hegel, religion represents or pictures the Absolute, whereas philosophy conceives or thinks it. The same truth, that is, expressed in quasi-imaginative form in one and in conceptual form in the other.

CHRISTIANITY. Since the concept is supreme and ultimate, philosophy surpasses religion to this extent, but in doing this, it finally and fully justifies Christianity, which is the absolute religion. The doctrine that elevates Christianity above all other religions is the doctrine of the Incarnation, which, according to Hegel, is the religious expression of the philosophical truth that the Infinite Being is not distinct from what is finite but is necessarily manifested in it. Hegel also interpreted the doctrine of the Trinity in philosophical terms. In the "Science of Logic" God is revealed as he is before the creation of the world; in the "Philosophy of Nature," in his material embodiment; and in the "Philosophy of Mind," as reconciling the finite and the Infinite. In this way the Father, the Son, and the Holy Spirit are explained in terms of the main themes of the Hegelian system. Again, Hegel interpreted the doctrine that God is love to mean that although the Infinite Being cannot exist without negation and opposition, the negation and opposition are finally reconciled. Finally, it should be mentioned that Hegel gave a series of lectures on the traditional proofs for the existence of God. He admitted the force of Kant's criticisms of these proofs but claimed to have reformulated the arguments so as to meet the criticisms. In particular, he held that the Ontological Argument, which Kant had

regarded as vital but unsound, was valid when properly understood.

Undoubtedly, Hegel's later writings are much closer to orthodox Christianity than his earlier ones. The early "Life of Jesus" had nothing to say about the Resurrection, whereas in the *Lectures on the Philosophy of Religion* this doctrine was stated and defended. Hegel here wrote of "the death of death," of "the triumph over the negative," of mind as "the negative of this negative which thus contains the negative in itself," and of "the division of the divine idea and its reunion" that is "the whole of history." Although Hegel said that God appeared in the flesh at a particular time and in a particular individual, his account of the matter seems to be extremely general. In the Christian doctrine of the Incarnation, God became man in Jesus Christ at a particular time and place, whereas Hegel's God is incorporated in the finite world. It would seem that a highly specific historical view is replaced by a highly general metaphysical one. Hegel himself did not take this view of his own work, nor did a younger contemporary of his, Karl Friedrich Göschel, in his *Aphorismen über Nichtwissen und absolutes Wissen im Verhälnisse zur christlichen Glaubenserkenntnis* (Berlin, 1829). In the *Encyclopedia* (Sec. 564) Hegel recommended this book, which is generally regarded as giving a theistic account of the Absolute. Just before referring to Göschel's book, Hegel had written, "God is only God in so far as he knows himself; his self-knowledge is moreover his consciousness of himself in man and man's knowledge *of* God, a knowledge that extends itself into the self-knowledge of man *in* God."

What cannot be doubted is that Hegel's philosophy of religion contained elements that could easily be developed in ways that go counter to orthodox Christianity. Thus, when D. F. Strauss argued, in his *Life of Jesus* (1835), that the Gospel story was a set of myths, he was consciously working out what he thought was the consequence of Hegel's view that in religion the truth about God is understood in representative or pictorial terms. Again, Ludwig Feuerbach, in his *The Essence of Christianity* (1841), endeavored to interpret the Christian doctrines in human and psychological terms as the imaginary fulfillment of wishes that cannot be satisfied here on Earth. We have already referred to the passage in Hegel's *The Positivity of the Christian Religion*, in which he said that in the days of imperial Rome men who had been robbed of their freedom in this world sought for it in a heaven beyond. Feuerbach, who, of course, had not seen this work, could have read something similar in the *Phenomenology*. It is a very short step from Hegel's view

that the infinite is manifested in the finite to the view that it is a projection of it. Perhaps the truth of the matter is that the Christian religion, according to Hegel, is adequate in its own sphere and that the philosophy of religion is required to counteract false religious views and false views about religion but is not a substitute for it. This is the interpretation given by Lasson in the introduction to Hegel's philosophy of religion printed at the end of his edition of Hegel's *Lectures on the Philosophy of Religion*.

See also Dialectic; Philosophy of Mind.

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H. B. Action (1967)
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HEGEL, GEORG WILHELM FRIEDRICH [ADDENDUM]

Georg Wilhelm Friedrich Hegel changed his major philosophical views very little from the publication of his first major work, the *Phenomenology of Spirit,* in 1807 until his death in 1831. This stability and continuity have not made it any easier for commentators to agree on what those views were. Disagreement about Hegel's basic position and its implications is still widespread, even more so after a great resurgence of Hegel studies after World War II.

In the Anglophone philosophical world, Hegel's position is still often summarized as an objective idealism, thanks largely to his influence on early twentieth-century British objective idealists such as Francis Herbert Bradley. He is said to have believed that only "mind" (the preferred translation of *Geist* until the A. V. Miller translation of *Phenomenology of Spirit* was first published in 1977) was "real"; or that no determinate individual object could be said to be real. Such an object was really a "moment" of the interrelated and temporally developing structure of the one true substance, the absolute, or absolute mind. Such a substance was said to develop over time; the nature of that development was a process of greater self-consciousness, and this development was reflected in, or the underlying basis of, the great social and political changes of world history, as well as intellectual changes in philosophy, art, and religion. Since Hegel appeared to have claimed a full and final "absolute knowledge," an "encyclopedic" account of such a structure, or the relation between "logic," philosophy of nature, and philosophy of spirit could be given. (A compelling demonstration that such an objective-idealist or "internal relations" view could not have been Hegel's position was published by the German Hegel scholar Rolf-Peter Horstmann in 1984, *Ontologie und Relationen.*)

Some aspects of such views of what Hegel really meant persist in many postwar interpretations but have not provoked much serious discussion or the interpretive variants that once characterized the work of John McTaggart Ellis McTaggart, G. R. G. Mure, Edward Caird, and Walter Terence Stace. Other interpretations and emphases have predominated. Many commentators have become interested in Hegel less as an object of purely historical research and more as a possible contributor to perennial and current philosophical controversies.

Charles Taylor's 1975 study, *Hegel,* while offering a comprehensive commentary on all aspects of Hegel's work, emphasized Hegel's insights into the emerging problems of the modern social and political world—problems such as social fragmentation, alienation, and the proper understanding of the modern goals of freedom and some sort of harmony with self. Taylor showed that many of Hegel's theoretical intentions could also best be understood against the backdrop of such concerns, and his approach became influential.

Hegel's understanding of the intellectual and social dimensions of modernization was also important in the work of many critical theory or Frankfurt school neo-Marxist philosophers (a group sometimes even designated as "neo-Hegelian" Marxists because of their attention to the social function of ideas and culture without a reliance on traditional Marxist versions of economic materialism). In the work of the most important "second generation" critical theorist, Jürgen Habermas, Hegel also plays a large role in what Habermas calls, in a book title, *The Philosophical Discourse of Modernity.* Hegel is called "the first philosopher who made modernity a problem" (p. 4)—this by raising many questions about the sufficiency of the modern notions of subjectivity and rationality.

In other developments, Klaus Hartmann in several influential articles proposed what he called a "nonmetaphysical" reading of Hegel, one that emphasized Hegel's category theory and the unusual "logic" of categorial relations, all as more or less autonomous philosophical problems, not necessarily wedded to any metaphysics of absolute mind. A group of German philosophers who came to be known as the Heidelberg school began to work in a more contemporary way on the single greatest problem that preoccupied the German idealists as a whole, and Hegel especially: the problem of self-consciousness, or "reflection," how the mind could be said to be both the subject of its own consciousness and object to itself at the same time. (The most important and influential work on this aspect of the idealists and Hegel in particular has been Dieter Henrich's.) Since, for many post-Kantian idealists, any possible cognitive or practical relation to the world was an active comporting of oneself

toward the world, or a "self-relation in relation to an other," the problem of self-relation was argued to be fundamental in any epistemology or account of human agency. These elements have also been emphasized by those who argue that Hegel should be read much more as a post-Kantian idealist, as much more decisively influenced by Immanuel Kant's founding arguments about the possibility of any self-conscious experience than by, say, Benedict de Spinoza or Friedrich von Schelling.

Hegel's contributions to all such problems—the nature and implications of modern social life, the possibility of self-consciousness and self-knowledge, the nature of the mind-world, and agency problems—reappear with great urgency in his ethical and social theory and in many interpretations. Debates about whether Hegel's 1821 *Elements of the Philosophy of Right* encouraged an accommodation of the conservative rulers of the Prussian state, or whether he was guilty of a kind of "organicist" anti-individualism, have been replaced by an emerging consensus that Hegel belongs within, if idiosyncratically, the modern liberal political tradition. This recognition has been somewhat complicated by "communitarian" writers and "traditionalist" writers suspicious of the modern reliance on claims of rationality as decisive in ethical life. Many such writers have occasionally enlisted arguments in a case against the classical liberal tradition. Hegel's position on the importance and "priority" of the ethical community in ethical life (*Sittlichkeit*) has sometimes been understood such that anyone who believes in the priority of prevolitional attachments or commitments in ethical deliberation (e.g., such attachments are necessary for deliberation to get started or have direction but cannot themselves be products of such deliberation) is labeled a neo-Hegelian. But Hegel believes that modern ethical life (the institutions and practices of modern social existence, the modern family, civil society, and the legal, constitutional state) are not just "ours" and "prior." He believes they are rational, raising the still much-debated question of how he distinguishes rational from nonrational ethical communities.

A great deal of scholarly work has been done in the postwar period on Hegel's texts, especially on the dating and organization of his Jena-period lecture materials. Karl-Heinz Ilting has compiled, edited, and published an extensive collection of Hegel's lecture notes on political philosophy, and a new critical edition of Hegel's works has begun to appear. New English translations of the *Phenomenology*, the *Logic*, the *Philosophy of Right*, the *Aesthetics* lectures, Hegel's letters, and many other works have also appeared.

See also Absolute, The; Alienation; Bradley, Francis Herbert; Caird, Edward; Communitarianism; Critical Theory; Freedom; German Philosophy; Habermas, Jürgen; Idealism; Kant, Immanuel; Liberalism; Marxist Philosophy; McTaggart, John McTaggart Ellis; Neo-Kantianism; Rationality; Schelling, Friedrich Wilhelm Joseph von; Spinoza, Benedict (Baruch) de; Stace, Walter Terence; Subjectivity.

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HEGELIANISM

The term *Hegelianism* is applied to a range of philosophical doctrines and traditions influenced by the nineteenth century German philosopher Georg Wilhelm Friedrich Hegel (1770–1831). Hegel's influence is as broad and diverse as his writings; moreover his legacy, like his philosophy, is characterized by tensions between dialectical opposites.

A central part of Hegel's philosophical reputation has always been in metaphysics, where he is seen as the leading proponent of absolute idealism: the thesis that reality as a whole—nature, humanity, history, and so on—is informed and shaped by (and indeed ultimately is a manifestation of) what Hegel famously called *Geist*: mind or spirit. For Hegel, Geist is both rational and rationally comprehensible, whether in logical structure, natural science, or historical progress. Hegel also held that Geist itself exhibits a distinctive self-consciousness or self-articulation, and that the manifestations of this self-consciousness can be found in psychology, history, religion, drama, art, and philosophy.

The earliest Hegelian movement comprised a core of adherents working to vindicate these claims in a diverse range of intellectual projects seeking to identify and exhibit the promised rational structure. Characteristic of the Hegelian position is the claim that rational structure is historical and dialectical: The rational structure of the real is not a static and self-consistent body of facts, but a dynamic process unfolding through the systematic resolution of dialectical contradictions. The earliest Hegelians sought to identify this structure in the areas of law, history, politics, and natural science. Among the first Hegelians were the members of the Society for Scientific Criticism, formed in July 1826 in Hegel's own home, and closely associated with the *Jarhbücher für wissenschaftliche Kritik*, a journal devoted to the dissemination and application of Hegelian ideas.

Prominent members of this old Hegelian movement included Leopold von Henning (*Prinzipien der Ethik in historischer Entwicklung*, 1824), who applied Hegelian ideas in ethics; and Eduard Gans (*Das Erbrecht in weltgeschichtlicher Entwicklung*, 1924–35), who was primarily concerned with issues in law and jurisprudence. The hallmark of this early Hegelianism was the emphasis placed

on historical approaches to traditional philosophical issues, together with the attempt to provide a critical justification of cultural configurations as the outcome of rational dialectical progressions. Hegelianism thus played an important role in the emergence of history as the central category and discipline of the developing human sciences of the nineteenth century.

Many of these early contributions were soon lost to memory as Hegel's influence waned in Germany after his death in 1831. In the case of theology and religious studies, however, self-professed Hegelians achieved a lasting prominence. Early Hegelian theologians also provided the first example of a pattern that was repeated later: the emergence of two traditions, each drawing explicitly on Hegelian teachings, yet developing those ideas in sharply opposed directions and soon coming into noisy confrontations, which themselves became points of reference in subsequent philosophical developments. Hegel's own theological position was that orthodox Judeo-Christian religious teachings were true yet ultimately inadequate articulations of ideas expressed more fully and exactly in the language of metaphysics. Hence in the Christian doctrines of the creation, divine incarnation, the Trinity, and human immortality, for instance, Hegel finds vivid thought-images (*Vorstellungen*) of rational concepts (*Begriffe*) fully graspable only in his idealistic metaphysics. On this model theism becomes a penultimate articulation of absolute idealism; the hope for immortality is satisfied in an individual's identification with a trans-individual cultural whole that survives the death of its constituents; and the doctrine of the Trinity is seen as a vivid representation of a metaphysical truth graspable only by a dialectical logic. The central Hegelian notion of *Aufhebung* (variously and inadequately translated as sublation, supercession, and so on) finds its exemplar in the Christian claim to complete the Hebraic law by negating it.

The tension in this position is manifest. The orthodox articles of faith are true and yet not true: true insofar as they articulate a thought that merits our assent, yet not true because cast in a language incapable of adequate articulation of the insights they express. The earliest conflicts in the Hegelian school emerged among theologians exploring the two opposed sides of this Hegelian contradiction. Philip Marheinecke (*Die Grundlehren der christlichen Dogmatik als Wissenshchaft*, 1827) and Karl Daub (*Die dogmatische Theologie jetziger Zeit*, 1833) defended and elaborated a Hegelian orthodoxy, and advanced the claim of Hegelianism to provide a middle way between an extra-rational fideism and the extreme

atheism that had long been feared as the final outcome of Enlightenment rationalism. But their work was soon eclipsed by the more radical approach inaugurated by David Friedrich Strauss, whose influential and controversial *Leben Jesu, kritisch bearbeitet* (1835–36) proposed a radically revisionist and explicitly critical reading of religious texts (particularly the Gospels) and proved to be a watershed in the secularization of religious studies.

It was this split among the Hegelians that first gave rise to the language of left and right Hegelians—a description Strauss himself introduced in 1837 (*Streitschriften zur Vertidigung meiner Schrift*). The left Hegelian treatment of theological issues reached its culmination in the work of Ludwig Feuerbach. His *Thoughts on Death and Immortality* (1830) argued explicitly against the idea of personal immortality; his *Essence of Christianity* (1841) was directed forthrightly against religion, and inaugurated the influential nineteenth century movement that reinterpreted religious teachings in psychological and political terms. An 1853 English translation by George Eliot played a focal role in the nineteenth century reassessment of religion in British intellectual circles.

The terms left and right derived from the political rhetoric of the day (the division between the two sides of the French Chamber of Deputies) and it was quickly to be applied once again in the struggle over Hegel's legacy in political philosophy. This is an area where, once again, we find important tensions in Hegel's own position. Hegel's political theory was essentially an application of his social theory: He saw in human society an unfolding attempt to develop institutions that were rational and just, and capable of sustaining an unfettered critical self-examination. For Hegel, society provides not only the material fruits of social cooperation (self-defense and the power of cooperative labor), but also what Hegel called *Anerkennung* or acknowledgement: the mutual recognition by citizens as free and rational self-determining agents.

Hegel held that the basic demands of the just state were met adequately only in the modern era, in particular with the emergence of the modern sociopolitical institutions of the modern family, the free market, the republic, and private property, themselves resting on a guarantee of civil liberty. In political history Hegelians thus set out to trace the emergence of these modern rational institutions; in politics Hegelians defended a monarchist liberalism, and some (notably Karl Rosenkranz) even served in parliamentary assemblies. But the Hegelian framework was once again put to very different uses when it came to its application to concrete issues in politics and political economy.

Rosenkranz and others sought to use Hegelian ideas to justify and reform the major institutions of modern political life, particularly in mid-nineteenth century Prussia. In explicit rivalry to these old or right Hegelians there emerged what have come to be known as the young or left Hegelians, chief among them Feuerbach, Bruno Bauer, and the young Karl Marx, who sought to use Hegelian criticism as a device for advancing radical social change. The tension between these two movements brought out the opposed tendencies in Hegel's position, which on the one side was interpreted as a philosophy of reconciliation, and specifically as a justification of status quo Prussian institutions, whereas on the other inspiring what the influential Polish Hegelian, August von Cieszkowski, called a philosophy of action (*Prolegomena zur historiosophie*). The left Hegelians abandoned the claim that Hegelianism could vindicate orthodox religion and politics and instead turned to apply Hegelian social theory to provide orientation in the struggle for social change.

In the context of this dispute between left and right appropriations of Hegel, many features of Hegelian philosophy were appropriated and applied in abstraction from Hegel's own distinctive metaphysical commitments. The most dramatic example of this came with Marx, who sharply rejected Hegel's idealistic metaphysics and theory of sociohistorical development. Where Hegel placed primary emphasis and found the root of historical change in what he called simply the *concept* or the *notion* (*der Begriff*) that advanced toward self-completion in human history, Marx advanced a materialism that found the prime mover of history in the material conditions of human existence and the satisfaction of material economic needs.

But through this metaphysical reversal, important elements of the Hegelian position remained, notably Hegel's treatment of history as the overcoming of dialectical contradictions (tensions between opposed principles in historical configurations), in the ideal of a final resolution of these tensions and thus a certain kind of end of history, and in his appropriation and development of the Hegelian notion of alienation. In his early contributions to the *Deutsch-französischen Jahrbücher*, the young Marx argued that the social, economic, and political structures of human history have become alien powers that tyrannize human beings. Hence it was not enough to call, as Bauer and Feuerbach had, for the end of religion because religion is not the cause but the expression of self-alienated man. One must rather attack the real material conditions that create and sustain this condition.

The tension between left and right Hegelianism proved to be one of the most enduring aspects of Hegel's legacy, and it is a debate that has played out in a diverse range of historical, political, and theoretical contexts, of which the nineteenth century socialist movement is only the best known example. In Russia the appeal to Hegelian social theory figured prominently in the mid-nineteenth century debate over feudal institutions and Russian national identity, particularly in the works of Nikolai Stankevich, Vissarion Belinskii, and in the activism of Mikhail Bakunin, whose later fame as the leading figure in European anarchism followed an earlier period of intense engagement with Hegelian ideas. In more recent times Hegelian philosophy of history was invoked in the attempt to find new political orientation after the collapse of communism and the end of the cold war at the end of the twentieth century (Fukuyama 1992).

Hegel's influence was also strong in the emergence and development of the existentialist tradition. A number of the themes central to existentialism had been explored in Hegel's writings: the themes of death and immortality, alienation, nihilism, and so on. Already in the writings of S.A. Kierkegaard (*Concluding Unscientific Postscript to Philosophical Fragments*, for example), existentialist thinkers had defined themselves in relation to Hegel, albeit in that case in the form of an insistent negation. Kierkegaard was relentlessly critical of Hegelian rationalism, and ridiculed Hegel's claim to provide a rational reconstruction of religion that could eliminate the absurdity that Kierkegaard himself found both in religious consciousness and in the human condition. But later French existentialists, notably Alexandre Kojéve, Jean Hyppolite, and Jean-Paul Sartre, developed much more sympathetic appropriations, shifting the focus from Hegel's mature writings (*The Encyclopaedia of the Philosophical Sciences* and *The Philosophy of Right*) to the much earlier *The Phenomenology of Spirit*.

For Hegel, phenomenology was to be a study of structures of self-consciously lived experience as manifestations of Geist. Hegel's *Phenomenology* comprised a series of case studies that exercised great influence on the existentialists, most importantly in connection with the account of the confrontation with death in the dialectic of master and slave, which Kojéve (1934) in particular made central to his reading of Hegel. Kojéve followed Hegel in arguing that the encounter with an *other* was both an essential moment in the structure of autonomous self-consciousness and yet, at the same time, an essentially destabilizing confrontation with which human beings and human institutions must ultimately come to terms.

Thus while the existentialists sharply diverged from the orthodox Hegelian metaphysical position and sharply rejected Hegelian rationalism, their philosophical practice—focusing in particular on the unfolding, essentially narrative structures of self-conscious experience and its intrinsic tensions—followed no thinker more closely than Hegel. Sartre's *Being and Nothingness* (1943) provides the fullest development of this strand of existentialism, and in many passages closely imitates its Hegelian model.

In nineteenth century Britain and America, by contrast, it was metaphysics that was preeminent in Hegel's legacy. Hegel's influence in the English speaking world began with J.H. Stirling's influential study, *The Secret of Hegel* (1865). Stirling's work itself mainly took the form of a sympathetic but somewhat superficial synopsis of Hegelian texts and doctrines, but it nonetheless proved influential in forging a generation of British idealists. As the British idealist movement matured, it grew increasingly independent of its German models, and its leading figures—T.H. Green and F.H. Bradley—developed independent philosophical systems of considerable originality. Nonetheless, important traces of the Hegelian origins persist, particularly in Bradley's strategy of arguing for his monistic idealism by exhibiting the systematic contradictions hidden in the common sense assumptions of reality as plural (comprised of ontologically distinct individuals), empirically knowable and mind-independent.

Later figures in the British idealist movement included Bernard Bosanquet, who contributed greatly to the propagation and interpretation of Hegel's own philosophical writings, and John McTaggart, whose most influential legacy derived from his antirealism about time. When the tradition of logical analysis emerged in Britain at the beginning of the twentieth century, it began with a systematic critique of this dominant idealist orthodoxy, most notably in the early writings of G.E. Moore and Bertrand Russell (see Peter Hylton's *Russell, Idealism, and the Emergence of Analytic Philosophy* [1990]).

Hegelianism was also influential in the emerging philosophical traditions in America. Particularly in areas with strong German immigrant traditions, Hegelian schools thrived, notably in Cincinnati (John Bernard Stallo, August Willich, Moncure Conway), and in St Louis, where Henry Brokmeyer and William Harris formed *The Philosophical Society*, which was explicitly Hegelian in its orientation and sponsored the *Journal of Speculative Philosophy*, an influential journal on the late nineteenth century American philosophical scene. These early American Hegelians included not only academic philosophers but influential significant civic leaders who sought to apply Hegelian ideas in social and educational reforms, and appealed to Hegelian philosophy of history in coming to terms with the upheaval of the American Civil War. Indeed prior to the emergence of the pragmatist tradition, Hegelianism was arguably the most well-defined school of American philosophy.

Among the most influential American Hegelians was California native and Harvard philosopher, Josiah Royce, who had visited Germany as a student and returned to Harvard as a key conduit of Hegelian ideas. In *The Religious Aspect of Philosophy* (1885) Royce argued for a version of absolute idealism, proposing and defending a Hegelian theism, with the existence of God understood in Hegelian terms as a super-individual subject in which finite subjects figure as moments of an overarching organic totality. Religious and proto-existentialist themes dominated Royce's appropriation of Hegel, and his *Lectures on Modern Idealism* (1919) remained an influential introduction to idealistic philosophy well into the twentieth century. Although Royce's idealism was soon eclipsed in the American academy by the budding pragmatist movement, he set an important precedent for a number of later North American Hegelians (recent examples include Charles Taylor [1975] and Robert Pippin [1991]) who have looked to Hegelian philosophy to answer the charge that modern cultural forms lead inexorably toward a crisis of faith and nihilistic despair. In this respect these more recent North American Hegelians can be seen as developing a more secularized version of Royce's idealism.

Hegel's legacy in logic has been complex and somewhat diffuse. Hegel himself held logic to occupy a fundamental place in philosophical inquiry, providing not simply a theory or mechanism for inference but rather an articulation of the underlying rational structure of all reality. In this sense he can be understood as the leading advocate of a material (as opposed to a merely formal) construal of logic. His logic was also distinctive in its dialectical structure, taking the form of a series of dialectical transformations intended to unpack all the basic categories of the real from tensions inherent in the bare concept of being. But despite a few early adherents and defenders (Kuno Fischer being the most important), relatively few have followed Hegel's lead in these views, and the nineteenth century reform of logic grew much more out of Kantian themes and problems than from recognizably Hegelian doctrines.

Nonetheless, Hegel's influence in logic has been felt indirectly, particularly in connection with his account of

conceptual determinacy. On an orthodox empiricist construal, concepts receive their determinate content in virtue of a connection with some nonconceptual content of experience. But this empiricist doctrine has continually come under attack, both in the nineteenth century neo-Kantian movement associated with Hermann Cohen and Paul Natorp, and again more recently in the work of the seminal twentieth century American philosopher, Wilfrid Sellars. In looking for alternatives to the traditional empiricist doctrine, logicians and semantic theorists have repeatedly been drawn to Hegelian themes. Thus, for instance, Tyler Burge's "Individualism and the Mental" (1979) introduced his defense of social externalism with an invocation of Hegel, and recent semantic theorists such as John McDowell and Robert Brandom have explicitly turned to Hegelian themes for an alternative to the empiricist account of some foundational given content.

McDowell's *Mind and World* (1994) develops an essentially Hegelian thesis in arguing that the conceptual content of experience must reach all the way down to its most primitive content and indeed must ultimately be seen as reflective of conceptual structure inherent in the world itself. Brandom's Hegelianism in *Making it Explicit* (1994) is more nuanced and complex, but his inferentialist semantics adapts a recognizably Hegelian theme in arguing that conceptual determinacy must be traced to the inferential role played by concepts in an essentially social and pragmatic context of demanding and providing reasons. What is common to these approaches is the conviction that semantic or conceptual content is fixed holistically and (particularly in Brandom's account) in the context of unfolding social interactions. Although these accounts are quite distant from Hegel's ambitions for logic, they retain an essentially Hegelian logical moment in finding an essential appeal to a collective, diachronic social background in the fixing of even the most elementary concepts.

Hegel's influence on twentieth century continental European philosophy has been pervasive, and has taken many different forms. The work of Wilhelm Dilthey was seminal in this connection, in part because of his work in recovering Hegel's early theological writings and writing his biography, but mainly because Dilthey's own influential approach to the philosophy of the human sciences owed much to Hegel in arguing for the centrality of narrative, biography, and history in what Dilthey himself called the *Geisteswissenschaften* (literally, the sciences of Geist—the human sciences such as psychology, anthropology, jurisprudence, and so on).

In the twentieth century, the early works of Herbert Marcuse (1932 and 1960) sought to adapt Hegelian ideas to a new historical and cultural circumstance, combining a broadly Hegelian conception of history with elements of Martin Heidegger's existentialism. The Hegelian-Marxist conception of history as driven by dialectical tension found new voice in the writings of Max Horkheimer, Theodor Adorno, and other members of the Frankfurt School, albeit in this case without the Marxist and Hegelian optimism regarding the final resolution of such contradictions. And a broad array of thinkers followed a Hegelian lead in locating objectivity in configurations of intersubjective consensus. Rather than contrasting objective truth and subjective illusion, as had been common in the tradition stretching from Galileo to Immanuel Kant, these thinkers (including figures as diverse as Edmund Husserl and Jürgen Habermas) sought to reinterpret the notion of objective truth in terms of an ideal of a normative intersubjective consensus. Although the hints of this theory of objectivity can be traced back to Kant's aesthetics, it is perhaps the most pervasive legacy of Hegel's attempt to think through "the I that is we and the we that is I." Among contemporary European thinkers, Axel Honneth (1992) presents perhaps the clearest case of this Hegelian legacy in political theory.

Finally, Hegel's legacy can be found at work—diffuse but unmistakable—in the standing that the history of philosophy has acquired in the past two centuries. More than any other prominent philosopher since Aristotle, Hegel's philosophical practice was directly related to his appropriation of the history of his discipline. But where Aristotle's writings systematically surveyed the opinions of his predecessors, Hegel claimed to find in philosophy's history both a systematic order and the elements for his own philosophical synthesis. It is now a commonplace—albeit a commonplace that is sometimes challenged—to see the history of philosophy as directly relevant to philosophical inquiry generally. The emergence of this view, as of the conviction that philosophy is essentially unlike the natural sciences in this regard, can be traced to Hegel, who can without exaggeration be credited with inventing the very discipline of the history of philosophy. For Hegel, the history of philosophy is not merely the history of ideas; it is an attempt to reread and rethink the history of attempts to tackle philosophical questions. Its aim is ultimately not historical but philosophical: to uncover a rational order that will itself illuminate those questions themselves.

See also Hegel, Georg Wilhelm Friedrich.

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Wayne M. Martin (2005)

HEIDEGGER, MARTIN
(1889–1976)

Martin Heidegger (1889–1976) was born in Messkirch, a small town in the hills of southwestern Germany. The environment of his modest, middle class upbringing was that of a Catholic agrarian village where his father was the sexton of the local church. When Heidegger was fourteen he entered the Catholic seminary at Constance and began an education that appeared to be directed toward a vocation in the priesthood. He entered a novitiate with the Jesuits in 1909 but left that track after a short time and shifted out of clerical training altogether in 1911. He intensified his studies in philosophy, literature, and sci-

ence, and for a time concentrated on mathematics. During this period (through 1915) he developed a conservative approach to neo-scholastic thought and published articles in conservative Catholic journals. He also read intensely the emerging phenomenological literature and neo-Kantian philosophy.

Heidegger's doctoral dissertation in 1913 had the title, "The Doctrine of Judgment in Psychologism: A Critical-Positive Contribution to Logic." He completed his habilitation dissertation in 1915, "Duns Scotus's Doctrine of Categories and Meaning."

With the emergence of a strong interest in historical development and in Edmund Husserl's thought, a significant counterforce to his Christian, transcendentally oriented convictions began to form. On the one hand he understood the basic structures of truth and meaning to have changeless validity. On the other, he saw that an act of mind requires time for syntheses and connections and that philosophical thought bears describable histories within it. Although academics identified him as a rising Catholic thinker, he was increasingly influenced by G. F. W. Hegel's historical, dialectical thought as well as by the "life-philosophy" of Friedrich Nietzsche, Wilhelm Dilthey, Henri Bergson, and Max Scheler. Søren Kierkegaard's and Martin Luther's writings also had a strong effect on his thought. The transcendental orientations of Thomistic, Husserlian, and neo-Kantian philosophy were increasingly challenged in Heidegger's thought as he devoured the art and philosophy—both religious and nonreligious—that influenced his moods and feelings as well as his thinking at least as powerfully as rational argument influenced them.

Heidegger's attention turned increasingly to issues of time, history, suffering, and unresolvable ambiguity. The regions of pure logic and transcendentally oriented morality and epistemology began to appear to him as desertlike and abstract. Metaphysical thought, if it is to count as important, must give clarity to and insight into lives and histories. Issues connecting phenomenology with time, history, and life formed a new horizon for the young philosopher. Whereas in his 1913 dissertation atemporal logic and its categories provided the way to understanding being, by 1915 the *question* of being, not being's static availability for conceptual grasp, began to take shape. Hegel and especially Husserl began to emerge as major transitional figures as Heidegger moved away from Thomism and neo-Kantian philosophy and toward a phenomenological approach that valorized description over speculation and practical life over categorical analysis.

When he married Elfride Petri in 1917 his departure from Catholicism, which became explicit in 1919, was well underway. Heidegger was in the process of a turn the momentum of which helped to define both his creativity and the movement of his thinking.

In 1918 he became, as a Privatdozent, an assistant to Husserl in Freiburg. The University of Marburg appointed him associate professor in 1923, and in 1928 he succeeded Husserl as Professor at Freiburg.

EARLY THOUGHT

Two of Heidegger's early insights are that thought takes place only within the particularities of cultural and communal lives and that particular lives are saturated with histories. This emphasis on temporal, historical particularity means that he began to place a primary importance on the situatedness of thought in the history of philosophy. This emphasis is particularly noteworthy because the historical emphasis added a dimension to phenomenological thought that was not clearly pronounced in Husserl's work and because it showed the particularity of Heidegger's own way: his early and deep engagement with ancient and medieval texts and the personal import of his traditional, historically oriented education. Even though he turned away from metaphysical theology, he did not turn away from the central importance for thought of the metaphysical tradition. It provided the site for philosophical transformation and departure.

Heidegger's recognition of the importance of temporal particularity for thought set in motion a conflict of values that would help to shape his thought for over a decade. He launched a task of learning to think with the traditions that formed his particularity in such a way that he could turn through their senses of timelessness by the temporal movement of his own thought: The temporal dimension of his thought began to define the meaning of claims to timelessness. To carry out such a project he needed to work through metaphysical thought, finding in it what overturns its predisposition toward unchanging truths, formal logic, and the priority of the knowing subject. "Temporal-historical occurrence" names the overturning element. "Phenomenology" names the approach by which Heidegger formulated the transforming power of time in European sensibility. Together, temporal-historical occurrence and phenomenology provided Heidegger with the elements that allowed him to reconsider the specificity and temporal palpability of life that he finds misconceived in his philosophical lineage and that takes the shape of the question of being.

This kind of turning also applies to his religious background. His movement from pretheology student to theology student, to religiousness without church or theology, to phenomenology, to a thinker of the question of being and of truth in the Greek sense of *aletheia*: this movement engaged a metamorphic turning through theology and religion. Within a few years of his appointment to Freiburg as a *Privatdozent* he would attempt to rethink such Christian words as "fall," "guilt," "word," "conversion," and "conscience," turning them out of contexts of faith and theological meaning to a contextual meaning without religious significance. Heidegger emphasized as his work progressed that such turning composes the way thought unfolds: A turning movement through and beyond a body of thoughts manifests the very life of thought. Without such turning thinking comes to its end. Further, a person cannot engage Heidegger's thought without encountering its metamorphic movement. In such movement claims about universal and timeless realities undergo for him a transformation specific to a particular engagement, and such engagement is defined by the singularity of its metamorphosis. Thought in its temporal-historical happening takes place as a living, particular, and self-transforming event. This orientation would mean that Heidegger was ill-disposed toward philosophical schools. When he was one of the leading philosophers in Europe, he did not encourage the formation of a Heideggerian school of thought. He believed that thinkers must find their own ways in their own settings and in their own life-worlds. Such thinking takes place in dialogue with the values, ideas, and beliefs that people find in other ways of thinking and living.

Heidegger experienced the beginning of transformative insights that distanced him from Thomistic and neo-Kantian thought in the late teens and early twenties, but he did not have an adequate way of bringing the insights to full thought. A "hermeneutics of facticity" names an early and landmark term for Heidegger. "Facticity" in this context refers to the irreducibility of things in their living events, and "hermeneutics" means interpretive explication. People recognize and interpret given things before they develop theoretical concepts about them. Interpretations arise as people live practically with things, encounter them in different contexts, use them, and feel their impacts. Prior to the distance invoked by theoretical reflection, people are enmeshed in their environments, and people's environments are filled with things that appear in their living, usually practical specificity. The ways in which things appear in those nontheoretical situations compose pretheoretical interpretations, and things in their appearing and facticity are nothing other than

their own events. How might philosophers think in and from a living situation that is filled with everyday and unconsidered interpretations and bring both those interpretations and themselves to conceptual elaborations that hold in mind the concreteness of things? What kind of language would be required? How would such thought transpire?

ARISTOTLE AND BEYOND

Heidegger came to the idea of a hermeneutics of facticity, that is, interpretations based on practical life, through his work on Aristotle and Husserl. His sympathy with Luther's attacks on scholasticism was consistent with his rejection of the scholastic interpretations of Aristotle that he learned as a student. Heidegger wanted to understand by intense reconsideration of many of his texts Aristotle's thought prior to Christian appropriations of it, the Aristotle whose concepts arose from his own Greek world. A radical departure from the Christianized Aristotle was required, Heidegger thought, in order to engage Aristotle's work in its vastly different manner of living when compared to that of later thinkers.

Heidegger's groundbreaking and influential interpretations of Aristotle provided him with a forceful return to European philosophy's Greek heritage. It also provided the occasion to rethink that heritage by means of an approach and vocabulary that he learned from Husserl. As he took away the Christian superstructure that encased the Aristotle he first studied, Heidegger reformulated Aristotle's thought with the eyes of a phenomenologist, eyes, he said, that he received from Husserl: he began to turn Aristotle's seemingly metaphysical thinking out of itself and into a way of thinking that moved decisively away from metaphysical formulation. In order to engage Aristotle well, Heidegger must preserve the vast difference between his own and Aristotle's spiritual environments. He would not overcome the difference; he would preserve it as he took his careful departure from Aristotle's way of thought by intense encounters with his texts.

Heidegger was arrested by, among other things, Aristotle's account of practical wisdom (*phronesis*). It described a kind of situational knowing that did not propose completion by reference to unchanging objects; it was intrinsically open to future development, and it functioned to open up future developments. Husserl's account of internal time consciousness also had, for Heidegger, the virtue of making impossible a *complete*, objective grasp of any thing. Heidegger found, however, in both Aristotle and Husserl an unquestioned prioritization of

present time. This prioritization meant that neither saw clearly that futurity—coming to pass and yet to be—defined a nonobjectifiable dimension of presence or that presence is strangely modified—put in question—by its opening to futurity. This openness means that futurity defines presence, not as a categorical abstraction but as a constitutive indefiniteness and indeterminability in the lives of whatever happens. Time and its concept appeared to be the issues over which both Aristotle and Husserl stumbled—time and, for Husserl, the question of subjectivity.

THE PHENOMENOLOGICAL APPROACH

The sense of phenomenology, as Heidegger began to think of it during his years in Marburg, comes from the ancient Greek deponent, *phainesthai*, a middle voice form that means, "to show itself." A phenomenon is an event that shows itself. *Phainesthai* is formed from *phaino*, and that word means to bring something to light. The stem of the word is *pha—phos*, the light or shining whereby something is manifest. To give an account (*logos*) of phenomena meant for Heidegger to describe beings in their self-showing, to so speak and think that one is brought to things in their self-showing, and to give an account of the shining (the "light") that allows their manifestness. Self-showing composes the lives of individual beings.

Heidegger makes a sharp distinction between the specificity of a self-showing being and the enactment of that self-showing. Philosophers can give accounts of the ways beings show themselves, but they can also give accounts of the way the enactment of self-showing happens. This latter account addresses the being of beings and must not be confused with description of a highest being: being is not a being. This ontological difference between being (the occurrence of self-showing) and beings (a specific instance of self-showing) is basic in Heidegger's thought and persists in several forms throughout his career. It is a difference that characterizes the happening of phenomena: a phenomenon is a specific self-showing thing, and its being happens as the enactment of self-showing. Heidegger calls "ontic" the way a thing shows itself in its particularity. He calls "ontological" the happening of disclosiveness that is common for all phenomena.

The self-disclosive happening of phenomena, not a subjective state or action, thus becomes Heidegger's primary area for descriptive thought. Husserl too gave priority to the manifestness of phenomena and to ways things are manifest, and for him an intention may be

described as the direction of an appearing (manifest) event. "Direction" for Husserl suggested an unfulfilled, open-ended process of appearing that constitutes an event of transcendental subjectivity. It is located in transcendental, subjective acts of consciousness. Heidegger's way of engaging facticity, history, and time, however, turned him away from consciousness and toward the world. The unfulfilled directions of beings are not found in a proposed and lively structure of transcendental subjectivity but in the self-disclosive happening of beings-in-the-world. His thought turned through a characteristic modern priority given to subjective enactment and toward worldly structures that do not originate in human consciousness. He moved away from an epistemological orientation in his accounts of meaning, signification, and thought, and from a consequent emphasis on the subjects and objects of knowledge. He moved toward a way of thinking that is oriented by the disclosive, nonsubjective, and nonobjective enactments of things in the world. His aim was to show how those enactments do not begin with conceptual grasp or subjective appropriation, how the enactments are definitively historical and temporal, and how they happen self-disclosively in the world.

BEING AND TIME (1927)

Being and Time, one of the most influential books in the twentieth century, marks the culmination of Heidegger's years in Marburg. He had worked during this time especially on the history of the concept of time and brought together and honed ideas and preoccupations that began to form definitively as early as 1915. In lectures he elaborated his understanding of phenomenology and his departure from Husserl, as well as provided the conceptual scaffolding for *Being and Time* and many of its key terms. The availability in his Collected Works (*Gesamtausgabe*) of many of the lectures that he gave from 1923 through 1927 now allows scholars to follow the formations of *Being and Time*'s leading ideas and questions, a formation that this short discussion cannot pursue.

Being and Time appeared as a work in progress in the sense that its publication was hurried due to Heidegger's candidacy for Husserl's chair in Freiburg. It was projected as part of a much larger, multivolume series that Heidegger did not complete. The book made a huge cultural impact nonetheless, often due to interpretations of it that Heidegger found mistaken and at times offensive. Especially off the mark were those readings that turned *Being and Time* into a study in philosophical anthropology, existential humanism, or Husserlean phenomenology. The book's reception, in addition to Heidegger's own dis-

satisfactions with it, provided an occasion for Heidegger to see that he would have to turn through *Being and Time*'s concepts toward a different way of thinking if he were to carry out the book's mandate. He later understood *Being and Time* as an occasion in which he intensified a radical turn through his metaphysical inheritance toward a way of thinking that is based on that turn.

The book's mandate is found in reawakening the question of the meaning of being. Heidegger was persuaded that that question gave rise to European philosophical thought, although most traditions in European philosophy have obscured it. This question emerged for Heidegger when he was eighteen years old and read Franz Brentano's *On the Manifold Meaning of Being According to Aristotle*. Although Brentano's intentions were in part theological, Heidegger found through Brentano his entry into Husserl's *Logical Investigations*. This entry was in the context of the question of the meaning of being; and that question as well as a phenomenological way of thinking intensified for him and emerged together at the center of *Being and Time*.

Heidegger locates the question of being in the occurrence of *Dasein*. This word, *Dasein*, which has become a standard term in English among those who work within Heidegger's influence, names the located and disclosive occurrence of being in the world. It is not synonymous with "human being" but names the disclosive site of human lives. Dasein's way of occurring is the way things happen in their manifest availability for reference, recognition, and use. Dasein thus happens as the worldly region of disclosiveness. *Being and Time* provides a descriptive account of Dasein and shows that the being of worldly things is formed in their phenomenal quality, in their self-showing, not in any kind of creative or underlying substance. He further shows that the life, the being, of self-showing happens as temporal enactment and that its continuation is continuously in question: Dasein's being is able not to be. The question of the meaning of being thus arises in the prereflective occurrence of Dasein's mortality, not in a theoretical action by reflective subjects.

In his approach to this question Heidegger begins with what he calls the average, everyday understanding of being, that is, of the way beings happen in their practical lives. Usually we relate with things in terms of their usefulness and their standard identities in our environments. We have an operative, inchoate sense of what "to exist" means as we live with things. When we investigate something to know it better, we usually considers it as an object and work to make our statements and definitions appropriate to what we can find out about it. That means that

we usually do not question the meaning of nonobjective living occurrences and that we expect to discover something about the existence of things by treating them primarily as objects of use or knowledge. Their meaning and truth are found in our knowledge of them or in the appropriateness of the uses we find for them. A being is usually understood by reference to definitions of its objective presence; and if that presence is to be grounded in some way, philosophers usually look for a defining and continuously present reality that persists through the lives of changing and passing things. Such persistent and grounding presence might be found, for example, in such beings as God, Nature, Reason, or Transcendental Subjectivity. Transcendent beings such as these seem to provide a foundational meaning for finite things, and they embody the priority of presence for understanding the meaning of temporal passage: they are always present regardless of the changes and passage that beings undergo. The question of the meaning of being appears thus to be resolved by a presence that does not come to pass and that gives abiding meaning to passing beings.

Heidegger's account of Dasein, on the other hand, shows that temporality without a priority of presence defines the way beings are. In Part One of *Being and Time* he shows, first, that Dasein is intrinsically a caring occurrence. It is a way of being whose continuation is always in question, and consequently Dasein reverts to itself in the sense that it is always concerned with the preservation and continuation of beings and of itself. Being in the world is a passing occurrence, always situated in given histories and settings, always coping with uncertainties and transitions, always moving in the indetermination of the upcoming. The meaning of Dasein's being is care, Heidegger says—care, the inevitability of concern for whatever matters. Neither life nor world appears as guaranteed. Neither shows itself as supported by continuous presence. The disclosive happening of being in the world, in its *happening*, is always passing away. The meaning of care is thus found as the inevitability of losing presence, the inevitability of coming to pass, and the associated inevitability of taking care of whatever matters.

In the process of describing Dasein's temporality, Heidegger gives accounts in Part One of *Being and Time* of worldliness, relevance, spatiality, everyday superficiality, identity, worldly commonality, attunement, interpretation, and language. These accounts culminate with a section entitled, "Care as The Being of Dasein," and another, "Da-sein, Disclosedness, and Truth." In this part of the book he shows that our historical, situated, future-oriented being—our very life— is not at all like objective

presence. Dasein happens as yet to be, as possibility to be. Individuals live in such possibility as in a "not yet" that is a dimension of any present moment. The completion that is sometimes attributed to definitive objects or identities is not a quality of living, worldly events. This constitutive, temporal incompletion describes at once Dasein's ontological disclosiveness and ontic worldly events in their specificity and concreteness.

Part Two of *Being and Time* intensifies the study of temporality around the axis of the question of the meaning of being. Whereas Part One began with accounts of the ways Dasein exists in an everyday way, Part Two shows that Dasein's existence is constituted fundamentally by a unifying structure of mortal temporality. The question of the meaning of being and of Dasein is founded in this structure. The guiding questions for this part address, on the one hand, the temporal, ontological unity of Dasein. On the other, they raise the possibility of living in fundamental and positive attunement with Dasein's ontological structure and of bringing together appropriately that structure and the specific way a person exists. He calls such living accord "authenticity." The possibility of authenticity is one of living in ways that affirm the unifying structure of mortal temporality. When such affirmation is achieved, people find a unity in their lives that is defined by finiteness, that is, by incompletion, indetermination, and being toward death.

In Part Two, Heidegger addresses such phenomena as the present occurrence of futurity, the draw of being for people and hindrances to alertness to that draw, ontological guilt, the ability for authenticity that is intrinsic to Dasein, and historicity. In that process he turns such words as "conscience," "call," and "guilt" out of their theological and religious heritage to an ontological and nontheological context. This part reconsiders the major phenomena addressed in Part One by what Heidegger calls a "primordial existential interpretation," that is, an interpretation that describes an ontological structure that is definitive for the occurrence of those phenomena. It develops the descriptive claim that temporality grounds care and is thus the meaning of care. The reader confronts again the thought that ontological grounding lacks substantial identity, presence, or necessity. The study ends with recognition of its own incompleteness.

THE ESSENCE OF TRUTH, TURNING OUT OF *BEING AND TIME*

The incompleteness of *Being and Time* was not due solely to the pressing circumstances under which it was submitted for publication. It was due also to Heidegger's con-

frontation with the inability of the book's language to say what needed to be said and with the limited range of his thought before the phenomena he addressed. Heidegger confronted the force of the metaphysical tradition in the way he used such words and phrases as "horizon," "structure," "the ontological condition for the possibility of something," "being," and even "Dasein." The book's manner of self-regulation and structure, its seemingly explanatory purpose, its conception of origin and history, and its inadequately conceived account of truth: these elements dissatisfied the author. He could see how the text could lead people to misunderstand his thought and its intentions. He also experienced the force of the movement of thought that had begun to uproot his metaphysical moorings. It was a force that he found turning him out of his own book toward a new beginning and in directions far more radical than he had foreseen.

The essay that most strikingly embodies the turning of his thought in the years shortly after the publication of *Being and Time* is *On the Essence of Truth,* which he wrote in 1933 and to which he returned over a period of nine years before publishing it. After *Being and Time* and prior to this essay he had lectured and written especially on Kant, Hegel, Schelling, and on basic concepts and problems in metaphysical thought. He turned down a professorship in Berlin, and enjoyed wide and growing recognition as a creative, leading philosopher.

In spite of his dissatisfactions with *Being and Time*, Heidegger had opened up the question of the meaning of being—or that question began to open up to him. It could be stated in several ways. Classically: Why are there beings instead of nothing at all? In terms of appearing: How is it that things appear, are present and manifest, and show themselves rather than not appearing at all? In terms of finitude: How does being happen in the passing presence of things? In general, the question of the meaning of being is at once a question of fundamental uncertainty in life, presence and passage, and of disclosure and closure in the occurrence of phenomena. Temporality is found in Dasein's having been now yet to be, a "structure" that seems to defy the meaning of "structure." At every turn as we consider this question we encounter the happening of manifest beings, and this—the happening of manifest beings—for Heidegger is essentially a question of truth. The question of being (of manifest happening or eventuation) is at once the question of truth. How is it that the temporality and disclosure of being inevitably raise the question of truth for him?

Long before Brentano pointed out the connection in Aristotle's thought of "true" and "being," and long before

Aristotle himself, the word *aletheia*, usually translated as "truth," played a major role in ancient Greek civilization. The word, which Heidegger understands as combining the alpha privative with *lethe* (oblivion), names an occurrence when something is manifest, self-showing, and apparent. A being is exposed in its disclosiveness, is quite explicitly there where it happens. Its truth happens as its self-disclosure, as its own manifest presence. We have seen that for Heidegger the disclosiveness of something is not identical with what something shows itself to be, that there is a basic difference between *what* something is and disclosiveness as such. The disclosiveness (roughly, dis- = the alpha privative, and -closive = *lethe*) lets something be as it shows itself. Disclosiveness is, Heidegger says, an open region that, while apparent with manifest beings, is not limited to the specificity of what a being is, not limited to *a* being's time, place, and identity. "Truth" in this context means the free openness of disclosure, and a truth is found in the self-disclosure of a being. To know something in its truth is to engage it in a way appropriate to its "essence," to its own disclosive eventuation.

The factor of oblivion or complete lack of apparentness, however, elaborates what Heidegger considered in *Being and Time* as the mortality of phenomena: beings appear with nothing transcendent and specific to ground them or guarantee their lives; they are "grounded" in their disclosive eventuations. Their dis-closure carries oblivion with it as a strange and pervasive mortal factor, one that makes impossible a complete grasp of any phenomenon. It is as though oblivion protects a being from complete exposure, gives something other to its truth, removes it from availability. *Lethe* suggests concealment, withdrawal of being (i.e., of disclosiveness), and untruth (a complete absence of disclosure).

Heidegger's account of essence in *On the Essence of Truth* no longer struggles with what appear to be quasitranscendental structures of existence as he locates essence clearly in both the eventuation of disclosure and the history of the thought of truth. The untruth, the "non-essence," of concealment—the oblivion of being— suggests the inadequacy of "finitude" as a descriptive term for Dasein's temporality. It suggests a new departure in which existential uncertainty is compounded by impenetrable closure to the manifestness and "light," of life. This departure includes a strong sense of mystery, not the mystery of Pure Light or of a hidden fullness of being, but mystery in the sense of unsayable oblivion in the midst of disclosive openness. As his thought turns to them, both oblivion and truth appear to happen for Heidegger when he attempts to speak with alertness to them. Is it possible,

he wonders, that the turning he is undergoing describes a movement of disclosure and oblivion that is definitive as well as obscure in the history of western thought? Is his transforming movement toward early senses of *aletheia* following a path to the early beginning of metaphysical thought, one that makes apparent an oblivious departure of western thought from the questionableness and uncertainty of truth?

POLITICAL CATASTROPHE

At the time that this turning gave him new directions and possibilities for thinking, Heidegger became embroiled in a politics that belied the most promising of those possibilities. Ever a German nationalist, long persuaded of the unjust consequences of the Treaty of Verdun, convinced that Germany must resist communism at all costs, and disappointed in the inefficiency of democratic procedures, he embraced Hitler's National Socialism as Germany's best political hope. By 1933 Heidegger saw this party as a force toward revival of German culture and restoration of Germany's leadership in the transforming of European, materialistic civilization.

In April of that year the faculty at the University of Freiburg elected him rector, and in that role he supported Nazi ideology for German resurgence and helped to form university policy according to party interests. Nazi authorities, however, criticized him strongly for his failure to support anti-Semitic rhetoric and policy. Heidegger was not a gifted administrator. Sharp political and educational controversies intensified, and he resigned his post ten months after assuming office. His dream that Hitler, as a man of destiny, would transcend the foolish people around him and become a heroic, spiritual leader allowed Heidegger to support Hitler long after he became disillusioned with the National Socialist party. He began to undercut party interpretations of Nietzsche, and by the mid-1930s his classes were audited by suspicious party appointees. The party also restricted his freedom of movement and publications, and he was punished by means of hard physical labor when the authorities drafted him into the People's Militia. Heidegger never used his international stature as a base to criticize National Socialism, and although he privately admitted his errors after the war, he never publicly addressed German atrocities. After the war the French occupational authorities prevented Heidegger from teaching in the university until 1951.

There is considerable controversy around the question of whether Heidegger's philosophy led to his political hope, error, and naivete. Some people see a profound and causal linkage, while others see more distance and inconsistency between his thought and his politics of the 1930s. That decade, regardless of the way one assesses the controversy, constitutes a dreary segment in Heidegger's life. Responses to it have on occasion been ones of continuing outrage, whereas others find Heidegger's thought worthy of sustained and positive engagement. Perhaps the dangers of forgetting and those of a righteous condemnation should be foremost on our minds when we consider the importance of Heidegger's misjudgments.

SEARCHING FOR ANOTHER WAY TO THINK

During the 1930s Heidegger searched for language, conceptual movements, and rhythms of thought that could engage appropriately the disclosive happening of things. The systematic rationality of "onto-theology," that is, of traditional philosophy, seemed to constitute anxious attempts to overcome the questions of truth and of the meaning of being which gave European philosophy its inception. Approaches called materialistic, idealistic, empirical, and analytical seemed dedicated to forgetting those questions. Post-Cartesian thought gave forms of subjectivity and objectivity ontological priority, whether or not subjectivity was considered ahistorical or historical. In which writing and conceptuality might Heidegger find a degree of positive alertness to the questions that he found as the moving forces in European philosophy? This was a time of considerable isolation for Heidegger as he looked for alternative ways of thinking. He experienced disappointment in his own work, discouragement in its reception, political failure, and an uncertain future for himself and the kind of disciplined education that he thought necessary for the survival of western civilization. That would be an education in the classical origins of Europe and its many traditions, and it would be an education that recognized what he came to see as the devastation of instrumentally oriented culture and the desolation of contemporary spiritual accomplishment.

Heidegger had read widely in literature and especially in poetry since he was in his teens. The poetry of J. W. Goethe, Friedrich Hölderlin, Rainer Maria Rilke, Stephan Georg, and Georg Trakl, among others, helped to form his mind, and he turned to poetry, especially to Hölderlin's, with renewed intensity in the 1930s. He wanted to find ways to formulate and express what he sensed but could not say to his own satisfaction. He also read the ancient Greek tragedians with an emphasis on the two great questions that preoccupied him. He gave courses and lectures on Nietzsche's thought and found in

it a welcomed emphasis on the connections of art and thinking. In Nietzsche's thought he found as well a culminating and destructive fulfillment of that nihilism prepared by European metaphysics. It is a nihilism given partial expression by Hegel and carried out after Nietzsche by a technological society that is oriented around subjects and objects of use and knowledge.

His attention turned increasingly to thought and language as disclosive events. Truth, *aletheia*, names, as we have seen, the enactment of self-showing; the truth of thought and language is found as thought and language, in their occurrences, give place and occasion to self-showing phenomena. The life of thought and language is found in the ways they engage the manifest lives of things. Is the engagement defined by organizational structures? By the power of will? By categories of knowledge? By means of production? By patterns of trade? People's lives are normally carried out with such structures and activities. In addition to our normal ways of acting, however, we might also give attention to the self-showing dimension of anything that is present with us. We might learn to connect with things with a sense that their very happening addresses us, that our "hearing" is found in the ways we live with them. If our living provides ways to allow events prominence in their disclosive dimension, our thinking and speaking might well grant to them a dwelling place, not for their utility only, but also for their self-showing, for the essence of *their* lives. Although that manner of living is not forecast in language and thought dominated by the importance of subjectivity and objectivity, it does appear significantly in the work of some of the artists and poets Heidegger read. He explored and experimented for many years with possibilities for language and thought that are influenced by poetic rather than traditionally philosophical kinds of awareness. He intended to find areas of encounter between poetic and philosophical language, to enrich each in their engagements, and at best to occasion the emergence of a kind of mentation that finds its truth in allowing the truth—the self-disclosure—of whatever happens in its environment.

CONTRIBUTIONS TO PHILOSOPHY

Heidegger's sense of failure in the language of *Being and Time* to say what needed to be said of the questions of the meaning of being and truth figured a large part of the turning in his thought during the 1930s and 1940s. His *Contributions to Philosophy (From Enowning)* is a major work that emerged in that turning between 1936 and 1938. He wrote it in the impetus provided by his work on art and especially on poets, his rethinking of the incep-

tion and decline of European metaphysics, and his search for a new beginning for thinking. In its fuguelike formation, this series of meditations composes an effort to find ways to speak of what seems always to remain unsaid yet present in European philosophy. It is an effort to think in the obscure questions of being and truth, to speak in their modern wake, rather than to re-present them. Heidegger invites the reader to engage in strange and often wrenching movements of language as he attempts to let the questions emerge and turn thought and language from the tracks that move them inevitably away from what most threatens and yet impels the remarkable occurrence of European thinking. If he succeeds he reconceives *Being and Time* in a radical return to *Being and Time*'s issues and makes that return by the force of turning away from the book's structure and articulation. The lives and forces of the questions of truth and the meaning of being, not their resolution, guide this book's movements. It is a work that attempts to think the inconclusiveness of its major issues. Its success would be found in the emergence of a way of thinking that makes apparent what incited western thought and what western thought in its formation nonetheless virtually lost.

BEYOND HUMANISM

In 1946, Heidegger responded to questions raised by the French philosopher Jean Beaufret. Published in 1948 as "Letter on Humanism," Heidegger made explicit in his response not only his distance from "Existentialism," but also his reservations about "Humanism" as it is conceived in post-Enlightenment Europe and North America. Issues of human life and community are not best located in conceptions and images of human subjectivity. He developed his descriptive claim that humanistic values are often the source of destructive depreciations of human life. The essay comprises a sustained reflection on what is destructive and constructive for people and on basic assumptions regarding the essence of worldly life. It has had widespread influence on thinkers in the second half of the twentieth century who find in humanistic ideals elements that, contrary to their stated purposes, do harm to societies and individuals.

In the 1940s and 1950s, Heidegger also relentlessly pursued questions concerning the essence of technology. Technology for him constitutes a way of life that overrides the subtle and most important dimensions of the existence of things as well as of people. The word "technology" thus names the most dangerous form that European nihilism takes. Among the best known of his essays during this time are "The Question concerning Technology"

and "Building, Dwelling, Thinking." One of the most far reaching and profound of his works in this context is *The Way to Language*, in which Heidegger brings to bear in a cumulative way his preoccupations with thought, language, technology, and dwelling

"Engagement," "encounter," and "way" are important words to hold in mind as a person reads Heidegger's works. He often described thinking as made up of ways of letting things show themselves in the specificity of their contexts. Thinking composes engagements with all manner of manifest things—texts, behaviors, trees, bells, images, concepts. Manifest things are alive in their manifestness, and thinking properly allows their differences as they happen, engages them with alertness to *their* happening. At best, the engagement composes a dialogue, an encounter that no one individual produces. Thinking is what takes place in the dialogue. For Heidegger such an engagement is a social, historical, and communal event that cannot be reduced to the sum of its parts or generalized on the basis of universal meanings. Thinking is made up of engagements with living events in their happening, their eventuation. As he saw it, there are many ways, and the issue for thinking is not one of calculating the correctness of assertions but rather one of making evident or, in unfortunate instances, obscuring beings in their self-showing. Thinking, always opening to the differences of events, always coming to pass in its own life, always on the way to something else, remained at the center of Heidegger's preoccupation with the questions of being and truth until his death in 1976.

See also Existentialism; Hermeneutics; Phenomenology.

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Charles E. Scott (2005)

HEIDELBERG SCHOOL

See *Neo-Kantianism*

HEIM, KARL
(1874–1958)

Karl Heim, the German theologian, was born at Frauenzimmern in Württemberg. He studied at Tübingen and was professor of theology at Münster (1914) and at Tübingen from 1920 until his death.

Heim's work has philosophical interest insofar as he was concerned all of his life with the problem of restating

Christianity in a form that would be credible in the scientific age. His early work explored the epistemology of religious faith, and his developed account draws on the I–thou philosophy of Martin Buber and also on some of the concepts of modern science. Heim's fundamental point was that the experiencing subject cannot itself become an object and so cannot be brought under the objectifying categories of scientific thought. Thus we have a way of breaking out of, or transcending, the objective world of science, for there is open to us also a nonobjectifiable, interpersonal world. Heim spoke of this as a further dimension of experience, analogous to a dimension of space. This suggests a new way in which we may try to think about the transcendent God; and belief in such a God seemed to Heim the most important point calling for defense and restatement in the Christian tradition. Modern cosmology has made it senseless to talk of such a God as "up there" or "out there" or "beyond." But this God is not an object in the world any more than the experiencing subject is, and God too must be sought in the nonobjectifiable dimensions of experience, not in the realm of I–it. Just as the situation is revolutionized if we add a third dimension to a two-dimensional manifold, and what was hitherto impossible in two dimensions may be possible in three, so Heim believed that the conflicting attitudes of religion and science may be reconciled by admitting the multidimensional character of experience. We are familiar today with the notion of geometries of more than three dimensions, and we can think of an interpersonal space as having a different order and structure from physical space. Both kinds of space are embraced in an archetypal space, which is also a suprapolar space because it resolves the polarities of both the interpersonal and the physical spaces. This suprapolar space is the abode of God; it cannot be proved, but it is disclosed in the experiences of faith that may be likened to opening up new dimensions of a fuller life. Heim also taught a doctrine of panpsychism, which suggested that the further dimensions opened up in man's encounter with other persons and with God are at least potentially present at all levels of being.

See also Buber, Martin; Panpsychism; Religion and the Biological Sciences; Religion and the Physical Sciences; Space.

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HEISENBERG, WERNER
(1901–1976)

The German physicist Werner Heisenberg was born in Würzburg; he studied physics in Munich under Arnold Sommerfeld and received his doctorate from Munich in 1923. Heisenberg became a lecturer and assistant to Max Born at Göttingen in 1924. He continued his studies at the University of Copenhagen, where he collaborated with H. A. Kramers. He succeeded Kramers in 1926 as lecturer in physics there. Heisenberg was professor of physics at Leipzig from 1927 to 1941 and professor at Berlin and director of the Kaiser Wilhelm Institute for Physics from 1941 to 1945. He was named honorary professor and director of the Max Planck Institute for Physics at Göttingen in 1946 and served as honorary professor and administrative director of the Max Planck Institute for Physics and Astrophysics in Munich from 1958 to 1970. He was awarded the Nobel Prize for physics in 1932.

Heisenberg's contributions to physics are contained in more than 120 papers covering a great variety of topics. We shall here deal with two topics only, with the invention of matrix mechanics and with Heisenberg's more recent theory of elementary particles.

MATRIX MECHANICS

The older quantum theory of Niels Bohr and Sommerfeld had tried to combine classical physics with the new quantum laws and to use the predictive power of both. The resulting theory was a mixture of classical notions—some useful, others apparently redundant—of new ideas and of ad hoc adaptations. Thus, for example, transition probabilities and selection rules were calculated, or guessed at, by examining the Fourier coefficients of the motions

$$\Phi_i(t) = \sum_{n=-\infty}^{+\infty} X_i(n, \omega_i) \exp(in\omega_i t)$$

of the independently vibrating parts of the atom, while the motion Φ_i itself had to be denied any physical significance. In addition, the theory had failed in important respects. It clearly was but an intermediate step on the way to a satisfactory mechanics of the atom. The final theory is essentially due to the efforts and the very different philosophies of two men, Heisenberg and Erwin Schrödinger.

According to Heisenberg we must abandon all attempts to give a detailed description of the unobservable internal motions of the atom. Such motions are but the result of the continued use of classical ideas in a domain that is inaccessible to direct experimental examination. Considering that these ideas may be in need of revision it would seem to be wise to construct a theory that is expressed solely in terms of such "outer" magnitudes as frequencies and intensities of spectral lines. Speaking formally this means that we want to predict by using the X_i directly and without appeal to the Φ_i. Now Bohr's investigations had already gone a long way toward determining the required properties of the X. His idea of a rational generalization corresponds exactly to what Heisenberg had in mind. Heisenberg himself provided additional rules of calculation that were sufficient for solving some simple problems, such as the problem of the harmonic oscillator. It was not known to him at the time that the rules were those of an algebra of noncommuting matrices; this was soon recognized by Born, who, together with Pascual Jordan and Heisenberg, completed the formalism a few months after Heisenberg's first paper had appeared.

A new atomic mechanics was at last in sight. Its meaning, however, was far from clear. Macroscopic objects whose positions and momenta could be ascertained with a higher degree of precision were represented by infinite arrays of complex numbers, none of them cor-

responding in a simple way to visible properties. "Can you imagine," objected H. A. Lorentz at this stage, "me to be nothing but a matrix?" It was again Heisenberg who, after the theory had been completed in a somewhat unexpected fashion by Schrödinger, made an essential contribution here by showing, in his uncertainty relations, to what extent classical notions could still be used in the interpretation of microphysical theories.

Heisenberg was to use the principle to rebuild a theory by working "from the outside in" once more in 1943, in order to eliminate certain difficulties in the quantum theory of fields. Believing these difficulties to be due to the disappearance of the ordinary space-time relations below 10^{-13} centimeters, he tried to replace field theory by a formalism that for any interaction transforms asymptotic anterior states into asymptotic posterior states without dealing with the details of the interaction. This so-called S-matrix theory was taken up by Geoffrey Chew and others for the calculation of the properties of strongly interacting particles. This led to what some physicists regarded as the beginning of a "third revolution" of twentieth-century physics, to the idea that particles are composites and that the properties of all of them can be obtained in a step by step procedure, starting with the interaction of any small subset ("bootstrap hypothesis"). Spatiotemporal relations are alien to this scheme, which therefore cannot develop a theory of measurement. Nor does there seem to be any possibility of extending it to other types of interaction.

ELEMENTARY PARTICLE THEORY

Heisenberg, who had been the first to stress the nonexistence of a criterion for distinguishing "elementary" particles from composites, has in the meantime developed a different theory in which elementary particles are stationary states of a single physical system, "matter." The field operators refer no longer to particles but to this basic matter (which Heisenberg sometimes compares to Anaximander's *apeiron*). The masses of the particles arise wholly from the interactions due to the nonlinearity of the basic field equation. There are no "bare particles." Other properties are supposed to follow from the symmetries of the field equation. Strange particles of spin 0 and 1/2 have been dealt with, to a certain extent, on the basis of approximation methods (this refers to 1962). There are only programs, no exact predictions, for weak interactions.

Heisenberg's philosophical speculations were always intimately connected with his physics. They were original and exciting. The same cannot be said about his more

general observations on philosophical matters. However, he should not be blamed for this disparity, as it is at any rate only in close connection with reality that philosophy can be both interesting and fruitful.

See also Quantum Mechanics.

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For the atmosphere at Göttingen in the "golden twenties," see F. Hundt, "Göttingen, Kopenhagen, Leipzig im Rückblick," in *Werner Heisenberg und die Physik unserer Zeit*, edited by Fritz Bopp (Brunswick, Germany: Vieweg, 1961), pp. 1–7, and Robert Jungk, *Brighter Than a Thousand Suns* (New York: Harcourt Brace, 1958).

Paul K. Feyerabend (1967)

HELD, VIRGINIA
(1929–)

Virginia Held, American philosopher, received her PhD in philosophy from Columbia University and is a professor of philosophy at Hunter College and the Graduate School of the City University of New York. In addition to working as a reporter, she has also taught at Barnard College, Dartmouth College, the University of California at Los Angeles, and Yale University. She is the author of numerous scholarly books and journal articles in the areas of social and political philosophy, ethics, and feminist philosophy. In particular, she has contributed to our understanding of the moral importance of birth and mothering, to debates on limits on markets, to discus-

sions on collective responsibility, and to the literature on moral methodology and metaethics.

According to Held, moral theorizing requires paying attention to actual moral experience. In *Rights and Goods*, Held argued for a view she calls "experimental morality," a version of John Rawls's method of reflective equilibrium, according to which actual moral agents ought to try out various moral approaches and see what it is like to live by them. An advocate of pluralism, she advances the view that different persons, in different roles or contexts, should develop and experiment with different approaches to morality. This link between experience and moral theory connects her work on moral theorizing in general (1984) and her work in feminist ethics (1993).

Focusing on the moral significance of experience, Held drew attention to how women's experiences have been left out or devalued by traditional moral theorizing. In particular, she has cast light on the experiences of women whose activities as mothers and caregivers have often been wrongly dismissed as mere biological reflexes. Critical of the tendency in some moral and political philosophy of depicting persons as rational, independent agents who make mutually disinterested agreements, Held encourages, instead, a conception of persons that appreciates our interdependence and the caring, rather than contractual, nature of our relationships. She rejects the notion that the impartial rule-follower is a paragon of moral virtue and recommends in its place the ideal of the empathetic caregiver, stressing that care ought to be valued for its own sake and not merely as a means of carrying out impartial rules.

Rather than construing care as a permissible nicety that comes into play only after justice and equality have been secured, Held has come to view care as one of the most basic moral values. Without care, she says, humans simply would not survive. Emphasizing the importance of care in the public realm, as well as in the private realm, is not, for Held, license for widespread paternalistic interference. Indeed, she thinks that appropriate care is often about cultivating a capacity for autonomy in the person cared for. She proposes a conception of care that can extend to distant others, predicting that a revaluation of care would inspire a more committed defense of others' rights and bolster political support for public health care and child care.

See also Ethics; Feminist Ethics; Feminist Philosophy; Feminist Social and Political Philosophy.

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HELLENISTIC THOUGHT

The Hellenistic era extends from the death of Alexander the Great in 323 BCE to the conquest of Egypt by the Romans in 30 BCE. Though defined in terms of political events, it is also host to distinctive developments in Greek intellectual life. Chief among these are the foundation and consolidation of organized *schools* as the focus of philosophical life, especially in Athens; the growing independence of various special sciences from their original philosophical context; and a geographical expansion (in the wake of Alexander's conquests and the foundation of Greek-speaking kingdoms in the eastern Mediterranean) that had significant long-term consequences. The intellectual life of Hellenistic Greece changed again as Roman political authority gradually came to dominate in the region. Throughout this period, Greek intellectuals (both philosophers and scientists) became more prominent and important in civic life, often achieving political recognition even in foreign cities; in 155 BCE three prominent philosophers, none of them from Athens, were chosen to represent the city on an embassy to Rome. Prominent intellectuals were offered patronage by the new Hellenistic kingdoms.

The first major organized school at Athens was the Academy, founded by Plato. Aristotle's associate and successor, Theophrastus, and later Strato of Lampsacus, carried on the traditions of his work in the Lyceum. Other philosophical schools in the fourth century were of minor importance, although the hedonistic school based at Cyrene in North Africa was influential. Yet within the first few decades of the Hellenistic era two major new schools, representing significant philosophical directions with lasting influence, were established. Epicurus, the founder of Epicureanism, was an Athenian and established the Garden there, but his followers spread around the Aegean basin in a network of smaller institutions that remained connected to the original school. Zeno came from the town of Citium on the island of Cyprus to establish his school in the Painted Stoa in the Athenian agora, and throughout its history it continued to attract philosophers from all over the Hellenistic Greek world, especially Asia Minor.

Epicureanism and Stoicism quickly became successful and attracted adherents for centuries to come. Epicureanism revived the atomistic physics pioneered by Leucippus and Democritus and linked it tightly with a hedonistic ethics and quietistic political philosophy. Stoicism depended on the mainstream Socratic tradition; its cosmology and physics drew primarily on Plato and Aristotle and its ethical and political theory were heavily influenced by Socratic ideas colored by the Cynic tradition stemming from Diogenes of Sinope and Crates of Thebes.

Stoicism and Epicureanism were in some ways polar opposites. The former championed god's providence while Epicurus denied it. Stoic physics asserts the continuity of all matter (which is itself permeated by a divine cause giving it form), while for Epicurus all things, even the gods, are composed of atoms and void. Like Plato and Aristotle, Stoics believed that society and its institutions rest on deeply rooted features of human nature, but Epicureans held that societies are formed by agreements among people about mutual preservation and advantage. Stoicism (inspired in part by the dialectical school and Megarian philosophers) led the way in the development of logic and dialectic, while Epicurus rejected logic along with many other specialized intellectual endeavors as useless. For Epicurus even physics mattered only in so far as it was essential to achieving tranquility.

Despite these contrasts, the two schools shared a great deal. Both rested their philosophy on broadly empiricist epistemologies, according to which normal sensory experience was the ultimate source and criterion for knowledge, and both rejected the idea of causally efficacious incorporeal entities and emphasized the material foundations of all reality. Neither school could accept the

central role of *form*, either in the Platonic version in which forms were separate from material particulars, or in the immanentist version of Aristotle, for whom form and matter were the two components of all concrete objects; nor could they embrace the concepts of an incorporeal deity or an immortal and incorporeal soul animating the body.

As these new schools emerged, the Academy changed its intellectual course; under the leadership of Arcesilaus it adopted a skeptical practice, devoting its energies not to the development and refinement of positive theories but to the dialectical criticism of those philosophers who claimed certainty for their own views. Stoicism was its chief target, and it can be argued that the main inspiration for this skeptical turn was the desire to refute those who claimed that the physical world could yield certain knowledge. The Academy maintained its dialectical approach for nearly two centuries; its high point came under the intellectual leadership of Carneades in the second century BCE. His followers came to disagree about the nature of his commitment to skepticism and gradually reverted to *dogmatism*, the conviction that knowledge is achievable. The Lyceum (sometimes also called the Peripatos) did not long maintain its philosophical vigor after the death of Theophrastus and its leaders became better known for their achievements in the sciences than in philosophy. Only Critolaus, the contemporary of Carneades, achieved importance in philosophy proper. The renewal of Aristotelianism had to await the end of the Hellenistic era.

With each generation the Stoic school changed and developed, with most of its leaders making significant innovations. The third head, Chrysippus of Soli, systematized and reworked nearly every aspect of Stoic thought, developed the formal logic for which the Stoics remained famous until the end of antiquity, and exerted control of the school's trajectory for several generations after. In the late second century Panaetius of Rhodes and his student Posidonius of Apamea made a comparable mark, reintegrating Platonic and Aristotelian influences into the school's intellectual life. By contrast, in all but details the Epicurean school was marked by conservatism and doctrinal unity.

The interaction between philosophical schools and the special sciences is a topic of particular interest in this period. Except for the medical texts in the Hippocratic Corpus, there are few traces of specialized scientific writing before 300 BCE, although Aristotle makes frequent allusions to an optical and astronomical literature that was distinct from philosophy and had a mathematical character. Hellenistic optics, as represented by Euclid's *Optics*, was the physical science that engaged most actively with philosophy. Euclid uses a geometrical apparatus to model a selection of phenomena of visual perception that reflect not only Aristotle's analysis of the *objects of sense perception* but also contemporary Hellenistic epistemological concern with the reliability of the senses. The Euclidean model, invoking rectilinear "visual rays" that radiate from eye to object, could be reconciled with Stoic physics as well as with the more eclectic materialism of Theophrastus and his Peripatetic successors.

Astronomy, by contrast, seems to have disengaged from philosophy after Aristotle. Deeply impressed by the regularity of astronomical phenomena and by Eudoxus's ingenious hypotheses of rotating spheres that seemed to account for them, Aristotle posited a sharp discontinuity between the irregularly changeable globe of matter at the centre of the cosmos, in which we dwell, and the eternally unchanging outer shell, composed of a distinct kind of matter, that is the realm of the sun, moon, planets, and stars. The Stoics and Epicurus, by rejecting this discontinuity, made it harder to reconcile their physics with the mathematically abstract celestial models of the astronomers. Astronomical writers such as Aristarchus in the third century and Hipparchus in the second relied on geometry, arithmetic, and optical observation as criteria for their models, and sometimes put forward alternative models to explain the same phenomena. In the view of a physically oriented philosopher such as Posidonius, the astronomers' models did not constitute proper explanation, which only the philosophers could provide. Nonetheless such results of astronomical reasoning as estimates of the sizes and distances of the sun and moon and Eratosthenes's measurement of the earth's circumference became commonplaces of philosophical discourse.

Mesopotamian traditions of divination from celestial phenomena were known in the Greek world as early as the third century, and the Stoics in particular took a lively interest in them as they did in other forms of divination. It was only about the beginning of the first century BCE, however, that a distinctly Greek astrology endowed with sufficient complexity and rationale to claim scientific status took form. Astrology was founded on a physical cosmology that was loosely derived from Peripatetic and Stoic physics, though most of its literature concerned niceties of prognostication, not the analysis of cause and effect. The Stoic poet Aratus's versified description of the constellations achieved remarkable popularity in antiquity; but on the whole the Stoics tended to disregard technical astronomy, perhaps because they were uncom-

fortable with its mechanistic character. The Skeptical schools, on the other hand, found an easy target in astrology's pretensions to exact knowledge of the future derived from inexactly observed or calculated motions of the heavenly bodies.

The Hellenistic period was the heyday of Greek geometry. Euclid, Archimedes, Apollonius of Perge, and a host of lesser mathematicians published work of enduring value on difficult problems, typically involving the properties of curves and the areas and volumes bounded by geometrical figures. Much mathematical research was motivated by optics, mechanics, and astronomy, but Hellenistic mathematicians seem to have kept more aloof from the philosophers than their predecessors of Plato's and Aristotle's time.

Alone among the scientific disciplines, medicine was characterized in the Hellenistic period by a division into sects or schools, comparable to the contemporary emergence of the great philosophical schools. The Hellenistic medical sects took their start from the prolific early third century physicians Herophilus and Erasistratus, whose theoretical pronouncements on physiology and medical practice were founded on a level of anatomical research and experimentation (reportedly including human vivisections) that was unprecedented in Greek medicine. In their approaches to physical and biological explanation these men and their followers owed something to Aristotle and perhaps more to the later Peripatetics. The "Herophilean" and "Erasistratean" schools seem to have less direct engagement with Stoicism or Epicureanism, though in common with those philosophical sects they accepted that knowledge of hidden causes of phenomena was both possible and useful.

The medical sect of Empiricists, which rose in the third century, rejected hidden causes as both unknowable and unhelpful in medical practice, and advocated instead a strategy for progressing systematically from individual trial-and-error experience to generalized, teachable practical knowledge without recourse to anatomical or physiological theory. The debates between the Empiricists and the other sects, grouped under the heading of Rationalists or Dogmatists, centered on both epistemology and research ethics; Empiricist physicians found natural intellectual allies in the philosophical Skeptics, especially the Pyrrhonists. Few Hellenistic physicians, however, were themselves philosophers, and a broad, intellectually respectable effort to bring together the many threads of current medical and philosophical thought had to wait for Galen in the second century CE. Galen's contempo-

rary Ptolemy had a comparable reintegrating role with respect to Hellenistic physical science and philosophy.

The relationship between philosophy and medicine was paralleled by that between philosophical analysis of language and the emerging disciplines of grammar and philology. While critical speculation about language began in the Presocratic period and developed dramatically in the fourth century BCE, in the Hellenistic era the study of language achieved greater independence from philosophy without fundamentally severing its ties. Pergamum and Alexandria became centers for the critical study of ancient texts, especially Homer, and for the analysis of linguistic phenomena. At the same time, Epicureanism promoted a naturalistic understanding of the origin and nature of language and the Stoics made enormous advances not just in the area of logic (Chrysippus developed propositional logic in contrast to Aristotelian term logic) but also in the analysis of the parts of speech and semantic theory. Philosophers and grammarians debated the roles of rule-driven morphological *analogy* and the variability of actual linguistic usage (*anomaly*) in the determination of linguistic norms. Here too Hellenistic developments laid the foundations for intellectual life in later antiquity.

At the end of the Hellenistic era, the dominance of Athens in Greek philosophical life came to an end. After the conquest of Athens by the Romans under Sulla during the Mithridatic wars (88–86 BCE), philosophy, like science, spread out around the Mediterranean world. Rome itself, as well as Alexandria and Rhodes, became an important locus of philosophical activity as the Hellenistic age, and with it the Roman Republic, came to an end. At the beginnings of the Roman Empire, philosophy changed its character and turned for inspiration to the close study of the classic texts of Plato and Aristotle written centuries before. The Hellenistic era in Greek thought came to an end appropriately with the rise of a productive form of scholasticism and the revival of the classical schools of thought which have remained central to our understanding of ancient philosophy ever since.

See also Ancient Skepticism; Arcesilaus; Aristotelianism; Carneades; Chrysippus; Cyrenaics; Epicurus; Greek Academy; Panaetius of Rhodes; Posidonis; Stoicism; Strato and Stratonism; Theophrastus; Zeno of Citium.

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HELMHOLTZ, HERMANN LUDWIG VON
(1821–1894)

Hermann Ludwig von Helmholtz, the German physiologist and physicist, was born in Potsdam and educated at the Potsdam Gymnasium, where his father taught philology and classical literature, and at the Royal Friedrich-Wilhelm Institute of Medicine and Surgery in Berlin, from which he graduated as a doctor of medicine at the age of twenty-one. Helmholtz's outstanding scientific talent led to the curtailment of his required ten-year service as a Prussian army physician and surgeon. After the presentation and publication of his famous paper *Über die Erhaltung der Kraft* (On the conservation of energy) in 1847, he held only academic posts. He was instructor in anatomy at the Academy of Arts in Berlin (1847–1848), professor of pathology and physiology at Königsberg (1848–1855), professor of physiology and anatomy at Bonn (1855–1858), professor of physiology at Heidelberg (1858–1871), professor of physics at Berlin (1871–1888), and the first president and director of the Physico-Technical Institute in Berlin from 1888 until his death.

Helmholtz contributed over two hundred papers and books of outstanding importance in medicine, anatomy, physiology, psychology, and physics. He also published papers in mathematics and in philosophy, and delivered many popular lectures to publicize significant scientific investigations and to point out their philosophical implications. He was the first to measure the speed of nerve impulses, and he invented the ophthalmoscope. His paper *Über die Erhaltung der Kraft* became the cornerstone of the science of thermodynamics and set the direction of much of physics for the next half century. His

monumental three-volume *Handbuch der physiologischen Optik* (*Handbook of Physiological Optics,* 1856–1866), frequently called the principia in its field, was matched in 1863 by a work equally basic to physiological acoustics, *Die Lehre von dem Tonempfindung* (*On the Sensations of Tone as a Physiological Basis for the Theory of Music*). In mathematics he was a pioneer in the field of non-Euclidean geometry, arriving independently at conclusions similar to those of Bernhard Riemann and seeing more quickly than others the philosophical importance of these new developments. In physics he contributed substantially to the establishment of the Faraday-Maxwell conception of electrical phenomena, both by his own theoretical investigations and through his encouragement of his most famous student, Heinrich Hertz. Helmholtz greatly influenced the intellectual climate in many German universities, and he may rightly be considered one of the fathers of the philosophy of science.

EMPIRICISM AND OPPOSITION TO METAPHYSICS

Helmholtz wrote only one long essay, *Die Tatsachen in der Wahrnehmung* (The facts of perception; 1878), that he explicitly considered to be in the field of philosophy. Most of his philosophy is contained in a number of short, popular essays and in the body of his various scientific works. The scientific works, however, contain frequent passages of philosophical importance and always show a clear awareness of philosophical issues. Furthermore, many of his papers on science and mathematics, such as those on the foundations of physics and mathematics, would now be included in the philosophy of science.

Helmholtz's philosophy was at all times closely related with his scientific investigations. One of the motives for the work that led to the paper *Über die Erhaltung der Kraft* was his desire to discredit vitalism as a scientific hypothesis and as a metaphysical position. Indeed, from the beginning of his career he was opposed in general to metaphysical speculation, feeling that the idealists, Friedrich Schelling and G. W. F. Hegel in particular, and a number of materialists had perverted philosophy and turned it from its main function, which was the study of human knowledge. Helmholtz was close to Immanuel Kant in his philosophy; he believed that in *The Critique of Pure Reason* Kant had asked the right questions and had moved part of the way toward answering them. He was also close to the classical British empiricists, believing that a scientifically and mathematically sophisticated empiricism along the lines initiated by John Locke would

provide highly reliable answers to a number of the basic questions of philosophy.

KNOWLEDGE AND PERCEPTION

For Helmholtz the central questions in philosophy were "In what ways do our ideas correspond to reality?" and "What is true in our sense perception and thought?" Answering these questions was the common task of both philosophy and the sciences, the two disciplines approaching them from opposite directions. The task of philosophy is to study the formal aspects of knowledge, our forms of intuition and representation, and the general categories in terms of which we order knowledge. The task of the sciences is to study the world of reality and to find the laws of nature that cause or determine both objective sequences of events and the sensations we experience. The formal aspects of knowledge, our forms of intuition and representation, and our intellectual categories, condition the ways in which we should and do formulate scientific knowledge. Scientific investigations, specifically the findings of physiological optics and acoustics, help us to understand our forms of intuition and the mental operations involved in knowing.

Although Helmholtz's position was basically Kantian, it was markedly different from Kant's on certain important points because of Helmholtz's study of physiological optics, physiological acoustics, and non-Euclidean geometry. His answer to the question "In what ways do our ideas correspond to reality?" was based upon certain discoveries in the physiology of sensation and, in particular, upon the principle of specific nerve energies. This principle was implicit in the psychological theories of a number of British empiricists; it was made explicit by Johannes Müller and was extended significantly by Helmholtz. Fundamental to this view is the theory that all we know about the external world is brought to consciousness as the result of certain changes produced in our sense organs by external causes. These changes are transmitted by the nerves to the brain, where they first become conscious sensations. In the brain they are interpreted and combined to produce our perceptions of external objects by mental processes that Helmholtz called unconscious inferences—processes he considered to be the same as those that are operative when a child learns his native language. Thus, in the case of vision, excitations of the nerves of the retina are transmitted by the optic nerve to the brain, where they are experienced as sensations and where they are unconsciously interpreted and combined to form visual perceptions of objects and their properties.

According to the principle of specific nerve energies, there is no one-to-one correspondence between a sensation experienced and a specific property of the object causing that sensation. It is perfectly possible for similar or identical sensations to be the effects of diverse causes or for a single cause, because it affects more than one kind of nerve, to result in qualitatively distinct sensations. As a result, the most that can be claimed is that sensations are caused by external objects, that they are the subjective signs of these objects and their properties, but are in no way images of them. The relation is one of sign to object signified, and even so, as such it is not an invariant relation. The only exception—an important one—is the correspondence in temporal sequence between external events and subjective sensations. Indeed, it is this correspondence that enables the scientist to determine the order of external events—that is, to determine the invariant laws of nature.

Because, with the notable exception of temporal sequences, there are no invariant, but only fairly uniform, relations between the sensations we experience and the objective world, Helmholtz felt that we can speak of our ideas as true only in a practical sense. Sensations are signs that we learn to use in order to regulate our movements and actions. When we have learned to interpret these signs, we are able to control our actions and are able to bring about results we desire or to avoid dangers.

> [To ask, however,] whether the idea I have of a table, its form, strength, colour, weight, etc., is true *per se,* apart from any practical use I can make of this idea, and whether it corresponds with the real thing, or is false and due to an illusion, has just as much sense as to ask whether a certain musical note is red, yellow, or blue. Idea and thing conceived evidently belong to two entirely different worlds, which no more admit of being compared with each other than colours and musical tones or than the letters of a book and the sounds of the words they form. (*Handbook of Physiological Optics,* Vol. III, p. 19)

SPACE AND GEOMETRY

Helmholtz's study of perceptions of space and of spatially oriented objects led him into the field of non-Euclidean geometry. His interest in general problems of spatial perception led to the investigation of the analytic properties that any space must have in order to permit the establishment of congruence relations between bodies and surfaces. As he saw it, congruence can be established only if rigid bodies or systems of bodies can be moved toward

one another with unaltered form—that is, only if the congruence of geometrical figures is a relation independent of all movements in space. Thus, he took the actual fact of spatial measurements through the establishment of congruence as a starting point and investigated the most general analytical properties of any space in which the movements necessary for this measurement can occur. He found that such movements and measurements were possible not only in Euclidean space but also in the spaces investigated by Riemann and Nikolai Ivanovich Lobachevski or in any space with a constant measure of curvature. Helmholtz concluded that Kant was mistaken in claiming that the axioms of Euclidean geometry were synthetic a priori principles necessarily true of space. Spaces that are not Euclidean can be conceived; the geometries of these spaces can be formulated; models or interpretations of them can be given, and on the basis of experience, it is impossible to determine which of these geometries is that of real space. Kant was correct in considering space to be a form of intuition but wrong in claiming that space must necessarily possess Euclidean characteristics.

PHILOSOPHY OF PHYSICS

Helmholtz's philosophy of physics was a classic formulation of nineteenth-century mechanism. He felt that the primary function of the physical sciences was to search for laws that express observed particular processes in general terms, so that from these laws other particular processes could be deduced. The discovery of these laws is the task of experimental physical science.

> The theoretical part … endeavors to ascertain the unknown causes of processes from their visible effects, it seeks to comprehend them according to the law of causality…. Thus, the final goal of the theoretical natural sciences is to discover the ultimate invariable causes of natural processes. (*Über die Erhaltung der Kraft,* introduction)

According to Helmholtz, these ultimate causes are simple Newtonian forces, so that a causal explanation in physics is at the same time an explanation in terms of forces.

> Theoretical natural science must, therefore, if it is not to rest content with a partial view of the nature of things, take a position in harmony with the present conception of the nature of simple forces and the consequences of this conception. Its task will be completed when the reduction of phenomena to simple forces is

completed, and when it can at the same time be proved that the reduction given is the only one possible which the phenomena will permit. This will then be established as the necessary conceptual form for comprehending nature, and we will then be able to ascribe objective truth to it. (Ibid.)

These statements always represented the ultimate aim of scientific explanation for Helmholtz. It was a goal that grew more distant as the nineteenth century advanced.

See also Geometry; Hegel, Georg Wilhelm Friedrich; Hertz, Heinrich Rudolf; Kant, Immanuel; Philosophy of Physics; Philosophy of Science; Schelling, Friedrich Wilhelm Joseph von.

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HELVÉTIUS, CLAUDE-ADRIEN
(1715–1771)

Claude-Adrien Helvétius was born into a highly respected medical family; his father was first physician to the queen of France. After his education at the College Louis-le-Grand and at the age of only twenty-three, Helvétius obtained, through influence at court, the lucra-

tive post of *fermier-général*, in which he soon grew rich. He became known, however, for the philanthropic and enlightened uses he made of his great wealth, particularly as a patron of philosophers and men of letters. For a time Helvétius turned to poetry and, in a piece titled *Le bonheur*, extolled the supreme pleasures of the intellectual life. Taking his own advice, he resigned in 1751 from tax-farming, married, and retired to his country estate, thenceforth devoting himself primarily to philosophical and literary pursuits. The publication in 1758 of his principal work, *De l'esprit*, proved to be one of the ideological *causes célèbres* of the eighteenth century. Appearing at a moment of political reaction, *De l'esprit* was noisily condemned by the authorities, both ecclesiastical and ministerial, for its dangerously heretical and subversive opinions. Suppression of the book signaled a grave—but fortunately temporary—setback for the party of *philosophes* and Encyclopedists. Despite the recantations that Helvétius was forced to make regarding *De l'esprit*, he reaffirmed his ideas even more strongly in *De l'homme, de ses facultés intellectuelles, et de son éducation*, published posthumously in 1772.

The thought of Helvétius sprang mainly from the predominant current of sensualism in the Enlightenment, which he fashioned with marked originality into what may be described as a thoroughgoing doctrine of "environmental behaviorism." Like John Locke, he held that the primary function of the mind was the registering of sense impressions arising from the external world. Calling this faculty *sensibilité physique*, he held it to be the exclusive source not only of all ideas and judgments (which, he said, resulted from the mental comparison of sensations) and of memory (which is simply a weakened sensation), but of all the emotions as well; he described emotions as variations of the two root-sensations of pleasure and pain that usually accompany sensory experience. Diverging, however, from the mainstream of Lockeanism represented in France at the time chiefly by Étienne Bonnot de Condillac, Helvétius was concerned with deriving from sensationist premises a psychological, rather than epistemological, theory. His basic contention was that the intellectual and moral capabilities, no less than the entire complex of values and motivations peculiar to any individual, are to be explained solely as the product of education—that is, of the total cumulative environment from the moment of birth. The biological or hereditary influences on the individual are considered, by contrast, to be uniform in all who are "normally constituted"; moreover, it is deemed unnecessary to include such "constants" in the causal investigation of behavior. Whereas Locke had rejected innate ideas, Helvétius pro-

ceeded to the rejection of innate abilities, or, more exactly, of innate inequalities in the apparatus of natural talents and inclinations with which every normal person is endowed. In expounding this radically environmentalist psychology, he did not feel obliged to assume any metaphysical position concerning the substantive nature of mind. Nevertheless, it is clear enough, as the concept of *sensibilité physique* implies, that Helvétius, swayed perhaps by contemporary materialists such as Denis Diderot and Julien Offray de La Mettrie, had in fact adopted a naturalistic view of man as logically the most suitable context in which to develop his behaviorist thesis.

In the mass of empirical evidence, often valuable and sometimes penetrating, adduced in support of the absolute case for environment versus heredity, two arguments stand out. Aware that exceptional talents do not always result from equally exceptional educations, Helvétius attempted to justify environmentalism by introducing the notion of *hasard*. According to this, a trivial and chance occurrence—such as Isaac Newton's observation of an apple falling to the ground—could, under certain conditions, have the most far-reaching consequences—such as the discovery of universal gravitation. Helvétius reached the reassuring, if tenuous, conclusion that genius is common to all persons, but the special sequence of events needed to actualize it is exceedingly rare. His other and much more plausible line of reasoning affirms that the development of intelligence, talent, or any ability whatever is proportional to the degree of *passion*, or emotional motivation, felt by the individual. Having thus translated the problem of inborn inequalities of mental capability into one of inborn emotive potential, Helvétius ended by finding that anyone may, by the appropriate stimulation of his passions, be rendered superior in any field of endeavor.

Throughout his writings, Helvétius emphasized the ethical and social implications of his psychology. The conception of the human being as a sort of behavioral tabula rasa, uniformly malleable by external controls into whatever forms might be judged desirable, favors obviously the practical ideal of reforming man and society on a grand scale. It devolves upon the "legislator-philosopher" to achieve this goal by a system of reeducation based on the scientific knowledge of the mechanics of behavior in relation to environment—an ambition aptly summarized by the sanguine dictum *l'éducation peut tout*. The supreme ethical criterion is, in turn, described as "public utility" (or such equivalents as *intérêt général, bonheur général*), which Helvétius further defined, in keeping with the pleasure-pain principle, as the maxi-

mum of pleasure compatible with a minimum of pain in the whole of a given society. But individual conduct in any environment is already determined by the pleasure principle, or self-interest, and Helvétius tried to show that, in addition, the multiplicity of pleasurable ends that men automatically seek, however "nonmaterial" in appearance, are all ultimately reducible to *sensibilité physique*. It is futile, therefore, to try to inculcate the social virtues by mere moralizing and even more so by condemning pleasure. Men can be changed for the better only through the manipulation of their passions. The key idea, to which all of Helvétius's thinking leads, is that the moral improvement and happiness of humankind can result only from political reforms having as their object the establishment of a system of public education (in both the narrow and the broad sense), by means of which the closest possible linkage would be effected between any individual's socially beneficial acts and his rewards in the form of gratified *sensibilité physique*. For example, Helvétius suggested that society methodically offer the choicest sexual enjoyments to its most virtuous and useful members. More generally and especially in the long polemical sections of *De l'homme*, he inveighed against what he regarded as the two major obstacles to the triumph of a hedonistic ethics founded on the standard of public utility—namely, Christianity with its irrational dogmas and ascetic, otherworldly morality and the feudal structure, economic inequities, and autocratic practices of the *ancien régime*. An aura of agnosticism, no less than a revolutionary fervor, surrounds the writings of Helvétius; while he does not argue the philosophical case for atheism, he patently assigns no positive value to a belief in God and even finds it pernicious to the *bonheur général* that he envisions.

The principal weakness of Helvétius's philosophy is its one-sided, reductive use of the factor of environment, at the expense of physiological predisposition—a defect that provoked a solid refutation from Diderot. Stated in absolute form, environmental behaviorism is paradoxical. Because no two educations, as Helvétius himself admitted, can ever be even remotely similar, it is impossible either to prove or to disprove his basic supposition that the same environmental causes will invariably produce the same behavioral effects. The representation of the mind as essentially passive sets up, moreover, a false dichotomy between it and the natural as well as social environment in which, from a more realistic standpoint, the individual is perceived to be a peculiarly dynamic and, indeed, creative participant. Finally, the ideal of public utility, when considered positively, remains rather vague and elusive, despite the abuses of the *ancien régime*

attacked in its name. But historically the many valid elements of Helvétius's thought exerted considerable influence in several directions; on the Encyclopedist movement, especially Baron d'Holbach; on Pierre Cabanis and the *idéologues*; on the British utilitarians, particularly Jeremy Bentham; and, in a general long-range sense, on the rise of both democratic and socialistic doctrines and on the growth in modern societies of the comprehensive role given to public education.

See also Agnosticism; Bentham, Jeremy; Cabanis, Pierre; Condillac, Étienne Bonnot de; Diderot, Denis; Encyclopédie; Enlightenment; Ethics, History of; French Philosophy; Holbach, Paul-Henri Thiry, Baron d'; Innate Ideas; La Mettrie, Julien Offray de; Locke, John; Newton, Isaac; Philosophy of Education, History of; Psychology; Utilitarianism.

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HEMPEL, CARL GUSTAV
(1905–1997)

Carl Gustav Hempel was born in Germany, immigrated to the United States, and became a naturalized citizen. He taught at Yale, Princeton, and Pittsburgh. Along with Sir Karl Popper and Thomas S. Kuhn, a former colleague, he would become one of the most important philosophers of science of the twentieth century. Popper exerted more influence upon natural scientists and Kuhn upon social scientists and the public alike, but Hempel's impact upon professional philosophers of science was unparalleled. His work, including the problems he addressed and the methods he employed, virtually defined the philosophy of science, not just for a few years, but for several decades.

Hempel sought solutions to philosophical problems that were not only well-supported by suitable arguments but which were also precisely formulated by means of symbolic logic. He proposed subtle and nuanced formulations of scientific philosophy and promoted the transition from *logical positivism* to what would become known as *logical empiricism*. Hempel was committed to extremely high standards of philosophical clarity and rigor, which enabled his explications to be subject to the most demanding inspection and critical examination. He cared more about finding the right solutions than whether his own solutions were right.

LOGICAL POSITIVISM

Thus, "logical positivism," the leading movement of the 1930s and 1940s, was based on three principles: the analytic/synthetic distinction; the observational/theoretical distinction; and the verifiability criterion of meaningfulness. Logical positivism thus affirmed that all *a priori* knowledge is analytic and that all synthetic knowledge is *a posteriori*, denying the existence of knowledge that is both synthetic and *a priori*. Sentences that are nonanalytic but also nonverifiable, including various theological and metaphysical assertions concerning the divine or the absolute, thereby qualify as cognitively meaningless.

The precise manner in which scientific theories are to be related to experience therefore became a crucial issue. *Observation language* is assumed to consist of names and predicates whose applicability or non-applicability, under suitable conditions, could be ascertained by means of direct observation or relatively simple measurement. *Theoretical language*, which makes reference to nonobservables, such as malleability and conductivity as well as electrical fields and gravitational forces,

must therefore either be reducible to observables or is empirically meaningless.

COGNITIVE SIGNIFICANCE

Hempel (1950, 1951) demonstrated that empirical knowledge was thereby restricted to observation sentences and their deductive consequences, which reduces scientific theories to mere logical constructions from observables. In articles on cognitive significance and empirical testability, he persuasively demonstrated that the verifiability criterion implies that *existential generalizations* are meaningful, but that *universal generalizations* are not, even though they include general laws, the principal objectives of scientific discovery.

Moreover, on the assumption that a sentence S is meaningful if and only if its negation is meaningful, Hempel demonstrated that implementing the verifiability criterion generates inconsistent consequences. The sentence, "At least one stork is red-legged," for example, is *meaningful* because it can be verified by observing one red-legged stork; yet its negation, "Not even one stork is red-legged," cannot be shown to be true by observing any finite number of red-legged storks and is therefore *meaningless*. Assertions about relative frequencies in finite classes and their negations are meaningful, but those about limits in infinite sequences are not.

SCIENTIFIC THEORIES

These realizations suggested that the logical relationship between scientific theories and empirical evidence cannot be exhausted by means of observation sentences and their *deductive consequences* alone, but needs to be expanded to include observation sentences and their *inductive consequences* (1958). The concepts of confirmation and disconfirmation (as forms of partial verification and partial falsification) warrant renewed attention, where the crucial feature of scientific hypotheses is their empirical testability rather than their verifiability.

Hempel (1960) argued further that the application of inductive logic supports certain logically impeccable, but psychologically surprising, consequences, such as that the observation of a white shoe confirms the hypothesis that all ravens are black because it is an instance of the hypothesis that everything is either not a raven or black, which, using extensional language, is logically equivalent to all ravens are black. And he proposed that cognitive significance should best be envisioned as a matter of degree that may only be evaluated relative to multiple criteria (1965a).

FIGURE 1

The Covering Law Model

PREMISES	General Law(s): L1, L2, . . . , Ln	EXPLANANS
	Initial Conditions: C1, C2, . . . , Cm	
CONCLUSION	Event Description: E	EXPLANANDUM

FIGURE 2

Inductive-Probabilistic Explanation

The Statistical Law: $P(B/A) = r$

Initial Conditions: Ax

The Explanandum: Bx [r]
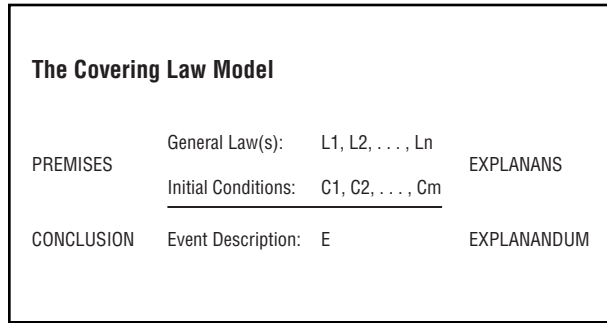
DISPOSITIONS AND DEFINITIONS

In *Fundamentals of Concept Formation in Empirical Science* (1952) he addresses the problem of definability in relation to dispositional predicates, such as "malleable," "soluble," and "magnetic," which designate, not directly observable properties, but rather tendencies on the part of some things to display specific reactions (say, attracting small iron objects) under specific circumstances (the presence of small iron objects in the vicinity). On first consideration, it might seem appropriate to define this predicate by means of a formulation employing a conditional: "x is magnetic at t" is taken to mean, "if, at t, a small iron object is close to x, then it moves toward x."

Interpreted as a *material conditional*, whose meaning is synonymous with "either not … or ____," however, the proposed definition would be satisfied by things not subject to the test condition at all—such as brown cows—when there are no small iron objects in their vicinity. This result threatened the integrity of the project of developing an adequate philosophical framework for understanding the language of science. Both Hempel and Rudolf Carnap displayed great ingenuity in employing the resources of formal logic to cope with it. Ultimately, Carnap would embrace intensional logic as the solution, but Hempel preferred extensional logic, which imposed methodological boundaries upon explications he found acceptable.

EXPLICATIONS OF EXPLANATION

Hempel's most important contribution to the philosophy of science, no doubt, was his masterful explication of the structure of *scientific explanations* as a refinement of the theory of explanation by means of subsumption by general laws, an approach whose precursors date from Aristotle. Hempel developed this conception by means of his "covering law" model, which he elaborated in several versions, understood as arguments whose premises ("the

explanans") include at least one general law, Li, which explain why the event that is described by the conclusion ("the explanandum") occurred by showing it was to be expected relative to its initial conditions, C1-Cm (Hempel and Oppenheim 1948).

Thus Hempel presented a schema that has become familiar to generations of graduate students of the philosophy of science, which incorporated those 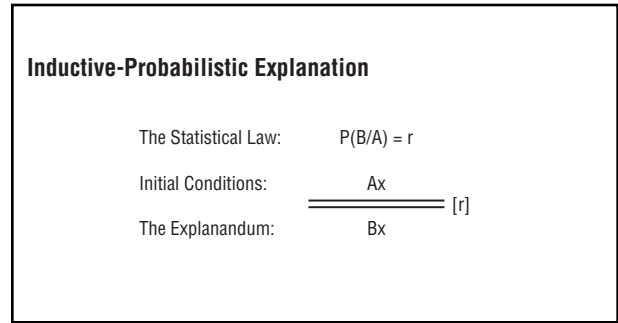conditions as follows in Figure 1. A simple example might explain why a small coin expanded when heated by invoking the law that copper expands when heated and noting it was copper. Hempel considered a vast variety of modes of explanation, contending that those which—implicitly or explicitly—conform to this conception are scientific.

INDUCTIVE-PROBABILISTIC EXPLANATIONS

Hempel included explanations of empirical generalizations by laws and of laws by theories within the scope of his approach, but devoted most of his attention to elaborating several precise and detailed accounts of the scientific explanation of singular events. And he advanced *deductive-nomological* and *inductive-probabilistic* versions to account for differences between subsumption by universal and by statistical covering laws. The differences between them, especially the peculiar difficulties generated by probabilistic explanations, would preoccupy much of his efforts for more than two decades, including Hempel (1948, 1965b, 1968).

The crucial problem turned out to be that of the rationale for the logical link between explanans and explanandum when the covering laws were not universal but statistical. Suppose, for example, that a statistical law of the form, $P(B/A) = r$, assigned probability of value r to the occurrence of an outcome of kind B, given conditions of kind A. Then an explanation of the form (see Figure 2),

invites the presumption that the bracketed variable [r] should be understood as a measure of evidential support. Hempel initially adopted such an approach, which reflects an epistemic interpretation of [r], but he would subsequently reject it on the grounds that the truth of the explanandum is already known: what we want to explain is why it occurred (Hempel 1968).

While the covering law approach dominated the philosophy of science in the 1950s and the 1960s, such difficulties, which were rooted in deep problems about the nature of explanatory relevance and of probabilistic laws, stimulated other investigations, the most important being the *statistical relevance* model of Wesley C. Salmon, which denied explanations were arguments and captivated the discipline in the 1970s. Salmon would later abandon the interpretation of nomic probabilities as relative frequencies for the Popperian alternative of propensities as probabilistic dispositions in the context of probabilistic explanation. During the 1980s and the 1990s, no approach would exert its grip upon the discipline as had Hempel's covering-law model, which made explanation a central function of science.

THE PROBLEM OF PROVISOES

One of the most remarkable features of Hempel's career is that he continued to publish original and innovative papers well into the eighth decade of his life. He authored a series of studies that moved away from the standard conception of scientific theories as *formal calculi* combined with *empirical interpretations* and, in *Philosophy of Natural Science* (1966), a widely used introduction to the philosophy of science that would be translated into ten other languages, he even advanced the novel explication of scientific theories as consisting of *internal principles* and *bridge principles*, where the general hypotheses that distinguish a theory are connected to observation and experiment by principles expressed in mixtures of ordinary and of technical language, where antecedent understanding replaces explicit definability.

More strikingly, Hempel (1988) noted that the application of scientific theories presupposes the absence of factors that might affect the internal principles of the theory, which goes beyond the content of the theory itself. Deriving predictions and explanations from classical mechanics, for example, presupposes that bodies are being acted upon exclusively by gravitational forces, where the presence of electromagnetic forces would invalidate those derivations. The function of these provisoes means that instrumentalist constructions of scientific theories as mere calculating devices and programs

for the elimination of theoretical language by reduction to observational language alone are misguided and cannot be sustained.

See also Carnap, Rudolf; Confirmation: Qualitative Aspects; Confirmation Theory; Explanation in Science; Explanation, Theories of; Kuhn, Thomas; Logical Positivism; Popper, Karl Raimund; Salmon, Wesley; Scientific Theories; Verifiability Principle.

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HEMSTERHUIS, FRANS
(1721–1790)

The Dutch philosopher Frans Hemsterhuis was born at Franeker, the son of the famous Greek scholar Tiberius Hemsterhuis. Frans Hemsterhuis was a clerk of the State Council and devoted his free hours to his favorite studies—numismatics, fine arts, and philosophy. In his last years his philosophy was very much influenced by his friendship with the Princess von Gallitzin, the wife of the Russian ambassador at The Hague. Thus, his life and work may be divided into two periods.

In the first period Hemsterhuis's *Lettre sur l'homme et ses rapports* (1772) was his principal work, preceded by two small, closely connected treatises, *Lettre sur la sculpture* (1765) and *Lettre sur les désirs* (1769). In *Lettre sur la sculpture* Hemsterhuis argued that the essence of the aesthetic experience is a longing to unite oneself with the art object. This concept became part of his theory of ethics, which is set out in *Lettre sur les désirs.* The most perfect happiness for the soul is the union with the beloved object irrespective of whether it is an object of art, a person, or God. This Platonic Eros is for Hemsterhuis analogous to the power of attraction in the physical world. This theory is further developed in *Lettre sur l'homme,* on which the Platonic dialogues of his second period are based. On the subject of the nature of man Hemsterhuis thought in terms of a dualistic philosophy like René Descartes's, but Hemsterhuis's dualism was combined with an empiristic-sensationalistic theory that he probably derived from John Locke and Étienne Bonnot de Condillac. Through sensory perception man receives an image of what exists in reality. This image, however, is incomplete, and if man had other organs, he could perhaps see other aspects of reality. Through what Hemsterhuis calls the "moral organ" man is aware of an immediate feeling of his relationship with God. The moral organ is also responsible for the feeling of relation, rapport, that man has with thousands of other men, and the development of such relations is dependent on the perfection of the moral organ. This theory leads to an individualistic concept of man's moral duties, which is one of the reasons for Hemsterhuis's influence on the German philosophy of *Sturm und Drang* and romanticism.

In the second period of Hemsterhuis's life he wrote four Platonic dialogues the most important of which are *Aristée ou de la divinité* (1779) and *Alexis ou de l'âge d'or* (1783, but published in 1787). In *Aristée* Hemsterhuis, who originally believed in a personal God, is converted to a clear pantheism. God's omnipresence is the basis of man's relation to him, and it is mainly thanks to the moral principle, as the "moral organ" is called in later years, that man is able to come nearer to God. In *Alexis* Hemsterhuis, perhaps influenced by contemporary German philosophy, presented for the first time his concept of the golden age and the harmonious development of the individual. He also introduced the notion of the value of poetical truth (truth discovered by the poet in moments of enthusiasm). With these ideas Hemsterhuis had moved far from his earlier rationalism, and his thought was received with admiration and approval by representatives of the *Sturm und Drang* and romantic movements in philosophy.

In the first period F. H. Jacobi and J. G. Herder were among Hemsterhuis's admirers; in the second period he was very popular with and influenced the two Schlegels and Novalis.

See also Aesthetic Experience; Condillac, Étienne Bonnot de; Descartes, René; Herder, Johann Gottfried; Jacobi, Friedrich Heinrich; Locke, John; Novalis; Rationalism; Romanticism; Schlegel, Friedrich von.

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Leendert Brummel (1967)

HEN/POLLA

In one form or another the problem known as that of the One (*Hen*) and the Many (*Polla*) pervades the whole history of Greek philosophy. According to Aristotle (*Physics* I, 2–3), it arose first in the pre-Socratic inquiry into whether there is one first principle or source—for example, water alone, or air alone—for things, or whether there is more than one first principle. If we are to avoid "coming into being out of nothing," we must either deny with Parmenides that there is any multiplicity arising from the first principle, or else we must suppose that somehow or other multiplicity is already present within the unitary first principle. If we choose the second supposition, we are faced with a problem that is no longer purely physical, namely, how one thing can also be many.

In the period after Parmenides it became clear that this problem arose at a number of different levels of thought, though it usually seemed natural to suppose that a solution at one level would solve the problem at other levels as well. It arose in relation to the phenomenal world in three ways: How one thing can possess a number of different characteristics, how one thing can change into another, and how one thing can have many parts. It arose, above all for Plato, as a problem concerning metaphysical entities such as forms—how unitary forms can be split up among many particulars, and how one form can possess a number of attributes. It arose in the theory of predication as the question of how a number of predicates can be applied to a singular subject. It arose in logic especially as the problem of how classification of many things under one head can be justified. It was also discussed (by Aristotle in the *Physics*) in terms of the number of first principles, even when the question of their number was no longer seen from within a purely physical framework.

Only some of the more important treatments can be mentioned here. The earlier Pythagoreans subordinated One and Many to Limit and Unlimited in their table of opposites. It remained a standard problem for the Eleatics after Parmenides, and Zeno leveled some forty arguments against plurality, of which one or two survive. The Sophist Protagoras tackled the problem at the level of perception, and Gorgias's pupil Lycophron dealt with it as a problem of predication by banishing the word *is* in statements such as "Socrates is white"; Antisthenes, the Megarians, and the Eretrians, according to some, followed the same path. Plato discussed the question repeatedly, most explicitly in Part Two of the *Parmenides* and in the *Philebus,* but of vital importance is his approach to predication in the *Sophist.* His discussion was continued by Speusippus, and by Aristotle in the *Metaphysics* (I, 6) and in the *Physics,* where he propounded a solution in terms of "substrate," "privation," and "form." The Neoplatonists saw it as the problem of how the multiplicity of the world order can proceed from the ultimate absolute unity.

See also Antisthenes; Apeiron/Peras; Aristotle; Megarians; Parmenides of Elea; Plato; Protagoras of Abdera; Pythagoras and Pythagoreanism.

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Virtually the whole of F. M. Cornford's *Plato and Parmenides* (London: K. Paul, Trench, Trubner, 1939) is concerned with the Hen/Polla problem in one way or another.

G. B. Kerferd (1967)

HENRY OF GHENT
(??–1293)

The Augustinian secular theologian Henry of Ghent, traditionally known as *Doctor Solemnis*, was born at Ghent or Tournai, probably in the second quarter of the thirteenth century. In addition to holding high ecclesiastical office at Bruges and Tournai, he taught both arts and theology at the University of Paris. In 1277 he served on the theological commission that prepared the condemnation issued by Stephen Tempier, bishop of Paris, against the Averroism of Siger of Brabant and Boethius of Dacia. He died in 1293.

Henry's principal writings are a *Summa Theologica* and fifteen *Quodlibeta* (occasional disputations). The extended criticism of his ideas by John Duns Scotus, William of Ockham, and others is a sign of his considerable influence in his own age. In the sixteenth century the

Servite friars chose him as their official theologian, although he had never belonged to their order.

As a philosopher, Henry of Ghent stood in the main line of development of medieval Platonism. The Augustinian tradition, already brilliantly represented in the thirteenth century by Bonaventure and Matthew of Acquasparta, was unmistakably the weightiest element in his thought, and the Platonic orientation thus established was further strengthened by the influence of Avicenna. At the same time, following Bonaventure and other earlier Augustinians, he incorporated a number of Aristotelian ideas into his synthesis. Furthermore, in adapting the Neoplatonic metaphysics of Avicenna to the requirements of the Christian view of God and creation, he anticipated certain critical tendencies of the fourteenth century, by which the whole structure of medieval realism was to be undermined. It is fair to say that Henry failed to blend these diverse elements into a fully coherent system. Nonetheless, in inspiration and aim he was the true precursor of Duns Scotus, the last great constructive philosopher of the Middle Ages.

BEING

For Henry of Ghent the starting point of metaphysical thinking was the idea of being (*ens* or *res* or *aliquid*), out of which the metaphysician draws the intelligible essences virtually contained in it. Analysis shows that being is an analogical idea. Taken in its widest sense, it includes both imaginary entities (*res secundum opinionem*), which exist only in the mind, and genuine beings (*res secundum veritatem*), which exist, or at any rate can exist, outside the mind. Genuine being, which is the proper object of metaphysics (*ens metaphysicum*), is further divided into Being Itself (*ipsum esse*), or God, and contingent beings, or creatures. Finally, creaturely being is divided into that which exists in itself (substance) and that which exists in another (accident).

Genuine beings, actual or possible, are distinguished from imaginary entities by their possession of "essential being" (*esse essentiae*). This essential being is not a rudimentary mode of existence. It is best described as an intrinsic possibility or intelligibility that pertains to definable essences as reflections of the divine ideas. It is to be contrasted with the intrinsic impossibility and incoherence of *res secundum opinionem*.

Actual beings are distinguished from merely possible beings by their possession of "existential being" (*esse existentiae*). This existential being is not a principle or act within actually existing things; Henry refused to accept the real distinction between essence and existence as for-

mulated either by Giles of Rome or by Thomas Aquinas. The difference between essential and existential being is to be found not in things themselves but in the relation of essences to God. Essential being consists in being thought by God, while existential being consists in actually depending on God as creative Cause.

Apart from the fact that each actual being, as a product of divine creativity, is individually related to God, individual things, in which specific essences are multiplied, require no explanation of their individuality. Individuation involves no addition, whether of matter or of act of existence, to the intelligible essence. In analyzing the individual as such it is sufficient to say that it is internally undivided and is not identical in existence—that is, in its relation to the Creator—with any other individual.

DIVINE FREEDOM

The transition from essential to existential being, or the act of creation, is an act of divine freedom. Individual beings come into existence not from any intrinsic necessity but because God freely wills to create. Here the Christian and Augustinian conception of God's transcendent liberty excludes the Avicennian idea of the divine will as subject, equally with the divine intellect, to necessity. In his fear of compromising God's freedom in creation, Henry further minimized the intelligibility of individual beings. There are no divine ideas of singular things as such; God knows them only through their essences considered as multipliable in numerically distinct beings. Consequently, the existence of creatures can in no way be deduced from God's eternal ideas.

NECESSARY AND CONTINGENT BEING

The fundamental metaphysical notion of being is neither simply derived from sense experience nor strictly innate in the human mind. It is indeed formed by the mind from within, but on the occasion of sense experience. It would actually be more correct to say that two fundamental notions of being are formed by the mind, since the concepts of necessary or divine Being and contingent or creaturely being are radically distinct and cannot be deduced from a more general notion. When we conceive being unconfusedly, we always conceive either necessary Being or contingent being—never some undifferentiated, neutral being.

In thus asserting the irreducible duality of the notion of being, Henry was again trying to exclude any suggestion that God necessarily creates. If neither divine Being

nor creaturely being can be deduced from a universal concept of being, one argument for necessitarianism is effectively undermined. The further consequences of Henry's principle, however, were disastrous for his own metaphysical enterprise. His insistence that there is no positive content common to the two fundamental notions of being leaves a gap between divine Being and creaturely being that no mere affirmation of analogy between the two concepts can bridge. But if, as Henry claimed, there is some empirical factor in the formation of our notions of being, it is hard to see how necessary Being can be conceived, let alone demonstrated, as long as the gap remains. It is true that an a posteriori or "physical" proof of God's existence, based on experience of individual objects rather than on metaphysical principles, is possible, but such a proof can attain only to a supreme Being, not to a necessary Being. An appeal to divine illumination—the obvious remaining alternative—was excluded for Henry because he did not conceive of the divine light as a power impressing ideas upon the human mind. Although Henry refused to draw it, the conclusion seems inevitable that no firm basis can be found for a metaphysical theology.

With Henry of Ghent, medieval Platonism was clearly entering its final phase. In his thought, for all its predominantly Augustinian and Avicennian character, more or less novel concerns—a new stress on divine freedom, a fresh interest in sense experience, a new emphasis on sheer particularity—already modified the Platonic view of reality. Henry is thus a significant symbol of the transition from the constructive to the critical period of medieval thought.

See also Aristotelianism; Augustinianism; Avicenna; Being; Boetius of Dacia; Bonaventure, St.; Duns Scotus, John; Matthew of Acquasparta; Medieval Philosophy; Platonism and the Platonic Tradition; Siger of Brabant; Thomas Aquinas, St.; William of Ockham.

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HENRY OF GHENT [ADDENDUM]

Since the mid-1990s, remarkable progress has been made in the study of Henry of Ghent due to the ongoing publication of the critical edition of the *Opera Omnia.* Begun in 1979 at the De Wulf-Mansion Center of the Catholic University of Leuven, its labors have been complemented by two major international conferences held in 1993 and 2001 respectively.

The critical edition has not only made the texts of Henry much more accessible, but has directed scholarly attention to Henry's numerous (Greek, Latin, Arabic, and Hebrew) sources. Close attention to these sources has helped to settle several disputes concerning the status of Henry's works; for example the *Lectura ordinaria super sacram Scripturam,* the *Tractatus super facto praelatorum et fratrum,* and a number of sermons are now believed to be by Henry. However, the attribution of the *Syncategoremata* (ms. Brugge, Stadsbibl., 510, ff. 227ra-237va), and of a *Commentary* on the *Physics* (ms. Erfurt, Amplon. F. 349) and on the *Metaphysics* (ms. Escorial, h.ll.1) still remain matters of conjecture.

As a consequence of the published proceedings of the two conferences, Henry is no longer viewed solely as a "Platonic" and "neo-Augustinian" thinker, but as a thirteenth-century scholastic who possessed an astounding knowledge of the philosophy of Aristotle and Avicenna. While Henry's metaphysics and theology have been traditional areas of study, the conference proceedings began to focus attention on his ethics and economics, areas that await detailed investigation. Other recent studies have illuminated the facts of his biography. Henry was, most probably, born before 1240 (maybe between 1217 and 1223), was certainly in Paris by 1265, and from 1267 onward was registered as *magister* in the documents of Paris University.

Marialucrezia Leone (2005)

HENRY OF HARCLAY
(c. 1270–1317)

Henry of Harclay, the English scholastic theologian and philosopher, was born in the diocese of Carlisle. After studying at Oxford and Paris, he was ordained a priest in 1297 and obtained his master of theology about 1310. He taught at Oxford, becoming chancellor of the university in 1312. He wrote an unedited "Commentary on the *Sentences,*" and "Disputed Questions," most of which are unpublished. He died at Avignon.

Early in his career, while commenting on the *Sentences,* Henry defended the main theses of John Duns Scotus. Later, he criticized Scotism, teaching a doctrine of universals close to that of William of Ockham. He held that there are no common natures or essences in reality; there are only individuals, each of which has its own nature. Since there are no common natures, there is no need of the Scotist haecceity to render them individual. As Ockham later said, realities are individual not by an added "thisness" but by themselves.

Henry's doctrine of universals is based on this notion of reality. According to him, an individual can be conceived of either distinctly or indistinctly. When distinctly conceived, it is known through a particular concept; when indistinctly conceived, it is known through a universal concept. A universal is a confused concept by which the mind knows one individual without distinguishing it from others in the same genus or species. Inasmuch as an individual can be known through general concepts, Henry called it universal. For example, Socrates indistinctly conceived is man, animal, and body. Ockham criticized Henry's conceptualism because it ascribed some universality to things outside the mind.

Henry rejected the Scotist doctrine of the divine ideas as essences of creatures existing in God with cognitional being. He adopted a variation of the theory that the ideas are really the same as the divine essence itself known by God as imitable by creatures. God is known through concepts univocal to Him and creatures.

Henry stressed the omnipotence of God and the radical contingency of creatures. He claimed that no creature is naturally indestructible; the human soul is immortal not by nature but by divine grace. According to Henry, St. Thomas Aquinas betrayed Christianity by teaching the natural immortality of the soul.

See also Duns Scotus, John; Immortality; Scotism; Thomas Aquinas, St.; Universals, A Historical Survey; William of Ockham.

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HERACLITUS OF EPHESUS

Heraclitus of Ephesus is an early Greek philosopher who lived around the end of the sixth century BCE. He was a native of Ephesus, an important Ionian city just north of Miletus on the western coast of Asia Minor, and his father's name was Bloson. If the story can be credited that he voluntarily surrendered to his brother a hereditary right to a ceremonial kingship, Heraclitus would be the oldest son of an old noble family. His birth and death dates are uncertain, but the evidence of our doubtful sources would place his floruit in the reign of Darius I of Persia. The authors Heraclitus names make it impossible for his single book to be dated much before the end of the sixth century, and since he is fond of naming his rivals, the lack of any reference or allusion in his surviving words to Parmenides of Elea argues for dating Heraclitus's book before the publication of Parmenides's poem.

Tradition tells us that Heraclitus deposited his book at the great temple of Artemis in Ephesus. His dedication of his book to the goddess may be tantamount to publishing it and to making his thoughts publicly available rather than hiding his thoughts away from the vulgar, as some have surmised. This publicity would be in keeping with Heraclitus's conviction that the truth is common and open to anyone and is not a private possession of the privileged few. From antiquity, Heraclitus is infamous for his obscurity, and he was dubbed early on "the dark." His obscurity has often been credited to his emulation of the Pythian Apollo, whose oracular deliverances Heraclitus analyzes insightfully: "The lord whose oracle is in Delphi neither tells nor conceals, but gives a sign" (frag. 93 Diels-Kranz). He highlights the indirection of the *lord* because of his conviction that the nature of things reveals itself indirectly, and he may mimic in his obscure writing what he takes to be the obscurity in reality itself. Instead of the hexameters of Apollo's priests and of the heroic poets, Heraclitus writes in prose, like most of the new intellectuals of the sixth century who were critical of the poetic tradition and undertook independent inquiry, or *historiê*, in a wide variety of areas.

The Milesian natural philosophers Anaximander and Anaximenes wrote on cosmology and cosmogony, while their fellow Milesian Hecataeus composed the first comprehensive geography of the Greeks, which in part he based upon what he learned from his own voyages. The fragments of Heraclitus's book, of which there are more than a hundred, provide the first substantial sample of Greek prose. Yet Heraclitus is also the most poetic of the early prose authors; he displays skillful use of traditional poetic devices, such as parallel and antithetical sentence constructions, chiasmus, alliteration, assonance, rhyme, and ring composition, as well as an adept use of wordplay that enhances his message. His book was probably not a continuous treatise of unbroken prose but a sequence of short passages, some of which are pithy enough in their moral import to look like a maxim of the Seven Wise Men: "It is hard to fight with anger; for whatever it should want it buys with the soul" (frag. 85 D-K). Despite his much-heralded obscurity, many of his sayings are as straightforward as this astute observation on moral psychology.

THE LOGOS AND THE UNITY OF OPPOSITES

Like his older contemporary Xenophanes of Colophon, Heraclitus is openly critical of the poets of the ancient past, but he also includes among his targets contemporary intellectuals. He is critical of "Hesiod and Pythagoras, and also Xenophanes and Hecataeus" for their "polymathy" that does not yield "understanding" (frag. 40 D-K). He finds "much learning" an impediment to understanding, and this puts him at odds with the new intellectuals who practice *historiê*, which depends upon polymathy. "Understanding" comes from heeding what Heraclitus calls "the Logos," by which "all things come to be," and whose message the common stock of humanity fail to appreciate, as well as those reputed to be wise. They live in a private world of their own making, comparable to dreams, but those who harken to the Logos live in the one public world of the wakeful (frag. 89 D-K). Along with Xenophanes, Heraclitus is among the first of the new

breed of intellectuals to make an issue of the human epistemic condition.

The nature of this Logos is contested. Some scholars understand it as the nature or essence of reality, as it shows itself in discourse, others as a universal principle or law that regulates the basic workings of reality, and a few render it as Heraclitus's true *account* of reality in the form of his own book, or *logos*. With his predilection for wordplay, Heraclitus could well allow Logos to stand for both his book and the subject of his book. He lays down a telling parallel when he urges "those speaking with understanding" to hold to what is "common to all things," presumably the Logos, just as a city holds to its "laws." The commonality of the Logos would be comparable to the way in which the laws of a city apply across the whole of its citizenry, as the rules that regulate their behavior and shape them into a single community, and not to the way the air of Anaximenes's cosmology is the common constitution of all things. What is comparable to "human laws" is also what they are "nourished by," "by one, the divine," which in his ambiguity Heraclitus may intend to be "the one divine law" (frag. 114 D-K). The importance of what sustains "human laws" devolves upon them, so that "The people must fight for the law as for a city wall" (frag. 44 D-K).

The one surviving explicit message of the Logos declares that "all things are one" (frag. 50 D-K). This unity is not the oneness of the monism Aristotle credits the earliest natural philosophers with advocating, but the unity of opposites. This "connection" lies "unseen" (frag. 54 D-K), beyond the patterns of ordinary ways of thinking, as well as the teachings of the old authorities and of the new intellectuals. A "strife" between opposing powers lies hidden within the nature of each thing, and without this strife, the cosmos and everything in it would perish. While contesting with one another, the opposing powers within the essence of each thing cooperate with one another and yield a unified object: "They do not comprehend how each thing quarreling with itself agrees; it is a connection turning back on itself, like that of the bow and the lyre" (frag. 51 D-K). There would be no bow or lyre unless there were a striving between the wood and string through their powers of pulling in opposing directions.

At the cosmic level, the unity of opposites displays itself in the strife between the great cosmic powers of the hot and cold, the dry and moist, since even as they strive with one another for dominion, in the form of fire, water, and earth, they are tightly linked. The destruction of one cosmic mass is the generation of another, "death for water

is the birth of earth, from earth water is born" (frag. 36 D-K), where birth and death unite in a single event. The strife between opposing powers is beneficent and just, and "justice is strife" (frag. 80 D-K), contrary to the teaching of Anaximander, who describes the dominion of one opposite over another as "injustice." When people count some things as just and others as unjust, they divide justice from injustice, but from the objective position of god, all things are "fair and good and just" (frag. 102 D-K). The division between opposites is real enough, but so too is the unity, "it scatters and again brings together" (frag. 91b D-K). This divisive thought of the popular imagination leads to a false impression, which Homer fosters, that the positive of the pair is preferable, morally superior, and should dominate. Aristotle reports that Heraclitus criticizes Achilles's lament, "Would that strife might perish from among gods and men" (*Iliad* 18.107), since without strife there would be no peace, no coherent cosmos.

Heraclitus's originality lies most prominently in his efforts at establishing the integrity of each thing through the unity of opposing powers within each thing, and he revolutionizes thought about values through his insistence upon this unity. No opposite can be valued to the exclusion of its counterpart g powers, because of the various ways in which they are tied to one another for their presence in the world and their efficacy. Heraclitus goes beyond his predecessors in displaying the positive nature of those powers that ordinary ways of thinking deem to be purely negative.

EPISTEMOLOGY AND RATIONALISM

The truth is "hidden," yet "obvious." The blind poet Homer, who is the "wisest of all the Greeks," fails to appreciate the "obvious" (frag. 56 D-K). The truth is obscure, yet it remains open to anyone's inspection through simple means of comprehension. The unity of opposites is no mysterious dogma handed down from on high, and its confirmation may be achieved through observation and argumentation, linguistic analysis, and self-reflection. Heraclitus has confidence in the truth-yielding capacity of observation, "Those things that come from sight, hearing, learning from experience, these I esteem" (frag. 55 D-K), although observation must be evaluated carefully: "Eyes and ears are poor witnesses for men if they have barbarian souls" (frag. 107 D-K). Simple arguments premised on trivial empirical truths provide evidence for the unity: "Sea water is the purest and foulest of water, for fish it is drinkable and life-sustaining, for men it is undrinkable and deadly" (frag. 61 D-K).

In his exploitation of everyday language as a pathway to truth, Heraclitus puns on an uncommon word for "bow," which differs only in accent from the common word for "life," so that he may make manifest the connection between life and death: "The name of the bow is life, but its work is death" (frag. 48 D-K). Death is life, since, for example, the destruction of earth is the birth of water. When Heraclitus notes that "they would not know the name of Justice, if these things did not exist" (frag. 23 D-K), presumably "unjust things," he draws together opposites in the belief that a "name" like "justice" has no meaning in isolation, but only with its opposite, "injustice." Heraclitus will also appeal to a word's etymology for his evidence. The assistants of Justice, he reports, are the Furies (frag. 94 D-K), whose name meshes well with his identification of justice and strife (frag. 80 D-K), since it derives from "strife."

Heraclitus, unlike many of the new intellectuals, has no use for travel and the information it yields as a means for gaining "understanding." The only "journey" he ever mentions is into one's soul, in search of oneself (frag. 101 D-K), and "You would not find out the limits of the soul by going, even traveling over every road, so deep is its *logos* (frag. 45 D-K). This inward journey reveals the value of a measured existence for human well-being. The "measured man" learns from self-examination the proper limits of the great destructive forces of emotion and desire. Despite Heraclitus's revolutionary reassessment of values, he shows himself still bound to tradition when he pairs self-knowledge with measure (frag. 116 D-K), which are values highly esteemed by the Pythian Apollo, whose Alcmaeonid temple posted prominently the famous maxims of the Seven Wise Men: "Know yourself" and "Nothing too much." Like the "measured man," the world-order "lives" a measured existence; the cosmos is "fire ever living, kindled in measures and in measures going out" (frag. 30 D-K). When one cosmic mass changes into another, a *logos*, or proportion, holds between them, so that, for instance, the sea "measures up to the same *logos* it was before becoming earth" (frag. 31b D-K). The cosmos is a self-regulating system that keeps within spatial and temporal limits the great destructive forces of nature: "The Sun will not step over his measures" (frag. 94 D-K).

The Logos belongs to the soul as much as anything else; thus, self-knowledge may provide a path to cosmic knowledge and to "understanding." One need not go far afield or draw upon extraordinary powers to discover the truth. Heraclitus is no pessimist, in contrast with Homer and the poets who believe that humans left to themselves without the aid of the Muses have no knowledge of rec-

ondite topics and are the victims of "rumor" (*Il.* 2.485—486). Humankind has within its reach the truth of reality, "It belongs to all men to know themselves and to think in a measured way" (frag. 116 D-K), although Heraclitus thinks that few will ever exercise successfully these shared capacities. He tempers his optimism further when he maintains that a man hears from a divinity that he is "infantile" just as a child hears the same from a man (frag. 79 D-K), and some think that they detect poetic pessimism in his observation that "human character," in contrast with "divine," "has no judgment" (frag. 78 D-K).

Yet Heraclitus is also no mystic, if by "mysticism" is meant a private insight into the truth, vouchsafed to the few, which goes beyond the ordinary capacities of humankind. Instead of intuition, Heraclitus has recourse to argument and public verification. His rationalism holds, even if Aristotle is correct in charging him with contravening the principle of non-contradiction, when Heraclitus insists that the same thing displays opposing properties (*Metaphysics*, 1062A30-35). Aristotle's charge is plausible even if we may easily dispel the appearance of contradiction, when Heraclitus maintains, for example, that sea water is both pure and impure, by our pointing out that these properties are not contradictory since they are qualified in different ways by applying to different creatures: fish and humans. Heraclitus may have not been able to recognize that the ambiguity gives him only the appearance of contradiction. But he comes by his view of unity honestly, without mystery, through his appeal to argument and observation.

CHANGE AND FIRE

Heraclitus argues for the truth of the unity of opposites, by arguing that the contrary pairs, the living and the dead, the waking and the sleeping, and the young and the old, are the "same" because the contraries of each pair mutually replace one another (frag. 88 D-K). Living things die, but from the remains of the dead living things emerge. Day and night are "one," thinks Heraclitus, probably because of their mutual succession (frag. 57 D-K). Heraclitus ties together inferentially two of his important doctrines when he derives the unity of opposites from the fact of change, and he may see change at the foundation of his speculations. Despite the centrality of change, its nature has been subject to exaggeration. Plato, who may be more under the influence of Cratylus than of Heraclitus, finds change to be incomprehensible, and he credits Heraclitus with a doctrine of universal flux in which reality is likened to the flow of a river, where "you could not step twice into the same river" (*Cratylus* 402A). These

words indicate an extreme sort of change in which nothing retains its identity. The "river fragments" suggest something less extreme, that things constantly change but retain their identity: "As they step into the same rivers, other and still other waters flow upon them" (frag. 12 D-K). The rivers remain rivers; only the water that constitutes them is constantly changing.

Cosmic change is not chaotic, but occurs in an orderly way, as Heraclitus suggests when he speaks grandiloquently of the eternity of the world-order: "This cosmos, the same for all, no one of gods and men made, but always was and is and shall be fire ever living, kindling in measures and going out in measures" (frag. 30 D-K). The fire the cosmos is identified with changes, but in a measured way, changing in its extinction into the other great cosmic masses, and in an orderly pattern changing back again in its ignition. The flow of fire matches the flow of a river, but fire is more than an image when Heraclitus identifies it with the cosmos, and when he makes fire worth all else: "All things are an exchange for fire and fire for all things, just as gold for goods and goods for gold" (frag. 90 D-K). Heraclitus privileges fire, but not after the fashion of the monists, as Aristotle and Theophrastus would have us believe, as the stuff that constitutes all else. Theophrastus explains the "exchange" between fire and all things as fire's yielding everything else through its rarefaction and condensation, although he must admit that Heraclitus "sets out nothing clearly" (Diogenes Laertius 9.8).

It is not surprising that Theophrastus finds Heraclitus unclear, since the mercantile image of exchange, of "gold for goods and goods for gold," indicates that what is exchanged for fire is no more fire than the goods exchanged for gold are gold. In keeping with the mercantile image, the primacy of fire lies in its providing the standard that fixes the value of all else, as equivalent to so much fire, and Heraclitus may value fire above all else because it is psychic stuff: "For souls death is the birth of water, for water death is the birth of earth, from earth water is born, from water soul" (frag. 36 D-K). The sequential change back and forth between soul, water, earth suggests an exhaustive cosmic exchange, and thus the absence of the important cosmic mass of fire calls for its identification with soul. It is a "dry soul" that is "wisest and best" (frag. 118 D-K). Heraclitus has room for only three great cosmic masses, fire, water, earth, in his physics and no place for the air of Anaximenes.

THEOLOGY

The soul is the basis of life, but also of intelligence (frag. 107 D-K). Heraclitus links fiery stuff and intelligence when he says that "Thunderbolt steers all things" (frag. 64 D-K). "Thunderbolt," which stands for the guiding principle behind the cosmos, is the instrument of Zeus, the greatest god in the Greek pantheon, and Heraclitus intends for his ruling principle to be identified with the divine, but in a qualified way, when he says: "The one, the wise alone, is not willing and is willing to be spoken of by the name of Zeus" (frag. 32 D-K). Heraclitus appropriates a divine name from popular religion, but he warns against its literal application. His ruling principle, like Zeus, is the most powerful of deities, but, unlike Zeus, it should not be conceived in an anthropomorphic manner. The traditional language of divine anthropomorphism shows up in his praise of strife, "War is father of all and king of all" (frag. 53 D-K), which recalls the Homeric description of Zeus as "the father of men and gods," and Zeus is the "king" of the gods.

Heraclitus borrows freely from the conventional language and images of popular religion, but he applies them in unconventional ways, and his practice suggests that he is trying to formulate a new way of talking about the divine within the idiom of the old. Among the Greeks Xenophanes initiated the criticism of anthropomorphism, but, unlike Heraclitus, he purifies his language of the traditional anthropomorphic vocabulary. In one remarkable passage, Heraclitus draws together the divine, the opposites, and perhaps even fire: "The god, day-night, winter-summer, war-peace, satiety-hunger, and it undergoes change, as when mingled with perfumes, it is named according to the pleasure of each one" (frag. 67 D-K). The divine is actually identified with the opposites, as if their union was the divinity itself, and Heraclitus may treat the god like fire when referring to its changing in accord with the perfumes mixed into it. The significance of fire corresponds to the importance of Logos; war, like the Logos, is common; strife, like the Logos, is what all things come to be in accord with (frag. 80 D-K). The Logos, fire, strife, and divinity would seem to come together in Heraclitus's thought, although there is no evident formula for the expression of their convergence.

When he subjects particular cult practices to criticism, Heraclitus proves to be harsher than Xenophanes. The age-old practice of purging oneself of blood guilt through blood sacrifice Heraclitus ridicules as comparable to washing off mud with mud, praying to statues is like "chatting with houses" (frag. 5 D-K), and the "mysteries" men now believe in do no more than "initiate into

impiety" (frag. 14 D-K). The "procession" for Dionysus and the "chant for the phallus" would be shameful if they were not done for the sake of the god, and the participants in these practices do not even recognize that "Hades and Dionysus are the same" (frag. 15 D-K). Once again Heraclitus appropriates conventional divine names, but uses them in a shocking way by identifying traditional deities of widely contrasting natures, Hades and Dionysus, perhaps once more as a way of signifying the identity of life and death. The alcohol beloved of Dionysus Heraclitus condemns as turning a man into a boy by making his "soul moist" (frag. 117 D-K), and, despite the "joy" men take in moisture, it is death (frag. 77 D-K).

Heraclitus does not recommend any new practices to take the place of those he censures, in contrast with Pythagoras who recommends many new rituals to supplement those of tradition. When Heraclitus maintains that "Character for a man is fate" (frag. 119 D-K), he looks as if he were removing humankind from the tutelage of the gods. *Daemon*, the word for "fate," is [a] also the word for a guardian divinity, and thus in identifying a man's own character with his guardian, Heraclitus would be stressing that humans should take responsibility for their actions instead of laying blame upon the divine for their fortunes, both good and bad. Heraclitus is often thought to sanction immortality for at least some souls, perhaps of warriors: "Greater deaths are allotted greater portions" (frag. 25 D-K); "Those slain by Ares, gods and men honor" (frag. 24 D-K). Personal survival is not possible in a cosmos of universal destruction, and Heraclitus may mean no more than enlightenment when he speaks of those who "arise and become wakeful watchers of the living and the dead" (frag. 63 D-K). The wakeful may be those awakened from folly, since Heraclitus associates subjective misapprehension with sleep and objective comprehension with wakefulness (frag. 89 D-K).

COSMOLOGY

There is little reason to think that Heraclitus makes any advances in physics or astronomy. Unlike the Milesians, he does not seem to take much interest in the details of natural philosophy, and the fragments speak little to the issue. His words testify to his belief in an eternal cosmos (frag. 30 D-K), even though Aristotle and Theophrastus report otherwise. His rejection of cosmogony would mark him out significantly from the early natural philosophers, although Xenophanes may, too, have championed an eternal cosmos. Theophrastus and the doxographical tradition he founded report some astronomical and meteorological speculations. Bright and dark exhala-

tions arise from earth and sea, and "bowls" in the heaven trap the bright exhalations and form the heavenly bodies. The rotations of these bowls account for the phases of the moon and eclipses. The preponderance of bright and dark exhalations contributes to the explanations of day, night, months, seasons, years, rains, and winds. In what may be Heraclitus's own words, he traces daylight back to the sun, "If there were no sun, it would be night" (frag. 99 D-K), and he believes, along with Xenophanes, that the sun is "new each day" (frag. 6 D-K). Theophrastus concludes his report by saying that Heraclitus offers no explanation of "what the earth is like, or even about the bowls." The Hellenistic grammarian Diodotus finds Heraclitus's book to be about "man's life in society," and its statements on nature to serve only as "illustrations." (D. L. 9.15) The doxographical tradition may be misguided in assimilating Heraclitus's work to the discipline of natural philosophy. Theophrastus indicates further difficulties he had with Heraclitus's book when he maintains that some things Heraclitus wrote were "half-finished," others "inconsistent," which Theophrastus puts down to Heraclitus's "melancholy." (D. L. 9.6)

INFLUENCE

Of the Presocratic thinkers, Parmenides had the most influence, but Heraclitus may have had the most influence upon him, in drawing his attention to the problematic nature of change. Heraclitus may have had a certain vogue in the fifth century. Some minor Hippocratic authors reflect something of his paradoxicality, and Plato jokes about the fidgeting Ephesians, who are not stable enough to carry on an argument. Cratylus of Athens pushed change to such an extreme that he finds it necessary to rebuke Heraclitus for thinking that one could not step twice into the same river, when one could not step even once. Aristotle reports that in his youth, Plato was under the influence of Cratylus and found the objects of perception unknowable because of their instability. Heraclitus's most profound philosophical influence was upon the Stoics, who credited him with anticipating them. Fire has a primacy for them, and they, too, adopt a Logos as a ruling principle that is eternal, divine, and common to all things. Unlike Parmenides, Heraclitus exercises his charm well beyond antiquity and beyond philosophy. Hegel finds a positive parallel between his logic and the doctrines of Heraclitus, and T. S. Eliot spins out much of *The Four Quartets* in imagery borrowed from Heraclitus. Heraclitus's poetic prose attracts many to this day.

See also Anaximander; Anaximenes; Cosmology: Cratylus; Epistemology; God, Concepts of; Homer; Meta-

physics; Parmenides of Elea; Philosophy of Religion; Philosophy of Religion, History of; Philosophy of Religion, Problems of; Pythagoras and Pythagoreanism; Xenophanes of Colophon.

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Herbert Granger (2005)

HERBART, JOHANN FRIEDRICH
(1776–1841)

Johann Friedrich Herbart, the German philosopher, psychologist, and educational theorist, was born in Olden-burg; he entered the University of Jena in 1794. Although he studied under Johann Gottlieb Fichte, Herbart was unable to accept Fichte's view of the ego and its psychology, and in reaction he laid the basis for his own metaphysical and psychological views. In 1797 Herbart took a post in Switzerland as tutor. He held the position for three years and, during this period, worked out to a large extent the views that he was to refine and elaborate for the rest of his life.

After he took his doctorate at Göttingen in 1802, Herbart remained there for the next seven years. *Allgemeine Pädagogik* (General Theory of Education) and *Hauptpunkte der Metaphysik* (Main Points of Metaphysics), both of which appeared in Göttingen in 1806, and his *Allgemeine praktische Philosophie* (General Practical Philosophy; Göttingen, 1808) were major fruits of this period. In 1809 Herbart moved to Königsberg to occupy Immanuel Kant's former chair, and there he published his *Lehrbuch zur Psychologie* (Compendium of psychology; 1816), *Psychologie als Wissenschaft* (Psychology as a science; 1824–1825), and *Allgemeine Metaphysik* (General metaphysics; 1828–1829). When the political situation rendered Königsberg continually less attractive and Herbart failed to secure G. W. F. Hegel's chair at the University of Berlin, he returned to Göttingen in 1833 and remained there until his death.

THE PARTS OF PHILOSOPHY

Philosophy, according to Herbart, cannot be characterized by its subject matter but only by its method, which is the reworking (*Bearbeitung*) of concepts; and the possible kinds of such elaboration determine the major divisions of philosophy.

The first kind of reworking renders concepts clear and distinct. Distinct concepts can be formed into judgments and these judgments can be organized into inferences. This process of distinguishing and ordering concepts is logic.

But experience gives rise to many concepts which, the more distinct they become, the more contradictory they appear, a sure sign that we are missing both being and truth. Our ideas must, therefore, undergo an "enlargement" (*Ergänzung*), which will remove the contradiction. This second kind of reworking of concepts gives us the second great division of philosophy, metaphysics.

Concepts in the third class are like the metaphysical concepts in that they cannot remain merely at the level of clarity and distinctness, as do the logical concepts. But

while the metaphysical concepts involve only enlargement, this third class involves in addition an intuitive judgment of approval or disapproval. Thus we get the last great division, aesthetics. Aesthetics includes a series of doctrines of art or practical sciences. One of these, ethics, issues necessary (and not merely conditional) prescriptions because we continuously and necessarily concern ourselves with its object, ourselves.

METAPHYSICS

Metaphysics consists of four parts: (1) method, the general principles of the proper method and order of procedure; (2) ontology, the study of the real; (3) synechiology, the study of those forms of experience that have continuity (such as space, time, and motion), and (4) eidolology, the examination of the possibility of knowledge.

METHOD. The first task of metaphysics is to define "the given" in experience. Common sense says that it is "things with multiple and changing characteristics." But this concept violates the law of identity. For any single thing dissolves into a multiplicity of qualities when we describe it; it is at once both a unity and not a unity. Substance, cause, ego, time, and space are also contradictory. Yet they must be "given" in some sense, since we cannot change them at will. In moving to metaphysical concepts freed from contradiction, we use as our chief tool the " method of relations." A contradictory concept of experience, A, unites the contradictory terms, M and N. M is thus both identical and nonidentical with N. If one further divides M into M' and M'', one element will still be identical with N, the other not; this contradiction disappears only when we admit that, although each of the parts of M is not identical with N, they mutually modify each other so that together they become so. Thus, in the syllogism, the conclusion must be contained in the premises; and thus the premises must change into or cause the conclusion. But M' and M'', the premises or cause, are not individually the same as N, the conclusion or effect. Hence M' and M'', the premises, must mutually modify each other so as to become identical with the conclusion.

ONTOLOGY. Ontology deals with being. Since being is not directly given in experience, it is easy to say that there is no being. But it is hard to live with this judgment, for things continue to appear. What, then, is it that appears? Appearances or phenomena cannot be taken as the only reality, for the concept of absolute position (being in absolutely no relation whatever to anything) cannot be applied to them; they are always related to something else. Nor can phenomena be reduced to our sensations of them and then located in an ego, for our sensations are not just sensations of sensations, and the concept of the ego is itself contradictory.

We are thus led to posit "being" as a plurality of beings or reals (*Realen*), with the essence of each real a single quality, absolutely simple, without parts, degree, or negation, always immutably identical with itself. But how can this concept of being be reconciled with our experience, which is both the basis of metaphysics and its test? The absolute position of reals seems to contradict the multiple relations in which things appear to us. But being can be conceived by mind; and in mind a being is only an image (*Bild*). Mind also can simultaneously represent several beings, which, as images, can stand in many different relations to the first one. These relations are "contingent viewpoints" (*zufällige Ansichten*), which exist in thought, not in things-in-themselves. Just as in analytic geometry the same point can be part of an infinite number of curves, so a single real may enter many contingent viewpoints.

Experience presents us with complex aggregates that we call things. Yet we cannot say that the aggregate exists, for colors, sounds, and such exist only in the perceiving subject. Nor can we say that something having those qualities—that is, substance—exists, for substance cannot be being if being is simple, since substance appears as endowed with manifold and varying qualities. How, then, can attributes and modes inhere in substance? By the method of relations. If A is a substance and a an attribute, analysis of A into multiple elements (A', A'', and so on) will not resolve the contradiction unless we say that a is not identical with any one of the As but with the totality of them, the number of which remains undetermined but which must be at least two if mutual modification between them is to occur. Substance, then, is explainable as multiple beings in conjunction (*zusammen*) with each other, many reals grouped about one real. This conjunction explains that unity that we attribute to substance, although the essential unchanging quality of that central real is unknown to us; and the other reals in conjunction with it account for the varied and varying attributes we experience, although those attributes are not the essential qualities of those various reals.

The conjunction and the separation of the reals explain those sensible appearances which led to their postulation. Such mutual interaction would seem to lead to mutual destruction, but, just as in an equilibrium of forces both forces remain constantly what each is, though balanced, so in the concatenation of reals, the mutual perturbations (*Störungen*) that would lead to mutual

destruction are counterbalanced by individual acts of self-preservation through which each real strives to remain what it is.

These acts of perturbation and self-preservation constitute real phenomena (*das wirkliche Geschehen*), as distinct from sensible phenomena or appearances (*Erscheinung*), of which the real ones are the basis and explanation. To what or to whom do they appear? This is the problem of the ego, self, or soul-substance.

The ego, or self, poses the same problems as do the other substances, and the solution is the same. The unity and diversity of the ego are explained by the coming and going of reals. The soul, which is not the ego of consciousness, is a real, but one endowed with mind, which is the seismograph that records, in the form of presentations or ideas (*Vorstellungen*), the acts of self-preservation of the soul vis-à-vis the other reals. These presentations are the sensible phenomena given in experience. With metaphysics thus having shown the origin of our ideas, psychology will show their development and combination.

SYNECHIOLOGY. Synechiology concerns that which is continuous (*das Stetige*)—notably space, time, and motion. Continuity, as union in separation and separation in unity, is a contradictory concept (though undoubtedly given in experience), which must be explained by metaphysics. As far as being is concerned, space and time are "obviously nothing." They, like the continuity we attribute to them, are merely natural and necessary products of the psychic mechanism. What essentially characterizes space and time is the mutual exteriority (*Auseinander*) of the parts. But between points of space or time it is always possible to *conceive* additional parts, and this further functioning of the psychic mechanism makes space and time seem to flow uninterruptedly.

But the comings and goings of the reals imply some sort of space, time, and motion, even though these are distinct from their sensible counterparts, such as "intelligible space." Although two reals, *A* and *B*, are actually apart, we can conceive the possibility of *B*'s being with *A* and *A*'s being with *B*. Thus space is the simple possibility *in mind* for one real to be together with another from which it is separated in reality, an "image" without reality. Space thus being completely accidental for reals, we can, by putting *A* in the place of *B* and *B* in the place of *A* and further continuing to add more reals and more dimensions, generate lines infinite in all directions, even though each line is "fixed" (*starre*) with a determinate number of points rather than continuous (*stetige*) with mutual inter-

penetration (and hence indefiniteness in number) of the parts. The psychic mechanism then conceives of these "fixed" lines as continuous by interpolation. Intelligible space, as thus generated, corresponds to the sensible space of phenomena and shares its contradictions, but these need not trouble us, since they have nothing to do with being. Intelligible space is a purely conceptual artifact (*Gedankending*), not imposed by mind on things but generated by mind as a necessary aid to thought. Once intelligible space has been generated, the explanation of matter becomes possible. It is a question of asking what situation the images of reals should occupy with respect to intelligible space in order to account for matter. The answer is "incomplete interpenetration."

EIDOLOLOGY. Eidolology examines the possibility of knowledge and its limits. In all knowledge, matter and form can be distinguished. The matter is simple presentations or sensations. They do not enable us to know what is, but they do oblige us to believe that something is. But the given has form as well as matter. Sensations are not given us in isolation but formed into groups, which cannot be separated at will and which constitute things. Doubtless, in the form in which they appear to us, things exist only in and for mind. But the constancy and the modifications of these groups of sensations have their basis in the conjunction and separation of the reals. Thus mind, though it cannot know the qualities of the reals through sensation, does know their relations; and even were our sensations wholly different from what they are, their forms would be the same, arising as they do from the objective separations and connections of the reals. Knowledge through concepts is likewise valid knowledge, although it too is knowledge only of relations. "We live amid relations and need nothing more."

PSYCHOLOGY

Everything in mind arises in some fashion out of presentations. There are no faculties, no innate ideas, no concepts a priori. The soul is a real in which countless acts of self-preservation are provoked through its contacts with other reals, and these efforts in turn produce in mind the presentations, some of which oppose, some of which reinforce, each other. Although reals and presentations are not forces, they can best be understood by analogy with forces, and hence the synthetic part of psychology consists of the statics and mechanics of mind. Complex mathematical formulas, corresponding to those of the statics and mechanics of physics, describe the interplay of presentations.

Presentations of different sorts do not oppose each other (for instance, colors do not oppose sounds); but presentations of the same sort do (for instance, red opposes blue). In the latter case, what remains after arrest is an equilibrium, a weakening or obscuring of the original presentations that is reached progressively by a process of sinking (*Senkung*). A presentation, if it has not undergone arrest, is present in consciousness. Sinking under arrest, it may be forced below the threshold of consciousness. Yet a presentation below the threshold of consciousness is subject to recall or rising (*Hebung*) by the appearance of a new presentation similar to it, and the speed of this rising depends on the degree of similarity between the two presentations. This new presentation also produces a vaulting (*Wölbung*) or "arching" of all other arrested presentations similar to it. The coming of a new presentation, *B*, produces the rising (*Hebung*) of the similar older presentation *A*. But as *A* is pulled up, other older presentations similar to *A* but less similar to *B* are also pulled up in a *Wölbung*, or arching. The analogy to a beater being pulled out of stiff whipped cream is exact. The surface of the cream closest to the beater is pulled up most (*Hebung*), but the whole center surface arches somewhat (*Wölbung*).

The feelings, the desires, and the will have their origin in presentations. Some feelings arise out of the fusion of opposed presentations, and the pleasantness or unpleasantness depends on the amount of opposition. Other feelings originate in the strain that the rising, produced by a new presentation, puts on ties that an old presentation already has with one or more others. Thus the sight of an object belonging to a dead friend evokes the memory of him, but the thought of his death tends to repress the memory and thus to produce a painful feeling. Pleasant feelings arise in the contrary situation, when the other associated presentations all facilitate the recall of the original one. The desires are closely connected with the feelings. In a situation giving a painful feeling, where *A* is lifted toward consciousness by the appearance of *C* and is simultaneously depressed by its earlier relation to *B*, the feeling of effort by which the resistance is overcome will be a desire and *A* will appear as the object of desire. The will, in turn, is only a particular form of desire, the realization of which is seen as possible.

Concepts, also, have their origin in the fact that each new presentation produces the vaulting of the images of similar previous presentations already in mind, in which process the similarities are reinforced and the differences between them are repressed, as in a composite portrait.

ETHICS

Ethical judgments are aesthetic judgments involving pleasure and displeasure. Since the completely simple cannot be pleasing or displeasing, these judgments must be directed to something complex, to relations. Since Herbart, like Kant, sought the basis of ethics in the good will, the five possible relations of the will suggest five corresponding fundamental ethical ideas.

The idea of "inner freedom" is the correspondence between a single act of a single will and the judgment passed on it. Harmony between the "objective" will (the inclinations) and the "subjective" will (the intuitive ethical judgment) is absolutely pleasing; its contrary, displeasing.

"Perfection" relates the varied acts of a single will. To this multiplicity, three quantitative concepts may be applied: the strength of any single effort (intensity), the multiplicity of the objects encompassed by the will (extension), and the concentration of this manifold into a total power (a new intensity developing out of extension). There is no absolute standard, but the stronger and more concentrated will is more pleasing than the weaker.

The idea of "benevolence" arises when one will comes to terms with the will of another. Yet this relation is internal to the first will in that it takes the will of the other person as an object.

The idea of "law" concerns the relations between the wills of two persons who desire some one thing. The ensuing strife is not, however, merely the contrary of the idea of benevolence, since both wills are turned directly toward the object and only indirectly toward each other.

The idea of "equity" arises from the intentional doing of an act of ill or good, a displeasing imbalance between two wills that can be rectified only by some appropriate requital through reward and punishment.

These five basic ethical ideas cannot be isolated in estimating character or in organizing social or political life; each must be tempered by all the others. Together, they exhaust the possible relations of the will, since the addition of more wills repeats in more complicated fashion those already covered by law and equity. But extension is possible if the many wills of a group can be analogized to that of a single rational being. Then five analogous social ideas appear in the reverse order. Members of this society will seek to avoid strife through a "system of law." But transgressions lead to a "system of requital." The benevolent spectator would wish for the greatest possible sum of well-being attained through the rational distribution of the available goods according to a

"system of administration." Then increased well-being would produce an intensity and range of strivings reconciled under a "system of culture." With the obedience of each to the moral insight of all, the many would become one in an "ideal society."

EDUCATION

Education takes its aim from ethics; psychology then shows it the means and hindrances to this end. The aim is moral strength of character, a will with inner freedom whose volitions are always in accord with the moral law. The three major divisions of education are instruction (*Unterricht*), discipline (*Regierung*), and training (*Zucht*). Since psychology shows that the entire mental life (including the desires and the will) is built out of presentations, instruction (with its four steps of clarity, association, system, and method) is directed toward enlarging the child's circle of thought and developing in him a many-sided interest by efficiently introducing the proper presentations into his apperceptive mass. Discipline keeps the child obedient and attentive so that instruction and training can do their work before the child has developed a proper will of his own. Training works constantly with instruction and discipline to form the will directly through such means as environment, examples, and ideals. Under discipline, the child acts rightly because he must; under proper instruction and training, he acts rightly because he wills to do so.

See also Apperception.

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HERBERT OF CHERBURY
(c. 1582–1648)

Edward Herbert, the first Baron Herbert of Cherbury, courtier, soldier, diplomat, poet, historian, philosopher, and theologian, was the brother of George Herbert (1593–1633), the pastor and poet. He matriculated at University College, Oxford, in 1596. He moved to London in 1600, where he continued his studies and attracted the attention of the aging Queen Elizabeth. On his accession to the throne of England James I created him a knight. As a young man Herbert traveled on the Continent, on occasion being involved in warfare where he showed what some judged bravery and others foolhardiness. Visiting Rome, he called at the English College and showed his undogmatic spirit when he told a person whom he met there that while he was not a Roman Catholic, he judged that "the points agreed on both sides are greater bonds of amity betwixt us, than the points disagreed on" (*The Life of Edward Lord Herbert of Cherbury, Written by Himself*, p.105).

In 1619 he was appointed ambassador to the French court. In this post he showed himself to be a skillful diplomat who was prepared to use his own initiative and to give sensible, even if unpalatable, advice to his government. In 1624 he was recalled. The Crown failed to reimburse his debts as ambassador but sought to satisfy him with peerages, first the Irish barony of Castle Island, and later the English barony of Cherbury. In vain attempts to recover royal favor Herbert wrote two histories. The first, *Expeditio in Ream Insulam* (published posthumously in 1656), tries to defend the Duke of Buckingham's conduct in an English invasion of the Isle de Rhé in 1627 that was intended to support the Huguenots. Unsurprisingly in view of what happened on the expedition, it is not a convincing defense. The other was *The Life and Raigne of King Henry the Eighth* (1649), in preparing which he used official archives. It was long regarded as an authoritative study.

Although a member of Charles I's Council of War, Herbert sought as far as possible to avoid playing an active part in the English Civil War. He surrendered Montgomery Castle, where he was living, to Parliamentary forces when they augmented their challenge with the threat to sell the library that he possessed in London. Soon after, he moved to London and died there in 1648. He was buried, as he directed, without "shew of mourning" at midnight. In a lively and somewhat tongue-in-cheek autobiography, *The Life of Edward Lord Herbert of Cherbury, Written by Himself* (originally published by

Horace Walpole in 1764), he tells the story of his life and escapades up to his recall from France in 1624. His main claims to fame in the history of thought lie in his philosophical views (for which he is justifiably known as the first English author of a purely metaphysical study and for which he was respected as well as criticized by Hugo Grotius, Pierre Gassendi, and René Descartes) and in his religious thought (in which he produced a pioneer work on the study of other religions, and for which he has traditionally, but arguably inaccurately, been described as "the father of English deism").

PHILOSOPHICAL THOUGHT

During his ambassadorship Herbert completed his major philosophical work, *De Veritate, Prout Distinguitur a Revelatione, a Verisimili, a Possibili, et a Falso* (On truth, in distinction from revelation, probability, possibility, and error), and had it privately printed in Paris in 1624. In this work he seeks to show, contrary to the doubts of "imbeciles and sceptics," that "Truth exists" (*De Veritate*, p. 83).

Although he was in touch with contemporary scholars, although his works show wide knowledge of classical, scholastic, and Renaissance literature and of hermetic literature, and although his arguments are sometimes less than persuasive, Herbert should not be seen as an eclectic thinker who merely puts forward a collection of sometimes discordant ideas that happen to attract him. Conflicts between his ideas are rather due to a failure to be sufficiently thorough in developing his innovative position.

THE NATURE OF TRUTH. On the title page of the second and third editions of *De Veritate*, Herbert dedicated his work to "every reader of sound and unprejudiced judgement" (this was different from the first edition, which had been grander in its amusingly presumptuous dedication to "the whole human race without qualification"), regarding himself as an original thinker who thinks "freely" and recognizes only the authority of "right reason," and using what is at times rather infelicitous Latin, Herbert aims to determine the nature of truth and the way in which it is identified by "every normal human being." He regards such an investigation as necessary if people are to know how to avoid the errors of skepticism, dogmatism, and fideism that corrupt current thought and lead some to hold that "we can know nothing," and others that "we can know everything."

Although Herbert regards right reason as the final judge of what is true, he also puts forward a doctrine of

universal consent as the criterion for truth. He defends this doctrine on the grounds that universal consent must be due to the work of Providence, and hence what receives it cannot be doubted. The doctrine is somewhat paradoxical, however, since the need for some such criterion only arises where people do not agree about what is true, and hence where there is no universal consent about the matter. Herbert's views on this issue reflect the question-begging nature of his appeal to the authority of right reason: those who disagree with him about what receives universal consent may be ignored because their disagreement shows that they are not people of "sound and unprejudiced judgement" who are clearly following the dictates of right reason. It also reflects his conviction that the overall providence of God prevents what is erroneous from receiving universal consent.

THE DOCTRINE OF THE 'FACULTIES.' Herbert rejects the notion of the mind as a passive blank sheet on which the objects of its knowledge make their impressions. Nevertheless, while he holds that what people truly know is determined by the structure and activity of their minds, he seeks to show that what is known is, as common sense maintains, what is actually the case. To do this he puts forward his doctrine of the faculties, using the term *faculty* to refer to an internal power of the mind that links a particular perception with a particular object. According to this doctrine an object, whether intellectual or physical, is perceivable as such, and only so perceivable, because there is a corresponding faculty preestablished in the mind. Within the mind of each person there are as many latent faculties as there are differentiable objects, and the existence of a faculty shows the existence of a corresponding object. Defining truth as "a matter of conformity between objects and faculties" (*De Veritate*, p. 78), Herbert maintains that true knowledge of an object occurs when the appropriate latent faculty is activated. He also claims that an inner sense of satisfaction shows when an object has been correctly perceived by its corresponding faculty.

Herbert distinguishes between four classes of truth and between four types of faculty. According to the former division, the four classes of truth are: the truth of things as they are in themselves, the truth of how things manifest themselves to people, the truth of concepts that differentiate between things, and the truth of judgments on the deliverances of the other faculties. The four types of faculty are natural instinct, internal apprehension, external apprehension, and discursive thought. The first of these, natural instinct, is described as "that mode of apprehension which springs from the faculties which

conform to the Common Notions" (*De Veritate*, p. 115). These common notions are implanted in people by God. They are therefore all present, even if in many cases only latent, in every sane and whole person. The common notions are characterized by the qualities of priority, independence, universality, certainty, necessity (for one's preservation), and "the way of conformation" [*De Veritate*, p. 139–141] (in the sense of being immediately recognized and not needing to be warranted by discursive thinking). When brought to consciousness through appropriate stimulation, the common notions are acknowledged by all reasonable people as the normative principles for discerning what is true and good and for exposing what is false and bad.

As Herbert himself admits, the forms of the second type of faculty, internal apprehension, are not easily distinguished from those of the natural instinct. What characterizes them is that they concern a person's active response to particular objects. They may be spiritual, bodily, excited by external objects, or mixed. Under the guidance of the natural instinct, they make judgments about what is good and what is evil. Conscience is the highest of them. It applies the common notions to individual cases and is only satisfied when the faculties are correctly adjusted to what is the case. It is also through this faculty that people sense what is erroneous. External apprehension, the third type of faculty, concerns the ways by which people become aware of the external characteristics of objects and of their relationships with each other. Although most of Herbert's discussion of this kind of apprehension is concerned with the conventional five senses, he denies that there are only these five external modes of apprehension. He maintains that each sense is a channel for many external forms of apprehension since there are as many forms of apprehension as there are differences between objects.

The final type of faculty, discursive thought, is peculiar to humankind. It draws inferences from what comes to be known through the other faculties. It is more liable to error than they are, and so its findings are not to be preferred to what they directly discover. To establish the proper limits and methods of discursive reasoning, Herbert presents what he calls *Zetetica* and *Euretica* (the terms seem to have been coined by him, presumably from the Greek words for "to seek for" and "to discover"). These rules of reasoning appear to be indebted to Aristotelian logic. According to Herbert right reasoning proceeds by asking the appropriate faculties ten questions about the object of enquiry, namely, whether it exists, what it is, what kind of object it is, what its size is, to what

it is related, and how, when, where, whence, and why it exists. Herbert assures his readers that by using this method complete and true knowledge of an object will be obtained.

PROBABILITY, POSSIBILITY, AND ERROR. *De Veritate* closes by considering probability, possibility, and error. The first of these deals with knowledge of the past, in the course of which discussion Herbert indicates the insecurity of beliefs based on historical judgments, the second with knowledge of the future, and the last with the sources of wrong judgments. In 1645 Herbert published *De Causis Errorum: Una cum Tractatu de Religione Laici, et Appendice ad Sacerdotes, nec non quibusdam Poematibus* (Concerning the causes of errors, with a treatise concerning religion for the laity, and an appendix to priests, with certain poems), some copies of which were bound in an enlarged, third edition of the *De Veritate*. It does not add significantly to the epistemological discussions in the earlier work. Errors and fallacies are held to be the result of failing to satisfy the conditions for grasping the truth laid down in *De Veritate*.

RELIGIOUS THOUGHT

Herbert's thought is probably most widely known for his discussion of the common notions concerning religion. This was included in his treatment of common notions in *De Veritate* and was expanded in later editions. Herbert holds that the criterion for true religious belief is not found in some supposed revelation or ecclesiastical authority, but in five common notions. They are that (1) there is a God (Herbert's term for God is *Supremum Numen* [Highest divinity]); (2) this God ought to be worshipped; (3) the connection of virtue with piety is and always has been the most important part of religious practice; (4) while people are aware of their evils, they can and must expiate them by repentance; and (5) people face reward or punishment after this life. These common notions are, for Herbert, the foundation of the true catholic or universal church that covers all humanity and the only authentic source of salvation.

In *De Religione Laici* (On religion for the laity; 1645) Herbert argues that a layman, using both reason and prayer, can and should decide between competing claims to belief by choosing that religion whose doctrines and practices are closest to the five common notions of religion discerned by the natural instinct. Commands about what is to be believed and practiced that have supposedly been imparted to people by revelation and transmitted by tradition should only be regarded as credible if they are

consistent with the common notions. Religious persecution, the pretensions of priestcraft, and restricted schemes of salvation are to be rejected. Authentic religion is realized in a virtuous life that conforms to the common notions of religion. This is fundamentally, if sometimes obscurely, recognized by people of right reason everywhere and at all times. According to Herbert *De Religione Laici* is written, not "with a mind … hostile to the best religion," but to make clear what follows from holding that "universal divine providence" is "the highest attribute of God" (*De Religione Laici*, p. 125). In the attached *Appendix ad Sacerdotes* Herbert reaffirms his argument that God, as a universal providence, must have provided all people with the means of salvation and that these are found in the common notions. Nothing more is needed. Additions to them, whether proposed by priests or the Bible, are to be judged unnecessary.

Herbert wrote two works, both published posthumously, in which he attempts to justify his claim that people everywhere and all times recognize the truth and normative status of the common notions of religion. The first of these, *De Religione Gentilium* (On the religion of the Gentiles), first published in 1663 (with an English translation by William Lewis appearing in 1705 entitled *The Ancient Religions of the Gentiles and Causes of Their Errors Consider'd*), is a pioneering work in the English study of other faiths. In it Herbert seeks to show that the evidence about religious belief and practice, which he derives for the most part from classical authors although there are some references to more recent reports, confirms that the common notions of religion are acknowledged everywhere. Evidence that seems to contradict this conclusion is rejected, for the most part on the grounds that it either is due to the corrupting effects of priestcraft or arises from a hermeneutical failure to appreciate symbolic usage. Herbert's sympathetic approach to non-Christian faiths did not blind him, however, to evils present in them. The "sound, most ancient and universal parts of religion" have to be abstracted from a vast heap of "superstitious rubbish" (*De Religione Gentilium*, Lewis translation, p. 292), largely introduced to serve priestly self-interest.

While in *De Religione Gentilium* Herbert concentrates on the first two common notions of religion, he focuses on evidence about the third and fourth in *A Dialogue between A Tutor and His Pupil* (published in 1768 and whose text, at least on the whole, is now generally accepted to be correctly ascribed to Herbert). Here again he denounces the corruptions and perversions of priestcraft while defending his conviction that the "five

catholick articles" have been universally "engraved" in human "souls by the hand of God" (*A Dialogue between a Tutor and His Pupil*, p. 105).

HERBERT AND DEISM

As has been mentioned, Herbert has commonly been dubbed "the father of English deism." When examined, the evidence of his thought and practice provides strong grounds for questioning the justification of this description. Apart from the case of Charles Blount (an eclectic and sometimes plagiarizing author), it is not clear that Herbert's views influenced the thought of those later writers commonly said to be deist (itself a designation whose vagueness renders it more misleading than useful as a description when applied to English writers in the seventeenth and eighteenth centuries).

In his epistemological attempt to find a reasonable way between the dogmatic errors of bigotry and skepticism, Herbert holds that God is a universal providence whose active benevolence influences people's lives, that salvation is available to all through repentance, that prayer is efficacious, that people are to live virtuous lives, and that people have a postmortem personal existence in which they are judged but also may expect to find fulfillment. He does not doubt that divine revelations are given to individuals and, indeed, claims that he only decided to publish *De Veritate* after praying for and receiving a sign from heaven. At the same time, he does limit the significance of appeals to revelation, gives rules for authenticating them, and points out that there is a crucial difference between what is actually revealed on some occasion and what is passed down as a tradition of historical faith, especially when priests claim to be the authorized bearers of the tradition.

As for the Bible, Herbert is aware that different faiths assert the authority of different sacred books and so holds that what is taught by any of them, including the Bible, is to be judged against, and interpreted in terms of, the common notions of religion, since these alone undoubtedly express "the undoubted pronouncements of God, transcribed in the conscience" (*De Religione Laici*, p. 101). Rather than having the dubious distinction of being called "the father of English deism," an ascription deriving from eighteenth-century works by Thomas Halyburton (1674–1712), Philip Skelton (1707–1787), and John Leland (1691–1766), it seems more accurate to regard Herbert of Cherbury as a thinker with liberal convictions who attempts to identify an understanding of theistic belief that avoids the gross errors of religious fanaticism and unbelieving skepticism.

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HERDER, JOHANN GOTTFRIED
(1744–1803)

Johann Gottfried Herder, German philosopher and critic, was born in Mohrungen in East Prussia. His father was a schoolteacher and he grew up in humble circumstances. In 1762 he enrolled at the University of Königsberg, where he studied with Kant, who accorded him special privileges due to his unusual intellectual abilities. At this period he also began a lifelong friendship with the irrationalist philosopher Johann Georg Hamann. In 1764 he left Königsberg to take up a schoolteaching position in Riga. There he wrote the programmatic essay *How Philosophy Can Become More Universal and Useful for the Benefit of the People* (1765); published his first major work, on the philosophy of language and literature, the *Fragments on Recent German Literature* (1767–1768); and also an important work in aesthetics, the *Critical Forests* (1769). In 1769 he resigned his position and traveled—first to France, and then to Strasbourg, where he met, and had a powerful impact on, the young Goethe. In 1771 he won a prize from the Berlin Academy for his best-known work in the philosophy of language, the *Treatise on the Origin of Language* (1772). From 1771 to 1776 he served as court preacher to the ruling house in Bückeburg. The most important work from this period is his first major essay on the philosophy of history, *This Too a Philosophy of History for the Formation of Humanity* (1774).

In 1776, partly through Goethe's influence, he was appointed General Superintendant of the Lutheran clergy in Weimar, a post he retained for the rest of his life. During this period he published an important essay in the philosophy of mind, *On the Cognition and Sensation of the Human Soul* (1778); a seminal work about the Old Testament, *On the Spirit of Hebrew Poetry* (1782); his well-known longer work on the philosophy of history, the *Ideas for the Philosophy of History of Humanity* (1784–1791); an influential essay in the philosophy of religion, *God. Some Conversations* (1787); a work largely on political philosophy, written in response to the French Revolution, the *Letters for the Advancement of Humanity* (1793–1797); a series of *Christian Writings* (1794–1798) concerned with the New Testament; and two works written in opposition to Kant's critical philosophy, the *Metacritique* (1799) (against the theoretical philosophy of the *Critique of Pure Reason*) and the *Calligone* (1800) (against the aesthetics of the *Critique of Judgment*).

Already in the 1760s Herder developed certain distinctive general positions in philosophy that would endure for the rest of his career. Most of these were strongly influenced by Kant, but by the *pre*critical Kant of the early and middle 1760s (not the critical Kant, against whom Herder later engaged in the public polemics just mentioned). Among these positions were: an insistence that philosophy should be useful for people in general; a (Pyrrhonist-influenced) skepticism about metaphysics, and about apriorism in philosophy; a form of empiricism; a (Hume-influenced) noncognitivism in ethics; and a principled rejection of ambitious forms of systematicity in philosophy. The early essay *How Philosophy* is especially revealing in this connection.

LANGUAGE

On the Origin is Herder's best-known work in the philosophy of language, but it is in certain respects unrepresentative and inferior in comparison with other works such as the *Fragments* and should not monopolize attention.

On the Origin is primarily concerned with the question whether the origin of language can be explained in purely natural, human terms or (as Johann Peter Süßmilch had recently argued) only in terms of a divine source. Herder argues for the former position and against the latter. His argument is fairly persuasive. But this is unlikely to constitute a modern philosopher's main reason for interest in Herder's ideas about language (deriving its zest, as it does, from a religious background that is no longer ours).

Of far greater modern relevance are the following three theses already embraced by Herder as early as the 1760s, the first two of which founded the philosophy of language as we know it today: (1) Thought is essentially dependent on, and bounded in scope by, language—that is, one can only think if one has a language, and one can only think what one can express linguistically. (2) Meanings or concepts are not to be equated with the sorts of items, in principle autonomous of language, with which much of the philosophical tradition has equated them— for example, the referents involved, Platonic forms, or empiricist ideas. Instead, they consist in *usages of words*. (3) Conceptualization intimately involves (perceptual and affective) sensation. More specifically, sensation is the source and basis of all our concepts, though we are able to achieve nonempirical concepts by means of a sort of metaphorical extension from the empirical ones, so that all of our concepts ultimately depend on sensation in one way or the other.

Herder also develops original theories of interpretation and translation founded on these principles. Fundamental to these theories is also a further insight: (contra such eminent Enlightenment philosopher-historians as Hume and Voltaire) peoples from different historical periods and cultures often vary radically in their concepts, beliefs, sensations, and so forth; and similar, albeit usually less dramatic, variations occur even between individuals within a single period and culture. This situation makes accurate interpretation and translation extremely difficult. In particular, it entails that interpreters and translators constantly need to resist a temptation to erroneously assimilate the concepts and thoughts they interpret or translate to their own. Herder develops his theories of interpretation and translation largely in response to this challenge.

His theory of interpretation (which is scattered through several works) stresses, inter alia, the need to complement a focus on word usages with a focus on historical context, authorial psychology, and literary genre; to "feel one's way into '*sich hineinfühlen in*'" the author's meaning-internal sensations; to adopt a rigorously empirical approach to determining all of these things; to use "divination," in the sense of tentative hypothesis, when advancing beyond the available empirical evidence, for example, for an author's psychology; and to interpret the parts of a work in light of the whole work. This theory exercised a huge influence on subsequent theories of interpretation, in particular Friedrich Daniel Ernst Schleiermacher's (which has often been mistakenly credited with introducing the psychological component of interpretation and "divination," which were in fact Herder's innovations).

Herder's theory of translation (which is mainly developed in the *Fragments*) stresses the need to "bend" word usages in the target language in order to faithfully reproduce the alien word usages and hence meanings in the source language; and the need to reproduce not only the semantic content but also the musical "form" (e.g., the meter) of the source text, because this conveys nuances of the sensations internal to the author's meanings. With these two principles, Herder founded a new paradigm of foreignizing translation that came to dominate German translation theory and practice during and after his lifetime.

MIND

In *On the Cognition* and elsewhere Herder develops an interesting and influential philosophy of mind. The following are its main features.

(1) He argues for an uncompromisingly *naturalistic* and *anti-dualistic* conception of the mind. In particular, he tries to erase the division between the mental and the physical in two specific and suggestive ways: First, he advances a theory that minds and their conditions consist in *forces* (*Kräfte*) that manifest themselves in people's bodily behavior—just as physical nature contains forces that manifest themselves in the behavior of bodies. Second, he undertakes to explain the mind in terms of the phenomenon of *irritation* (*Reiz*), a phenomenon recently identified by Haller, and exemplified by muscle fibers contracting in response to direct physical stimuli and relaxing upon their removal—in other words, a phenomenon that, while basically physiological, also seems to exhibit a transition to mental characteristics.

(2) Herder also argues that the mind is a *unity*, that there is no sharp division between its faculties. This position contradicts theorists from the period such as Sulzer and Kant. It is not entirely original with Herder, having already been central to Rationalism, especially Wolff. But Herder's version of it is original in certain respects, e.g. in rejecting Rationalism's reduction of sensation and voli-

tion to cognition, and in establishing the unity thesis in an empirical rather than an apriorist way.

(3) Herder also argues that linguistic meaning is fundamentally social, so that thought and other aspects of human mental life (as essentially articulated in terms of meanings), and hence also the very self (as essentially dependent on thought and other aspects of human mental life, and as defined in its specific identity by theirs), are so too. Herder's version of this position is again empirically based (unlike later versions of it, e.g., Hegel's).

(4) In tension, though not contradiction, with the preceding position, Herder also holds that even within a single period and culture human minds are as a rule deeply *individual*, deeply different from each other—so that in addition to a generalizing psychology we also need a psychology oriented to individuality. (5) Finally (like predecessors in the Rationalist tradition and Kant), Herder rejects the Cartesian idea of the mind's self-transparency—instead insisting that much of what occurs in the mind is unconscious, so that self-knowledge is often deeply problematic. This whole theory of the mind exercised an enormous influence on successors such as Hegel, Schleiermacher, and Nietzsche.

AESTHETICS

As already noted, Herder's philosophy of language is committed to the two doctrines that thought is essentially dependent on and bounded by language, and that meaning is word-usage. These doctrines seem to stand in tension with the expression of thought and meaning by the nonlinguistic arts, however. In the *Critical Forests* (1769) Herder initially tried to cope with this problem by denying that such arts express thought or meaning, but that is an implausible position, and in later parts of the work he began to develop a much more plausible solution: they do so, but the thoughts and meanings in question depend on a prior linguistic articulation or articulability by the artist (so that the interpretation of "nonlinguistic" art requires the interpretation of language). This was henceforth Herder's normal position.

Another important Herderian contribution to aesthetics is his theory of *genre*. Herder believes, plausibly, that a work of art is always written or made to exemplify a certain genre, and that it is vitally important for an interpreter to identify the work's genre if he is to understand it correctly. Herder's basic conception of genre is that it consists in an overall purpose together with certain rules of composition dictated thereby. Genres are to a great extent socially pregiven, but they vary from society to society, and they always play their role via authorial intention, so that the individual artist is not inexorably locked into them but can and often does modify them.

Herder has two reasons for thinking it vitally important to define a work's genre correctly if one is to understand the work properly (both good reasons): first, because an author intends his work to exemplify a certain genre, there will normally be aspects of the work's meaning that are expressed, not explicitly in any of its parts, but rather through its intended exemplification of the genre; second, correctly identifying the genre is also required for correctly interpreting things that *are* expressed explicitly in the parts of a work. Just as Herder insists on a scrupulously empirical approach to interpretation generally, so he insists on it in connection with determining genres in particular; he sharply rejects apriorism here, including the relative apriorism of generalizing from certain familiar examples. Such relative apriorism is disastrous, in his view, because the superficial appearance of a similar genre shared by different historical periods or cultures, or even by different authors within one period and culture, or even by a single author in one work and in another, usually masks important differences.

Herder sees misguided relative apriorism in the definition of genres in many areas of interpretation. For example, his essay *Shakespeare* (1773) discerns it in the French critics' approach to tragedy, which assumes the universal validity in tragedy of Aristotelian genre-purposes and -rules originally derived exclusively from ancient tragedies, and consequently assumes that these provide an appropriate guide for interpreting Shakespearean tragedy, whose genre-conception is in fact different; and *This Too* discerns it in Johann Joachim Winckelmann's approach to Egyptian sculpture, which erroneously imports genre-purposes and -rules derived from Greek sculpture. Herder also stresses that determining the genre properly is vitally important not only for the correct *interpretation* of an artwork, but also for its correct *evaluation*. For example, the French critics not only make an interpretive mistake when they go to Shakespeare with a genre dogmatically in mind that was not his, but also an evaluative one: because they falsely assume that he must be aspiring to realize the genre-purpose and -rules that Aristotle found in ancient tragedy, they fault him for failing to realize these, while at the same time they overlook the different genre-purpose and -rules that he really does aspire to realize and his success in realizing these.

HISTORY

Herder's philosophy of history appears mainly in two works, *This Too* and the later *Ideas*. These works are famous for their teleological conception of history as the progressive realization of a divine purpose (unspecified in the former work, but specified in the latter as the realization of "humanity" or "reason"). This conception was influential on subsequent thinkers (especially Hegel). However, the philosophical interest of Herder's works today lies elsewhere.

Herder's main achievement here arguably consists in his insight into, and detailed empirical elaboration of, the thesis mentioned earlier that (contra such Enlightenment philosopher-historians as Hume and Voltaire) there exist radical mental differences between historical periods, that people's concepts, beliefs, sensations, and so on differ in deep ways from one period to another. This thesis is already prominent in *On the Change of Taste* (1766). It too exercised an enormous influence on successors (e.g., Hegel, Nietzsche, and Dilthey).

Herder indeed makes the empirical exploration of the realm of mental diversity posited by this thesis the core of the discipline of history. He takes relatively little interest in the supposedly "great" political and military deeds and events of history, focusing instead on this varying "innerness" of history's participants (consequently, for him *psychology* and *interpretation* take center-stage as methods in the discipline). This is a deliberate and self-conscious choice for which he has deep reasons: On the one hand, he is skeptical of the traditional justifications for a history that focuses on the "great" political and military deeds and events of the past, justifications in terms of their being morally edifying (his values rather incline him to find them morally repugnant), revealing an overall meaning in history (despite his own official teleology, he is skeptical about this), or affording efficient causal insights that will enable us to explain the past and predict or control the future (he considers the potential for such insights and benefits severely limited). On the other hand, he sees positive reasons for focusing on the "innerness" of human beings in history: His discovery of radical diversity in human mentality has shown there to be a much larger, less explored, and more intellectually challenging field for investigation here than previous generations of historians had realized.

Also, studying people's minds through their literature, visual art, and so on promises to contribute to our moral self-improvement, since, unlike political-military history, it exposes us to people at their moral best and hence is morally edifying, and it serves cosmopolitan and egalitarian moral ideals by enhancing our sympathies for peoples and indeed for peoples at all social levels, including lower ones. Finally, doing "inner" history is also valuable as an instrument for our *non*moral self-improvement: It advances our self-understanding, because contrasting our own outlook with the outlooks of other peoples enables us to recognize what is universal and invariant in it and what by contrast distinctive and variable, and because in order fully to understand our own outlook we need to identify its origins and how they developed into it (this is Herder's famous and influential "genetic method"); and additionally, by investigating the nonmoral ideals of past ages (e.g., their aesthetic ideals) it enables us to enrich our own nonmoral ideals and hence happiness. This whole position strongly influenced successors, especially Wilhelm Dilthey.

Herder is also impressive for having recognized, and if not solved then at least grappled with, a problem that flows from his picture of history (and intercultural comparison) as an arena of radical variations in human mentality: the threat of *skepticism*. Herder is determined to avoid skepticism. He vacillates between two main strategies for doing so that are inconsistent with each other: His first is to acknowledge the problem in its full force but to respond to it with relativism: especially in *This Too* he argues that (at least where questions of moral, aesthetic, and prudential value are concerned) the different positions taken by different periods and cultures are equally valid, namely for the periods and cultures to which they belong, and that there can be no question of any preferential ranking between them. His second strategy is to try to defuse the problem at its source by arguing that, on closer inspection, there is in fact much more common ground between different periods and cultures than it allows. This strategy plays a central role in the *Ideas*, where in particular "humanity" is presented as a common ethical value. The later *Letters* goes back and forth between these two strategies.

POLITICS

Herder's most developed statement of his political philosophy appears in a late work prompted by the French Revolution of 1789: the *Letters* (including the early draft of 1792). In domestic politics, the mature Herder is a liberal, a republican, a democrat, and an egalitarian. In international politics, he has often been classified as a "nationalist" or (even worse) a "German nationalist," but this is misleading and unjust. On the contrary, his fundamental position is a committed *cosmopolitanism*, an impartial concern for *all* human beings. This is a large

part of the force of his ideal of "humanity." Hence, for example, in the *Letters* he quotes with approval François de Salignad de la Mothe Fénelon's remark, "I love my family more than myself; more than my family my fatherland; more than my fatherland humankind." (2002, p. 389). Moreover, unlike the cosmopolitanism of his teacher Kant, Herder's is genuine: Whereas Kant's is vitiated by a set of empirically ignorant and morally inexcusable prejudices that he harbors—in particular, racism, antisemitism, and misogyny—Herder's is entirely free of these prejudices, which he indeed works tirelessly to combat. Herder does *also* insist on respecting, preserving, and advancing national groupings. But he has good reasons for doing so: (1) The deep diversity of values between nations entails that homogenization is ultimately impracticable, only a fantasy. (2) It also entails that, to the extent that it *is* practicable, it cannot occur voluntarily but only through external coercion. (3) In practice, attempts to achieve it—for example, by European colonialism—are moreover coercive from, and subserve, ulterior motives of domination and exploitation. (4) Furthermore, real national variety is positively valuable, both as affording individuals a vital sense of local belonging and in itself.

Moreover, Herder's insistence on respecting, preserving, and advancing national groupings is unalarming, for the following reasons: (1) For Herder, this is emphatically something that must be done for *all* national groupings *equally* (not just or especially Germany!). (2) The "nation" in question is not racial but linguistic and cultural. (3) Nor does it involve a centralized or militaristic state (Herder advocates the disappearance of such a state). (4) Herder's insistence on respecting national groupings is accompanied by the strongest denunciation of military conflict, colonial exploitation, and all other forms of harm between nations; a demand that nations instead peacefully cooperate and compete in trade and intellectual endeavors for their mutual benefit; and a plea that they should indeed actively work to help each other.

On the one hand, Herder's political philosophy can appear theoretically thin, but this is intentional and arguably a virtue, a salutary minimalism. There is certainly no grand metaphysical theory underpinning it (à la Fichte or Hegel). But that is deliberate, given his skepticism about metaphysics. Nor does he have an elaborate account purporting to justify the moral intuitions at work in it as a sort of theoretical insight (à la Kant or Rawls). But that is again deliberate, given his noncognitivism in ethics. Nor does he call on such tired staples of political theory as the state of nature, the social contract, natural rights, the general will, and utopias for the future.

But again, he has good specific reasons for skepticism about these. On the other hand, he *does* have a "political theory" of another, and arguably more valuable, sort. For one thing, in accordance with his general empiricism, his political philosophy is deeply empirically informed (e.g., he argues that freedom of thought and expression is required for the advancement of truth and artistic creativity by appeal to historical examples, especially classical Athens). For another thing, conformably with his noncognitivism in ethics, he is acutely aware that his political position ultimately depends on moral sentiments—his own and, for its success, other people's as well—and this leads him to engage in moral theorizing of another sort, namely theorizing about how, and by what means, people's moral sentiments should be molded in order to realize his political ideals. *These* two sorts of theorizing *are* deeply developed in Herder's political philosophy.

RELIGION

Religion was a lifelong preoccupation of Herder's. He made important contributions to the theory of biblical interpretation and to the actual interpretation of the Bible (in particular, insisting on and applying the same sort of rigorous secular approach to interpretation that he advocates for profane texts). In addition, he played a major role in reviving a form of Spinozism, a position to which he was already attracted early in his career, but to which he gave fullest expression in his neo-Spinozistic *God. Some Conversations* of 1787. In this work he develops a version of Spinozism that consciously modifies the original in certain respects. He shares with Spinoza the basic thesis of *monism*, and like Spinoza equates the single, all-encompassing principle with God. But whereas Spinoza characterized it as *substance*, Herder characterizes it as *force*, or *primal force*.

Moreover, this modification involves further ones, including these: (1) Whereas Spinoza's theory rejected conceptions of God as a full-blooded person or mind, and a being who not only thinks but also has purposes, Herder's identification of God with force imports, thanks to his general identification of mind with force, a claim that God *is* in fact a mind, and and a being who not only thinksbut also has purposes. (2) Herder believes that Spinoza's original theory contained a residue of objectionable dualism, inherited from Descartes, in its conception of the relation between God's two known attributes, thought and extension (and similarly in its conception of the relation between finite minds and bodies); by contrast, Herder's conception of God as a force (and of finite

minds as likewise forces) overcomes this residual dualism, since forces are of their very nature expressed in extended bodies. Herder's neo-Spinozism, including these modifications, was largely responsible for a great wave of neo-Spinozism that swept German philosophy in this period (embracing Goethe, Schelling, Hegel, Schleiermacher, Hölderlin, Novalis, F. Schlegel, and others).

See also Descartes, René; Dilthey, Wilhelm; Empiricism; Fénelon, François de Salignac de la Mothe; German Philosophy; Goethe, Johann Wolfgang von; Haller, Albrecht von; Hamann, Johann Georg; Hegel, Georg Wilhelm Friedrich; Hölderlin, Johann Christian Friedrich; Hume, David; Kant, Immanuel; Nietzsche, Friedrich; Noncognitivism; Novalis; Philosophy of History; Philosophy of Language; Philosophy of Mind; Political Philosophy, History of; Pyrrho; Rationalism; Schelling, Friedrich Wilhelm Joseph von; Schlegel, Friedrich von; Schleiermacher, Friedrich Daniel Ernst; Skepticism; Spinoza, Benedict (Baruch) de; Spinozism; Sulzer, Johann Georg; Voltaire, François-Marie Arouet de; Winckelmann, Johann Joachim; Wolff, Christian.

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HERMENEUTICS

While there is already a general sense of the word "hermeneutics" in ancient Greek thought, where it refers to the problems of interpretation and understanding, the first real consolidation of its meaning comes in the medieval world when the peculiar task of interpreting the Bible is theorized. The first systematic form of hermeneutic theory emerged out of the effort to supply methods and rules for biblical commentary. Hermeneutics as a theory of biblical exegesis was subsequently widened to include the concerns of interpreting juridical texts, where

the jurist faces the problem of applying a universal rule to particular cases. Over time, the domain of hermeneutic methodology was broadened to include any text the meaning of which could be disputed. Although a wide range of texts became the objects of hermeneutics, theological and legal texts long remained its preeminent concerns. In its primary concern for textual exegesis, hermeneutics tended to develop methods for interpretation and understanding based upon the rhetorical principles, and thus helped to define the difference between the humanities and modern natural science with its own emphasis on a method linked with mathematics.

The hermeneutic tradition underwent significant expansion and modification in the nineteenth century when first Friedrich Schleiermacher and Friedrich von Schlegel, and then Wilhelm Dilthey, expanded the scope of hermeneutical concerns while probing the character of the foundations of hermeneutic practices. Following in the wake of Immanuel Kant's critical philosophy, wherein both the conditions that render experience possible and the ineradicable limits of knowledge are exposed, the Romantics argued that all understanding—not simply the understanding of texts—is always already interpretive. In Romanticism, hermeneutics thus begins to take on the contours of the new meaning that it acquired in the twentieth century: it is no longer simply a matter of a strategy directed to the interpretation of a special domain of texts, rather it is now understood to be concerned with the character of any form of understanding that may emerge from human experience. In addition to this is the claim that all understanding takes place within language, making language thus one of the chief concerns of any hermeneutic theory. The plurality of languages, their history, and the problem of translation replace a concern with the word of God and the word of law dominating earlier conceptions of hermeneutics. Dilthey, for his part, elevated hermeneutics into a methodology for the entirety of the human sciences by insisting that the understanding of the historical life expressions, which encompass human experiencing, requires a methodology distinct from that of natural science. Dilthey maintained that whereas the natural sciences explain nature, the task of the human sciences is to understand historical life.

By the end of the nineteenth century, "hermeneutics" had ceased to designate simply a methodology or doctrine concerned with decoding the meaning and truth claims of texts. Instead, it had become the name for a broader methodology and a philosophical approach to experience that was sensitive to the limits of language and history. Hermeneutics at this stage of its development came to be especially attentive to those experiences directly challenging the possibility of understanding; for example, the translation of foreign languages, the comprehension of foreign cultures, and, in particular, the interpretation of other historical periods.

Martin Heidegger took the decisive steps in formulating the contemporary shape of philosophical hermeneutics as it is understood today, achieving this by gathering together and radicalizing the concerns dominating its prehistory while adding a new dimension whereby hermeneutics became the name for a full-fledged ontology. Heidegger does this under the rubric of a "hermeneutics of facticity." That notion, which Heidegger worked out in his lecture courses during the 1920s (above all in his courses dealing with Aristotle), is consolidated in his 1927 magnum opus, *Being and Time*. There Heidegger argues that understanding is not simply a cognitive task, but that it names one of the basic ways (existentialia) of being-in-the world. In short, understanding is now taken to be concerned with an experiencing that subtends methodological procedure. The form of such lived experience proper to human beings, for whom being is always a question and always defined by death and the ineluctability of nonbeing, is what Heidegger refers to as "factical life."

When Heidegger speaks of the hermeneutics of factical life it is a way of acknowledging both that the concerns of hermeneutics—language, history, and finitude—and the manner in which it takes truth to be a matter of interpretation rather than objectivity are especially well suited for the attempt to theorize factical life. The phenomenology of lived experience is now said to have the character of a hermeneutics. This means that lived experience is taken to be the working out of the factical conditions upon which any understanding whatsoever can be founded. The analysis of existence thus takes the form of a hermeneutics that traces the action of these conditions of understanding. The most important aspect of this new development is that now even self-understanding comes to be presented as a hermeneutic task. Hermeneutics is thus the manner in which existence discloses the truth of a world that is lived and it is the form by which self-understanding is achieved.

After *Being and Time*, Heidegger uses the word "hermeneutics" less frequently. It will be left to one of Heidegger's students from those lecture courses of the 1920s, Hans-Georg Gadamer, to systematically develop the notion of hermeneutics as a philosophical standpoint. Gadamer, whose name is most closely associated with the idea of contemporary philosophical hermeneutics, does

this most extensively in his magnum opus, *Truth and Method* (1982).

The title *Truth and Method* alludes to the early sense of hermeneutics, where it was understood as a method for getting at the truth of texts. But the argument of that book entails both a fundamental rethinking of the notion of truth and a powerful critique of the idea that a method can ever yield it. In *Truth and Method*, Gadamer identifies hermeneutics with the insight that the concept of method is inappropriate for the task of understanding in the domain of the human sciences. Other guideposts take the place of method in the effort to unfold a truth that is understood as belonging to the realm of a historical event rather than objective fact: Language, tradition, questioning, and conversation become the leading concerns of Gadamer's hermeneutics.

Gadamer creatively draws upon several sources for his formulation of a systematic philosophical hermeneutics. In addition to those figures already mentioned, Aristotle's notion of *phronesis* (prudence or practical wisdom) in his *Ethics*, the logic of question and answer as it is found in the Platonic dialogues, Kant's understanding of judgment as well as the relation of art and truth in his Third Critique, and G. W. F. Hegel's notion of the formation of traditions all play pivotal roles in Gadamer's hermeneutics. Without any significant departure from Heidegger's way of opening up the notion of philosophical hermeneutics, Gadamer places a greater emphasis on the relevance of three themes for hermeneutics: the role of *art* in the disclosure of truth, the force of the prejudices of *tradition* in any understanding, and the importance of the *question* in the opening of the restrictions of such prejudices and in the liberation of understanding to the new and the foreign.

Gadamer understands hermeneutics not as a method, but more as a sort of dialogue or conversation in which understanding increases insofar as one becomes aware of the formative roles of history and language in one's self-understanding. In such a genuine dialogue with others, one's self-understanding is challenged to reflect upon and reach beyond the limits that are inscribed in its own roots in tradition and language. With Gadamer, hermeneutics comes to refer to a philosophical sensibility that has a deep commitment to exposing the ways in which all forms of understanding, rooted in self-understanding, is finite and so remains always at best a task and an ideal.

One other key figure in the field of contemporary hermeneutics is Paul Ricoeur. Ricoeur's work has been marked both by its extension of hermeneutic concerns to include psychoanalysis, literary criticism, and linguistic analysis, as well as by the details of his treatment of issues such as problems in semantics, metaphor, narrative, and temporal structures. In his earlier work Ricoeur attempted to reintegrate the role of explanation into hermeneutics theory by relying on the insights from linguistic structuralism, while in his later writings Ricoeur was less prone to pursue methodological questions. The originality of Ricoeur's hermeneutics has taken shape primarily as a matter of practices and studies of special themes, rather than as a theory of hermeneutics proper. What one sees most in those studies is how the workings of language and time have come to dominate his sense of the task of hermeneutic reflection.

See also Dilthey, Wilhelm; Gadamer, Hans-Georg; Heidegger, Martin; Phenomenology; Ricoeur, Paul; Schleiermacher, Friedrich Daniel Ernst.

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HERMETICISM

"Hermeticism" is the outlook associated with the Hermetic writings, a literature in Greek that developed in the early centuries after Christ under the name "Hermes Trismegistus." Much of it is concerned with astrology, alchemy, and other occult sciences, but there is also a philosophical Hermetic literature. The treatise known as the *Asclepius* and the collection of treatises grouped as the *Corpus Hermeticum* are the most important of the philosophical Hermetica, though some other fragments are preserved in the anthology of Stobaeus. These writings are probably to be dated between 100 and 300 CE. They are an amalgam of Greek philosophy, particularly Platonic, with other elements from the heterogeneous late antique culture. The *Pimander*, the first treatise in the *Corpus Hermeticum*, has obvious affinities with Genesis, suggesting an influence of Hellenistic Judaism. There may also be Persian influences, and the possibility of some contact with Christianity cannot be excluded. The ascription of their authorship to "Hermes Trismegistus," supposed to be an Egyptian priest, encouraged the belief that these writings transmitted ancient Egyptian wisdom; the *Asclepius* in particular has a strong pseudo-Egyptian coloring.

There is much difference of opinion among scholars as to the various elements that make up the Hermetica, which are the work of an unknown number of unknown authors; even individual treatises may often be a fusion of fragments. They have a certain unity of tone, however, since they all exhibit a similar type of philosophical-religious approach to the cosmos, involving regenerative experiences and outbursts of religious ecstasy. It has been suggested that they may be the literature of a gnostic sect. The philosophical Hermetica, with their lofty aspirations, cannot be altogether isolated from the magical and occult type of literature which also goes under the name of "Hermes Trismegistus," for the experiences of the Hermeticist, as described in the philosophical-religious treatises, take place within an astrological framework and imply, particularly in the *Asclepius*, a religious use of magic.

HISTORY

Although much is in debate concerning the Hermetica themselves, we are on firmer ground when we come to the history of their legend. In the fourth century Lactantius taught that these writings were the work of an Egyptian seer who lived not long after the time of Moses, whose account of creation he confirmed and, indeed, improved and whose mentions of a "son of God" were prophetic of Christianity and to be compared with passages in the Gospel according to St. John. Augustine also believed in the extreme antiquity of "Hermes Trismegistus," but he disapproved of the magical cult described in the *Asclepius*. Nevertheless, there was ample authority in Christian writers for an attitude of respect for Hermes. Lactantius places him with the sibyls as a Gentile prophet of Christianity. The myth of "Hermes Trismegistus," the Egyptian sage who was the actual author of all the writings assigned to him and who lived long before the Incarnation, which he prophetically foresaw, was to give great authority to the Hermetica.

The *Asclepius* was known in the Middle Ages in the Latin translation wrongly attributed to Apuleius of Madaura; certain pseudo-Hermetic writings were also known. The collection of treatises grouped as the *Corpus Hermeticum* seems to have been already known in this form to Psellus in the eleventh century but did not reach the West until the Renaissance.

INFLUENCE ON RENAISSANCE

The Hermetica made an impact on the Renaissance the importance of which has begun to be realized only in recent years. About 1460 a manuscript containing an incomplete Greek text of the *Corpus Hermeticum* was brought to Florence. Cosimo de' Medici ordered Marsilio Ficino to translate this at once into Latin, before beginning his translation of the works of Plato. This illustrates the Renaissance attitude, which treated the Hermetica as texts much more ancient than the Platonic writings and as the "Egyptian wisdom" believed to be one of the founts of *prisca theologia* that descended in an unbroken line to Plato and the Neoplatonists. When Ficino found scraps of Platonic philosophy in the late antique Hermetica, he assumed that he was dealing with the ancient Egyptian source of Greek wisdom. Like the interpretation of "Hermes Trismegistus" as a Gentile prophet, in which Ficino also firmly believed, this view of the Hermetic writings as a source of Plato and the Platonists depended on the misdating of those writings. To this most influential error is due the fact that there is a Hermetic core to Renaissance Neoplatonism. Ficino's work on astral magic is based on the magical passages in the *Asclepius*. Giovanni Pico della Mirandola opened his *Oration on the Dignity of Man* with a quotation from the *Asclepius*.

Throughout the sixteenth century the Hermetic writings were eagerly read in the many editions of Ficino's translation, and new editions and commentaries were published by Jacques Lefèvre d'Étaples, Symphorien

Champier, F. Foix de Candale, Francesco Patrizi, and others. The first edition of the Greek text of the *Corpus Hermeticum* appeared in 1554.

The influence of this intensive study of the Hermetica can be traced throughout the Renaissance. It penetrated some types of Renaissance theology. Christian Hermeticists who wished to avoid the magic excluded the magical passages in the *Asclepius* from their canon. On the other hand, for Renaissance magicians and philosophers the animist and magical view of nature that they extracted from the Hermetic writings was the most attractive feature. A striking instance of Hermetic influence on a Renaissance philosopher is Giordano Bruno, who rejected the Christian interpretation of the Hermetica and regarded Hermeticism as a pure Egyptian religion and philosophy that he made the basis of his animist interpretation of nature.

In 1614 the great Greek scholar Isaac Casaubon dated the Hermetica as written in post-Christian times, thus shattering the myth of their ancient Egyptian authorship on which Renaissance Hermeticism had rested. With the rise of seventeenth-century thought the influence of Hermeticism receded, though there were many survivals of the Renaissance attitudes to the Hermetic writings. The part played in the immediately premodern period by Renaissance Hermeticism in the directing religious attention toward the cosmos and toward operating with cosmic powers has yet to be assessed.

See also Bruno, Giordano; Ficino, Marsilio; Literature, Philosophy of; Neoplatonism; Patrizi, Francesco; Pico della Mirandola, Count Giovanni; Plato; Platonism and the Platonic Tradition; Renaissance.

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Bibliography updated by Kevin Moore (2005)

HERMETICISM [ADDENDUM]

Hermeticism also flourished in the Jewish and Islamic world. Although only a fragment of the Greek *Corpus Hermeticum* has been discovered in Arabic, there are

numerous texts in Arabic and Hebrew that are attributed to the Greek god Hermes, purporting to provide ancient wisdom. Hermes was identified respectively with Idris; a mysterious prophet mentioned in the Qur'an) and Enoch (the grandfather of Noah) in the Jewish Bible. The routes by which this Hermes arrived in Arabic texts appear to be as much via Persia as directly from Greek sources, and Haran (ancient Carrhae) in northern Mesopotamia, as a cultural melting point and the home of the Sabaeans, who worshipped the planets, appears to have played a central role. Several interrelated cosmological texts that give instructions on the invocation of planetary spirits to empower talismans purport to be the wisdom of Hermes as conveyed by Aristotle, while the earliest doctrines and practices in alchemy, shoulder-blade divination, and several aspects of astrology (e.g., lunar mansions, Egyptian decans, and astrological lots) are attributed to him, sometimes in the company of Apollonius of Tyana (first century CE), and the legendary Agathodaimon, Asclepius, and Toz Graecus. These technical works were translated into Latin, Greek, and Hebrew and formed the basis of medieval Hermeticism.

See also Aristotle; Islamic Philosophy; Jewish Philosophy; Medieval Philosophy.

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Charles Burnett (2005)

HERSCHEL, JOHN
(1792–1871)

John Herschel, the son of the astronomer William Herschel, worked in mathematics, chemistry, optics, and solid-state physics; pioneered in photography and instigated the regular use of photography in astronomy; invented blueprints; initiated simultaneous worldwide meteorological observations; introduced the theory of isostasy in geology; and was the world's leading observer-theoretician of double stars and nebulae. His *Treatise on Astronomy* (1833), continued as *Outlines of Astronomy* (1849), although deliberately common sense in treatment, was authoritative in content even for professionals until the 1860s. He was England's most famous scientist from 1830 to about 1860.

Herschel's *Preliminary Discourse on the Study of Natural Philosophy* (1831) was a starting point for his philosophic contemporaries, the more radical (post-Kantian) William Whewell and the more conservative (Humean) J. S. Mill; in fact, many errors were deleted from Mill's *Logic* in its second edition because Herschel supplied detailed criticisms of the scientific passages in the first edition. Herschel's full position was expressed later, in papers collected as *Essays from the Edinburgh and Quarterly Reviews* (1857) and *Familiar Lectures on Scientific Subjects* (1867) and in remarks in his scientific books. His best-known philosophic followers were William Stanley Jevons and James Clerk Maxwell.

In theory of knowledge, Herschel's basic concept was the law of continuity, which for him defined the rationality of a system. In his version of the law, he asserted that scientists *observe* not continuous phenomena (not even simple extension), but "dotted outlines which the mind … fills up." Thus "*we assume continuity where we find none.*" Herschel refused any philosophic solution of this disparity between observation and thought and accepted the harmony of mind with external nature as an ultimate fact, preestablished by God.

Next, he was a "decided disciple of old Boscovich"; matter is "a collection of mathematical points—mere *localization* of *forces*"; and therefore it is foolish to picture kinetic-molecular processes as "the 'clashing together' of 'atoms'" or as the "knocking about of billiard balls." Force as hitherto understood, he pointed out, was always associated with matter, that is, inertia; but in electricity and in the "quasi-undulatory propagation of qualities" we see noninertial agents. So the kind of force presented in theories of mechanics is not primary. More basic physical powers exist, he asserted, but are not yet (1840) understood.

Science should uncover not only laws (formal relations among parameters) but also causes. Causation is not Humean succession but (as in the Scottish common-sense school) is known from our consciousness of effort when we exert force. Causes are *not* will, however, but the physical intermediaries between will and muscular contraction. These may also exist in connection with inanimate bodies.

This general position is well beyond Roger Joseph Boscovich and Thomas Reid but is not idealistic. It points toward the theory of the conservation of energy, which, however, Herschel did not approve in its 1860 form. He felt that "potential energy" was not a physical reality, but a mere mathematical expression introduced into the theory "*to save the truth of its verbal enunciation.*"

In methodology Herschel was interested in discovery, not in a justification of the process of induction. (Mill's "methods" were derived directly from Herschel's *Discourse.*) Thus one Herschelian method was "at once to form a bold hypothesis," that is, to guess. Herschel emphasized the central importance of rigorous deduction to confirm hypotheses; it is this which makes science not a craft. One should at all costs avoid specialties of investigation (e.g., chemistry vs. physics), for no actual phenomenon is so divided. Herschel thought that contingency is the most obvious aspect of the universe. Science must grapple with the apparently arbitrary complexities of the actual world, such as sunspot changes, the shapes of nebulae, the variations in terrestrial magnetism, trade winds, and so on, and try to reduce them to scientific laws. It should not content itself with simple general laws concerning force and matter considered in abstraction.

Herschel's contemporary influence was perhaps greatest among working scientists. He gave a reasoned basis for the shift from a purely abstract treatment of physical parameters (as in Joseph-Louis Lagrange) to a belief in the actual existence of the entities used in scientific theories (e.g., the fields of force of his friend Michael Faraday and his admirer Maxwell, which were felt to be actually present in space, not merely mathematical symbols). He upheld the importance of the scientist's feeling for the reality of his constructs. Sheltered by his great authority, scientists pursued their intuitional ideas without worrying about attacks from Humean or other philosophers, or from Evangelical preachers. Herschel, for example, authoritatively established the naturalistic origin of species as a proper subject of investigation for Victorian Englishmen. Young scientists of the period, such as Charles Darwin and Thomas Andrews, admired him extravagantly.

See also Boscovich, Roger Joseph; Causation: Philosophy of Science; Darwin, Charles Robert; Epistemology; Epistemology, History of; Faraday, Michael; Jevons, William Stanley; Maxwell, James Clerk; Mill, John Stuart; Reid, Thomas; Whewell, William.

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There are no modern editions of Herschel's works. Recent partial treatments are C. J. Ducasse, "John Herschel's Philosophy of Science," in the American Council of Learned Societies collection, *Studies in the History of Culture* (Menasha, WI, 1942), reprinted in *Theories of Scientific Method,* edited by E. H. Madden (Seattle: University of Washington Press, 1960); W. F. Cannon, "The Impact of Uniformitarianism," *Proceedings of the American Philosophical Society* 105 (1961): 301–314; and W. F. Cannon, "John Herschel and the Idea of Science," *Journal of the History of Ideas* 22 (1961): 215–239, containing an error on "will" that has been corrected in the present entry.

Walter F. Cannon (1967)

HERTZ, HEINRICH RUDOLF
(1857–1894)

The German physicist and philosopher of science Heinrich Rudolf Hertz was born in Hamburg. Early in his student days he showed an interest in engineering but soon took up the study of physics, to which he quickly made important contributions, mainly in the study of magnetism and electricity. He studied in Berlin under Hermann von Helmholtz and Gustav Kirchhoff and inherited their interest in the philosophy of science. In 1883 he began teaching in Kiel, where he worked on James Clerk Maxwell's electromagnetic theory. He became professor of physics at the technological institute at Karlsruhe in 1885, where he produced his most celebrated work on electromagnetic waves. In 1889 he was appointed professor of physics to succeed Clausius at Bonn. He was in failing health, however, and he died five years later.

Hertz's most important book for philosophy is his *Principles of Mechanics,* written during his last illness and published in 1894. This is an attempt to rewrite classical mechanics in such a way as to exhibit its systematic nature, increasing its rigor, reducing its assumptions to a minimum, and keeping it as empirical and nonmetaphysical as possible. His aims were firmly in the spirit of his teachers and of Ernst Mach, who expressed his admiration for Hertz's work. The preface to the *Principles of Mechanics* is a classic in the philosophy of science and deserves to be better known.

Hertz was prepared to admit that various logical categories of statement figure necessarily in the sciences; he even thought, unfashionably, that metaphysical statements could be of considerable value to the scientist. But, he held, it is of the utmost importance for anyone who

would understand the methods of the sciences, and for the scientist himself, to distinguish clearly the different categories of statement and not to suppose that, for example, a nonempirical statement is empirical. In his reconstruction of mechanics he wanted especially to ensure, among other things, that such distinctions are made.

Rather in the manner of Immanuel Kant, who greatly influenced the philosopher-scientists of this period, he begins by dividing mechanics into two parts, one depending upon the formal necessities of our thought and the other depending upon our experience. Moreover, as Jules Henri Poincaré was to argue later, certain features of mechanics depend upon our arbitrary choice. The structure of scientific theories in general exhibits these features, and understanding this structure involves disentangling them.

Further, very much in the modern manner, Hertz holds that a scientific theory is a deductive system that, according to whether it is correct or incorrect, corresponds or fails to correspond to the observable world. *The Principles of Mechanics* shows how one such theory can be set out as an axiom system in which we may deduce conclusions that are testable against reports of our observations.

However, Hertz's aim in this was not merely theoretical and academic, for he seems to have thought that the progress of science might be impeded if scientists do not fully and clearly understand the logic of the concepts they use. He holds, and regards it as generally held by scientists, that the laws of mechanics are fundamental in the solution of all problems in physics; yet there are concepts used in mechanics that are by no means clear and upon which physicists do not even agree. The outstanding example of such a concept—and here Hertz agrees with Mach—is "force." In fact, Hertz fiercely criticizes physicists for relying on this concept without having any very clear notion of what it entails.

The way to understand the concept of force is to see how it functions in the theories in which it is used. But when we look at classical mechanics, we find that force is not used in the way physicists think it is; the usual method of expounding mechanics obscures this and, in general, obscures the very nature of the concept of force. The understanding of scientific concepts is inextricably bound up with the understanding of the theories in which they figure.

Hertz's approach to mechanics is largely determined by his views about explanation in general; mechanics explains the motions of bodies by bringing them under laws, but these laws cannot be in terms only of what is directly observable. Hertz seemingly holds that it has been found that this is so, although he also shows signs of thinking that it must be so—that it is a necessity of explanation. At any rate, he points to many of the explanations accepted in the sciences and shows that they rely upon concealed mechanisms or, as he says, "'confederates' concealed beyond observed masses and motions."

REPRESENTATIONS OF MECHANICS

There are two existing interpretations of mechanics that rely upon force and energy, respectively, as the nonempirical concepts to be used in explanation. Here a further presupposition of Hertz's enters: We will understand our explanations best if all the concepts we use are as similar as possible to concepts of what we experience, that is, to empirical concepts. Force and energy are quite unlike anything we experience, so Hertz seeks to replace them, in his rewriting of mechanics, by motion and mass, which are exactly like observed motion and mass except that they are unobserved (concealed). Or, rather, force and energy are given minor and subordinate roles in his mechanics; all the important roles go to mass and motion. This, he believed, fitted in with the physical theorizing of his time. For example, Maxwell gave an account of electromagnetic forces in terms of concealed masses and motions.

Although force and energy are not empirical concepts, space, time, and mass are. Hertz therefore reconstructs mechanics using only space, time, and mass as primitive concepts. This means that they are not defined in any verbal or symbolic way, although we understand them through our experience of observable masses in motion. Force and energy must not figure in mechanics—as they have tended to do—as basic terms, *as if* they were empirical concepts. They may be introduced at some later stage, but only by defining them—ultimately, at least—in terms of the primitives.

Hertz outlines the two existing "representations" or "images" of mechanics, criticizes them, and then develops his own alternative, which forms the bulk of *The Principles of Mechanics.* He puts forward, as tools of criticism for theories or their representations, three conditions that they must fulfill. They must be *logically permissible* (sometimes abbreviated to *permissible*), that is, consistent with the laws of our thought; they must be *correct,* that is, their structure must not conflict with the structure of observable things; they must be *appropriate,* that is, they must be simple in the sense of containing the fewest pos-

sible superfluous or empty relations. Appropriateness is merely relative: we should, where there are alternatives, accept the more appropriate rather than the less appropriate. These requirements concern the three features of theories mentioned above—one depending upon the nature of our minds, one depending upon our external experiences, and one depending upon our conventional systems of notation.

The first representation Hertz considers is the one then current in most textbooks, taking space, time, force, and mass as its fundamental concepts. It is, among other things, too much influenced by the historical development of mechanics, the order of which may have little to do with its logical structure. It takes force as an independent concept and regards force as the cause of motion. However, the weakness of this representation is that the idea of force is not clear. This affects both the permissibility and the appropriateness of this version: Because our notion of force is vague, it cannot help us to reason precisely, and because we associate with it certain nonessential anthropomorphic ideas, it imports superfluous elements into mechanics. This latter point also seems, for Hertz, to include the idea that too much which is not directly perceptible is thus brought into mechanics. He looks askance at forces that "cancel out in the calculations" as robbing an explanation of its simplicity, or what Mach calls its economy. Apart from this, the first representation satisfies the condition of correctness; if we are merely considering alternative ways of expressing mechanics, we should indeed expect something to be satisfactory in each. What is satisfactory here is that the structure of this way corresponds to, or at least does not conflict with, the structure of observable phenomena.

The second representation is one that was favored in Hertz's day by the more advanced physicists, including Helmholtz. This representation attempts to sidestep the difficulties involved in the concept of force by taking as fundamental the concepts of space, time, mass, and energy. It is then possible to introduce force by definition and merely as an aid to calculation. The advantage of energy over force, it was claimed, was that energy depends upon direct experience because it depends only upon positions or velocities, both of which are directly experienced. This ensures that the second representation is more appropriate than the first. If we consider only motions that occur in nature, Hertz argues, it lacks nothing in correctness. Its weakness lies in its permissibility, as is seen when we try to define energy, as it is here used, in terms of "simple, direct experiences." A substantial view of energy tended to be associated with this representa-

tion, but it is difficult to treat potential energy as a substance, especially when, as is sometimes necessary, we must ascribe negative potential energy to a system or must regard the potential energy of a finite quantity of matter as infinite. This version is superior to the first, but it still contains serious difficulties.

HERTZ'S REPRESENTATION

Since force and energy, respectively, appear to be responsible for the problems arising over these two representations. Hertz attempts to do without them, at least as primitive concepts for his representation. He begins with space, time, and mass. That is, he begins with kinematics, the abstract study of motion, and sets out to derive the whole of mechanics from it without using force and energy except as devices for calculation. Kirchhoff had already asserted that three independent concepts are necessary and sufficient for mechanics.

Time, space, and mass are primitive terms for Hertz's system, but they are not mere abstract counters like the uninterpreted symbols of the logicians. They are understood through experience, and the particular experiences that are to count for the purposes of mechanics can be specified. Moreover, these concepts are, as we also discover in experience, permanently related in various ways. Hertz puts forward a "Fundamental Law" that has similarities to the law of inertia and that summarizes the connection between the three basic concepts taken together: "Every natural motion of an independent material system consists herein, that the system follows with uniform velocity one of its straightest paths." This law, together with the concepts of space, time, and mass and the hypothesis of concealed masses, allows us, by purely deductive reasoning, to derive the whole of mechanics and so to explain mechanical phenomena.

Other concepts, such as force and energy, are introduced into the system later by definition and so are regarded merely as aids to deduction. They are defined ultimately in terms of the primitive concepts.

The Principles of Mechanics is divided into two parts to emphasize the independence of the mathematical form and the physical content of mechanics. The equation "2 horses + 2 horses = 4 horses" has a mathematical form, expressed by "2 + 2 = 4," that is independent of its application to horses. In the same way, mechanics as a whole can be regarded as having these two aspects. Book I of the *Principles* draws out the implications of the fundamental ideas: space, time, and mass. At this stage these concepts are intuitive and independent of experience except insofar as all our intuitions and modes of reasoning depend

upon experience. Book II contains the application of these concepts to experience through the Fundamental Law and the derivation of testable assertions about observable phenomena. The apparently equivocal nature of Hertz's basic concepts can best be understood in relation to Kantian philosophy: Our intuitions, peculiarly adapted to fit the general form of what we experience, are analogous to colored spectacles which determine our seeing the world as colored. Nevertheless, the details of our pictures of the world have the nature of hypotheses and are open to empirical testing.

Hertz's account of mechanics is important from the standpoint of the philosophy of science because it represents an early attempt to see a scientific theory as a system and to bring out its logical structure accordingly. It was influential in connection with the conventionalism later championed by Poincaré and attempted to do justice to, on the one hand, the undoubted empirical nature of science and, on the other, the apparent claims of scientific laws to embody natural necessities. Hertz's view that mechanics is the foundation of all physical explanation was the most backward-looking element in his work and was strangely belied by both his scientific work, which was largely influential in breaking down that view, and his work in the philosophy of science, which contained the seeds of a far more flexible view of explanation.

See also Classical Mechanics, Philosophy of; Helmholtz, Hermann Ludwig von; Kant, Immanuel; Mach, Ernst; Maxwell, James Clerk; Philosophy of Science; Poincaré, Jules Henri.

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Peter Alexander (1967)

HERVAEUS NATALIS
(c. 1250–1323)

Hervaeus Natalis, or Harvey Nedellec (c. 1250–1323) was one of the first followers of Thomas Aquinas, but also an original thinker, especially in the areas of intentionality and the mental word. Hervaeus was born in Brittany in the mid-thirteenth century. He entered the Dominicans in 1276 and studied at the University of Paris, where he

commented on the *Sentences* of Peter Lombard, later received the degree of Master of Theology, and served as regent master in theology from 1307 to 1309. He was elected Provincial of France in 1309 and became Master General of the Dominicans in 1318. In the years following the condemnation by Étienne Tempier, the bishop of Paris, of 219 propositions—many of which touched upon the teaching of Thomas Aquinas—Hervaeus defended Aquinas's theological method in his *Defensio doctrinae fratris Thomae* and his theory of knowledge in his *Quodlibeta*. He actively promoted the canonization of Aquinas and died at Narbonne in 1323 on his way to it. Due largely to the work of Hervaeus, Aquinas became the official doctor of the Dominican Order, despite the conservative Augustinian atmosphere in the period after 1277.

Although he strongly promoted Aquinas's thought, Hervaeus did not follow Thomas on some of his most distinctive teachings, such as the real distinction between essence and existence in creatures and the five ways of proving the existence of God. Of the latter, Hervaeus retains only the ways of efficient causality and of degrees of perfection. It is noteworthy that in the conservative theological atmosphere following 1277 Hervaeus develops strictly philosophical proofs for the existence of God in his *De cognitione primi principii*. In his conflicts with Durandus of Saint Pourçain, a Dominican who leaned toward a more Augustinian position, Hervaeus upheld Thomism, but a Thomism that manifests the influence of Duns Scotus's thought. Hervaeus's still unpublished *Tractatus de secundis intentionibus* is the first treatise in the Middle Ages devoted to the topic of intentionality.

See also Durandus of Saint-Pourçain; Thomas Aquinas, St.

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Roland J. Teske (2005)

HERZEN, ALEKSANDR IVANOVICH
(1812–1870)

Alexander Ivanovich Herzen, the Russian editor, essayist, and social philosopher, was the illegitimate son of I. A. Iakovlev. Herzen was graduated from the faculty of physics and mathematics of Moscow University in 1834 and was promptly exiled to the provinces for radicalism (1835–1840, 1841–1843). He emigrated from Russia in 1847 and spent the remainder of his life in western Europe. In London he founded the first "free Russian journal," *Kolokol* (The Bell), in 1852. There, during the 1850s he published, in eight parts, his *Byloe i dumy* (*My Past and Thoughts*), a brilliant personal memoir and history of nineteenth-century ideas.

Herzen's first essay in philosophy, "Diletantizm v Nauke" (Dilettantism in science), was published as a series of four articles in *Otechestvennye zapiski* (Notes of the fatherland) in 1843. Herzen used the term *science* (*nauka*) in the broad sense of G. W. F. Hegel's *Wissenschaft* and focused his critique on four kinds of scientific dilettantes: naive dabblers; romanticizers of the past without interest in the problems of today; pedantic specialists who in their ivory towers write erudite books about erudite books; and the "Buddhists of science," or right Hegelians, who offer a purely speculative account of historical reality and make no effort to change it. Herzen opposed to all four kinds of dilettantism a "committed" philosophy of the act (*filosofiia dela*) that seeks to reconcile abstract speculation with vital human needs. (Later, Herzen spoke of Hegel's dialectic as an "algebra of revolution.")

In "Pis'ma ob izuchenii prirody" (Letters on the study of nature), published as a series of eight articles in

Otechestvennye Zapiski in 1845–1846, Herzen attempted to reconcile the opposed interests of natural science, which tends toward empiricism, and philosophy, which tends toward idealism. But empiricism and idealism are Hegelian "moments," incomplete and one-sided dialectical phases, each requiring the other. In the end Herzen stressed the rights of empiricism as closer than those of idealism to the real needs of living individuals.

In works written after 1847 Herzen outlined his defense of the existing individual against the collective encroachments of society, history, and progress. Nonhuman individuals are constantly sacrificed to supraindividual ends, as in the slow formation of a coral reef from the skeletons of millions of tiny sea creatures. "The polyps die," Herzen wrote, "not suspecting that they have served the progress of the reef" (*Byloe i dumy*, in *Sobranie sochinenii* [Collected works], Vol. X, p. 123). But men are not polyps; human individuals should not be sacrificed to build any coral reef of historical progress, however grandiose.

Herzen developed, in *S togo berega* (*From the Other Shore*; Paris, 1850) and later works, a philosophy of contingency, emphasizing the "tousled improvisation" of history. Historical development does not exhibit the rational, purposive structure that Hegelians see in it; therefore, men are free to impose their own purposes on its "whirlwind of chances." "Outside us everything changes, everything vacillates. We are standing on the edge of a precipice and we see it crumbling. . . . We shall find no haven but in ourselves, in the consciousness of our unlimited freedom, of our autocratic independence" (*From the Other Shore*, p. 128).

Herzen stressed the lived sense of freedom and attempted to reconcile this psychological fact with a deterministic theory. In a letter (written in French in 1868) to his son, who had defended a fashionable physiological reductionism, he called the idea of freedom a "phenomenological necessity," adding, "the conscious self cannot move or act without positing itself as free, that is to say as to having within certain limits the power to do or not to do. Without this belief, individuality dissolves and is lost" (*Sobranie sochinenii*, Vol. XX, pt. 1, p. 436).

Anticipating Fëdor Dostoevsky's "Legend of the Grand Inquisitor" (1880), Herzen in 1847 stated the theme of escape from freedom and the burden of moral responsibility. The love of moral freedom, in Herzen's words, is "purely Platonic and ideal," whereas the love of intellectual authority is a solid *mariage de raison* in which "dreams and poetry are sacrificed for domestic comfort [and] order" (ibid., Vol. II, p. 90).

Herzen formulated not only an extreme moral relativism—"What was admirable behavior yesterday may be abominable today" (*From the Other Shore*, p. 141)—but also an embryonic emotivism in ethics. Moral judgments are expressions of taste or preference on the model of "I like lobster"; there is no point in my arguing with someone who does not like lobster. According to Herzen, "there are no general rules, but [only] an improvisation of conduct, … a tact, an aesthetics of human actions" (*Sobranie sochinenii*, Vol. XXIX, pt. 1, p. 148). On this, as on other points, Herzen anticipated Friedrich Nietzsche—who may have read some of Herzen's works in translation.

See also Dostoevsky, Fyodor Mikhailovich; Empiricism; Hegel, Georg Wilhelm Friedrich; Idealism; Nietzsche, Friedrich; Russian Philosophy.

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George L. Kline (1967)

HESS, MOSES
(1812–1877)

Moses Hess, the socialist journalist and organizer and intellectual precursor of Zionism, often called the father of German socialism, was born in Bonn of Jewish parents. A left-Hegelian, he was a mentor and coworker of Friedrich Engels, Karl Marx, and Ferdinand Lassalle. He led radical workers' groups in Paris and Belgium, edited the famous *Rheinische Zeitung,* and was the leader of the "true," or "philosophical," German socialists of the 1840s. Later he became Lassalle's chief organizer in the

Rhineland and a foreign correspondent for European and American newspapers. His published books and countless essays include works on the philosophy of history and on socialism, a famous call for a Jewish state, and a comprehensive theory of the laws of science, society, and socialism.

Hess used the principles of Benedict de Spinoza, G. W. F. Hegel, and Johann Gottlieb Fichte to demonstrate the inevitability and justice of a society lacking distinctions of class and wealth, without "contradictions" between private passion and public law, and without external compulsion. Hess took this to be both the social expression of pantheism and the inevitable result of the dialectical development of the self-realization of the Absolute Spirit in history. This was the theme of his early work, *Die Heilige Geschichte der Menschheit* (Stuttgart, 1837). Later, under the influence of Ludwig Feuerbach, Hess rejected Hegelian transcendentalism. He then created a "philosophy of the deed," based on a belief in the human spirit as the unconditioned ultimate reality. He stressed the creative power of man and man's historical "alienation" of that power to various mythical transcendent powers—God, the state, fate, or, in Hess's day, the laws of history and economics. Hess insisted that there are no objective limits to man's power to create a society free from exploitation and compulsion.

Marx and Engels attacked this kind of moralistic and philosophical socialism (and later Hess himself) as inadequate to the harsh realities of economic determinism and the class struggle. The influence of Marx and the failure of romantic idealism in the widespread revolutions of 1848 helped to convert Hess from idealism to materialism. He now spoke of ideas as the "reflex" of material conditions and the class struggle, and he predicted the inevitable termination of the economic "contradictions of capitalism" in overproduction, proletarian misery, depression, revolution, and finally, socialism.

In the end, however, Hess became pragmatic. He rejected dialectical materialism as he had rejected dialectical idealism. He worked with Lassalle to found German social democracy, and like Lassalle he hoped for radical social reform through universal suffrage and the nationalization of the means of production. And it was in this spirit, not Marx's, that the German Social Democratic Party started its career. In the 1860s, fearful of the future of the Jews of Europe, Hess worked for a Jewish and socialist state in Palestine.

See also Dialectical Materialism; Engels, Friedrich; Feuerbach, Ludwig Andreas; Fichte, Johann Gottlieb; Hegel, Georg Wilhelm Friedrich; Lassalle, Ferdinand; Marx, Karl; Socialism; Spinoza, Benedict (Baruch) de.

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John Weiss (1967)
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HETEROSEXISM

Heterosexism may generally be understood as an attitude in which heterosexual relationships, social arrangements, and sexual activities are viewed as morally, culturally, religiously, biologically, and/or psychologically ideal, and are thus superior to and rightly privileged over any non-heterosexual option. Another less common usage describes heterosexism as an attitude in which the separation of sex, anatomy, gender, and gender roles into two discrete categories of male and female is assumed to be natural and required for coherent personal identity and social stability, and is influential in analyzing gendered social roles and identities (Butler 1990) and issues of transsexualism and transgendered identity.

In this first and predominant use, however, *heterosexism* is intended to parallel the concepts of sexism and racism and points toward characteristic prejudice and

discrimination against sexual minorities, mainly by heterosexuals, but also by self-disapproving homosexuals and bisexuals who have internalized a heterosexist attitude. The ways in which people who evince homosexual desire and behavior are discriminated against include legal inequity (military service prohibition, gay marriage and adoption prohibitions, sodomy laws, career restrictions), social treatment (housing discrimination, job discrimination, public denouncements), and cultural treatment (community invisibility, moral condemnation, stereotyping, greater risk of physical and verbal assault, pressure to stay "closeted," religious condemnation).

While these inequities are examples of discrimination, and in some cases obvious mistreatment, discrimination is not in and of itself unjust. Just discrimination occurs when some property of a person is contextually morally relevant to the decision to treat them differently (e.g., not allowing a blind person to drive), whereas unjust discrimination occurs when some property of a person is not contextually morally relevant to the decision to treat them differently (e.g., not allowing women to vote). The ongoing moral debate then, is about whether some heterosexist beliefs and consequent discriminatory practices are morally justified.

DISCRIMINATION AS MORALLY JUSTIFIED

Heterosexist laws and policies are typically held to be just based on the prior assumption that homosexual sex is immoral and/or that homosexual desire is defective. While heterosexist policies do not automatically result from heterosexist attitudes (one could be libertarian), heterosexist attitudes are a prerequisite for such policies. Though variations exist, there are three main classes of argument for the view that homosexuality is immoral or inferior.

Divine command theory arguments state that morality is determined by the edict of God and that those texts thought to be authoritative indicators of God's will have outlawed homosexual sex. In the historically dominant Judeo-Christian tradition of European and North American culture, the proof texts most often cited are the Hebrew Bible passages concerning creation (Gen. 1–2), Sodom and Gomorrah (Gen. 19), Gibeah (Judg. 19), the holiness code (Lev. 18:22 and 20:13), and three Christian New Testament passages (Rom. 1:26–27; 1 Cor. 6:9; 1 Tim. 1–10).

Natural law arguments state that there is an objective moral good and a path toward that good for all creatures depending on the kind of creature that they are. The kind of creatures that they are is typically understood (though not always—e.g., in Aristotle) as the result of God's eternal design, and so natural law is often closely connected to divine command theory. By attending to the visible organization of nature—including our bodies—we can determine what our proper functions and ends are and how we might best achieve those ends. Any actions that do not work toward achieving those aims or that actively block the fulfillment of those aims are immoral or at least not tending toward the moral. The obvious function of sex and sexual anatomy (it is claimed) is reproduction and family unity. Homosexual behavior interferes with these aims (as does other nonprocreative sex) and is therefore objectively unnatural and intrinsically immoral. Homosexual desire is not a behavior and thus not immoral, but by tending toward interference with the proper ends of our bodies is an objectively disordered state.

This approach to the moral condemnation of homosexuality is historically influential and frequent. The argument is present in Plato, who while praising homosexual love as a first step toward the realization of beauty and truth in the Symposium (209a–211c), nonetheless rejects homosexual sex as absent in animals and unnatural in Laws (836c–836e). Aristotle says very little on homosexuality but his emphasis in the Physics on explaining things by reference to their biological purposes is well-matched for the natural law argument that nonprocreative sex is essentially misdirected. He includes pederasty (the Greek tradition of a young man engaging in sex with an older male mentor) in a list of diseased states learned mostly through social custom, including chewing fingernails and eating coal (Ethics 1148a15–1148b30).

The true cultural power of the "against nature" argument, however, flourishes with the development of medieval Christian moral doctrine in St. Thomas Aquinas. Heavily influenced by Aristotle, he asks what the natural end of sex is and answers that it is procreation. As such, all sexual activity that has no chance of resulting in procreation is "contrary to right reason," contrary to the "natural order," and a lustful vice, a category which includes masturbation, bestiality, homosexuality, and any sort of sex even between men and women that occurs "by not observing the natural manner of copulation" (Aquinas, 1920 2.2.154.11). This view is currently reflected in the Catechism of the Catholic Church, which states that: "homosexual acts are intrinsically disordered" and "contrary to the natural law" (CCC n2357). The natural law approach has been influential in legal matters,

including Blackstone's famous and formative Commentaries on the Laws of England, which the U.S. Supreme Court appealed to in *Bowers v. Hardwick* (1986) in upholding the legality of sodomy laws. Justice Burger wrote: "Blackstone described 'the infamous crime against nature' as an offense of 'deeper malignity' than rape, an heinous act 'the very mention of which is a disgrace to human nature,' and 'a crime not fit to be named'" (*Bowers v. Hardwick*).

Not all natural law arguments say homosexual acts must always be immoral, but leave room open for the position that such sexual expression can be genuine goods for the homosexuals involved, even though same-sex relationships do not achieve the natural ideal. The analogy here is often to adoption. Ideally, parents raise and love their own biological children, but adoption may still be a genuine, lesser, good for the actual persons involved in actual situations (Cahill 1995). This view does not treat homosexuality as a neutral variation in human nature, like left-handedness, but rather as a deficit or disadvantage. Finally, there are secular variations of a natural law-style argument against homosexuality that avoid religion or concepts of intrinsic morality but retain the disease or disadvantage model. Sigmund Freud views a homosexual orientation as a stalled development resulting in sexual narcissism (Ruse 1988). Taking an evolutionary and Aristotelian approach, Michael Levin (1984) views homosexuality as abnormal and homosexual sex as a misuse of sexual organs, likely to result in endemic unhappiness, making it prudentially, but not intrinsically bad. As such, it is legitimate for a society to formally discourage and refuse to legitimize homosexuality—a position which crosses over into the social harm category of argument.

Social harm arguments state that homosexual activity damages individuals and society. As such, the state may legitimately discourage or criminalize homosexuality as a measure of public self-protection. While proponents of social harm arguments often begin with divine command or natural law convictions, the arguments themselves, as empirically based, stand independently. Many social harm arguments take as a starting point certain empirical claims about homosexual psychology, including that homosexuals are pedophiles (sometimes conflating the categories altogether), are unstable, are promiscuous, are disease-ridden, are depressed, and actively recruit others (particularly children) into their lifestyle.

Some arguments are more sociological than psychological, arguing that altering the historical social norms that have governed gender and family structures, such as permitting gay marriage or adoption, will confuse our notions of families, will traumatize children's understanding of parental roles, and will erode heterosexual families. For example, John Finnis argues that because homosexual relationships are immoral, incapable of actualizing mutual devotion, and harm the personalities of its participants, they are "deeply hostile to the self-understanding of those members of the community who are willing to commit themselves to real marriage" and are "an active threat to the stability of existing and future marriages" (1994, p. 515). As such, the political community has a "compelling interest" in discouraging and criminalizing homosexual sex. Finally, there is the slippery slope argument that once an institution as sacrosanct as heterosexual family and marriage is fundamentally altered, there will be no principled way to prevent the legalization of polygamy, bestiality, pedophilia, or incest.

DISCRIMINATION AS MORALLY UNJUSTIFIED

Defenders of the morality of homosexuality begin with the claim that individuals have a prima facie interest in pursuing their own goods as they interpret them and that such pursuit should not be denied without just reason. The first approach then to claiming that heterosexist beliefs and policies are unjust is to contend that all the arguments that defend the permissibility of heterosexism are unsound.

Against the divine command argument, frequent intrareligious criticism says that scriptural passages are often mistranslated (there being no term in either Hebrew or Greek for constitutional homosexuality as we know it), are misread out of context (the holiness code being instructions on ritual practices rather intrinsic morality or referring only to rape or prostitution), that the choice to enforce sexual regulations over other equally weighted ritual regulations are examples of prejudicial selectivity, or that biblical texts are not infallibly authoritative. The frequent extrareligious response is that divine command theory is false in the first place and thus such texts have no special moral authority, or at least that in a free society, religious beliefs are not state-enforced and thus have no special legal authority.

Against the natural law argument, critics argue that organs and sex may have more than one end (Mohr 1988), that *natural* and *unnatural* do not equate with *good* and *bad*, that there is no logical implication from the ways things are to the ways things ought to be (the is/ought distinction), that animals are no guides to our

behavior (Boswell 1980), that homosexuality is in fact natural and does occur among animals (Bagemihl 1999; Roughgarden 2004), and that homosexuality may be evolutionarily adaptive and antihomosexual discrimination may explain any unhappiness better than sociobiology (Murphy 1987).

Against the social harm argument, critics point out that numerous psychological studies have shown most of the heterosexist claims to be false—homosexuals are not more likely than heterosexuals to be pedophiles, they do not seek to convert heterosexuals, sexually transmitted diseases are as likely to occur in heterosexuals who engage in unsafe sex, and that any promiscuity is both exaggerated and as or more likely to be the result of social marginalization as an intrinsically homosexual trait. Slippery slope arguments, in addition, falsely assume that we will be unable in the future to distinguish the consensual, harmless sexual activity between rational adults (in both heterosexual and homosexual relationships) from the sorts of harmful abuses present in bestiality, incest, and pedophilia (Corvino 2005).

For all these reasons, defenders of the morality of homosexuality claim that proponents of heterosexism fail to meet the burden of proof that would justify heterosexist attitudes and policies. In a positive vein, they also argue that homosexuality is simply a normal, if minority, variation among human traits with widespread historical and cross-cultural representation, that homosexual relationships can actualize mutual devotion and other human goods in distinctive ways, and that citizens' interest in liberty and pursuit of their own good outweighs any state interest in promoting only procreative relationships. This last argument weighed heavily in *Lawrence v. Texas*, the 2003 U.S. Supreme Court decision overruling the tradition- and natural law-defense of *Bowers v. Hardwick*. The court stated: "The fact that a State's governing majority has traditionally viewed a particular practice as immoral is not a sufficient reason for upholding a law prohibiting the practice, and … individual decisions concerning the intimacies of physical relationships, even when not intended to produce offspring, are a form of 'liberty' protected by due process."

RELATION TO HOMOPHOBIA

Heterosexism is a relatively new term with a contested relationship to *homophobia*, a term popularized by George Weinberg (1972). The latter concept came to be used widely, and often interchangeably, with *heterosexism* to refer to any prejudice or morally negative attitude toward homosexuality, often with highly polemical

intent. However, *homophobia* originated as a quasi-psychiatric term that emphasized the irrational hatred of homosexuals (Pharr 1988). This usage has been criticized as failing to adhere to the clinical symptomatology of true phobias (Richmond 1998) and for individualizing a problem that is better understood as a political and institutional phenomenon (Kitzinger 1989). It has been argued that homophobia is a phenomenon best understood as an extreme projection of background heterosexist attitudes that are themselves strongly shaped by background assumptions concerning gender identity (Hopkins 1996). In any case, *heterosexism* appears to have become the more dispassionate term of choice for describing an attitude that privileges heterosexuality.

See also Aristotle; Feminism and Continental Philosophy; Feminism and the History of Philosophy; Feminist Philosophy; Feminist Social and Political Philosophy; Philosophy of Sex; Racism; Sexism; Thomas Aquinas, St.

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Patrick D. Hopkins (2005)

HEYTESBURY, WILLIAM
(before 1313–1372/3)

William Heytesbury, a fellow at Merton College in Oxford from 1330, belonged to the second generation of Mertonian "Calculators." His work depends on Richard Kilvington's *Sophismata* (1325) and Thomas Bradwardine's *Insolubilia* and *Tractatus de Proportionibus* (1328). His technique was to analyze sophismata—ambiguous problematic statements whose truth or falsehood is to be assessed under specified assumptions—and apply supposition theory, a form of semantic-logical analysis, to the explication of their underlying logical grammar. He is particularly noted for his work on motion and the continuum.

Heytesbury's most popular work was the *Rules for Solving Sophismata* (1335), which contains six treatises: "On Insoluble Sentences (Insolubilia)," dealing with self-referential paradoxes; "On Knowing and Doubting," concerning reference in intensional contexts; "On Relative Terms," considering the reference of relative pronouns; "On Beginning and Ceasing" and "On Maxima and Minima," about continua; and "On the Three Categories," on velocity and acceleration in changes of place, quantity, and quality.

In "On Beginning and Ceasing," Heytesbury considers the sophisma "some part of an object ceases to be seen by Socrates," given that the object is not now, but will, immediately after now, be partly occluded by an object passing in front of it. This statement may assert that there is a given part of the object that will, in every moment after this one, be entirely occluded, and if so, it is false. Or it may assert that at every moment after this present moment, there will be some part of the object entirely occluded at that moment (a different part for each moment), and then it is true.

The *Rules* became popular, and remained important on the European continent even after the Mertonians began to be ignored in Britain. It was taught at Padua and Paris through the early sixteenth century, influencing the Paduan school, fifteenth-century Italian logicians such as Paul of Venice (d. 1429), and the school of John Major at Paris. With the rest of medieval logic, Heytesbury's work sank into obscurity after that. In addition to *Rules* Heytesbury wrote two collections of sophismata, in one of which the (obviously false) statement, "you are a donkey," was repeatedly derived from seemingly harmless admissions. He also wrote some shorter works; for instance, "On the Compounded and Divided Senses," which deals with scope ambiguities similar to that involved in the preceding example.

In the sixth chapter of *Rules*, Heytesbury states the mean-speed theorem for uniformly accelerated motion: A uniformly accelerated body will, over a given period of time, traverse a distance equal to the distance it would traverse if it moved continuously in the same period at its mean velocity (one-half the sum of the initial and final velocities). Elsewhere, he points out, in a particular case, that a uniformly accelerated body will, in the second equal time interval, traverse three times the distance it does in the first. Domingo de Soto observed the applicability of the mean-speed theorem to free fall in 1555.

See also Bradwardine, Thomas; Kilvington, Richard; Medieval Philosophy; Paul of Venice.

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John Longeway (2005)

HICKOK, LAURENS PERSEUS

(1798–1888)

Laurens Perseus Hickok was America's first systematic philosopher and also won distinction as a theologian and educational administrator. He was born in Bethel, Connecticut, and was educated at Union College. He trained for the ministry under William Andrews and Bennett Tyler, who was a major spokesman for "old school" Calvinism. Hickok served well as pastor at Kent, Connecticut (1823–1829), and Litchfield, Connecticut (1829–1836). He then became professor of theology at Western Reserve College (1836–1844) and Auburn Theological Seminary (1844–1855). His alma mater, Union College, called him to serve as vice-president and professor of mental and moral philosophy (1855–1866) and president (1866–1868). In 1868 he retired to Amherst, Massachusetts, where he wrote several books over the next twenty years.

The core of Hickok's philosophic enterprise was the attempt to allow adequate weight to the claims of reason and experience in all domains of intellectual life. Ultimately, he was convinced, the rational and the empirical modes of thinking could not lead to contradictory conclusions; human intelligence might begin with general principles and rationally deduce facts or might begin with observed facts and gradually uncover general principles. In either case the facts were the same, and the principles were the same. Rational science is science as known by God; empirical science is science as learned by men. Different criteria of validity are to be applied to man's ideas in these two types of scientific thinking. In the empirical area ideas are tested by their experimental consequences; in the rational area ideas are tested by their

congruence within a systematic pattern. Each type of thinking has, however, its proper place; the speculative mode should not be used when the investigative mode is in order, but neither should men become so enamored of empirical investigation that they neglect rational speculation.

Despite this careful balancing of empirical and rational method, Hickok did not regard the discoveries of empirical science as part of philosophy. His own work *Empirical Psychology; or, The Human Mind as Given in Consciousness* (1854) was an introspective study of the workings of the human mind. Hickok thought of this study as prephilosophic. He also published a philosophic work in the same field—*Rational Psychology; or, The Subjective Idea and the Objective Law of All Intelligence* (1849). Here no attention was given to the data of introspection; hence, this work was properly "philosophy." In all the other fields to which he gave consideration, Hickok's work was completely dominated by rational, speculative system building.

Although there was some trace of the ideas of Immanuel Kant in American philosophy before Hickok, he was the first professor of philosophy in the United States to attempt to make systematic use of Kant and the post-Kantian German rationalists. Thus, he was an important figure in the transition from the orthodox academic teaching of Scottish realism in the first half of the nineteenth century to the dominance of idealism in the latter part of the century.

See also Empiricism; Experience; Kant, Immanuel; Rationalism; Reason.

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J. L. Blau (1967)

HIDDENNESS OF GOD

Many people are perplexed that God (if such there be) does not make His existence more evident. For many of them, the hiddenness of God puts their faith to the test. Others, however, claim that God's hiddenness is the basis of an argument against His existence. While this claim is no newcomer to religious reflection, it has been the focus of renewed debate since the early 1990s.

Two preliminary observations are in order. First, the God in question is the God of traditional theism, a personal God who is unsurpassably good. Second, *the hiddenness of God* is an inapt term to use in an argument for the conclusion that there is no God since God is hidden only if there is a God; the term *inculpable nonbelief* is better. At a first approximation, the argument is that there are people who, through no fault of their own, lack belief that God exists; thus, since there is a God only if there is no inculpable nonbelief, there is no God.

RELATIONSHIPS WITH THE ARGUMENT FROM EVIL

The argument from inculpable nonbelief is related in several ways to the more familiar argument from evil and suffering against the existence of God.

First, inculpable nonbelief is supposed to be evidence against the existence of God independent of evil and suffering. To see how this can be, imagine a society in a world much like our own but in which there is no evil or suffering. While no argument from evil could arise in such a society, some of its citizens might maintain that there is a God while others maintain that there is not since there are inculpable nonbelievers.

Second, evil and suffering are much more powerful evidence than inculpable nonbelief. It is difficult to view inculpable nonbelief as nearly as bad as the horrors of Auschwitz or the suffering caused by the tsunami of December 26, 2004. Perhaps this is due, in part, to the fact that, unlike evil and suffering, inculpable nonbelief is not bad in itself—indeed, it is bad only if there is a God.

Third, although inculpable nonbelief is weaker, independent evidence for atheism, it is arguably stronger precisely because of the suffering in the world. That is because suffering constitutes a context in which one's expectation increases that God would make Himself and His love sufficiently clear. For one is more in need of the assurance and comfort that God's manifest love would bring when one suffers. Thus, its absence in the suffering of many people, especially horrific and intense suffering, is more striking.

Fourth, formulations of the argument from inculpable nonbelief parallel those of the more familiar argument from evil. For example, one commonly distinguishes logical (deductive) arguments from evil from evidential (inductive or probabilistic) arguments from evil. A logical argument from evil affirms of some known fact about evil that it is incompatible with theism, while an evidential argument does not, either because it affirms that the fact in question is not known but only reasonably believed, or because it affirms that the fact in question is only improbable given theism, not incompatible with it. One can distinguish arguments from inculpable nonbelief along the same lines.

SCHELLENBERG'S VERSION OF THE ARGUMENT

More than anyone else, John L. Schellenberg is responsible for renewing the contemporary debate with his *Divine Hiddenness and Human Reason* (1993). The main argument is this:

(1) There are people who are capable of relating personally to God but who, through no fault of their own, fail to believe

(2) If there is a personal God who is unsurpassably great, then there are no such people

(3) So, there is no such God (from 1 and 2)

According to Schellenberg (1) is a generalization from two facts. First, there are honest seekers of the truth who are atheists and agnostics. Second, there are individuals who belong to cultures that lack the idea of a personal God altogether (e.g., the Chinese race in the period from the beginning of their history until the Christian Middle

Ages). In defense of (2), Schellenberg offers the following subargument:

(2a)   If there is a personal God who is unsurpassably great, then there is a personal God who is unsurpassably loving

(2b)   If there is a personal God who is unsurpassably loving, then for any human person H and any time t, if H is at t capable of relating personally to God, H has it within H's power at t do so (i.e., will do so, just by choosing), unless H is culpably in a contrary position at t

(2c)   For any human person H and any time t, H has it within H's power at t to relate personally to God only if H at t believes that God exists

(2d)   So, if there is a personal God who is unsurpassably great, then for any human person H and any time t, if H is at t capable of relating personally to God, H at t believes that God exists, unless H is culpably in a contrary position at t (from 2a through 2c)

In effect, (2d) is (2) of the main argument.

Schellenberg regards (2) as a necessary truth, reflecting part of the meaning of "there is a personal God who is unsurpassably great." (An evidential or probabilistic version of the argument would say that [2] is only likely to be true.) So Schellenberg regards each of (2a) through (2c) as necessary truths. He thinks (2a) is just obviously necessary. (2b), however, is not obvious. Indeed, what does it mean? In particular, what does Schellenberg mean by "relating personally to God" and being "capable" of such a relationship? He means this. To relate personally to God is to interact with God in the various ways that theistic religious traditions describe: on the divine side, God's guiding, supporting, and forgiving one, for example, and on the human side, one trusting Him, showing gratitude, and worshipping Him, among other things. Crucially, such a relationship would involve an explicit consciousness of God's presence and interaction with one. This relationship is to be conceived of developmentally, not as something that comes complete and mature. To be capable of a personal relationship with God is to have the cognitive and affective equipment required to be conscious of God's presence and interaction with one and to hold the attitudes and to perform the behavior involved in such a relationship; it also requires possession of the concept of God, or at least the materials from which it can be constructed.

So why should one suppose that (2b) is true? Schellenberg argues that it follows from the nature of unsur-

passable love and can be supported by analogy with the best sorts of human love as well. An unsurpassable lover would seek a kind of close, explicit participation in the life of his or her beloved for its own sake, as well as for the beloved's sake, so that the beloved could draw from it what he or she needed to flourish. This would be especially true in the divine-human case. A close, explicit interaction with God would bestow moral benefits. For example, it would enable one to more easily overcome character flaws and it would provide one with a model for other relationships. Moreover, it would bestow experiential benefits, such as peace and joy, security and support in suffering, and the pleasure of companionship. Of course, God would not force Himself on one, as that would make the relationship a sham. He would leave it up to one to enter into and maintain it. Thus—one's own resistance, as well as the consequences of one's prior free choices—would be the only thing He would allow to prevent one from relating personally with Him. Otherwise, He would always be available just for the asking.

As for (2c), Schellenberg argues that it is absolutely impossible for one to have a personal relationship with another unless one believes that the other exists. Thus, as a matter of logical necessity, one has it within one's power to relate personally to another only if one believes that the other exists. The same goes for us and God.

Schellenberg's argument has enjoyed much critical scrutiny. To this attention is now directed.

NON-THEODICAL CRITICISMS OF THE ARGUMENT

Some critics say that the argument does not show that there is no God since it leaves open the possibility of an impersonal God, or a personal God that is not unsurpassably great. Others say that since God is so absolutely different, even incomprehensible, nothing could count as evidence against God's existence, including inculpable nonbelief. These responses are irrelevant, however, since Schellenberg's target is a God that is at least somewhat comprehensible insofar as He is said to be personal and unsurpassably great.

Another criticism holds that the argument is an occasion for observing that unsurpassable greatness does not imply unsurpassable love. In this connection think of the Stoic view of eudaemonia (happiness), according to which the sage—the person who has achieved moral and intellectual perfection—would possess benevolence but lack upsetting emotions like empathy, ecstasy, fear, and grief since these passions would upset the life of bliss characteristic of the sage. On such a view (2a) is false. A

personal God who was unsurpassably great would be a divine sage and, as such, would not possess the sort of attachment and passion characteristic of the love exhibited by parents for their children.

Some critics deny (2b). They note that one's view of the implications of unsurpassable love depends on what human analogies one takes to be most salient. They suggest that an emphasis on maternal love of children supports (2b), whereas an emphasis on familiar adult love or the love of a benevolent reconstructive surgeon is more apt and supports the denial of (2b). One might worry about this since, first, benevolence is not love, second, maternal love is offered as an apt analogy in lived theistic religions, and, third, a perfectly loving God would empathize with the plight of those who seek Him but who through no fault of their own come up empty-handed.

Many critics say that there are no inculpable nonbelievers who are capable of relating personally to God; as such, (1) is false. Chief among them are those who argue, first, that there is sufficient evidence to believe, in creation and history, or through the witness of one's conscience or *sensus divinitatis*. Next, they argue that nonbelief is best explained by the willful sinfulness of nonbelievers, in which case it is not inculpable. For example, Jonathan Edwards (1970) argues that God has endowed human beings with the faculties to discern, appreciate, and weigh the evidence for God's existence, but those faculties work properly only if they function in accordance with "true benevolence," which consists mainly in an intense desire for truth about God and for true holiness. So while there is plenty of evidence, some lack it because they lack true benevolence. In *Original Sin* Edwards denies that there are nonbelievers who possess true benevolence; after all, he says, the scriptures say (compare *Romans* 1:19–22) that there is "sufficient light for the knowledge of God," hence, nonbelievers must fail to believe "divine things" owing to "a dreadful stupidity of mind, occasioning a sottish insensibility of their truth and importance" (1970, p. 149, 157). This insensibility consists in a "proneness to idolatry" and a "disregard of eternal things"—dispositions to ignore familiar and obvious considerations, to be swayed by ridicule and deference to people in authority, to prejudice against religion, and so on—which impair the God-given ability to reason properly about God. People bring such impairments on themselves. One worry about this criticism is that, even though some nonbelievers lack true benevolence, the empirical evidence strongly suggests that others possess it since they really do earnestly seek the truth about God,

love the Good, assess evidence judiciously, and, if anything, display a prejudice for God, not against Him.

Some critics appeal to implicit belief. The idea is that since God is the Good (or, God's moral goodness is His most salient feature), pursuit of the Good is, in fact, pursuit of God, even if one does not recognize it as such. This thought can be taken in different directions. On the one hand, one might infer that, since belief in the Good just is (or is one way to have) belief that God exists, one is a nonbeliever only if one fails to pursue the Good, a failure for which one would be culpable; so, there are no inculpable nonbelievers, and (1) is false. On the other hand, one might deny that belief in the Good is belief that God exists but still infer that one can relate personally with God (just by choosing) even if one does not believe that God exists since, after all, belief in the Good (moral goodness) is sufficient for the early stages of a developing personal relationship with God; as such, (2c) is false.

Another possibility is that one can begin to develop a personal relationship with God without belief that God exists. One option here is a kind of faith that God exists that has as its cognitive component acceptance rather than belief. Belief differs from acceptance in that, first, acceptance is a mental act, rather than a dispositional mental state (which is not to say that acceptance does not engender a complex behavioral disposition), and second, acceptance is under voluntary control while belief is not. Regarding the first point, although accepting a proposition is like believing it in that accepting it involves a positive stance toward it, accepting a proposition is unlike believing it in that accepting it involves one adopting it or taking it on for the purposes of theoretical and practical reasoning as well as behavior, even though one is not disposed to think "yes, that's how things are" on considering it, which is essential to belief. As for the second point, belief is a state one finds in oneself, the causal consequence of one's reasons, evidence, or grounds. However, when one's grounds for a proposition seem ambiguous, one can choose to accept it or choose to withhold acceptance. Now, if one's faith that God exists involves acceptance but not belief, one will nevertheless be disposed to act and feel in ways appropriate to God's existence (e.g., worshipping and feeling gratitude) and one will accept various experiences and sacraments as God's interacting with one (e.g., forgiving, guiding, and supporting one). In that case, one might argue that (2c) is false: one can have it within one's power to begin to relate personally to God even if one does not believe that God exists; faith is enough.

A SOUL-MAKING THEODICY

Many critics concur with (2c) but argue that (2b) is false. Toward that end, they offer *theodicies*, that is, reasons why God might lovingly permit inculpable nonbelief. Several general themes have emerged in the literature. First, God may well prefer temporary nonbelief to belief accompanied by a negative response. Second, God might have different reasons for different individuals depending on what attitudes and dispositions they possess; likewise, He might have different reasons for the same individual at different times. Third, God might have a combination of reasons, no one of which is enough but which, taken together, explain His permission of inculpable nonbelief. Fourth, on some versions of theism everyone will eventually have evidence sufficient for belief, if not in this life then in the next; so theodicies involve reasons for God to permit inculpable nonbelief for a time, not forever. Finally, evidence sufficient for belief that God exists need not involve arguments or spectacular "signs and wonders"; experiential awareness of God is enough. What follows are some representative theodicies.

According to one version of the *soul-making theodicy*, many people, at the dawn of their capacity to relate personally to God, are already ill disposed toward Him. Through no fault of their own, they have become inculpably ill-disposed nonbelievers. These include many of those who were raised to be hostile or indifferent toward religion, who were abused by excessively strict religious parents, or who had instilled in them an extreme self-centeredness or disrespect for proper authority. Perhaps God refrains from giving such people evidence sufficient for belief because they would not respond appropriately if they had it. Moreover, there's a grave risk in bringing inculpable ill-disposed nonbelievers to belief since there is a good chance they will confirm their defective disposition by an unfitting response; indeed, it might even be useless to give them evidence since they might be so ill disposed that they are more inclined to think they are institutionalizable ("hearing voices") than that God is communicating with them. Consequently, God waits, giving them the opportunity to become more receptive and apt to reciprocate His love, and influences them in subtle but respectful and loving ways toward this end.

As for inculpable nonbelievers who are well disposed toward God, this version of the soul-making theodicy considers separately those who were responsible for becoming well disposed and those who were not. Examples of the first group include those who have been virtually determined—say, by parental training—to become well disposed but who do not yet believe. In that case, as they become capable of relating personally to God, they are disposed to love God but they had little if any say in becoming so disposed. This is unfortunate because, all else being equal, a state of affairs in which one reciprocates God's love but had little if any say in being so disposed is not nearly as good as a state of affairs in which one reciprocates God's love and had a significant say about being so disposed. God prefers the better state of affairs, and so He does not bring to belief the well-disposed inculpable nonbeliever who is not responsible for being so disposed because He prefers them to confirm their disposition, on their own, in the face of contrary desires and competing allegiances, before bringing them to belief. In that way God allows them to make their involuntarily acquired good disposition toward Him genuinely theirs.

Now consider well-disposed inculpable nonbelievers who were responsible for becoming so disposed. Given the influences that shape childhood character, these will most likely be adults who have either reshaped their bad dispositions toward God for the good or confirmed their good dispositions over time. They constitute the most difficult case for the soul-making theodicy; nevertheless, it has some resources. For, as is well known, one can be disposed to love another for the wrong reasons. For example, sometimes one's love springs from a desire to extend one's power or influence, increase one's pleasure, or satisfy one's curiosity. Other times its source is insecurity or fear, for example, fear of being alone or unprotected. And there are other sources. Likewise with God. One may well be disposed to love God on coming to belief, but one might be so disposed for reasons that are not as fitting as they might be. For example, it is most fitting to love God mainly for His moral beauty, His holiness; relatedly, perhaps no disposition to love God is suitably motivated unless it is grounded in a strong desire to surrender wholly to His will. In that case the possibility arises that if God were to bring such people to belief, they would love Him, but their love would not be appropriately motivated. So He woos them, before bringing them to belief, influencing them behind the scenes in respectful and loving ways to change the source of their disposition to love Him and to confirm that change over time.

OTHER THEODICIES

A variety of other theodicies have been articulated. The *presumption theodicy* states that God does not bring some individuals to belief because if He did, they would relate to God in presumptuous and arrogant ways, not with due

contrition and humility, which are essential to a proper relationship with God. According to the *stimulus theodicy*, God does not produce belief in some individuals because if He did, they would be less apt to recognize the wretchedness of living life on their own, without God. Divine hiddenness stimulates such people to recognize this fact about the human condition, which is essential for entering into a proper relationship with God. A variation on the stimulus theodicy states that God does not provide evidence sufficient for belief in some individuals because if He did, the perceived risk required for an intense and passionate faith would be objectionably reduced, and without such a faith one cannot wholly enter into a proper relationship with God.

The *deception theodicy* asserts that some people are disposed in such a way that if God brought them to belief they would be deceived into thinking that they had arrived at a proper understanding of religious matters and would become complacent or relate to God at a superficial level. Proponents of the *intellectual virtue theodicy* say that God does not provide evidence sufficient for belief in some individuals because if He did, certain intellectual temptations would not be available to them and they would not have the opportunity to respond to those temptations virtuously. For example, if the evidence were too clear, sustained investigation and reflection and wrestling with doubt would be inhibited.

According to the *diversity theodicy* God does not produce belief in some people because if He did, diverse expression of religious imagination, creativity, and devotion would be greatly reduced, and religious variety of this sort is a great good. Finally, advocates of the *investigation theodicy* hold that it is a great good to pursue knowledge with others, all the more so when the knowledge is as important as knowledge of God. But people can pursue knowledge together only if some of them are ignorant. So God permits inculpable nonbelief so that human beings might help each other to learn about Him and to assist nonbelievers in starting personal relationships with Him.

Naturally enough, these theodicies have been criticized. Some critics claim that they provide no good reason for God to permit inculpable nonbelief at all, or at least not for every sort of inculpable nonbeliever. Others insist that if they are good reasons, then the problem of too much belief arises. Most importantly, it is claimed that the benefits of temporary inculpable nonbelief articulated in the theodicies can be accommodated within a developing, explicit personal relationship with God that involves evidence sufficient for belief that He exists.

One final critique of Schellenberg's argument should be mentioned. His argument invites one to affirm, at least tacitly, that there is no reason for God to permit inculpable nonbelief. Two themes have emerged on this score. First, one should accept the invitation only if the theodicies fail, individually but especially collectively, to account for why God might lovingly permit inculpable nonbelief. The worry here is that human beings are enormously complicated, and it is no easy task to tell whether any particular candidate for inculpable nonbelief possesses or fails to possess those motivations, attitudes, and dispositions that figure in the theodicies above. Second, even if there are inculpable nonbelievers whose nonbelief cannot be fully explained by any theodicy one knows of, the live possibility remains that there is some theodicy one does not know of. Indeed, would it really be all that surprising if God had some purpose for permitting inculpable nonbelief, as well as other bad things that happen, that one cannot understand?

See also Atheism; Common Consent Arguments for the Existence of God; Edwards, Jonathan; Eudaimonia; Evil; Evil, The Problem of; Happiness; Popular Arguments for the Existence of God.

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Daniel Howard-Snyder (2005)

HILBERT, DAVID
(1862–1943)

David Hilbert, the German mathematician, was born in Königsberg and, except for a semester at Heidelberg, did his university studies there. His dissertation, presented in 1884, was on a problem in the theory of algebraic invariants, and it was to this theory that Hilbert devoted his mathematical researches until 1892. Through these penetrating investigations Hilbert obtained many pregnant results, some of them (*Hilbertscher Nullstellensatz, Hilbertscher Irreduzibilitätssatz*) still known by his name. The methods he used in these investigations inaugurated a trend toward treating algebra more conceptually and have since become dominant in the field.

In 1886 Hilbert became a *Privatdozent* and in 1892 an extraordinary professor at the University of Königsberg. In 1893 he was named by the minister of culture Friedrich Althoff to succeed his teacher, Felix Lindemann, as an ordinary professor at Königsberg. In 1895 Hilbert accepted an invitation initiated by Felix Klein, to the University of Göttingen to succeed Heinrich Weber. Hilbert remained at Göttingen, despite many offers of other chairs, notably from Leipzig in 1898, Berlin in 1902, and Heidelberg in 1904. The invitation from Berlin led to

Hilbert's obtaining, through the help of Althoff, a chair at Göttingen for Hermann Minkowski, whom Hilbert had known since they were students at Königsberg. The personal intercourse between the two investigators was highly stimulating to both men but was prematurely ended, to Hilbert's grief, by Minkowski's death in 1909.

Hilbert's most important mathematical investigations were carried out between 1892 and 1909. He simplified the existing transcendence proofs for the numbers e and π. His investigations in the theory of algebraic number fields, in particular his monumental report "Die Theorie der algebraischen Zahlkörper" (1897), greatly amplified existing theory and directed further research in the field. His famous *Grundlagen der Geometrie* is discussed below. He showed the possibility of directly supporting the Dirichlet principle, that the existence of a conformal mapping may be inferred from the presumed existence of a minimum of a certain integral (which Bernhard Riemann had taken as the basis for his general theorems concerning conformal mappings), by means of an existence proof. This method for giving an existence proof, when worked out by Richard Courant and Hermann Weyl, proved very successful. Hilbert's contributions to the calculus of variations, in particular his statement of the *Unabhängigkeitsatz* ("independence axiom"), constituted an illuminating commentary on Adolf Kneser's textbook in the field. He continued the theory of Ivar Fredholm concerning integral equations. In particular, he introduced the analysis of infinitely many variables and generalized the transformation to principal axes. The theory thus established has proved highly fruitful in topology and in physics, particularly in quantum mechanics. Utilizing a result of Adolf Hurwitz, Hilbert solved the Waring problem concerning the representation of natural numbers by sums of nth powers.

Hilbert's familiarity with the various domains of mathematics was impressively demonstrated by the address "Mathematische Probleme," which he presented at the Second International Congress of Mathematicians in Paris in 1900. In this address Hilbert surveyed the situation then existing in mathematics, at the same time formulating twenty-three problems that have much occupied mathematicians since then. A great many of these problems have been solved in the meantime.

After Minkowski's death Hilbert turned to problems of theoretical physics. He first applied the theory of integral equations to the kinetic theory of gases and to the theory of radiation. Immediately after the appearance of Albert Einstein's general theory of relativity, Hilbert published "Die Grundlagen der Physik" (1915–1916), which

offered the first proposal of a way to unify gravitational theory and electrodynamics.

After 1916 Hilbert returned to the problems of the foundations of mathematics. These investigations led to the development of proof theory, which will be discussed below.

In his later years Hilbert gave lectures providing careful general surveys of mathematics, such as "Anschauliche Geometrie" (on intuitive geometry), as well as popular philosophical lectures. The spirit of these philosophical lectures can be seen in the speech "Naturerkennen und Logik," which he gave at the congress of natural scientists in Königsberg in 1930. At this congress his native city named him an honorary citizen.

Hilbert's character was not that of a specialized scientist. He took pleasure in the joy of life, especially in sociability, and also took a vivid interest in political events. He enjoyed the exchange of ideas both in science and in general thought; in discussions he had a predilection for pregnant, sometimes paradoxical, formulations.

Hilbert had a great many pupils, and he was the adviser on many famous dissertations whose themes were suggested by his investigations. He had the satisfaction of seeing his work highly appreciated in his own lifetime.

The memory of Hilbert's personality is vivid in all those who knew him, and the impulses he gave to science remained effective for decades after his death.

THE FOUNDATIONS OF GEOMETRY

In Hilbert's scientific work, his studies in the foundations of mathematics constitute an important part. These investigations fall into two stages separated by an interval of nearly thirteen years. The first period, which extends from about 1893 to 1904, embraces Hilbert's inquiries into geometric axiomatics and is highlighted by the publication of the *Grundlagen der Geometrie* (1899), the work that made Hilbert's name familiar to a wide public of scientists and philosophers. The second period, which began with the publication in 1917 of "Axiomatisches Denken," centers on the foundations of arithmetic and the development of Hilbert's program for proof theory.

ABSTRACT AXIOMATICS. A main feature of Hilbert's axiomatization of geometry is that the axiomatic method is presented and practiced in the spirit of the abstract conception of axiomatics that arose at the end of the nineteenth century and which has been generally adopted in modern mathematics. It consists in abstracting from the intuitive meaning of the terms for the kinds of prim-

itive objects (individuals) and for the fundamental relations and in understanding the assertions (theorems) of the axiomatized theory in a hypothetical sense, that is, as holding true for any interpretation or determination of the kinds of individuals and of the fundamental relations for which the axioms are satisfied. Thus, an axiom system is regarded not as a system of statements about a subject matter but as a system of conditions for what might be called a relational structure. Such a relational structure is taken as the immediate object of the axiomatic theory; its application to a kind of intuitive object or to a domain of natural science is to be made by means of an interpretation of the individuals and relations in accordance with which the axioms are found to be satisfied.

This conception of axiomatics, of which Hilbert was one of the first advocates (and certainly the most influential), has its roots in Euclid's *Elements,* in which logical reasoning on the basis of axioms is used not merely as a means of assisting intuition in the study of spatial figures; rather, logical dependencies are considered for their own sake, and it is insisted that in reasoning we should rely only on those properties of a figure that either are explicitly assumed or follow logically from the assumptions and axioms. This program was not strictly adhered to in all parts of the *Elements,* nor could it have been, for its system of axioms was not sufficient for the purpose. The first axiom system meeting the requirements of the program was given by Moritz Pasch in his *Vorlesungen über neuere Geometrie* (Leipzig, 1882).

This abstract kind of axiomatics, which consists in separating out the purely mathematical aspects of a theory, is not the only possible one. Hilbert himself knew that it can be applied advantageously only in domains of science whose theoretical development is sufficiently advanced. But abstract axiomatics is useful wherever the logical dependence or independence of theoretical assumptions is under investigation.

The distinguishing property of Hilbert's axiomatics is frequently described by saying that in it the terms for the kinds of elements (points, straight lines) and for the relations (incidence, betweenness, congruence) are *implicitly defined* by the axioms. This expression, first introduced in 1818 by J. D. Gergonne (Hilbert did not employ it), is often used in a misleading way. The axioms generally impose conditions on the relations and on the kinds of elements of the system; some of these conditions are partial characterizations of the relations or the kinds of elements, others characterize the space with respect to the elements and relations. The entire axiom system—as Hilbert observed in a letter to Gottlob Frege—can be

regarded as a single definition. But this is an *explicit* definition of a term denoting the relational structure in question. The defined concept is a predicate of the second type (*zweiter Stufe,* as Frege called it), applying to domains of things and to certain relations between them.

NON-ARCHIMEDEAN SYSTEMS. Another main feature of Hilbert's *Grundlagen der Geometrie* is the development of geometry, and, in particular, of plane geometry, independently of the Archimedean axiom. This axiom states that given any two line segments, either may be exceeded by an entire multiple of the other. Thus, it partly compensates for the absence of general commensurability of line segments. It was with the help of this axiom that the theory of proportions was established in Book V of Euclid's *Elements* (attributed to Eudoxus). It is also a consequence of this axiom that, once a unit segment is chosen, there corresponds to any line segment a real number (in Richard Dedekind's sense of the term) that is its measure (ratio number); therefore, Hilbert also called the Archimedean axiom the axiom of measurement.

Recourse to the Archimedean axiom introduced an arithmetical element into reasoning, and hence avoidance of it in geometrical proofs amounts to an emancipation from a nongeometrical type of reasoning. The avoidance of nongeometrical reasoning does not preclude an analytic geometry. In fact, Hilbert was able to construct a calculus of line segments, independent of the Archimedean axiom, in two different ways.

One method operates within the framework of metric plane geometry. It is based on the axioms of incidence (for the plane), those of order, those of congruence, and the parallel axiom. Hilbert defines the sum of segments in the usual way and the product of segments, after establishing a unit segment, by a parallel construction; he then shows that by these definitions the usual computation laws for sum and product are satisfied.

By this segment calculus an elementary foundation of the theory of proportions and thereby also of analytic geometry is obtained. Hilbert further showed how with the aid of the segment calculus the theory of the areas of polygons can be set up without supposing, as is assumed in Euclid, that to any polygon there corresponds its area as a quantity, that is, in agreement with Euclid's axioms of quantities. Thus he showed that no accessory reliance on intuition is required for the theory of areas of polygons.

Hilbert conjectured that the theory of the volumes of polyhedrons is not fully analogous to the theory of the areas of polygons. He posed the problem of showing that tetrahedrons of equal volume cannot always be obtained from one another by a series of processes of pairwise additions and subtractions of congruent polyhedrons, a problem solved by Max Dehn ("Über raumgleiche Polyeder" and "Über den Rauminhalt"). Various investigations have derived from this problem.

Hilbert's second calculus of line segments independent of the Archimedean axiom is for *affine* geometry of the plane. A difficulty here is that the axioms of plane affine geometry do not suffice for the foundation of this geometry. The same holds for plane projective geometry.

Hans Wiener stated at the Naturforscherversammlung in Halle (1891) that it is impossible to give autonomous foundations to both plane projective geometry and plane affine geometry by adjoining to the axioms of incidence the Desargues theorem and a specialized form of the Pascal theorem on conic sections (with the conic section degenerated to a pair of straight lines). Hilbert was impressed by these statements and gave a proof of them for affine geometry by means of a calculus of segments. Here sum and product of segments are defined by elementary parallel constructions, and, with the aid of the Desargues theorem, the computation laws, with the exception of the commutative law for the product, are proved to be satisfied. These proofs were simplified by Arnold Schmidt in the seventh edition of the *Grundlagen.*

This calculus of segments leads to an analytic geometry over a skewfield—as it has come to be called—for the plane. This geometry can be extended, as Hilbert showed, to an analytic geometry of three-dimensional space satisfying the incidence axioms and the parallel axiom for the space. This is the extent of the role of the Desargues theorem. The specialized Pascal theorem is needed to prove that the segment calculus satisfies the commutative law for multiplication. This law, as Hilbert showed, can be inferred from the other computation laws and the laws of order with the aid of the Archimedean axiom, but not without it. (Gerhard Hessenberg proved, somewhat later, that the Desargues theorem is a consequence of the specialized Pascal theorem.)

Hilbert's positive treatment of the Archimedean axiom and, in particular, the question of its independence complemented his elimination of it from the foundations of geometry. The possibility of a non-Archimedean geometry was first considered in detail by Giuseppe Veronese in his *Fondamenti di Geometria* (Padua, 1891). This possibility can be inferred, by the methods of analytic geometry, from the existence of a (generalized) number system for which the operations of sum and product and their inverses, as well as the operation

$\sqrt{1 + a^2}$ and the relation "smaller than," can be defined in such a way that the familiar computation laws, but not the Archimedean axiom, are satisfied.

Hilbert gave as an instance of such a non-Archimedean system a system whose elements are algebraic functions of an argument *t*. But the instance he presented in "Über den Satz von der Gleichheit der Basiswinkel im gleichschenkligen Dreieck" is easier to operate with. (This essay is one of a series of studies closely connected with the *Grundlagen* and added to it as appendixes in the second and later editions; this essay forms Appendix II.) It deals with the possibility of restricting, in plane geometry, the last congruence axiom concerning triangles to the case of triangles assigned to one another in equal orientation. The effect of this restriction is to admit as congruences only those transformations obtained by translations and plane rotations, thus excluding symmetry from the notion of congruence. Two kinds of questions arise, those concerning the anomalies that can occur in a model of the restricted axiom system and those relating to the ways of compensating for the weakening of the triangle congruence axiom. Many anomalies are stated by Hilbert to occur in two models that he ingeniously constructed. Concerning different methods of compensating for the restriction of the triangle congruence axiom, see Supplement V2 of the ninth edition of the *Grundlagen* (pp. 264–268) and the literature mentioned there in the footnote on p. 265.

CHARACTERIZATION OF THE PLANE. As Blumenthal's biography indicates, Hilbert was led to the problems of Appendix II by investigations (reprinted in Appendix IV) in which he gave a very different foundation for plane geometry from that presented in the main part of the book. The problem here is to characterize the plane by means of the properties of the manifold of congruent motions. It was first treated by Hermann von Helmholtz and soon after by Sophus Lie, who emphasized its group-theoretic aspects. Both Helmholtz and Lie proceeded by the methods of the differential calculus. Hilbert sought to avoid any assumption concerning differentiability. His arguments in Appendix IV are within the framework of the theory of point sets. They rely especially on Camille Jordan's theorem concerning simply closed continuous curves (Jordan curves) in the "number plane," which generalizes the theorem on the decomposition of the plane by a simple polygon. Hilbert starts from a characterization of the geometric plane as a two-dimensional manifold by means of the concept of neighborhoods introduced in an axiomatic way—this is now a familiar

method in topology, but at that time it was scarcely known at all.

Two characterizations of the "plane" are offered. According to the narrower definition the plane is topologically equivalent to a connected domain in the number plane; according to the wider definition it is locally equivalent (homeomorphic) to the interior of a Jordan curve and is globally connected. Hilbert chose the narrower characterization for simplicity.

The concept of continuous transformation can be defined by means of the representation of the geometric plane in the number plane. The motions are then taken as special continuous one-to-one transformations of the geometric plane onto itself such that in the representation each Jordan curve preserves its orientation. This provisional characterization of the geometric plane is then completed by three axioms on motions: (1) The motions constitute a group with respect to their composition; (2) given two different points, *A* and *B*, there are infinitely many points into which *B* can be transformed by a motion keeping *A* fixed; (3) if *A*, *B*, *C* and *A'*, *B'*, *C'* are triples of points in the geometric plane (the members of a triple not necessarily being different) and if in an arbitrary proximity of *A*, *B*, *C* there exist triples *P*, *Q*, *R* and in an arbitrary proximity of *A'*, *B'*, *C'* there exist triples *P'*, *Q'*, *R'* such that *P*, *Q*, *R* is transformed by a motion into *P'*, *Q'*, *R'*, then *A*, *B*, *C* is transformed by a motion into *A'*, *B'*, *C'*.

In a valuable discussion that made use of set-theoretic, topological, and group-theoretic arguments, Hilbert proved that from these axioms, with the obvious definition of congruence by means of the concept of motion and a suitable set-theoretic definition of straight line, it follows that the geometric plane under consideration satisfies the axioms of plane geometry as stated in the main part of the *Grundlagen,* with two exceptions: (1) the triangle congruence axiom is obtained only in the restricted form relating to motions, and (2) the parallel axiom does not result. Two possibilities then remain: the plane satisfies either Euclidean geometry or Bolyai-Lobachevski geometry.

Hilbert's handling of these problems disclosed a new direction of investigation, which is still being pursued. His results have been extended in three ways: (1) by weakening the topological assumptions through the adoption of the wider characterization, mentioned above, of a two-dimensional manifold, (2) by generalizing the discussion to higher dimensions, and (3) by modifying the axioms on the motions. (See the surveys of these researches in the introduction to Hans Freudenthal's "Neuere Fassung des

Riemann-Helmholtz-Lieschen Raumproblems" and his "Im Urkreis der sogenannten Raumprobleme.")

CONTINUITY. A final aspect of Hilbert's axiomatization of geometry in the *Grundlagen* is his treatment of continuity. The Archimedean axiom is stated as an axiom of continuity, yet it excludes only a particular kind of discontinuity. In fact, if this axiom alone is added to the Hilbert axioms of incidence, order, and congruence (including the parallel axiom), then the axiom system is satisfied by an analytic geometry constructed over a *restricted* number system consisting only of algebraic numbers and not including the square root of each positive number.

In this respect Hilbert's axioms differ from those of Euclid's *Elements.* Euclid explicitly postulated the construction of a circle around a given point with a given radius (and implicitly made assumptions about the intersection of circles and of circles with straight lines). However, in order to realize by constructions the existence statements of Hilbert's axioms, it is sufficient to have, in addition to a ruler, not a compass but an "*Eichmass*"—that is, an instrument for determining a given distance on a given straight line from a given point in a prescribed direction. Hilbert showed, in Chapter 7 of the *Grundlagen,* that the *Eichmass* and the ruler allow us to perform all the constructions corresponding to the existence axioms.

Chapter 7 also discusses the question of the analytical representation of the constructions with ruler and *Eichmass.* It turns out that the ratio numbers of line segments constructible from a given unit length with ruler and *Eichmass* are the real numbers obtainable by the elementary arithmetical operations together with the operation $\sqrt{1 + c^2}$. This domain of numbers is narrower than that obtained when the operation $\sqrt{1 + c^2}$ is replaced by that of extracting the square root of an arbitrary positive number. The latter domain is the one composed of the ratio numbers of the lengths constructible by ruler and compass, but by no means does it contain all algebraic numbers. Yet, whereas the set of all algebraic numbers is denumerable, the set of all ratio numbers has a higher infinity. Hence, in order to characterize the geometric continuum a further axiom is required. It then becomes apparent that geometric continuity is related to continuity in the theory of real numbers.

When Hilbert wrote the *Grundlagen* the question of conceptually formulating the continuity property of an ordered set had been settled by the Dedekind axiom of *Lückenlosigkeit* and its equivalent, the principle of the

least upper bound. For a metrical set, each of these axioms implies the Archimedean property.

COMPLETENESS. In direct connection with his work on the foundations of geometry, Hilbert undertook an axiomatization of theory of real numbers. In the paper "Über den Zahlbegriff" (published in 1900 and reprinted as Appendix VI of the *Grundlagen*), he presents an axiom system characterizing the system of real numbers as an ordered Archimedean field that cannot be extended to a wider ordered Archimedean field. He thus replaced the continuity axiom by (1) the Archimedean axiom and (2) a condition of maximality which he called the axiom of completeness.

Hilbert introduced into geometry a corresponding axiom of completeness (which first appears in the second edition of the *Grundlagen*) stating that the space characterized by the axiom system including the axiom of completeness constitutes a maximal (that is, not extensible) model of the other axioms. The connection between the geometrical and the arithmetical completeness axiom is given by the circumstance that any model of the axioms of incidence, order, and congruence and of the parallel and the Archimedean axiom can be represented by an analytic geometry over an ordered Archimedean number field, which again is isomorphic with respect to sum, product, and order to a subfield of the field of all real numbers.

The statement of the completeness axiom is very suggestive, and it was with Hilbert's introduction of this axiom that the notion of a maximal model was first conceived. Yet, because of its reference to other axioms, the completeness axiom offers difficulties, particularly with respect to questions of independence. The possibility of decomposing the full continuity axiom into the Archimedean axiom and another axiom which does not entail it is given by Georg Cantor's continuity axiom. (See Federigo Enriques, "Prinzipien der Geometric," and Richard Baldus, "Zur Axiomatik der Geometrie III: Über das Archimedische und das Cantorsche Axiom.")

CONSISTENCY. In "Über den Zahlbegriff" Hilbert recommended substituting an axiomatic presentation of the theory of real numbers for the "genetic" method of treating them. Despite the great pedagogical value of the genetic method, he said, the axiomatic method is to be preferred for the definitive formulation and logical precision of the theory.

This point of view has decisive consequences for the problem of consistency. Hilbert proved the consistency of

the geometrical axiom system by using the arithmetical model provided by analytic geometry. But if arithmetic is set up as an axiomatic theory, then Hilbert's proof establishes only a relative consistency. This, of course, is a valuable result, since the structure described by the axioms for the arithmetical continuum is much simpler than that of Euclidean space. The reduction to arithmetic, however, cannot then be regarded as a kind of direct verification by intuitive evidence, for the task of proving the consistency of the axiomatic theory of real numbers remains. This problem was one of those Hilbert posed in "Mathematische Probleme" (*Gesammelte Abhandlungen,* Vol. III, pp. 290–329).

At that time Hilbert thought that a suitable modification of the methods of Dedekind and Karl Weierstrass in the theory of irrational numbers would suffice to obtain the desired proof of consistency. Not long after, however, in the address "Über die Grundlagen der Logik und der Arithmetik" to the Heidelberg Congress of Mathematicians, Hilbert presented an essentially altered view. This alteration was no doubt brought about through the discovery by Bertrand Russell and Ernst Zermelo of very significant forms of the logical paradoxes which gave a more fundamental aspect to the difficulties that Cantor had earlier found with respect to "inconsistent sets." These difficulties showed that in set theory we cannot in general assign to a predicate *P* "the set of all those things for which *P* holds" as an object belonging to the universe of discourse.

Hilbert stated that these paradoxes seemed to show that the views and methods of logic "conceived in the traditional sense" ("*im hergebrachten Sinne aufgefasst*") are not equal to the strong requirements of set theory. And, although he strongly opposed Leopold Kronecker's tendency to restrict mathematical methods, he nevertheless admitted that Kronecker's criticism of the usual way of dealing with the infinite was partly justified.

The resulting point of view was not yet explicitly developed in Hilbert's Heidelberg address. However, Hilbert presented there the following programmatic ideas: (1) One must include in the arithmetical theory whose consistency is to be demonstrated the methods of logical reasoning used in the theory; (2) the methods of symbolic logic for representing mathematical sentences by formulas are to be applied; (3) the sequences of formulas representing mathematical proofs can be made the object of intuitive elementary reasoning regarding their structural properties and relations, and in this way proofs of consistency can be carried out. Various devices for proving consistency were also exhibited.

Hilbert's investigations of the foundations of arithmetic remained in this provisional state for a long time. During the interval major developments took place in the foundations of mathematics and in mathematical logic. Zermelo proved the well-ordering theorem and published his axiom system for set theory in 1908. Two years later the first volume of Russell and Alfred North Whitehead's *Principia Mathematica* appeared. Julius König attempted to carry out Hilbert's plan, but his work was interrupted by his premature death and appeared only in fragmentary form, edited by his son, in 1914 (*Neue Grundlagen der Logik, Arithmetik und Mengenlehre,* Leipzig, 1914). In this work some steps of the later Hilbert proof theory are already carried out, but Hilbert did not know of it when he again took up his investigation of the foundations of arithmetic.

PROOF THEORY

Hilbert's return to the problem of the foundations of arithmetic was announced by his delivery at Zürich in 1917 of the lecture "Axiomatisches Denken." In the latter part of this lecture he pointed out several epistemological questions which, as he said, are connected with that of the consistency of number theory and set theory: the problem of the solubility in principle of every mathematical question; that of finding a standard of simplicity for mathematical proofs; that of the relation of contents and formalism in mathematics; and that of the decidability of a mathematical question by a finite procedure. Questions of this kind, he observed, seem to constitute a domain that should be investigated, and to carry out this investigation it will be necessary to inquire into the concept of mathematical proof. The general idea and the aims of proof theory were thus proclaimed, but the means of investigation were not thereby fixed, for indeed the theory was not to rely on the current mathematical methods.

At the time of his Zürich lecture Hilbert tended to restrict the methods of proof-theoretic reasoning to the most primitive evidence. The apparent needs of proof theory induced him to adopt successively those suppositions which constitute what he then called the "*finite Einstellung.*"

CONSISTENCY. In his first publication on proof theory, "Neubegründung der Mathematik, Erste Mitteilung," Hilbert explains how number theory can be treated in a finitist way, whereas mathematics in general transcends finitist methods. But, Hilbert argues, we can regain an elementary kind of mathematical objectivity by formalizing the statements and proofs, using the methods of sym-

bolic logic, and by taking the representing formulas and proofs directly as objects. In the same paper Hilbert also gives indications of the nature of formalization and presents an instance of a proof of consistency—as yet for only a very restricted system.

A more advanced stage is reached in Hilbert's lecture at the Leipzig congress of the Deutsche Naturforscher Gesellschaft in 1922, "Die logische Grundlagen der Mathematik."

In this speech the method is presented of dealing in proof theory with the logical forms of generality and existence (quantifiers) by means of a logical choice function which assigns to any predicate A an object τA for which A holds only if it is generally satisfied. This idea is formally expressed by the "transfinite axiom," $A(\tau A) \to A(a)$, in which a predicate expression can be substituted for A and any term representing an individual can be substituted for a. A slight modification, soon applied, replaced the function τA by the function ϵA, dual to it, whose axiom is $A(a) \to A(\epsilon A)$.

By means of the choice function the quantifiers can be eliminated from a formalized proof in such a way that the rules for the use of "all" and "exists" are reduced to applications of the transfinite axiom, so that the explicit logical structure of the proof becomes transformed into an elementary one, consisting only in applications of the propositional calculus and substitutions.

The task of proving the consistency of a formalized domain of arithmetic is thus essentially reduced. This task—in virtue of the law "ex falso quodlibet"—amounts to showing that the formula $0 \neq 0$ cannot be derived in the domain; in other words, to showing that in any formal derivation of the formalized domain having a numerical end formula, this end formula differs from the formula $0 \neq 0$. Consideration of formalized proofs can now be restricted to those obtained by the transformation using the function ϵA. The main problem is then to eliminate the formulas resulting from the transfinite axiom by substitution (the "critical formulas").

The method that Hilbert indicates for attacking this problem consists—after first removing the free variables, which is possible—of a sequence of steps. In each step the terms that occur are replaced by numerical values. Then, either all critical formulas turn into true numerical formulas, and the attempted elimination is effected, or the result of the step determines a next step. It must still be shown that the process has an end, and this, at least in the simple cases, can be seen to hold.

This method is not in principle restricted to cases where the predicates to which the logical choice function applies are number predicates and where the individuals are therefore natural numbers; it can also be used for individuals of higher types. The particular case in which number functions are taken as individuals is essential to the formalization of the theory of real numbers. In the Leipzig lecture, Hilbert gave several indications of how this formalization can be performed; in particular, he showed how some form of the Zermelo choice principle (used in the theory of functions of real numbers) can be derived from the transfinite axiom related to the type of real numbers (as individuals).

Thus, it seemed that carrying out proof theory was only a question of mathematical technique. Such an expectation, however, turned out to be illusory. An indication was that the first substantial consistency proof following Hilbert's scheme of reasoning by Wilhelm Ackermann (in his thesis, "Begründung des 'tertium non datur' mittels der Hilbertschen Theorie der Widerspruchsfreiheit") required an essential restriction of the formal system not envisaged in the original plan. Similarly, in John von Neumann's inquiry "Zur Hilbertschen Beweistheorie," where a formal system for the logic of first and second order (including the first four Peano axioms) was set up and a consistency proof using Hilbert's method was given, the consistency proof did not apply to the full system but excluded the comprehension axiom, which provides the manipulation of substitutions for variables of second type. Thus, two highly able investigators did not succeed in obtaining a consistency proof for a formal system of the theory of real numbers by means of the above-mentioned Hilbert method (connected with the logical choice function) of eliminating the critical formulas.

A second method of eliminating the critical formulas, devised by Hilbert and elaborated by Ackermann, yields the proof of a general theorem which states that any axiomatic system, formalized within the frame of standard logic (that is, propositional logic and the rules governing quantifiers), whose axioms have a finitist interpretation is consistent (see Hilbert and Bernays, *Grundlagen der Mathematik,* Vol. II, Sec. I, esp. pp. 18–38). The method is one of the easiest for proving an important theorem of mathematical logic (first stated by Jacques Herbrand in his doctoral dissertation) that yields a kind of normal form for derivations in pure logic and which also can be applied to decision problems. But this method is not sufficient to demonstrate the consistency of the

proper formal system of number theory and therefore is the less sufficient for the systems of infinitesimal analysis.

COMPLETENESS. Ackermann revised and simplified the proof presented in his thesis. It was thought that by this modified proof and by that of von Neumann the consistency of formalized number theory, at least, had been proved. Such was the situation when Hilbert presented, at the International Congress of Mathematicians in Bologna in 1928, his "Probleme der Grundlegung der Mathematik." To the problem of proving consistency he here added two problems of completeness: the problem of showing that every universally valid logical schema is derivable by the rules of the predicate calculus and the problem of showing the completeness of formalized number theory, in the sense that the formal system of number theory contains no formula which, together with its negation, can be shown to be underivable in the system.

GÖDEL'S RESULTS. Kurt Gödel soon took up both these problems of completeness, but he stated completeness only for the case of the predicate calculus (first-order functional calculus), whereas he proved the incompleteness of formalized number theory even in the strong sense that no strictly formal system is possible in which each true number-theoretic proposition is derivable. At the same time Gödel proved a theorem from which it follows that a finitist proof of consistency for a formal system strong enough to formalize all finitist reasonings is impossible ("Über formale unentscheidbare Sätze der Principia Mathematica und verwandte Systeme I"). Von Neumann was convinced that this last condition holds for the formal system of number theory, and hence he inferred that Gödel's result implies the impossibility of a finitist consistency proof not only for the broader systems discussed by Gödel but even for the formal system of number theory.

To corroborate this inference he was able to show that in the proof of consistency of the formal system of number theory by the elimination of critical formulas, the demonstration that the process of elimination has an end did not apply in full generality (see Hilbert and Bernays, *Grundlagen,* Vol. II, pp. 123–125). It thus became clear that in two respects Hilbert's program demanded more than can be fulfilled: Mathematical theories cannot be formalized with full adequacy, and consistency proofs cannot be strictly finitist in the essential cases.

BROADENING OF PROOF THEORY. It soon became apparent that proof theory could be fruitfully developed without fully keeping to the original program. It was discovered that a proof of consistency for the formal system of number theory, although not a finitist one, is possible by methods of proof admitted by L. E. J. Brouwer's intuitionism.

Arend Heyting, in two papers of 1930, set up a formal system of intuitionistic number theory. And, as Gödel and Gerhard Gentzen independently observed, there is a relatively simple method of showing that any contradiction derivable in the formal system of classical number theory would entail a contradiction in Heyting's system. Hence, from the consistency of Heyting's system the consistency of the classical system follows (Kurt Gödel, "Zur intuitionistischen Arithmetik und Zahlentheorie"—Gentzen withdrew his own paper, already in print, because of the appearance of Gödel's paper).

In this way it appeared that intuitionistic reasoning is not identical with finitist reasoning, contrary to the prevailing views at that time. In particular, intuitionistic reasoning deals with concepts not admitted as methods in finitist proofs, such as the quite general concept of consequence when it is not delimited by any rules of proof. It thus became apparent that the "*finite Standpunkt*" is not the only alternative to classical ways of reasoning and is not necessarily implied by the idea of proof theory. An enlarging of the methods of proof theory was therefore suggested: Instead of a restriction to finitist methods of reasoning, it was required only that the arguments be of a constructive character, allowing us to deal with more general forms of inference.

By this modification of the program, various proofs of consistency for the formal system of number theory were obtained, the first by Gentzen ("Die Widerspruchsfreiheit der reinen Zahlentheorie," "Die gegenwärtige Lage in der mathematischen Grundlagenforschung," and "Neue Fassung des Widerspruchsfreiheitsbeweises für die reine Zahlentheorie"). Ackermann was then able to complete the consistency proof proceeding by the method of eliminating the critical formulas ("Zur Widerspruchsfreiheit der Zahlentheorie"). The broadened methods also permitted a loosening of the requirements of formalizing. One step in this direction, made by Hilbert himself, was to replace the schema of complete induction by the stronger rule later called infinite induction ("Die Grundlegung der elementaren Zahlenlehre" and "Beweis des Tertium non datur").

However, going beyond finitist methods is not generally required in proof theory; many important results have been obtained by finitist methods, results concerning the following topics: pure logic, the combinatorial

calculus, completeness (the completeness of a system of real algebra), undecidability, and relative consistency.

One main result concerning relative consistency is connected with Hilbert's attempt at a positive solution of Cantor's continuum problem in the paper "Über das Unendliche." The sketch of a proof given in this work contains many detailed arguments, and it stimulated the study of recursive definitions. As a whole, however, the sketch was fragmentary, and there were in principle hindrances to its completion. Twelve years later Gödel connected the ideas of Hilbert's paper with the concepts of axiomatic set theory and proved the consistency of Cantor's continuum hypothesis in its generalized form on the assumption that axiomatic set theory (without the axiom of choice) is consistent. (Nevertheless, this result, which is obtained by a powerful method of proof, does not settle the continuum problem. In fact, from results obtained by Paul Cohen it appears that axiomatic set theory, at least in its formal delimitation, leaves this problem fully undecided.)

On the whole, Hilbert's idea of making mathematical proof an object of mathematical research by means of formalization has proved to be very fruitful. And although Hilbert's work in the foundations of arithmetic has not had the effect he sought, "to remove once and for all the questions of foundations in mathematics" ("die Grundlagenfragen in der Mathematik als solche endgültig aus der Welt zu schaffen"—"Die Grundlagen der Mathematik," p. 65, and "Die Grundlagen der elementaren Zahlenlehre," p. 489), he did establish proof theory as a valuable domain of mathematical investigation, and thus Hilbert was a pioneer in the newer mathematical foundation theory, as he was in many other fields of mathematics.

See also Brouwer, Luitzen Egbertus Jan; Cantor, Georg; Continuity; Einstein, Albert; Frege, Gottlob; Geometry; Gödel, Kurt; Helmholtz, Hermann Ludwig von; Logic, History of: Modern Logic; Mathematics, Foundations of; Neumann, John von; Pascal, Blaise; Proof Theory; Russell, Bertrand Arthur William; Set Theory; Weyl, (Claus Hugo) Hermann; Alfred North Whitehead.

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Paul Bernays (1967)

HILBERT, DAVID [ADDENDUM]

Bernays's entry on Hilbert still reads, after forty years, as a wonderful account of the essential contributions by Hilbert to the foundations of geometry and proof theory. However, recent developments have substantially increased the understanding of Hilbert's original investigations and pushed these investigations further. The following bibliography will help the reader navigate among the most important recent contributions. It is divided into four parts: (1) contributions to Hilbert's biography and mathematical work emerging from Hilbert's famous list of problems given in Paris in 1900; (2) historical work related to Hilbert's foundational views; (3) logico-foundational and philosophical developments related to Hilbert's program; and (4) ongoing work of publication of Hilbert's and Bernays's work.

See also Mathematics, Foundations of.

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HISTORICAL STUDIES OF HILBERT'S FOUNDATIONAL WORK

There has been a substantial amount of work in the study of the development of Hilbert's foundational views. A novelty in this area is the study of his work on the foundations of physics. Most of this scholarship is characterized by the extensive use of the Hilbert Nachlaß in Göttingen. The work has been divided below by periods.

Foundations of Geometry (1891–1899)

Toepell, Michael-Markus. *Über die Entstehung von Hilberts "Grundlagen der Geometrie."* Göttingen, Germany: Vandenhoeck und Ruprecht, 1986.

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Logico-Foundational Developments

The best starting point are the articles from "A Symposium on Hilbert's Program":

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Ewald, William. *From Kant to Hilbert: Readings in the Philosophy of Mathematics*. Oxford: Oxford University Press, 1996.

Mancosu, Paolo., ed. *From Brouwer to Hilbert: The Debate on the Foundations of Mathematics in the 1920s*. New York: Oxford University Press, 1998.

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In addition there are two scholarly editions in the making. The *Hibert Edition* (six volumes, Springer Verlag) includes a selection of the original unpublished lecture notes (in German) preserved at the University of Göttingen. The first volume, edited by Michael Hallett, appeared in 2004. There is also in preparation an edition of Bernays's foundational writings in English, a description of which is available at http://www.phil.cmu.edu/projects/bernays/. This edition is scheduled to appear some time after 2004 for Open Court.

Paolo Mancosu (2005)

HILDEGARD OF BINGEN
(1098–1179)

Hildegard of Bingen, the first German mystic, wrote profusely as a prophet, poet, dramatist, musician, physician, and political moralist. She was an extraordinary woman who exerted a tremendous temporal and spiritual influence on her time and who has been rediscovered since the 1960s.

Hildegard was born in Bockelheim, the diocese of Mainz, on the Nahe River. Her father, Hildebert, was a knight in the service of Count Meginhard of Spanheim. At six, she began to have religious visions that continued the rest of her life. At eight, she was entrusted to the care of Jutta, sister of Count Meginhard. The two lived in a small cottage adjoining the church abbey at Disibodenberg. A sickly child, Hildegard continued her education under Jutta, learning to read and sing Latin. At fifteen, she was clothed in the habit of a nun in Jutta's hermitage, a community following the Rule of St. Benedict. At thirty-eight, Hildegard became the abbess of the community.

Eventually, the archbishop of Mainz examined her visions with his theologians and ruled them divinely inspired, ordering Hildegard to record them in writing. From 1141 until 1151, she worked on her principal work, *Scivias* (*May You Know*, or *Know the Ways*). In 1147, Pope Eugenius III and his commission examined her visions and also authorized her to write whatever the Holy Spirit inspired her to write. Her growing fame then caused Hildegard to transfer her convent from Disibodenberg to Rupertsberg, near Bingen, between 1147 and 1150. She continued living there until her death on September 17, 1179. She was buried in her convent church, where her relics remained until 1632, when the convent was destroyed by the Swedes and her relics moved to Eibingen.

A woman of an extraordinarily energetic and independent mind, Hildegard wrote voluminously. *Scivias*, the first of her three mystical works, develops her view on the universe, on the theory of macrocosm and microcosm, the structure of humans, birth, death, and the nature of the soul. It also treats the relations between God and humans in creation, the redemption, and the church. The last of the twenty-six visions of *Scivias* contains *Ordo Virtutum*, the earliest liturgical morality play.

Liber Vitae Meritorum (*The Book of the Rewards of Life*, 1158–1163) studies the weaknesses separating us from God. It is one of the most subtle, psychologically fascinating, and intense works ever written on the relationship of various sins to their corresponding virtues.

Liber Divinorum Operum Simplicis Hominis (*The Book of the Divine Works of a Simple Man*, 1163–1173), the third of Hildegard's mystical books, concerns itself with the unity of creation. Hildegard succeeds in synthesizing into one great whole her theological beliefs along with her knowledge of the elements of the universe and the structures within the human body. This work is often considered the epitome of science of her time.

Besides her three mystical books, Hildegard wrote a long physical treatise titled *Physica: Subtilitatum Diversarum Naturarum Creaturarum* (*Physical Things: Of the Simplicities of Various Natural Creatures*, 2001) and her book of medicine titled *Causae et Curae* (*Causes and Cures*, 1903). Although her theoretical knowledge of

medicine seems crude today, large numbers of sick and suffering persons were brought to her for cures. A thriving clinic in Konstanz, Germany, practices Hildegard's remedies today.

In addition, Hildegard wrote *Vita Sancti Disibodi* (*The Life of Saint Disibod*) and *Vita Sancti Ruperti* (*The Life of Saint Rupert*). Her *Solutiones Triginta Octo Quaestionum* (*Answers to Thirty-eight Questions*) comments on various theological and scriptural subjects. Her *Explanatio Symboli Athanasii* (*Explanation of the Symbol of Saint Athanasius*) and *Explanatio Regulae Sancti Benedicti* (*Explanation of the Rule of Saint Benedict*), written at the request of the Benedictine monastery of Huy in Belgium, are self-explanatory.

For the nuns of her convent, Hildegard wrote hymns and canticles—both words and music. She collected her songs into a cycle titled *Symphonia Armonie Celestium Revelationum* (*The Symphony of the Harmony of Heavenly Revelations*). These approximately seventy songs were written for a wide range of liturgical celebrations.

Finally, Hildegard wrote letters to popes, cardinals, bishops, abbots, kings and emperors, monks and nuns, men and women of various social levels both in Germany and abroad. Some of her letters are more personal, but the majority are mystical treatises, prophecies, sermons, and strong exhortations concerning various corruptions. Hildegard's clear intelligence foresaw that the ecclesiastical and political abuses of her time would ultimately burst into flames in some event such as the eventual Reformation or the Thirty Years' War. Hildegard represented a legacy to her own times, and now has been rediscovered in ours.

See also Macrocosm and Microcosm; Mysticism, History of; Women in the History of Philosophy.

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Bruce W. Hozeski (2005)

HINTIKKA, JAAKKO
(1929–)

The logician and philosopher Jaakko Hintikka was born in Vantaa, Finland. Receiving his doctorate from the University of Helsinki in 1956, he was a junior fellow at Harvard University from 1956 to 1959, a research professor at the Academy of Finland, and a professor of philosophy at the universities of Helsinki, Stanford, Florida State, and currently Boston University.

Hintikka developed semantical logical methods and uses them in philosophy. He advocates applying mathematical logic, especially model theory, in philosophy, most notably to questions in philosophy of language, but also to the study of Aristotle, Immanuel Kant, and Ludwig Wittgenstein. His main contributions in logic are those of model set, distributive normal form, possible-worlds semantics, and game-theoretic semantics.

A critical view of the Tarski truth definition led Hintikka to the concept of a model set as a more constructive approach to semantics. A model set has enough information to build a canonical term model in which sentences belonging to the set are true.

A model set is a set S of first-order formulas without identity (for simplicity), with negation in front of atomic formulas only, in a countable vocabulary, and containing possibly new individual constants, such that:

(1) No atomic sentence φ satisfies both $\varphi \in H$ and $\neg \varphi \in H$

(2) If $\varphi \wedge \psi \in H$, then $\varphi \in H$ and $\psi \in H$

(3) If $\varphi \vee \psi \in H$, then $\varphi \in H$ or $\psi \in H$

(4) If $\exists x \varphi(x) \in H$, then $\varphi(c) \in H$ for some constant c

(5) If $\forall x \varphi(x) \in H$, then $\varphi(c) \in H$ for all constants c occurring in H

A sentence has a model if and only if it is an element of a model set. Attempts to build a model set around the negation of a sentence form a tree, known as a semantic (or Beth) tableau. Infinite branches of this tree are model sets for $\neg \varphi$. If the tree has no infinite branches, it is finite and can be considered a proof of φ in the style of Jacques Herbrand and Gerhard Gentzen. Model sets came to play a central role in Hintikka's other work, such as distributive normal forms, possible-worlds semantics, and game-theoretic semantics.

Distributive normal forms, first introduced in monadic predicate logic by Georg Henrik von Wright, are defined as follows: Let $A_i^n(x_1, \ldots, x_n)$, $i \in K^n$ list all atomic formulas in a finite relational vocabulary (without identity, for simplicity), and the variables $x_1, \ldots, x_n$. If F is a formula, let $[F]^0 = F$ and $[F]^1 = \neg F$. Let $C_i^{0,n}(x_1, \ldots, x_n)$, $i \in I^{0,n}$ list all possible conjunctions $\bigwedge_j [A_j^n(x_1, \ldots, x_n)]^{\epsilon(j)}$ where ϵ runs through all functions $K^n \to \{0, 1\}$. Let $C_i^{m+1,n}(x_1, \ldots, x_n)$ $i \in I^{m+1, n}$ list all possible formulas

$$\bigwedge_{j \in J} \exists x_{n+1} C_j^{m,n+1}(x_1, \ldots, x_{n+1}) \wedge \forall x_{n+1}$$

$$\bigvee_{i \in J} C_j^{m,n+1}(x_1, \ldots, x_{n+1}),$$

where $J \subseteq I^{m,n+1}$.

If $a_1, \ldots, a_n$ satisfy $C_i^{m,n}(x_1, \ldots, x_n)$ in a model M and $b_1, \ldots, b_n$ satisfy $C_i^{m,n}(x_1, \ldots, x_n)$ in a model N, then $C_i^{m,n}(x_1, \ldots, x_n)$ codes a winning strategy for player 2 in the m-move Ehrenfeucht-Fraïssé game starting from the position $\{(a_1, b_1), \ldots, (a_n, b_n)\}$.

Every first-order sentence ϕ of quantifier rank m is logically equivalent to a unique disjunction of formulas of the form $C_i^{m,0}$. This disjunction is the distributive normal form of ϕ. The process of finding the distributive normal form of a given sentence cannot be made effective. Intuitively, one pushes quantifiers as deep into the formula as possible.

Distributive normal forms can be used to systematize definability theory, such as the Beth definability theorem, the Craig interpolation theorem, and the Svenonius theorem, and to systematize infinitary logic, emphasizing formal aspects more than the game-theoretic approach by Robert Vaught.

In the logic of induction Hintikka used distributive normal forms to give, in contrast to Rudolf Carnap, positive probabilities for universal generalizations. He developed a theory of surface information to support a thesis of the nontautological nature of logical inference, with applications to Kant's analytic-synthetic distinction.

Hintikka's formal definition of possible-worlds semantics, or model systems, for modal and epistemic logic is based on his concept of model set, unlike Saul Kripke's approach, which uses actual models as possible worlds.

A model system ($\mathfrak{C}$, R) consists of a set $\mathfrak{C}$ of model sets and a binary alternativeness-relation R on $\mathfrak{C}$ such that:

(1) If $\Box\phi \in H \in \mathfrak{C}$, then $\phi \in H$.

(2) If $\Diamond\phi \in H \in \mathfrak{C}$, then there exists an alternative $H' \in \mathfrak{C}$ to H such that $\phi \in H'$.

(3) If $\Box\phi \in H \in \mathfrak{C}$ and $H' \in \mathfrak{C}$ is an alternative to H, then $\phi \in H'$.

A set S of formulas is defined to be satisfiable if there is a model system ($\mathfrak{C}$, R) such that $S \subseteq H$ for some $H \in \mathfrak{C}$. A formula ϕ is valid if its negation is not satisfiable. Hintikka applied possible-worlds semantics to epistemic logic, deontic and modal logic, and the logic of perception and to the study of Aristotle and Kant. (See Hintikka [1969] for a summary of his theory of possible-worlds semantics. Hintikka's 1962 book is well-known outside of philosophy, most notably in the study of artificial intelligence and theoretical computer science.)

Game-theoretic semantics has its origin in Wittgenstein's language-games, Paul Lorenzen's dialogue games, Ehrenfeucht-Fraïssé games, and Leon Henkin's game theoretic interpretation of quantifiers. The semantic game of a sentence ϕ in a model M is a game between myself and nature about a formula ϕ and an assignment s. For $\phi = \phi_1 \wedge \phi_2$, nature chooses ϕ_i. For $\phi = \phi_1 \vee \phi_2$, I choose ϕ_i. Then we continue with ϕ_i and s. For $\phi = \forall x\psi(x)$, nature chooses s', which agrees with s outside x. For $\phi = \exists x\psi(x)$, I choose such s'. Then we continue with $\psi(x)$ and s'. For negation, we exchange roles. For ϕ atomic, the game ends. I win if s satisfies ϕ in M, otherwise nature wins.

Game-theoretic semantics became Hintikka's tool for analyzing natural language, particularly pronouns, conditionals, prepositions, definite descriptions, and the *de dicto* versus *de re* distinction and for challenging the approach of generative grammar. Sentences like "Every writer likes a book of his almost as much as every critic dislikes some book he has reviewed" led Hintikka to consider partially ordered quantifiers and eventually independence friendly (IF) logic (1996), with existential quantifiers $\exists x/y$, meaning that a value for x is chosen independently of what has been chosen for y. Thus, the semantic game of IF logic is a game of partial information.

IF logic is equal in expressive power to the existential fragment of second-order logic. The satisfiability of a sentence can still be analyzed in terms of model sets, but not provability. Wilfrid Hodges (1997) gave IF logic a compositional semantics in terms of sets of assignments, and Peter Cameron and Hodges (2001) proved it has no compositional semantics in terms of assignments only. Truth in various structures of mathematics can be reduced to logical consequence in IF logic, as in full second-order logic. IF logic has no negation and is not axiomatizable. This is countered by IF logic having a truth definition in IF logic.

See also Aristotle; Carnap, Rudolf; Model Theory; Philosophy of Language; Kant, Immanuel; Kripke, Saul; Logic, History of: Modern Logic; Modality, Philosophy and Metaphysics of; Modal Logic; Semantics; Semantics, History of; Tarski, Alfred; Wittgenstein, Ludwig Josef Johann; Wright, Georg Henrik von.

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HIPPIAS OF ELIS

Hippias of Elis, the Greek Sophist and polymath, was probably born before 460 BCE. The date of his death is not known, but Plato speaks of him as one of the leading Sophists at the time of the death of Socrates in 399 BCE. On a number of occasions he acted as ambassador for his native city and also traveled widely, earning very large sums of money. He claimed to be a master of all the learning of his day, and his teaching and writings included elegies, tragedies, dithyrambs, historical works, literary discourses, epideictic speeches, discussions of astronomy, geometry, arithmetic, music, painting, sculpture, and ethics, and a technical system of mnemonics. None of his writings survives, but a reference in a papyrus book list of the third century suggests that at least one of his works survived until that date. Our knowledge of his teaching rests above all upon the picture of him given in Plato's dialogues, the *Hippias Major* (now generally accepted as written by Plato), the *Hippias Minor*, and the brief sketch in the *Protagoras*.

His polymathy invites comparison with Plato's more philosophic approach to reality, and Hippias has often been presented as standing for a superficial encyclopedic approach to knowledge, in contrast with the more profound penetration of the genuinely philosophic search for truth. This is the way Plato came to view all the Sophists, but it is probably unfair to Hippias, who in some ways anticipated Aristotle's approach to the whole range of human knowledge. Mathematics and astronomy in the sophistic period were certainly not studied for their practical application in everyday life but, rather, in the pursuit of knowledge for its own sake. Hippias made a really important contribution to mathematical development through his discovery of the curve known as the quadratrix, used for the trisection of an angle and later in attempts to square the circle. He was also used by Eudemus as a source for the early history of geometry, which would suggest that he himself may have written a history of mathematics. He was fairly certainly the source of Aristotle's information about the doctrines of Thales, and he may also have been responsible for the main lines of the schematized picture of the history of the pre-Socratics found in Plato's *Sophist* (242D).

Whether he had any general theory of the nature of reality is not certain, but it is probable that he did. In the *Hippias Major*, Plato attributes to him a "continuous doctrine of being," which implies that some particular doctrine was regularly attributed to him. This doctrine dealt with "continuous physical objects that spring from being" (301B), and was opposed to Socrates's attempt to distinguish "the beautiful" from "beautiful objects." While the details of the doctrine are not given, it seems clear that Hippias objected to attempts to explain phenomena in terms of qualities or entities whose existence does not lie wholly within the phenomena that exemplify them. If this is so, then he held to the standard sophistic rejection of the position of Parmenides—for Hippias, phenomenal reality was the whole of reality. If Plato presents the matter correctly, Hippias regarded reality as composed of concrete physical objects such that all qualities applicable to any group will also apply individually to each member of the group, and all qualities found in each of the individual objects will also apply to the group as a whole.

In ethics Hippias propounded an ideal of individual self-sufficiency. Plato's evidence in the *Protagoras*, together with that of Xenophon in the *Memorabilia* (Book IV, Ch. 4, Sec. 5), shows that Hippias made free use of the opposition between nature and convention and that he accepted the overriding claim of Nature in cases of conflict. That he originated this antithesis has often been asserted, but no ancient source suggests this; and there is good evidence that the origins of the doctrine are earlier than Hippias. In the *Protagoras*, Hippias declares that his listeners are kinsmen, friends, and fellow citizens by Nature because the friendship of like to like comes by Nature, not by convention. While this clearly contains the seeds of a doctrine of cosmopolitanism, it should be remembered that Hippias's listeners in the dialogue are

all Greeks and are all alike in their interest in sophistic discussion.

See also Sophists.

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HIPPOCRATES AND THE HIPPOCRATIC CORPUS
(b. 460 BCE)

Hippocrates, who came from the Aegean island of Cos, is said to have been born in 460 BCE. His legendary status as the father of medicine is secure—unfortunately, just about everything else about him is legendary too. Tradition records a number of entertaining stories, but it is plain that later writers in the notoriously unreliable Greek biographical tradition knew very little about him. Plato mentions him a couple of times, respectfully, and in *Phaedrus* (270b–d) ascribes approvingly to him the view that in order to know the parts of something one must know the whole. But there is no consensus even as to what the whole here refers to: The whole of the universe? Or simply the complete structure of the body? Different scholars, taking different lines, have consequently seen this remark as alluding to a variety of quite different treatises of the Hippocratic Corpus, and constructed accounts of the *authentic* Hippocrates accordingly. The author of the most comprehensive and learned recent account of Hippocrates and Hippocratic medicine, Jacques Jouanna, while noting the disagreements and the pitfalls, nonetheless tries to distil some spirit of fact from the mash of the biographical tradition and takes note of some relevant recent inscriptional evidence. But the picture is still obscure and speculative. There almost certainly was (though even here scholars contend) a school

of medicine on the island of Cos from the fifth century onward, probably in rivalry with an alternative school at Cnidos on the Anatolian mainland. One of the texts of the Hippocratic Corpus refers to a lost treatise named *Cnidian Opinions*, and scholars have tried to reconstruct the methodological differences between the schools (the usual, although disputed, suggestion is that Cnidian medicine favored very precise disease classification and a reliance on purgative treatments, and certain texts in the surviving Corpus, notably *On Diseases* and *Internal Affections* have been classified as Cnidian on doctrinal grounds). Hippocrates himself was associated with the Coan school, and he may well have traveled elsewhere in Greece, perhaps to Thessaly and Macedonia (doctors of the time were often, although not invariably, itinerant). We need not credit the story, even though it is relatively well attested, that he was forced to leave after maliciously burning the archives of the Cnidian school.

So the pursuit of the historical Hippocrates is largely fruitless. However, there survives under his name a collection of some sixty texts (even this number is disputed since scholars cannot agree as to what constitutes separate treatises)—the Hippocratic Corpus. As has been realized since antiquity, they cannot all be ascribed to the same individual, much less to the historical Hippocrates. They exhibit wide divergences not just in subject matter but also in style and doctrine; and some cannot have been written earlier than the third century BCE (others, such as the fictitious correspondence between Hippocrates and Democritus, are later still). Many, however, clearly belong to the fifth century and as such are among the earliest surviving examples of Greek prose. Some (*On Art, On Breaths*) bear the unmistakable stamp of the Sophistic movement and, although containing much of methodological interest, are almost certainly not the work of practicing physicians. Others indubitably are: Some are severely practical and observational in tone (the *Epidemics, On Diseases, On Affections*), others are more theoretical (*Ancient Medicine, Nature of Man, On Prognosis, On Regimen*). Some address issues of medical ethics although in a fairly pedestrian way: *Decorum, The Oath, Precepts.* There are treatises on surgery (*On Joints, On Fractures, Wounds in the Head*), embryology (*On Seed, The Nature of the Child*), and several gynecological texts (*Diseases of Women, Sterile Women, Nature of Women*). The remainder of this article will consider, necessarily briefly, some of the more philosophically interesting texts and the topics they raise.

Greek medicine did not arise out of nowhere in the fifth century. The earliest surviving literary products of

Greek culture, the Homeric poems, mention both surgery and the administration of various treatments by human rather than divine agents; and there was a medical tradition of immense antiquity in Egypt although it is unclear how early it made any impact on the Hellenic world, if indeed it did at all. Various Presocratic thinkers were also renowned for their healing expertise—in particular, Alcmaeon and Empedocles. But the main innovation of the Hippocratic authors (as they shall now compendiously be referred to) seems to have lain in their desire for systematicity (although the Corpus contains several, evidently incompatible, such systems) and the related drives toward diagnostic precision, prognostic knowledge, and nosological explanation. For the Hippocratics (in general—for reasons by now obvious—no generalization across the entire Corpus, no matter how bland, is secure), medicine is about understanding: understanding the nature of health and disease and the measures needed to maintain the former and cure the latter. And they are, fundamentally, physical phenomena, to be approached from a physical point of view.

In a celebrated treatise on epilepsy and related seizure disorders, *The Sacred Disease*, the author opens with the following characteristic statement, which might serve as a motto for Hippocratic medicine in general: "Concerning the so-called 'sacred disease,' these are the facts. It seems to me to be in no way more divine or sacred than any other disease, but has a nature and a cause from which it arises, although men think it be something divine because of their inexperience and their wonderment at its dissimilarity with other illnesses" (*Sacred Disease* 1). The author goes on to castigate as charlatans those who propose religious or magical *cures* for it, declaring that in spite of its peculiar symptomology, it has a determinate physical cause (excess of phlegm in the brain), which may be countered by means both prophylactic and curative. At the end, he writes:

> The so-called sacred disease arises from the same type of cause as the others, from things that enter and leave the body, from cold and heat, and from the winds which constantly change and never rest. All these things are divine, so one should not distinguish this disease as being in any way more divine than the others: all are divine and all human. None is hopeless or untreatable; and most are cured by the same things which cause them.
>
> (*Sacred Disease* 21)

The latter claim is not to be understood as homeopathic: It is the *removal* (or counteraction) of the pathogenic substances that produces recovery, and such allopathy is a Hippocratic commonplace ("opposites cure opposites" occurs as a frequent slogan—see, for example, *Breaths* 1—although it was interpreted in widely different ways). It should also be noted that the author does not reject the claims of divinity altogether—all diseases have an aspect of the divine about them. But crucially, that does not mean that they are not amenable to rational understanding and cure.

Thus, the Hippocratic doctor positions himself in the Presocratic tradition of natural science. Moreover, for many of the authors of the Corpus, a thorough theoretical understanding of the nature of the universe is a prerequisite for understanding, and hence nurturing and curing, the human body. But different authors differ in how far they think such general knowledge should go. Perhaps the most extreme position is that of the author of *On Regimen*. This is, as the title suggests, a treatise about the ways in which lifestyle (diet, exercise, bathing, etc.) affects health. But it is much else besides (it is also perhaps the most traditionally *religious* text of the Corpus, advocating prayer as well as more typically Hippocratic types of therapy). But he begins by declaring that "someone who is to deal with human regimen correctly, must first understand and ascertain the general nature of man: understanding his primary constituents and understanding the parts from which he is composed" (*Regimen* 1.2). The primary constituents turn out to be fire and water, and everything in the universe is in some way an elaboration of these.

Moreover, their ratios of composition and degrees of purity account not only for the generation of other stuffs, but also for the phenomena of mental quickness and retentiveness. Fire is fundamentally motive, water fundamentally nutritive; whereas fire is basically hot and dry, water is cold and wet (although each contains some admixture of the other. The natural world consists of a perpetual fluid interaction between the elements and their properties, and there is no such thing as genuine generation or destruction, only rearrangement, mixture, and separation. So far, late Presocratic—and indeed the author's physical views—seem to be *a cento* of those of Parmenides, Empedocles, Anaxagoras, and (perhaps predominantly) Heraclitus. The ideal condition of the body is one of attunement of the elements whereas disease is disharmony; and the human body is a microcosm of the structure of the universe as a whole.

All this is obviously schematic and, as such, offers no practical clue as to what steps should be taken to combat illness and ill health beyond the bland injunction to cure

opposites with opposites or to suppress the pathogenic influences. There is no consensus in the Corpus as to what the basic elements are: *Nature of Man* (incidentally the one treatise in the Corpus of which authorship is relatively certain: It was composed, at least in part, by Hippocrates' son-in-law, Polybus) rejects the view that the doctors should offer accounts on the human constitution in terms of any of the so-called elements—air, fire, water, or earth—"or anything else that is not clearly a constituent of the human body" (*Nature of Man* 1). The author has, in fact, two distinct targets: one is monism, the view that a single underlying stuff could account for all that there is (plurality is needed for variation and change, he argues; and no unique stuff could suffer pain); but the other, as the quoted clause suggests, is excessive reductionism. One should describe the state of the body in terms of the balance or imbalance of the four humors (this treatise is the first in which that celebrated and long-lived doctrine appears in full), blood, phlegm, yellow bile, and black bile, which are (allegedly) observable constituents of the body. (Black bile is a problem—no one is really sure what this was supposed to answer to, and this fact in itself compromises the supposed empiricism of the theory).

Even more uncompromising is the attitude of the author of *Ancient Medicine*. He argues that "medicine has no need of novel hypotheses" (ch. 1), and rejects *philosophical* physiology in the manner of Empedocles (ch. 20). The *hypotheses* in question are that health and disease are the result of balance and imbalance among four fundamental qualities: hot, cold, wet, and dry. Such postulates are useless for medicine, he argues, since the terms either have their ordinary phenomenal senses, in which case changes and imbalances in them do not correlate with health and sickness, or they are arbitrarily specified *technical* terms, in which case they have no useful empirical content and are simply introduced after the fact to label what are—in the author's view, empirically observable correlations. Thus, it makes sense to categorize foodstuffs in terms of their phenomenal qualities (sweet, sour, salty, etc.) and to relate these to determinable physiological changes; such relations are to be discovered on the basis of long experience (hence the *ancient* of the title). But anything else is superfluous.

Needless to say, not all Hippocratics agreed. The author of *Breaths* is quite happy to describe his basic theoretical postulate (that different types of air are fundamentally responsible, along with food and drink, for health and disease) as a hypothesis and, moreover, one that his discourse has vindicated. But that *vindication* takes the form simply of supplying *explanations*, of a fairly far-fetched variety, for the incidence of particular illnesses (including apoplexy, epilepsy, and fever) in terms of his favored postulates.

Elsewhere, Hippocratic authors do show themselves to be aware, albeit dimly, of the need to support their explanations with empirical observation and sometimes even experiments of sorts. But these appeals to evidence are of widely varying quality and plausibility. Thus, the author of *Airs, Waters, Places*, a study of the generalized effects of climate and ambient environment on human health and character, holds that "water from snow and ice is always harmful, because once frozen it never recovers its previous quality" (ch. 8). The author thinks that "light, sweet" water is the most healthful, and that freezing drives off this part of it; in support of this claim, he says that if you measure water into a jar and leave it outside overnight to freeze, then melt the water in the morning, "you will find it considerably reduced in quantity." Here the hypothesis is plainly not entailed or, indeed, even supported, by the evidence.

Another strand of the Corpus is more observational and practical. The *Epidemics*, a disparate collection of general and particular observations of disease, illustrates this well. *Epidemics* I and III, which are almost certainly from the same pen, consist in general accounts (*Constitutions*) of prevailing epidemic diseases classified by season, place, and other general environmental features. Although apparently the products of disinterested observation, the types of general factors noted point to a particular theoretical account of the origin of disease, again involving the imbalance of climatological and environmental factors. Particular incidences of disease are to be explained in terms of the patients' specific conditions and of particular events that occur to them (excessive eating, drinking, sex, exercise, bathing, for example). The implicit idea, once again, is that the occurrence of disease (as well as the maintenance of health) can be given general, naturalistic explanations in terms of the patient's underlying physiological condition and external occasioning events. It is in this two-fold analysis of the structure of physical explanation, in terms of the interrelation between more or less permanent standing conditions and triggering events, that the Hippocratics made their greatest contribution to the development of the concept of physical explanation.

Much else of importance has been passed over—space permits only a passing mention of the development, in such texts as *On the Art* and *Regimen in Acute Diseases*, of concern with defending the scientific status of

medicine against its detractors: Doctors often fail to cure patients, and patients sometimes recover independently of treatment. These facts do not detract from the art itself: It is no condition of something being a genuine technical skill that it must yield 100 percent success; there are always other factors that can interfere, such as the failure of the patient to follow the prescription; the disease is already too deeply entrenched to be eradicated. Indeed, the author of the influential *On Prognosis* notes that one of the advantages conferred by prognostic ability is that of knowing which diseases are incurable and being able to leave well alone. Moreover, the fact that some practitioners are charlatans does not mean that they *all* are. The existence of such defenses as early as the fifth century BCE shows that the practitioners of the infant science of medicine were well aware of the seriousness of the challenge to their claims to expertise and that they were capable of considerable sophistication in rebutting them.

Finally, a number of texts, usually labeled *deontological*, deal with matters of professional conduct and ethics. The most famous of these, the *Oath*, still serves as a template for medical codes of conduct. Among its clauses are injunctions to protect the secrecy of medical knowledge, not to infringe on the turf of other professionals (in particular, surgeons), never knowingly to cause harm, and to resist the temptation to abuse one's professional position for sexual purposes. In spite of their pretensions to comprehensive theoretical and practical knowledge, the Hippocratics were aware of their own limitations, knowing that nature was the best hope for a cure in most cases—the job of the physician being to help nature in its healing course.

See also Alcmaeon of Croton; Anaxagoras of Clazomenae; Empedocles; Heraclitus of Ephesus; Leucippus and Democritus; Parmenides of Elea; Philosophy of Medicine; Philosophy of Science; Plato.

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HISTORICAL MATERIALISM

The materialist conception of history was put forward by Karl Marx and Friedrich Engels and subsequently adopted by their followers and incorporated in the doctrine of Marxism-Leninism. According to "historical materialism," the structure of society and its historical development are determined by "the material conditions of life" or "the mode of production of the material means of existence." These last two phrases are quoted from Marx's preface to his *Critique of Political Economy* (1859), in which he gave a brief presentation of the view. Marx and Engels had formulated it, however, in their *The German Ideology*, written in 1845–1846 but not published until 1932. Marx himself gave a brief account in his *Poverty of Philosophy* (1847) and more concisely perhaps in a letter to Paul Annenkov, written in December 1846, while Marx was working on the *Poverty of Philosophy*. A vigorous sketch is given in the *Communist Manifesto* of 1848. Marx's chief work, *Capital* (the first volume of which was published by Marx in 1867 and the other two by Engels after Marx's death) is an application of the historical-materialist view to the capitalist form of society.

ORIGIN OF THE THEORY

Marx wrote in the preface to the first edition of *Capital* that he conceived "the development of the economic structure of society to be a natural process." This is the main force of the adjective *materialist* in the phrase "materialist conception of history." Marx used the word *materialist* to make a contrast with what is obviously or implicitly supernatural, metaphysical, or speculative. He believed that a general science of human society could be worked out only by describing and explaining society in empirical terms. He admired those English and French writers who, by writing "histories of civil society, of commerce and industry," gave the writing of history "a materialist basis" (*The German Ideology,* p. 16). He and Engels regarded industry and commerce as "material" by contrast with religion and morals, and even by contrast with politics and law. Thus the materialist conception of history is intended to be a naturalistic, empirical, scientific

account and explanation of historical events, which takes industrial and economic factors as basic. It would seem that nothing could be more consonant with scientific common sense, nothing less metaphysical or speculative.

In some of Marx's writings of an earlier date than *The German Ideology,* however, it becomes evident that the later, would-be scientific view arose out of a metaphysical prototype, a sort of "Ur-Marxismus," which continued to exert an influence on all of Marx's systematic work. Prior to his collaboration with Engels, which began in 1844, Marx had justified his radical views by philosophical and moral, rather than economic, considerations. In 1844, however, Engels encouraged Marx to make an intensive study of economics, which resulted in an uncompleted and unpublished critique of political economy combined with a critique of the Hegelian philosophy. These so-called *Economic and Philosophical Manuscripts of 1844,* or "Paris manuscripts," are the first draft of the comprehensive treatise that Marx was engaged in writing all his life, and of which *The German Ideology,* the not published until 1953 *Grundrisse der Kritik der politischen Ökonomie* (Outline of a Critique of Political Economy; 1857–1858), the *Critique of Political Economy* itself (1859), and *Capital* are successive, but incomplete stages.

While writing the *Economic and Philosophical Manuscripts,* then, Marx was bringing his newly acquired economic knowledge to bear upon views he had reached in criticizing certain of G. W. F. Hegel's writings. Marx had noticed how Hegel described the development of the human mind as a process of externalizing its ideas in order to transform the material world and to "humanize" it. According to Hegel, the labor of men's hands was not, in general, an obstacle to human development but, rather, the very process by which it took place. Hegel recognized, of course, that when labor was greatly subdivided, some jobs became trivial and even degrading. But this, he thought, made possible, through the differentiation of society into orders or classes, the production of works of mind that would have been beyond the power of less differentiated societies. The word that Hegel had used for the process of externalizing ideas into the natural world was *alienation* (*Entäusserung*). Now Marx thought that in the capitalist social order the labor of individual men did not serve to develop the human mind and to humanize the natural world. Labor had become the production of commodities for sale and was itself a commodity bought and sold in the market, so that it served not to unfold the capacities of the laborer but to subject him to impersonal market forces over which he had no control. A worker's

labor, and hence he himself, were alienated in the sense of being sold to someone else. His work resulted in the creation of a social system whose operations were hidden from him. The wage system perverted his labor so that the natural world was not transformed by that labor into a manifestation of human power but was rendered strange and even hostile to the workers.

Estrangement (*Entfremdung*) was another word used by Hegel that Marx took over in this context. A truly human existence would be possible only when money and private property, and hence wages too, had been abolished through the establishment of a communist social order. A communist society, Marx wrote, is "the solution to the riddle of history."

It is important to notice that in these early writings Marx was criticizing capitalism in metaphysical and moral terms. But for the perverting influence of capitalism, human labor would be what it ought to be, the self-development of the individual worker. It should be noted, too, that Marx, like Hegel, thought that the human mind could develop its powers only by working on, and transforming, the natural world. This conception is a metaphysical predecessor of the view that the "mode of production of the material means of existence" is what determines the development of society. Again, the view that capitalism distorts the efforts of the worker and is hence unnatural and impermanent is the metaphysical predecessor of the view that capitalism contains the seeds of its own destruction. Finally, the idea that communism would solve the riddle of history by releasing men from their own unwilled, unwanted productions is the metaphysical predecessor of the planned but noncoercive communism that Marx afterward believed must result from the dissolution of capitalism.

OUTLINE OF THE THEORY

Historical materialism consists, in the first place, of a sociological analysis thought to be applicable to all but the most primitive human societies. On the basis of this analysis an account is given of the rise and fall of various social systems. Marx's main work, of course, was his analysis of capitalism—indeed, the very use of the word *capitalism* for a form of society suggests that its characteristics depend upon its economy. Finally, on the basis of the sociological analysis, the prediction is made that capitalism will collapse and ultimately be succeeded by a communist society, in which there will be no wages, no money, no class distinctions, and no state.

Marx, who was greatly interested in the social structure of primitive societies, would doubtless have agreed

with Engels's description, in his *Origin of the Family, Private Property, and the State* (1884), of the most primitive societies as being without private property or political institutions. Within the more developed societies, with which he was principally concerned, Marx distinguished several elements: (1) "the productive forces," which consist of the tools, skills, and techniques by which men obtain the wherewithal for life; (2) "the relations of production," which are the ways in which the producers are related to one another in production and which form "the economic structure of society"; (3) the political and legal institutions of the society; and (4) the ideas, habits of thought, ideals, and systems of justification, in terms of which the members of the society think of themselves and of their relations to one another. Marx thought that these ideas were distorted pictures of, and relatively ineffective agents in, the social reality, and he therefore referred to them as "ideologies." Marx gave various lists of ideologies that, when combined, yield the following: religion, theology, speculative philosophy or metaphysics, philosophy, morality, ethics, art, and "political ideology," such as contrasting views on democracy, aristocracy, and the struggle for the franchise.

ANALYSIS OF SOCIAL STRUCTURE. Marx called the productive forces and the relations of production together "the material conditions of life." In the preface to the *Critique of Political Economy* he wrote that they are "the real basis on which a juridical and political superstructure arises and to which definite forms of social consciousness correspond." The primary social activity is production, which always involves relations with other men, both in the work itself and in the distribution of the product. It is upon these relationships that the political and legal superstructure and the ideological superstructure are formed. To understand the religion, morality, art, or philosophy of a society, and to understand its politics and law, it is necessary to ascertain the nature of its productive forces and economic structure. Whereas in the *Economic and Philosophical Manuscripts* Marx had deplored the way in which men's labor enslaves them to the production of commodities, in the *Critique of Political Economy* he explained or sought to explain, how the productive forces determine certain social structures into which men are forced to fit their activities. Thus Marx laid great stress upon the fact that the structure of society is something that individuals find waiting for them and are powerless to alter.

Division of labor. According to Marx, a vitally important connection between the productive forces and the productive relationships is the nature of the division of labor that has been achieved and the degree to which it has been developed. In *The German Ideology,* Marx and Engels wrote that "division of labor and private property are, moreover, identical expressions." This probably means that when products are made by specialists who do not themselves use them, then they must be exchanged by, or sold to, those who do and so must be owned by the original maker. An associated idea is that the division of labor fosters the production of goods for sale, thus encouraging the production of commodities and enhancing the power of money. Marx and Engels did not think, however, that property was all of one type, and in *The German Ideology* they distinguished four main types that play an important role in their theory of history and society: tribal property, which is characteristic of a low level of the division of labor; state property, such as the roads, public buildings, and stores of grain under the ancient forms of despotism; feudal property, consisting of lands and services controlled by military landowners whose needs are supplied by serfs; and capital, which rests on the separation between production and commerce and results in the employment of men who work for wages and produce goods that are sold in wider and wider markets to make profits for the capitalist.

Property and power. The next step in the Marxian analysis is the claim that the main power or influence in a society belongs to those who own and control the main type of property in it. In tribal society the property is jointly owned; hence power is diffused throughout the society and there is no dominant class. The other types of property involve a distinction between those who control property and those who do not. Those who control a predominant type of property are the predominant power in society and are able to make arrangements benefiting themselves at the expense of the rest of the population. In feudal society, for example, the feudal lords are the ruling class. They are able to get what they want from the serfs who work for them, and even from rich merchants, whose type of wealth is subordinated to the landed interests. The interests of serf, merchant, and lord are not the same; indeed, they necessarily conflict at certain points. But while the productive forces and type of property are predominantly feudal, the feudal lords are able to settle these conflicts in their own favor. While the feudal system operates, any frictions and tensions are dealt with within its terms. The political movements in a feudal society express, or "reflect," these conflicts of interest between classes.

Economics, politics, and culture. If the political activities of men are regarded as merely phenomenal in com-

parison to their productive and economic activities, then their moral beliefs, religious and artistic achievements, and philosophical theories must be regarded as even less real, as epiphenomenal. The writers of books on political philosophy, for example, are taking part, but in a rarefied or ghostly form, in the phenomenal political activities and the real industrial ones. The predominant mode of the material conditions of life will have the cultural forms appropriate to it, in which the religion, art, and philosophy are what they are because of the nature of the technology and economy. The controversies between "schools" of philosophy, the movements for the reform and renovation of religious belief, the revolutions of morality, and even changes in artistic style, are merely the shadows cast by the "real" business of human living, which is production and exchange.

HISTORICAL EPOCHS. Thus far an outline has been given of what, in Auguste Comte's language, might be called "the social statics" of historical materialism. It is now necessary to describe "the social dynamics" of the view: its account of historical change and development. In outline, this is the assertion that, just as "the material conditions of life" are fundamental in the structure of a society, important changes in the material conditions of life sooner or later bring with them important changes in the legal and political superstructure and in the ideological superstructure. It is also held that important changes in the superstructures can be brought about only by changes in the basis, that politics, law, and ideology are incapable in themselves of any fundamental influence on social development. All important social changes, it is held, must originate in productive activities and the organizations in which they take place. This is the central element of the theory of historical materialism.

This theory is also a theory of historical epochs. The original state of primitive communism was succeeded, according to the Marxist view, by the ancient forms of slave-owning society; these were succeeded by feudalism, and feudalism by capitalism. According to *The Origin of the Family,* the transition from primitive communism to the next phase was due to the introduction of private property. It is clear, of course, that the introduction of private property would bring with it very important social changes, but how is private property itself introduced? We have already seen that one idea is that it is brought about by the division of labor. In *The Origin of the Family* Engels also suggested that it was furthered by changes in the structure of the family and by the discovery of iron and bronze. The former would hardly be a technological invention, although the latter was. Engels's

doubts on the matter may be seen from the fact that when he discussed the question of how the common ownership of herds was succeeded by private ownership he vaguely said that "the herds drifted into the hands of private individuals." However private property is held to have arisen, the division of labor brought with it the transformation of goods into commodities and their sale for money.

The next epoch after the period of primitive communism was that of ancient slave society. Marx and Engels held that it was the labor of slaves that made possible the art and science of ancient Greece and the cities, commerce, and bureaucracy of ancient Rome. The slave system broke down largely because of its wastefulness and was replaced by the feudal system, in which features borrowed from the social system of the barbarian invaders were utilized. The basis of the feudal system was the ownership of land by feudal lords, whose dependents had to render them services of various kinds.

The feudal system was fundamentally an agricultural society, but in the towns some men managed to become wealthy by means of trade and by organizing the production of goods in large workshops where they employed considerable numbers of men for wages. These bourgeois, as they were called, were the forerunners of the capitalist system. They attracted men from the countryside to work for them in producing goods sold in widely expanding markets. In this and other ways they acted in opposition to the predominant feudal arrangements that confined serfs to the areas of their birth. Finding themselves hampered by the feudal laws, the bourgeois endeavored to change them and thus entered upon a political struggle with the aristocracy. They justified their actions by appealing to a new ideology according to which aristocratic distinctions based on family connections, and control over the movements of men and over trade, were in opposition to the "natural" order of individual freedom and equality.

As the new methods of production and the new modes of life that went with them were extended, a new order of society was gradually formed within the old. New types of production and trade had been adopted that could come to fruition only if the laws and customs that hampered them were abolished. When, therefore, the bourgeoisie were strong enough, they took political action to achieve this and gained political power by a series of revolutions, of which the French Revolution of 1789 was the culmination. From being a progressive class they became the ruling class, and their landowning opponents declined from being the ruling class into being a reactionary class, which, however, could not return soci-

ety to its earlier state, because the new productive forces were superior to the old ones.

This interpretation of the change from feudalism to capitalism illustrates the Marxist analysis of political revolutions. Marx and Engels regarded such revolutions as the means by which a progressive class, that is, the class that controls some newly emerging productive force, brings about those changes in the productive relationships that enable the new productive forces to become effective. Feudal institutions and, in particular, feudal laws of property would have stifled the development of the capitalist modes of production. By their seizure of political power, the bourgeoisie made laws that enabled capitalism to become a going and growing concern.

SOCIAL PREDICTION. Historical materialism makes two main predictions. The first is that the capitalist system will break down as a result of its internal contradictions. The second is that, after a period of proletarian dictatorship, it will be succeeded by a communist society.

Breakdown of capitalism. In *Capital,* Marx was largely concerned with an analysis of the capitalist order, but he also briefly considered the future of capitalism. He held that the capitalist economy was so far out of human control that economic crises were inevitable features of it. He held, too, that in competing with one another to sell their goods at a profit the capitalists would find it necessary to push down the wages of their employees to the lowest level consistent with their being able to produce at all. Furthermore, the advantages of large-scale production would be such that the larger capitalists would drive their weaker rivals out of business and into the ranks of the proletariat. As a few capitalists became richer, the mass of workers would become poorer. At the same time the growth of scientific knowledge would enable the larger capitalist concerns to improve their technology, so that nature would be brought under human control as never before. Thus, the subdivision of labor is increased, and great numbers of men, organized in manifold ways, cooperate, often in ways unknown to one another, in the manufacture of a single article.

Although production is thus highly socialized, ownership of the means of production and of the commodities produced is still an individual matter. Engels expressed this by saying that there is a contradiction between capitalist appropriation and social production that must result in the elimination of the former. The conditions of life imposed on workers in capitalist production teach them how to cooperate against their employers. The capitalist mode of ownership stands in

the way of the fullest development of planned production. "The centralization of the means of production and the socialization of labor reach a point where they prove incompatible with their capitalist husk. This bursts asunder. The knell of capitalist property sounds. The expropriators are expropriated" (*Capital,* Vol. I, Ch. 24).

Arrival of communism. Just as the bourgeoisie found it necessary to achieve control of the state in order to bring the feudal system to an end, so the proletariat will find it necessary to wrest the state from capitalist control in order to bring capitalism to an end. Thus while the proletariat, or their spokesmen, are criticizing the bourgeoisie, they constitute the rising, progressive class, and when they have overcome the bourgeoisie, they will become the ruling class. But once the bourgeoisie are ousted, there will be no other class for the proletariat to oppose. The proletariat will be the only class, or rather, the class that will bring class divisions to an end. In the absence of class conflicts, politics and the state will become redundant, and a social order will arise in which production will be carried out in accordance with plans devised without coercion for the good of all. According to *The German Ideology,* the outcome will be "the control and conscious mastery of those powers which … have till now overawed and governed men as powers completely alien to them." Twenty years later Marx wrote of "a process carried on by a free association of producers, under their conscious and purposive control," adding: "For this, however, an indispensable requisite is that there should exist a specific material groundwork (or a series of material conditions of existence) which can only come into being as the spontaneous outcome of a long and painful process of evolution" (*Capital,* Vol. I, Ch. 1).

PROBLEMS OF INTERPRETATION

In the course of the many discussions of historical materialism since Marx's day, among Marxists as well as between Marxists and their critics, various problems of interpretation have come to light. Questions arise about the nature and status of the theory itself. There is the question whether the theory is to be interpreted as asserting the primacy of technology both in the structure of society and in the promotion of social change or whether the prime element is wider in scope and is intended to embrace economic as well as technological relationships. A third problem concerns the connection or lack of connection between historical materialism as a value-free sociological theory and as an element in the socialist outlook and an ethical justification of socialist expectations.

NATURE AND STATUS OF THE THEORY. Is historical materialism the statement of an established sociological or historical law? Is it an extremely wide-ranging and complex hypothesis liable to refutation as research advances? Or is it, as some have suggested, not so much a hypothesis as a method, or recipe, or set of hints for framing one? The Marxist-Leninist tradition of the Russian and Chinese Communist parties undoubtedly adopted the view that it is an established law, as reference to Marxist-Leninist textbooks shows. It is sometimes said that Marx himself held the methodological view about his own theory. This is supported by a phrase in the preamble to his famous account of historical materialism in the preface to the *Critique of Political Economy*: "The general conclusion I arrived at—and once reached it served as the guiding thread in my studies." But in this passage Marx is describing how he came to adopt the view, so that the expression "guiding thread" relates to the use he made of the idea in its early stages rather than to the theory once it was established. It seems fair to say that historical materialism was a view that Marx was constantly trying to support but never to refute. Furthermore, as will be shown, the theory contains features suggesting that Marx held it to be a necessary truth. V. I. Lenin, in an early pamphlet titled *What the "Friends of the People" Are* (1894), said that historical materialism was "no longer an hypothesis, but a scientifically proven proposition," but he admitted at least the possibility of its being upset. In *Materialism and Empirio-Criticism* (1909), however, he considered that historical materialism was a consequence of dialectical materialism and thus to be proved in quite a different way.

THE PRIME SOCIAL DETERMINANT. Was the prime social determinant, in Marx's view, the productive forces, or was it the whole composed by the productive forces and the productive relationships? Was it, that is, technology alone, or technology plus economy? The Marxist-Leninist tradition favors the first interpretation, and there are many passages in Marx's writings to support it. For example, Marx wrote in *The Poverty of Philosophy*: "In acquiring new productive forces men change their mode of production, and in changing their mode of production, their manner of gaining a living, they change all their social relations. The windmill gives you society with the feudal lord; the steam mill, society with the industrial capitalist."

A similar point of view is indicated in the *Communist Manifesto,* in which Marx wrote: "The bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production,

and with them the whole relations of society." In a footnote to Chapter 13 of Volume I of *Capital* he said that "the only materialist method" is to show how technology "uncovers man's active dealings with nature, the direct productive process of his life, and, at the same time, of his social relationships (*seiner gesellschaftlichen Lebensverhältnisse*) and the mental conceptions that arise from them." In the same passage he talked about those who uncritically abstract from "this material basis," and he advocated tracing the development of "the celestial forms" of these real relationships (*wirklichen Lebensverhältnisse*) from the real relationships themselves. It is clear that Marx was here arguing that religious ideology should be explained in terms of real social relationships and that these, in their turn, should be explained by reference to technology. But the language he used does not suggest that he was making sharp distinctions. Indeed, what he criticized is the attempt to consider other forms of life in abstraction from technology, so that he could be regarded as upholding what Benedetto Croce in 1896 called the "realistic view of history."

Certainly Marx said a number of things that contradict a merely technological theory of history. Perhaps the most compelling evidence for the view that Marx regarded the basic social determinant as comprising more than technology is his account in *Capital* of the rise of modern capitalism. According to Marx, modern capitalism began with the setting up of large workshops in which men worked for wages in producing goods that the capitalist employer sold for profit. These workshops or factories were new forms of organization, not new methods of production. If they are to be regarded as productive forces, then organization is a productive force. How far is this to be taken? These early capitalists were trying to supply a wider market than had hitherto been possible, and thus considerations of demand and of economic efficiency enter into the notion of a productive force. This notion, indeed, can be extended to include commerce, piracy, and war, and Marx and Engels did so in the early pages of *The German Ideology.* But if commerce is a productive force, then the distinction between productive forces and productive relations is blurred, if not abolished altogether. And if war is a productive force, then it would seem that politics is also a productive force, and in this way the distinction between basis and superstructure disappears.

That Marx and Engels were not clear about all this may be seen in two letters from Marx to Engels on the subject of armies and armaments. In a letter to Engels dated September 25, 1857, Marx wrote: "The history of

the army brings out more clearly than anything else the correctness of our view about the connection of the productive forces and social relations. The army is particularly important for economic development, *e.g.* wage payments first fully developed in the army among the ancients. Thus the *peculium castrense* was among the Romans the first legal form in which the chattels of those who were not fathers of families were recognized.…" In a letter dated July 7, 1866, Marx referred to the new types of weapons that the manufacturers were trying to sell to Louis Napoleon and commented: "Where does our theory about the determination of the organization of labor by the means of production get more brilliant support than from the human slaughter industry?"

In the first of these letters the idea is that the waging and winning of war depend upon the refinements of armament manufacture, which, in their turn, depend upon the level of technology achieved in the society. Here the armaments industry seems to be regarded as a means of production, and the waging of war as the organization of labor. It should be noted, too, that in the first letter the distinction is between productive forces and social relations, where the social relations referred to are working for wages and owning chattels. In the second letter, however, the distinction is between the means of production and the organization of labor. It is possible that by "productive forces" and "means of production" Marx meant much the same thing, but "social relations" is clearly a much wider notion than "organization of labor." In the light of such examples, it can hardly be denied that Marx had no precise view of the theory that he was putting forward.

THE PLACE OF VALUES IN THE THEORY. The third problem of interpretation concerns the connection between historical materialism as an alleged scientific theory and the advocacy of an eventual classless society apparently involved in it. On the one hand, there is the claim that historical materialism is scientifically established and explains how things are and predicts what they will be. On the other hand, there is the promise that out of the contradictions of capitalism a superior form of society will arise in which there will be no more coercion or exploitation. By a happy conjunction a moral millennium is held to be predictable on scientific grounds. As was said at the beginning of this entry, the doctrine of historical materialism arose out of an earlier metaphysicomoral view in which scientific objectivity played no part. Some critics therefore take the view that Marx was at the same time a moralist and a sociologist and that he never succeeded in reconciling these roles. Others go still

further and suggest that the scientific works are nothing but a vehicle for his moral aims.

Defenders of Marx argue that he rightly refused to make the distinction between fact and value that is implicit in the claim that social science should be "value-free." They argue that Marx considered that theory and practice are inextricably mingled, so that it is impossible to understand the working of social processes without at the same time obtaining control over them. Marx very probably believed that capitalist society develops in ways that are not intended by anyone and that it would be succeeded by a form of society in which men's aims and intentions would find scope for fulfillment. Thus, in his view, the processes of capitalist society can be observed and explained as if they were the workings of some alien, nonhuman entity in which individuals are caught up as in some monstrous mechanism. Nevertheless, he also held that the machine would break down and be destroyed and that the activities of men, thus released, would be explicable not in impersonal terms but in terms of their collective aims.

THE VALIDITY OF HISTORICAL MATERIALISM

It has already been pointed out that historical materialism has been supported on grounds of very different sorts. It has been regarded as a method of investigating the facts of history, as an established historical hypothesis of great generality, and as a deduction from materialism, or, more specifically, from dialectical materialism. It has also been said that Marx regarded his view as more than a method and that if he regarded it as a hypothesis, he hardly considered the possibility of its being upset. We shall consider the various reasons put forward in its support, so that we can get a clearer understanding of the theory.

DEDUCTION FROM DIALECTICAL MATERIALISM. The view that historical materialism is a deduction from dialectical materialism was apparently not put forward by Marx himself. Dialectical materialism may be implicit in Marx's writings but it is not explicit there, and when Marx wrote of materialism, he frequently meant nothing but a scientific, this-worldly view of things. In the Marxist-Leninist tradition, however, the argument has been used that if dialectical materialism is true, then historical materialism is true also. Thus in his *History of the Communist Party of the Soviet Union* (1938) Joseph Stalin wrote: "Further, if nature, being, the material world, is primary, and mind, thought, is secondary, deriv-

ative: if the material world represents objective reality, existing independently of the mind of men, while the mind is a reflection of this objective reality, it follows that the material life of society, its being, is also primary, and its spiritual life is secondary, derivative, and that the material life of society is an objective reality existing independently of the will of man, while the spiritual life of society is a reflection of this objective reality, a reflection of being."

A somewhat similar argument is to be found in section 2 of Chapter 6 of Lenin's *Materialism and Empirio-Criticism* (English translation, Moscow, 1939, p. 115). Both Lenin and Stalin supported this view by reference to Marx's statement in the *Critique of Political Economy* that "it is not the consciousness of men that determines their being but, on the contrary, their social being that determines their consciousness." But Marx, in this passage, was not referring to materialism as a philosophy of nature, but to the ideologies that are formed in specific social circumstances. Furthermore, it does not follow from the fact (if fact it be) that there is nothing but matter and its forms of being, that the productive and economic activities of man provide the key to his politics, law, religion, philosophy, art, and morals. The adjective *material* does not have the same meaning in Marx's usage as it has when used in the phrase "material world" or "material object." The general acceptance of materialism does not entail any particular view about which features of human life can be used to provide an explanation for the rest.

It might be argued, of course, that if materialism is true, all social facts are reducible to physical facts or that all social laws are reducible to laws of physics. Marx and Engels, however, did not believe this. In an interesting letter, one of the last to pass between them, Engels maintained that "labor" is a social term that cannot be reduced to "work" in its physical or mechanical sense.

HISTORICAL MATERIALISM AS OBVIOUSLY TRUE.

It is an exaggeration to say, as some have, that Marx gave no reasons at all for the doctrine of historical materialism. It is clear, however, that both he and Engels regarded it as obviously true. Thus, in the *Communist Manifesto* occurs the following question: "Does it require deep intuition to comprehend that man's ideas, views and conceptions, in one word, man's consciousness, changes with every change in the conditions of his material existence, in his social relations and in his social life?" Engels, in his speech at the graveside of Marx, referred to Marx's "discovery" as the discovery of "a simple fact." This "simple fact" is clearly neither a deduction from dialectical materialism

nor a complex hypothesis based on a mass of historical information. It would seem to be the fact that men could not engage in politics, religion, philosophy, and art unless they were alive, with the wherewithal to do so. No one could reasonably deny this, but is every reasonable man therefore an implicit upholder of historical materialism? For this to be so, it would be necessary to show that the theory that the material conditions of life must provide the explanation for all other human activities is deducible from the fact that men must get the wherewithal to live in order to be in a position to engage in political, religious, philosophical, and artistic pursuits. But from the fact that obtaining the wherewithal to live is a sine qua non of politics, religion, and philosophy, it does not follow that these latter activities can be explained only in terms of the former. It seems that a mistake has been made not unlike the failure to distinguish between necessary and sufficient conditions. From the fact that men could not engage in these activities unless they kept themselves alive, it does not follow that how they keep themselves alive explains or "determines" these activities. Engels's statement could be denied only by someone who held that politics, religion, and philosophy were the pursuits of disembodied spirits. His simple fact is too simple to be of any theoretical value.

ARGUMENT FROM THE ESSENCE OF MAN.

Marx himself had another argument suggesting that there is something obvious in the view that the productive forces are the determining factors in human society and human history. He wrote in *Capital,* Volume I, that toolmaking is what distinguishes man from other animals. He and Engels had argued in a similar way in *The German Ideology* that men "begin to distinguish themselves from animals as soon as they begin to *produce* their means of subsistence.…" Of course, beavers and bees do this too, but their hives and dams (Marx and Engels would probably have argued) are never improved upon and never serve as the starting points for other devices. Whatever the difference, Marx and Engels held that what is peculiar to human beings is that they make (and presumably improve) their means of life and that, therefore, this fact must be the key fact in sustaining human society and in explaining the course of human history as distinct from natural history.

This is to adopt an Aristotelian method of explanation in terms of essences. What men do, it is supposed, depends upon what men essentially are. It is assumed that there is some central feature common to all human beings and to them alone upon which all their other specifically human activities depend and in terms of

which they must be explained. To this it may be objected, in the first place, that human beings are not the sort of beings to which essences may be attributed. Beings with essences are those that can be classified in some definite way in a well-defined system of classification. The Aristotelian scheme presupposed a world of things that can be so classified, and it was found necessary to abandon the scheme when it was realized that the world was too complex. Essences may be defined for artifacts with definite functions, such as chairs and knives. A knife is an instrument for cutting, a chair an article of furniture for seating one person. But human beings cannot be fitted into any single system of aims or functions.

The Aristotelian definition of man as a rational animal sums up a view of man's place and purpose in the cosmos. It is absurd to suppose that there is any single thing that constitutes the humanity of man, as cutting constitutes the nature of knives. The choice of a single word such as *reason* or *political* or *toolmaking* gives the appearance of such an essence, but it is an appearance only, since each of these words expresses a highly complex notion that cannot be caught up as a definition with a single classificatory scheme. It has already been noted that man is not the only animal that makes its means of life, but that bees and beavers—to mention only two—do so as well. What differentiates human productions is that they are constantly improved on and form the basis for new ones that become progressively less and less like those from which they originated. To say that toolmaking is the essence of man is to refer to his inventiveness in one of its most concrete forms. If man has an essence, it is that he has none.

Why did Marx and Engels pick on toolmaking as the feature that differentiates man from the other animals? There does not seem to be any single answer. Marx, at any rate, was influenced by the archeological classifications of the periods of prehistory into the Stone Age, Bronze Age, and Iron Age. But of course he was wrong if he supposed that because prehistory has to be reconstructed from the material things left behind, these material things are the basic explanatory factors in all human society. (In any case, some of the archaeological remains are not tools at all.) Insofar as archeologists adopt the hypothesis or method of historical materialism, they do so *faute de mieux*, for by the very nature of their business there is nothing else they can do.

A more fundamental reason for the view of Marx and Engels that toolmaking is the human essence is their acceptance, not perhaps altogether conscious in their later years, of the Hegelian view that men create their lives

through labor. Technology is thus regarded as the concrete embodiment of the process by which nature is controlled and humanized.

Again, Marx and Engels lived at a time when people were becoming aware of the social effects of important industrial inventions. They saw that a new form of society was coming into being as a result of the invention of steam power and that a society with cotton mills and railroads required very different institutions from those of a society with cottage looms and stage coaches. In our own day the social influence of technological invention has become obvious, at any rate in a general way, even though the specific effects of particular inventions may sometimes be difficult to ascertain. But Marx and Engels noted this at a time when not everyone was aware of what was occurring. But it should be noted that this does not establish historical materialism. From the fact that important technological changes often make it necessary to change laws and to adopt new modes of life and thought, it does not follow that law and modes of life and thought can be decisively altered only as a result of technological change. Furthermore, from the great social importance of technological invention nothing follows as to the causes and conditions of technological invention itself.

LINKAGE OF PRODUCTIVE FORCES AND RELATIONS. In saying that Marx regarded historical materialism as obviously true we are saying that he regarded it as obvious that the productive forces "determine" the productive relationships. There is a sense in which productive relationships are necessarily linked with productive forces. For in inventing a new tool or machine it may well happen that the inventor is requiring so many men to work together such and such ways. A man might, for example, invent or design a sailing ship that required five men to sail it and each member of the crew to occupy a certain position in the vessel. Again, when it was discovered how to equip ships with steam or gasoline engines, the work demanded of seamen was altered and new relationships created among them. Controlling boilers and engines is quite different from handling lines and sails. The jobs are different, and the relationships of those who do the jobs are different too. The point therefore may be expressed by saying that sometimes the introduction of a new type of tool or machine necessarily involves the introduction of new job relationships. It would be natural enough to call these job relationships productive relationships in contrast with the tools or machines themselves, which might be called productive forces or means of production. With the terms understood in this way, then, it can happen that a change in productive

forces necessarily brings with it a change in productive relationships, since the productive forces and the productive relationships may be different aspects of the same thing.

How far does this sort of productive relationship extend? We may take the example of the invention of the airplane to elucidate this question. An airplane at first was flown by one man; later models require several operators. Hence there are certain job relationships for the actual operation of the machine. In addition, however, an airport is required and, if journeys are to be undertaken, other places for landing and refueling. If an airplane is regarded as a machine for flying considerable distances from its base, then the provision of airfields with men to supervise takeoffs and landings and to help in refueling is necessarily involved in the invention too. Thus there are rather extensive job relationships implicit in the invention of a machine for flying from one place to another.

Now there is a principle of Roman law according to which the owner of land owns the whole volume of earth and air below and above it, *de caelo usque ad inferas* (from heaven above to hell beneath). If this principle were insisted on, those who fly airplanes would find it necessary to obtain permission from, or even make payments to, the intervening landowners before they could fly from their own territory. Actually, a system of permissions and exclusions has arisen according to which landowners within a country generally cannot prevent airplanes from flying over their land, whereas governments have certain powers of control over flights crossing their boundaries. Someone might argue that in inventing a machine for flying considerable distances from its base, the inventor was providing not only for the piloting of the aircraft and for its landing and refueling but also for the rules by which it would be controlled as it went from place to place. But this would be to extend the notion of job relationships much too far. Whereas piloting and landing and refueling may be regarded as aspects of flying the machine, and hence as necessary features of the invention, the rules under which the flights may be allowed are a different matter. An injunction to prevent the flight might have been issued after arrangements had been made for it to take place. Thus the third set of relationships is connected with the invention in a contingent way. It might be convenient to call these last relationships productive relationships as distinct from job relationships, even though use of the adjective *productive* exaggerates the connection with the actual operation of the machine. Thus it is clear that whereas a given invention may necessitate certain job relationships, it will be inconsistent with certain wider

relationships and consistent with a variety of others. Use of the word *determine* both for the job relationships and the wider ones obscures this difference and encourages the idea that technology sets bonds of necessity upon the social system.

ARGUMENT FROM THE HISTORY OF CAPITALISM. By far the greater part of Marx's historical work was concerned with the origins and development of capitalism, and it is therefore reasonable to regard this part of his work as an example and as a vindication of the doctrine of historical materialism. However, *Capital* deals mainly with the economic and industrial aspects of capitalism and all too briefly with political and ideological matters. It is not surprising that economic and industrial matters should play a large part in an analysis and history of economic and industrial developments. But *Capital* gives only minute and incidental support to the main thesis of historical materialism: the thesis of the dependence of other social institutions upon the technical and economic ones and the thesis of the primary historical influence of technology and economics. After Marx's death Max Weber put forward the view that the growth of capitalism in Europe was fostered by certain aspects of Protestant religious belief. Marx, of course, thought that religious belief is ideological and epiphenomenal, an ineffectual shadow of social reality. He would have found it necessary to reject Weber's view on grounds of principle, in spite of the concomitances and assimilations to which Weber called attention. This shows that Marx's view is not a hypothesis but part of a system of interpretation of very wide scope; part, indeed, of a philosophical outlook.

DIALECTICAL ASPECTS OF THE THEORY

The fundamental thesis of Marxist dialectics is that everything is in movement, and Marx and his followers have proclaimed the mutability of all existing social forms. This in itself, of course, would not distinguish historical materialism from, for example, Hegelianism or some types of liberalism. Another feature of Marxist dialectics, however, is the belief that although gradual changes are occurring all the time, there are also on occasion sudden changes of great scope in which existing types of being are succeeded by utterly new ones. This means that Marxists consider the emergence of new social forms to be as natural as evolutionary adaptation. One might say that their view of change is such as to make them expect the unexpected. A further tenet of Marxist dialectics is that development takes place through the clash of opposites.

Thus the doctrine of the class struggle is regarded by Marxists as a vital feature of historical materialism. Changes in the means of production provide the clue to class struggles and social revolutions out of which new forms of life and thought are born. Philosophers of the Marxist-Leninist tradition hold that in communist society contradictions and oppositions would continue but that, in the absence of class differences, they would be "nonantagonistic."

The foregoing might be called the metaphysics of Marxist dialectics. Marx himself, however, was much more concerned with dialectics as a method. Perhaps the most fundamental feature of the dialectical method as understood by Marx is its distrust of abstraction. This, too, is a Hegelian legacy, but whereas Hegel regarded the Absolute Spirit as the concrete reality, for Marx reality was the material world, along with embodied human beings organized together in various social orders. Philosophers who talk of spirit, or economists who talk of land, labor, and capital, according to Marx, obscure the physical basis of human life and action and substitute abstract categories for the concrete realities of human work and association. Abstraction, in this view of the matter, is a form of mystification. The only way to avoid mystification is to relate the things that people say and do to the material circumstances in which they live. But the abstract is contrasted not only with the concrete but also with what is whole or complete. Marx, like Hegel, thought that the parts of any whole were not indifferent to one another but were, on the contrary, linked closely together. This linkage was particularly close between the individuals and groups of human society. According to Marx, the institutions of work and production were the primary ones, but through their connection with these institutions, men's laws and politics, their philosophy, morals, art, and religion are interrelated and interdependent and cannot be understood in isolation from one another or from their material basis.

A further form of abstraction that Marx objected to was the claim that there are economic laws that apply to all human societies equally. Marx held (preface to *Capital,* Vol. I, 2nd ed.) that each main type of social order develops and functions in its own special ways, so that we cannot conclude from what happens in one type of society that anything similar will happen in another. Indeed, he said that to trace the laws of development of different types of society in this way, keeping the particular and peculiar in view, is the dialectical method. It should be noted, too, that Marx sometimes thought that the various social categories, such as productive forces and productive relations, could not be abstracted from one another, but collapsed one into the other, as Hegelian theories do. We have already seen that Marx treated forms of organization as means of production, thus blurring the distinction between productive forces and productive relationships. In the recently published *Outlines of a Critique of Political Economy* (1857) appears the following note: "Dialectic of the concepts productive force (means of production) and productive relationship, a dialectic to determine their limits, and which does not cancel their real distinction" (p. 29). It seems that Marx hoped to settle the problem by means of a dialectical *coup de main.*

RELATION TO OTHER ENDEAVORS

Marx was not the first to inquire into the history of technology and of industry and commerce, but undoubtedly his work greatly influenced the direction taken by historical research. Marxist historians have been particularly anxious to show how knowledge has been hindered or promoted by the prevailing productive forces and productive relationships. Thus, Benjamin Farrington, in his *Greek Science* (2 vols., London, 1944–1949), argued that the predominantly speculative and unpractical character of Greek science was due to the institution of slavery and the aristocratic contempt for manual work that went with it. George Thomson, in his *Studies in Ancient Greek Society,* 1: *The Prehistoric Aegean* (London, 1949), presented evidence in favor of Engels's views on primitive communism. In Volume II of the same work, subtitled *The First Philosophers* (London, 1955), Thomson linked the categories employed by the pre-Socratic philosophers with economic and class factors and with Marx's notion of a commodity as "the uniform socially recognized" incarnation of human labor, concluding that "the Parmenidean One, together with the later idea of 'substance,' may therefore be described as a reflex or projection of the substance of exchange value" (p. 103). B. Hessen, in an essay titled "The Social and Economic Roots of Newton's *Principia*" (*Science at the Crossroads,* 1931), argued that Isaac Newton was the typical representative of the rising bourgeoisie, and in his philosophy he embodies the characteristic features of his class" (p. 33). This type of view illustrates the more general inquiry into the connections between class and knowledge known as the sociology of knowledge. Karl Mannheim's *Ideology and Utopia* (*Ideologie und Utopie,* Bonn, 1929; translated by Louis Wirth and Edward Shils, London, 1936) shows how Marxism influenced this subject, but Max Scheler, who was not a Marxist, also helped develop it (*Die Wissenformen und die Gesellschaft,* Leipzig, 1926).

It should be emphasized that a materialist view of history is not necessarily linked with Marxist socialism, for it is possible to recognize the historical importance of the means of production and of economic and class interests without concluding that a classless, communist society must emerge. (This was done, for instance, by E. R. A. Seligman in *The Economic Interpretation of History,* New York, 1902). Furthermore, some historians and economists have adopted an economic interpretation of history without committing themselves to the Marxist views about the dominating influence of technology, of the means of production. Thus, Thorold Rogers, an undogmatic free trader, called attention to such influences as the shortage of labor created by the Black Death or the interference with trade routes by the Mongol invaders, but said: "You cannot, of course, separate, except in thought, and then only with no little risk of confusion, economical from social and political facts" (*The Economic Interpretation of History,* London, 1888, p. 281). Marxists have often gone to considerable lengths to distinguish the economic from the materialist conception of history. Thus, the Russian Marxist historian M. N. Pokrovsky has been criticized by orthodox Marxists for placing too much emphasis on market considerations and too little on the influence of the means of production.

See also Aristotelianism; Communism; Croce, Benedetto; Dialectical Materialism; Engels, Friedrich; Hegel, Georg Wilhelm Friedrich; Ideology; Lenin, Vladimir Il'ich; Mannheim, Karl; Marx, Karl; Plekhanov, Georgii Valentinovich; Scheler, Max; Socialism.

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H. B. Acton (1967)
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HISTORICAL SCHOOL OF JURISPRUDENCE

The historical school of jurists was founded by Friedrich Karl von Savigny (1779–1861). Its central idea was that a nation's customary law is its truly living law and that the task of jurisprudence is to uncover this law and describe in historical studies its social provenience. As in other schools of thought, acceptance of this approach did not necessarily mean agreement on its theoretical or practical consequences.

GERMANY

To followers of Savigny the identification of law with custom and tradition and the *Volksgeist,* or genius peculiar to a nation or folk, generally meant a rejection of rationalism and natural law; a rejection of the notion of law as the command of the state or sovereign, and therefore a disparagement of legislation and codification; and a denial of the possibility of universally valid rights and duties and of the individual's possession of nonderivable and inalienable rights. In positive terms, historical jurisprudence identified law with the consciousness, or spirit, of a specific people. Law is "found" by the jurist and not "made" by the state or its organs. Law is a national or folk and not a political phenomenon; it is a social and not an individual production; like language, it cannot be abstracted from a particular people and its genius; it is a historical necessity and not an expression of will or reason, and therefore it cannot be transplanted.

In addition to Savigny, the historical school was probably influenced by Johann Gottfried Herder (1744–1803) and the romantic notions of folk culture, by the emphasis on tradition in the work of Edmund Burke (1729–1797), by the stress on historical continuity in the work of Gustav Hugo (1764–1844), and by the Hegelian conception of Spirit. In Germany, the main proponents of

historical jurisprudence were G. F. Puchta, Karl Friedrich Eichhorn, Rudolph von Sohm, and Otto von Gierke.

ENGLAND

In England Henry Maine (1822–1888) was closely identified with the historical school, although there is no evidence that he was directly influenced by the German thinkers. Modern historical jurisprudence in England was born with the publication in London of Maine's *Ancient Law* in 1861, the year of Savigny's death. Until then historical research in law had been neglected, but from that time on, the field was assiduously cultivated. In reaction against natural law and under the influence of Thomas Hobbes, the tendency in England had been to regard law as the command of the state, and the task of the jurist was conceived as a concern with the analysis of positive law without regard to historical or ethical considerations. Maine broke with these traditional attitudes. Probably influenced by Rudolf von Ihering (*Der Geist des römischen Recht,* 3 vols., Leipzig, 1852–1865), Maine was stimulated to apply the historical method to jurisprudence. Charles Darwin's *Origin of Species,* published two years before *Ancient Law,* also probably influenced Maine.

Maine rejected the natural law, rationalistic, and a priori approaches to the nature of law. In his *Early History of Institutions* (London, 1875) he saw a people's law as compounded of opinions, beliefs, and superstitions produced by institutions and human nature as they affected one another. Indeed, English common law seemed better to exemplify Savigny's views than did the law of Germany, which drew heavily on Roman law. But as an Englishman, Maine saw in law more than a people's customs; he observed and took into account the creative and reforming work of Parliament, and so he was led to recognize legislation as an instrument of legal growth. And he found that equity and legal fictions played creative roles in the common law. In these respects he departed radically from Savigny's monistic approach to law and its sources.

Maine's comparative historical studies, which took into account diverse legal systems, kept him from a belief in the mystical uniqueness of a people and its genius and its law; he observed uniformities as well as differences in different legal orders, and so he was led to suggest that similar stages of social development may be correlated with similar stages of legal development in different nations. Maine differed from Savigny also in believing that custom might historically follow an act of judgment, so that the jurist could be seen to have had a creative role in making the law, even though he claimed only to have found it. Maine also noted the part played in early societies by the codification of customary law. In revealing the ideals operative in a society at a particular stage of its development and in relating them to social conditions, Maine stimulated the development of the use of the sociological method in jurisprudence. It thus became apparent that just as law cannot be divorced from history, so, too, it cannot be divorced from philosophy and sociology. Thus, if Savigny's historical jurisprudence was mainly conservative in import, Maine's work had a predominantly liberalizing effect. Then too, Maine's work influenced the development of comparative legal studies.

Other English scholars associated in varying degree with the historical school of jurisprudence are James Bryce (1838–1922), Frederic W. Maitland (1850–1906), Frederick Pollock (1845–1937), and Paul Vinogradoff (1854–1925).

Perhaps the greatness of historical jurisprudence lay in the fact that it provided its own seed of dissolution; for once it is admitted that law is historically conditioned, it is as impossible to limit the conception of law to a *Volksgeist* as to the commands of the sovereign; all forms of social control and all sources of law emerge as subjects for legitimate consideration and study.

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HISTORICISM

The early history of the term "historicism" (*Historismus*) has not been sufficiently explored, as Erich Rothacker has pointed out. However, one clear case in which it was used in a sense closely allied to all of the senses which it has subsequently assumed is to be found in Carl Prantl's *Die gegenwärtige Aufgabe der Philosophie* (1852). Although the term was later employed as a means of characterizing the thought of Giambattista Vico, its first widespread use probably dates from methodological debates among German-speaking political economists. In these debates, Carl Menger criticized Gustav Schmoller and his school for making economic theory unduly dependent upon economic history; this he characterized as *Historismus.* Thus, the term took on a depreciatory sense; it suggested an inappropriate use of historical knowledge and a confusion regarding the sorts of questions that could be answered by means of such knowledge. One may conjecture that the extension of its use during the first decades of the twentieth century was fostered by the currency of its depreciatory analogue, "psychologism" (*Psychologismus*): Both terms were used in reference to attempts to extend the methods and results of a particular discipline into provinces in which that discipline was claimed to lack legitimate authority.

It was not until the period immediately following World War I, however, that *Historismus* came to be widely used. The impact of the war and the consequences of the German defeat led to attempts to reappraise the cultural and political traditions of the past, and in this reappraisal a central issue was whether a purely historical approach to human culture provided an adequate basis for the judgment of cultural values. This was not, of course, a new problem for theologians or for philosophers; it was one which had been forced upon their attention by dominant strains in nineteenth-century thought (for example, by Hegelianism, the results of historical biblical criticism, and evolutionism). Nevertheless, for those in Germany who had been reared in the tradition of historical studies and who were encountering the violent upheaval of the times, the question of the relations of cultural standards to historical change took on great immediacy. It was at this point that Ernst Troeltsch attempted to characterize historicism in a nonpolemical way, to examine its origins, and to assess its merits and limitations.

TROELTSCH

In *Der Historismus und Seine Probleme,* Troeltsch used "historicism" to mean a tendency to view all knowledge and all forms of experience in a context of historical change. He regarded this tendency as one of the two fundamental discoveries of the modern mind: The other, with which he compared it, was the generalizing, quantitative approach to nature that he termed *Naturalismus.* Thus, like Wilhelm Dilthey, Wilhelm Windelband, Heinrich Rickert, and others, Troeltsch drew a distinction between the forms of understanding characteristic of the natural sciences and those which are appropriate to what one may perhaps best term the "historical sciences" (*die Geisteswissenschaften*). What was of prime importance to him, however, was not the differences between the methodologies of the natural and the historical sciences, but the fact that each was a fundamentally different way of looking at the world, that is, each constituted a different *Weltanschauung.* Troeltsch documented the scope and the depth of historicism as a *Weltanschauung* by tracing its presence in the thought of a host of philosophers and sociologists of the nineteenth and twentieth centuries. He himself accepted the view that all knowledge and all forms of human experience are caught up in a process of change; however, he believed that this view tended to lead to an unmitigated moral and intellectual skepticism. It was this that constituted the crisis of historicism, and it was this that he sought to overcome. Unlike Rickert and others among his contemporaries, he believed that the skeptical consequences of historicism could be overcome only through history itself and could not be avoided by any appeal to transhistorical values. His own positive, religiously based views, however, received only partial

expression, for he died before he was able to complete the work that he had projected.

MANNHEIM

In 1924, almost immediately after the appearance of Troeltsch's work, Karl Mannheim wrote an essay, "Historismus," in which he too characterized historicism as a basic *Weltanschauung*. According to him, the static, theologically oriented conception of the world that characterized the Middle Ages had been retained in secularized form in the Enlightenment, because both cultures held to the doctrine of the atemporal character of the judgments of reason. According to Mannheim, this static conception had at last been abandoned, and all social and cultural reality was seen as being dominated by change. It was this radically temporalistic view of the world that he designated as historicism. Unlike Troeltsch, to whose work he devoted a portion of his essay, Mannheim did not recoil from the relativism of values that he saw that historicism entailed; rather, he was concerned to affirm it. However, on the basis of his own views regarding the intimate connections between theory and practice, he did not believe that either moral or intellectual skepticism was a necessary consequence of temporalistic relativism. Moral skepticism would not necessarily follow, since Mannheim believed that all values are rooted in the conditions of actual social existence and their discovery is not dependent upon our possession of some unchanging capacity for moral insight; furthermore, intellectual skepticism could be avoided through a recognition of the perspectival character of knowledge, and by means of the capacity of a sociology of knowledge to uncover the nature of divergent perspectives and reconcile them with one another. Thus, in Mannheim's use of "historicism," unlike Troeltsch's, there remained no vestige of the original depreciatory significance of the term.

MEINECKE

In 1936 Friedrich Meinecke published a historical study titled *Die Entstehung des Historismus* in which the term assumed a markedly different connotation. To be sure, Meinecke shared Troeltsch's view that historicism represented a break with those modes of thought which both characterized as naturalism. Furthermore, like Mannheim and others, he believed that there was a fundamental opposition between the modern historical sense and earlier political philosophies that had relied upon the conception of a universal and unchanging natural law as the basis for moral and political judgment. Thus Meinecke regarded historicism as opposed to a static view of the world, and in this he was in agreement with Troeltsch and Mannheim. However, he proceeded to characterize this new world view in terms of an interest in that which is concrete, unique, and individual; he found the clue to the new view expressed in Johann Wolfgang von Goethe's use of the dictum "*Individuum est ineffabile.*" This characterization of historicism was undoubtedly related to the fact that Troeltsch (among others) had viewed historical inquiry as concerned with the concrete, the unique, and the individual, and had contrasted this interest with the methods used in the natural sciences.

However, in translating this particular methodological doctrine into a worldview, Meinecke departed radically from the characterizations offered by Troeltsch and Mannheim. For them it was not the concept of individuality but the concepts of change and development that were fundamental to what they had termed "historicism." As a consequence of this difference in the meaning of the terms, some of the eighteenth-century historians who played dominant roles in Meinecke's account would not have been considered proponents of historicism by Troeltsch or by Mannheim. The difference emerges most strongly in the fact that Meinecke believed the culmination of modern historicism was to be found in the world views of Goethe and Leopold von Ranke, whereas one would expect such a high point to be identified with G. W. F. Hegel, with Karl Marx, or perhaps with later evolutionary thought, were one to take the term in the meaning ascribed to it by Troeltsch and Mannheim. As a consequence of this shift in the meaning of the term, Meinecke naturally did not regard historicism as a force that threatened human values or which could lead to a radical transvaluation of values; thus, for him there was no crisis of historicism as there had been for Troeltsch.

CROCE

The view with which Meinecke's characterization of historicism can best be compared is that of Benedetto Croce, even though Croce criticized Meinecke's work for its failure to emphasize nineteenth-century thought, and in particular because of its failure to appreciate Hegel's importance. Croce's own philosophic views had grown out of a reaction against positivism and materialism, in favor of idealism: in particular, he concerned himself with combating positivist and materialist philosophies of history. What he rejected in these views was not the historicism that Troeltsch and Mannheim correctly discerned in them, but the fact that they attempted to interpret history naturalistically, that is; in ways similar to those used by the sciences in dealing with the nonhuman world. Like Vico and Hegel, with whose thought his own

was directly affiliated, Croce regarded history as the self-development of the human spirit. Furthermore, since Croce, as an idealist, wished to deny that there was any realm of existence external to the human spirit, he interpreted the whole of reality as being encompassed within history: life and reality were nothing but the ever changing manifestations of the spirit.

It was primarily with reference to this radical metaphysical idealism, rather than with reference to any more general currents in Western intellectual history, that Croce used the term "historicism" (*storicismo*). While Croce's own emphasis on the pervasiveness of change did in fact provide an example of what Troeltsch and Mannheim considered to be the basic feature of historicism, it was not with their thought, but with that of Meinecke, that his views had the greater affinity. Like Meinecke, Croce held that the means by which a naturalistic worldview seeks to envision and grasp reality are totally inadequate because of the uniqueness and individuality of that which is historical. He therefore held—as did Meinecke—that genuine knowledge, as opposed to merely practical or pseudo-knowledge, comes only through an understanding of history. Croce endeavored to establish this antinaturalistic position throughout his philosophical writings; for Meinecke, the acceptance of this form of historicism was intimately connected with a religious sense of mystery.

ENGLAND AND THE UNITED STATES

The term "historicism" was adopted into the English language in the late 1930s and the 1940s both in the United States and in England. In neither country, however, was it used to refer primarily to a *Weltanschauung*; rather, what was of concern were questions regarding principles of explanation and of evaluation. In the United States, attention was directed to these issues through works by Morris R. Cohen, Maurice Mandelbaum, and Morton White, among others. In England, fuller discussions were to be found in articles by F. A. Hayek and Karl Popper.

One may plausibly infer from Hayek's discussion of historicism that the sense in which he and Popper conceived the notion probably derived from Menger's original contrast between scientific theory-construction and a primarily historical approach to problems in the social sciences. However, the specific form of historicism that both Hayek and Popper especially attacked was the nineteenth-century doctrine that there are laws of development that characterize social wholes and that it is possible, on the basis of a knowledge of such laws, to make scientific predictions about the future. Thus, the notion

of "holism," which had not previously been directly associated with the definition of historicism, was injected into the discussion, and the chief protagonists of historicism were identified as Hegel, Auguste Comte, and Marx. When taken in this sense, three theses were common to historicist doctrines: (1) a rejection of "methodological individualism" in favor of the view that there are social wholes which are not reducible to the activities of individuals; (2) the doctrine that there are laws of development of these wholes, considered as wholes; (3) the belief that such laws permit predictions as to the course which the future will take. While these three theses were intimately connected with some of the doctrines previously characterized as examples of historicism, there seems to be no necessity for identifying historicism with holistic thought and with a belief in the possibility of prediction, as Popper and Hayek tend to do.

DEFINITION OF "HISTORICISM"

Considering the very great diversity in usage which we have now traced, one may ask whether there is any characterization of historicism which can serve to connect the various ways in which the term has been used and which at the same time can give it a relatively clear meaning. Without suggesting that all problems concerning the deviant meanings of historicism can be solved in this way, the following definition may be proposed as an approximation of that goal: Historicism is the belief that an adequate understanding of the nature of anything and an adequate assessment of its value are to be gained by considering it in terms of the place it occupied and the role it played within a process of development.

It will be noted that this definition does not characterize historicism as a particular *Weltanschauung* but as a methodological belief concerning explanation and evaluation. As Popper's discussion makes clear, in the late eighteenth and nineteenth centuries, forms of what has been termed "naturalism" have closely resembled antinaturalistic theories, with respect to their presuppositions about the relation of historical change to the explanation and evaluation of events. Since it is misleading to regard positions as divergent as those of, say, Hegel, Comte, Marx, and Herbert Spencer as representative of one and the same *Weltanschauung,* it is preferable to conceive of historicism as a methodological principle.

Troeltsch and Mannheim were in agreement with Meinecke and Croce in holding that this new methodological principle was based upon the rise of a new concept of change and of history. Its original challenge to older modes of thought lay partly in its tendency to link

evaluation with genetic explanation. It was this tendency that was fundamental to the so-called crisis of historicism, and it has also been against this tendency that Hayek and Popper, among others, subsequently rebelled. However, the most radical aspect of historicism as a methodological principle has been its conception of what is presupposed in all explanations and evaluations of past events: that each event is to be understood by viewing it in terms of a larger process of which it was a phase, or in which it played a part; and that only through understanding the nature of this process can one fully understand or evaluate concrete events. It is partly because of this emphasis upon relating each event to some larger developmental process that historicism has come to be identified with holism and a belief in historical prediction. Important as this connection has undoubtedly been, a definition in terms of it fails to stress the more fundamental fact that historicism involves a genetic model of explanation and an attempt to base all evaluation upon the nature of the historical process itself. Popper, in his characterization of the position, therefore tends to separate his own use of the term "historicism" from its other, more frequent uses. The definition suggested here constitutes an attempt to epitomize many of these uses and to connect them with one another even where they are found to diverge.

See also Cohen, Morris Raphael; Comte, Auguste; Croce, Benedetto; Dilthey, Wilhelm; Enlightenment; Goethe, Johann Wolfgang von; Hegel, Georg Wilhelm Friedrich; Hegelianism; Holism and Individualism in History and Social Science; Idealism; Mannheim, Karl; Marx, Karl; Meinecke, Friedrich; Moral Skepticism; Popper, Karl Raimund; Rickert, Heinrich; Troeltsch, Ernst; Vico, Giambattista; Windelband, Wilhelm.

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Maurice Mandelbaum (1967)

HISTORICISM [ADDENDUM]

The debate over the nature of historicism has not yet been resolved, and perhaps never will be; for historicism is a broad, multifaceted phenomenon with highly diverse and often conflicting manifestations. Indeed, the only relationship between the myriad meanings of the term "historicism" seems to be that of family resemblance (i.e. constantly shifting patterns of similarities and differences across the multiple instantiations of the concept).

Nevertheless, it is possible to identify, within the historicist family, one strand that has been significant for the history of philosophy more than any of its counterparts: namely, that which reached its apex in the enormous impact of Martin Heidegger and Hans-Georg Gadamer on the human sciences over the second half of the twentieth century. In this light, historicism's most crucial and enduring legacy appears to be the insistence that the historical character of human existence sets it apart from the world of nature, both in its ontological features and in the epistemological exigencies deriving therefrom. At the ontological level, this worldview unpacks the historicity of the human world in terms of the finitude, temporality,

uniqueness, and the meaning-laden character of all human phenomena. At the epistemological level, these ontological features render erroneous and futile any attempt to understand historical existence through the prism of universal laws, timeless causal mechanisms, or theoretical abstractions.

Ultimately, this outlook not only contests the aspirations of positivist epistemology to universal applicability, but in fact poses a comprehensive challenge to the universalistic worldview of the Enlightenment and its nineteenth- and twentieth-century successors. This major strand of historicism developed chiefly (though not exclusively) within the German intellectual world, with four prominent figures towering above all others in their contribution to historicism's unabated and dramatic impact upon Western thought: Leopold von Ranke, Wilhelm Dilthey, Heidegger, and Gadamer.

Leopold von Ranke (1795–1886), one of the founding fathers of modern historiography, developed his historical thought to a large extent through critical engagement with the idealist, Hegelian philosophy of history. Whereas the latter viewed history as the march of reason, entailing the mediation of historical knowledge by conceptual abstraction and generalization (that is, the subordination of history to philosophy), Ranke on the contrary upheld the primacy of history over philosophy; that is, the irreducibility of the full concreteness and diversity characterizing the flow of human existence to abstract, general categories. Ranke still embraces the idea of the unity of world history, but only in the sense that all historical epochs and phenomena are of equal value before God by virtue of their concrete individuality. Their universal meaning—their essence—resides within their particularity rather than in some general concepts to which they are purportedly reducible. Accordingly, the causal sequences governing historical life are of a contingent nature that has nothing to do with the mechanistic causality of the natural sciences.

Wilhelm Dilthey (1833–1911) sought to place the distinction made by Ranke and others between the natural sciences and the human (*qua* historical) sciences upon firmer, more systematic ontological and epistemological ground. In Dilthey's ontology, human life is construed as a meaningfully structured flow of interconnected experiences through time. These experiences are in turn objectivated in all visible human phenomena: works of art, political and legal formations, religious rituals, and so on. Thus, history consists in meaning-laden expressions of life.

This ontology clears the way for harnessing hermeneutical principles, originally utilized for the interpretation of individual texts, as a key to systematizing the epistemology of the entire human sciences. The possibility of historical knowledge flows, according to Dilthey (1989), from two complementary observations, both of which are hermeneutical by nature. First, the objectivation of life expressions in the realms of art, religion, law, and so forth, renders those expressions visible to the historian. Second, those expressions are not only visible but also intelligible to us by virtue of our ability to reproduce, to re-experience the meaning of objectivated expressions of life within our own field of experience. Dilthey's hermeneutics thus functions both as the basis for a distinctly historical epistemology and as a methodological procedure for extracting meaning out of history.

Although, as we have seen, historicism has always contained ontological as well as epistemological and methodological precepts, Martin Heidegger (1889–1976) was the first to transform historicism into an all-encompassing ontology. This accomplishment was effected through a reversal of the entire Western metaphysical tradition. Instead of searching for the eternal essences of Being underlying external, changing appearances, Heidegger (1996) proposes to construct a universal ontology based on temporality as its most fundamental attribute. Human existence, for Heidegger, is fully contained within its concrete, temporal manifestations; nothing which belongs to Being resides outside of this concrete temporality (that is, outside of historicity), in some abstract universal reason or divine spirit. Concomitantly, there is no need for abstract concepts or scientific classifications in order to grasp truth. Rather, the latter is immediately accessible to us in the form of experience, thus pointing up the ontological status of understanding as a ubiquitous form of (historical) being rather than as a merely cognitive process.

Heidegger's most influential follower, Hans-Georg Gadamer (1900–2002), devoted his magnum opus *Truth and Method* to the systematic development of an ontological hermeneutics based upon Heidegger's insight concerning the historicity of understanding. For Gadamer (1989), we are always, as historical beings, situated within a tradition but at the same time constantly working through that tradition, by way of an interpretive engagement with the texts comprising it. This is the so-called "hermeneutical circle": While tradition is the universal ontological condition within which all understanding occurs, that same tradition is also constantly being reformed in the course of the interpretive process, which in turn entails a perpetual remaking of the interpreter's self-understanding. Thus, the understanding subject, the process of understanding, and that which is understood

(i.e., tradition) are but three facets of one and the same ontological condition: the temporal flux of being.

Gadamer's thought may be regarded as the culmination of a historical process whereby historicism persistently broadened its scope, from the rather impressionistic and quasi-theological observations of Ranke on the nature of history and historiography, to the comprehensive historicist ontology expounded by Heidegger and Gadamer. At the same time, the protracted debate with the universalistic project of the Enlightenment has been accompanying historicism throughout all of its permutations. From Ranke's debate with Hegelianism, through Heidegger's famous encounter with Ernst Cassirer at Davos in 1929, to the Habermas-Gadamer debate, the unresolved battle between historicism and Enlightenment embodies one of the leitmotifs of modern civilization: namely, the perpetual intellectual, cultural, and political tension between the particularizing and the universalizing moments of the modern condition.

See also Philosophy of History.

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HISTORY

See *Determinism in History*; *Historicism*; *History and Historiography of Philosophy*; *Holism and Individualism in History and Social Science*; *Philosophy of History*

HISTORY, PHILOSOPHY OF

See *Philosophy of History*

HISTORY AND HISTORIOGRAPHY OF PHILOSOPHY

The term *history of philosophy* is often used in two different senses. In one, it refers to past events (*res gestae*) and, in another, to accounts of those events (*historiae rerum gestarum*). "The history of ancient Greek philosophy" can be taken to indicate views entertained by Greek philosophers, but also the accounts that later historians give of

those views. The positions Aristotle takes in his *Metaphysics* are part of the first but not of the second, whereas those adopted by Joseph Owens in *The Doctrine of Being in the Aristotelian Metaphysics* (1951) are part of the second but not the first.

The term *historiography of philosophy* can also be taken in two senses. According to one, it refers to accounts of past events, and so it is interchangeable with *history* when this term is used in the second sense mentioned above. But *historiography of philosophy* can also be used to mean the discipline that studies and establishes the procedures to be followed in accounts of the views from past philosophers. Aquinas's statement, "whatever is moved is moved by another," is part of the history and historiography of philosophy in the first sense mentioned. But the claim, "A proper understanding of Aquinas's view, that whatever is moved is moved by another, presented in the *Summa theologiae*, requires that we look into what he says about movement elsewhere in his writings," is part of historiography when this is understood as a discipline.

In addition, both the history and the historiography of philosophy need to be distinguished from the philosophy of the history of philosophy. This last studies the history of philosophy understood as past events in order to make claims about its nature and how it develops in general. In doing so, it may refer to particular events of that history, but its primary aim is not to account for them. For example, philosophers of the history of philosophy might claim that philosophy develops according to certain stages, but when they identify the stages through which ancient philosophy passed in particular, they do so to illustrate or establish the first kind of claim.

Because the history of philosophy, the historiography of philosophy, and the philosophy of the history of philosophy are closely connected, their tasks are not often distinguished and philosophers engaged in the pursuit of one also frequently pursue the others. For the sake of clarity, however, this entry will keep them separate, concentrating only on the issues pertaining to the historiography of philosophy when this is understood as the study of the procedures to be followed in the investigation of the philosophical past and of the philosophical issues that this kind of study raises.

Six of these issues have been the focus of most discussions: (1) What kind of claim are historians of philosophy entitled to make? (2) What is the relation between philosophy and the study of its history? (3) What is the value of the study of the history of philosophy for philosophy? (4) What is the role of texts in the study of the history of philosophy? (5) What approach should historians of philosophy use? And (6) what are the main genres historians of philosophy employ?

1. CLAIMS

Disagreements concerning the kind of claim that historians of philosophy are supposed to make center on three possibilities: descriptive, interpretative, and evaluative. A descriptive claim consists of a proposition that accurately (1) presents what particular philosophers said or thought or (2) recounts contemporaneous and later views concerning the positions of the philosophers under study. These claims take forms such as "X stated that P," "X's stating that P is the reason that X gave for holding Q," "M, a contemporary of X, stated that X did not hold that P," "N, a later historian of philosophy, disagreed with M as to X's view," and so on.

In interpretative claims, historians of philosophy go beyond what particular philosophers and their historians said or thought, in order to establish nonexplicit relations between the stated or unstated views of a philosopher or a historian, or between the views of two or more philosophers or historians. They also formulate broad generalizations that purport to characterize the overall approach used by a philosopher or the philosophers from a particular period, and to translate the views of historical figures into the languages and conceptual frameworks of contemporary historians in order effectively to communicate their meaning. Interpretative claims can take various forms, such as: "X held that Q," "X held that Q because X held that P," "X held that Q because Y held that P," "X's view that P led to the abandonment of ~P by her contemporaries," and so on.

Evaluative claims make judgments about the value of philosophical views from the past. These judgments may concern truth, validity, coherence, adequacy, completeness, clarity, social relevance, and so on. Here are some forms that these claims may take: "X's view, that P, is true," "X's argument A is invalid," "X and Y were right in formulating problem P as they did," "X's view that P is a backward step in the history of philosophy," "X's position had an adverse effect on society S," and so on.

The question pertaining to descriptive, interpretative, and evaluative claims that concerns historiographers in particular is the following: Are historians of philosophy supposed to make claims that are descriptive, interpretative, evaluative, or some combination of these? At one extreme, positivist historiographers answer that historians should consign themselves to descriptive claims. Their job is to describe, and not to interpret or to evaluate, the philosophical past (Lafrance 1983). At the other

extreme, historicist historiographers maintain that historians should merely be concerned with interpretation and evaluation because description is impossible. Every historical event is unique and cannot be reproduced either in reality or thought. Therefore, the attempt to describe and understand the past as it was in itself, independently of how it appears to the present, is bound to fail. The job of historians is to present the past as it looks to them at present (Collingwood 1946).

Both positivist and historicist historiographers accuse each other of betraying the historical enterprise. According to the first, the second do so because they fail to account for the past by falling into Anachronism, that is, reading the present into the past. But historicists retort that positivists betray history because they misunderstand the past by falling into Antiquarianism, that is, by failing to grasp the significance of the past for the present.

In between these two extreme positions, various positions attempt to find a more sensible middle ground. Closer to positivism is the view that the history of philosophy needs to be disinterested, that is, it should refrain from any kind of value judgment or interpretation based on value judgments (Garber 1988). Closer to historicism is the position that the history of philosophy should not be conceived as a science at all, but rather, like all philosophy, as a process of edification. Accordingly, it is its current uses and meaning that matter, not what actually happened in the past (Rorty 1984). Closer to the middle, some historiographers argue that historians of philosophy need to engage in description, interpretation, and evaluation: Description, because their aim is to understand and account for the past; interpretation, because the understanding and account of the past requires interpretation; and evaluation, because a history of philosophy without evaluation has no use (Gracia 1992).

2. PHILOSOPHY VS. HISTORY OF PHILOSOPHY

But what is the relationship between philosophy and the history of philosophy? Are they compatible enterprises? And if compatible, how dependent are they on each other? The attempts to answer these questions are plagued with puzzles and difficulties (Powers 1986).

The positions adopted with respect to these questions generally follow those adopted in the previous one. On one side are those historians who draw a sharp distinction between the descriptive aim of the historian of philosophy and the interpretative and evaluative aims followed by the philosopher. According to them, philosophy and the history of philosophy are incompatible insofar as

the philosopher seeks to establish truth in general, whereas the historian of philosophy is merely interested in historical truth, that is, in arriving at accurate descriptions of the philosophical past. The historian studies the history of philosophy in its own terms, not for the philosophical truth it may yield (Frede 1988).

On the other side are those who closely relate the task of description with those of interpretation and evaluation. For some, philosophy necessarily involves the study of its past, so it must be done historically (Cohen 1986); for others, studying the philosophical past requires doing philosophy (Kenny 1995, 1996); and for others still, the relation goes both ways (Taylor 1984). The reason, as given by philosophers with historicist leanings, is that philosophy is a rearticulation of a view about ourselves and the world, and this requires both the understanding of past articulations and a liberation from them. The study of the philosophical past, then, necessarily involves philosophical judgments, and philosophy must study its past to move beyond it; the history of philosophy must be done philosophically and philosophy must be done historically. Indeed, philosophy is a historical enterprise insofar as the thought or statement of a philosophical view is a historical event and thus part of the history of philosophy. So even contemporaneous philosophical discussions necessarily involve historical references and the understanding of the past, even if the history in question is recent (Popkin 1985).

These positions have been criticized in various ways. Some critics point out that they rely on an oversimplification of the issue (Janaway 1988; Alexander 1988), whereas others object that they fail to draw a distinction between objective and methodological necessity (Gracia 1992). Objective necessity holds between a discipline or study on the one hand and its object of study on the other. In this sense, the history of philosophy, considered as past philosophical views, is indeed necessary not just for the study of the history of philosophy but also for philosophy insofar as philosophy studies the world and all human experience of it and the history of philosophy is part of that object. Methodological necessity, however, holds between two studies or disciplines, insofar as there is a necessary dependence of the methods employed by them. This distinction opens the doors to an alternative position to the two mentioned. According to it, the study of the history of philosophy is not methodologically necessary for philosophy, although philosophy is methodologically necessary for the study of its history. One can philosophize without a historical aim or concern; but one cannot investigate the history of philosophy without a

philosophical understanding of the concepts and arguments it contains. The relation of necessity between philosophy and its history, then, is not reciprocal.

3. VALUE

Regardless of the position one takes with respect to the relation between philosophy and the study of its history, one may still ask whether the second is useful or detrimental for the first. Those who argue that the study of the history of philosophy is incompatible with philosophy see only negative influences on it: the study of the history of philosophy stultifies creativity, prevents discoveries, is irrelevant to present concerns, and wastes precious time (Descartes 1970). And for those who hold that doing the history of philosophy is necessary for doing philosophy, the question of the value of the first for the second is obviously irrelevant. However, for those who maintain that the study of the history of philosophy is neither incompatible with nor necessary for doing philosophy, it is pertinent. Some of these believe that the study of the history of philosophy is harmful, whereas others argue that it is beneficial and thus justify it in various ways. At least eight different justifications are common. They can roughly be divided into three groups: rhetorical, pragmatic, and essentialistic.

Rhetorical justifications in turn fall into two groups. According to one, the history of philosophy provides a source of inspiration: past philosophers function as role models whose lives, devoted to the pursuit of truth, inspire us to emulate them (Rée 1978). According to another, the history of philosophy can be a source of support and respectability, and in that way be used to validate the present (Gilson 1955).

Pragmatic justifications can be classified into four types. One argues that the consideration and analysis of a rich historical treasure of philosophical views and arguments can supply present-day philosophers with a fertile ground in which to train for the philosophical task (Yolton 1986). Another proposes that the history of philosophy is a source of solutions to important philosophical problems insofar as many great minds from the past have presented answers to questions still pertinent today and offer us alternatives to contemporary proposals (Curley 1986). A third maintains that the present state of philosophy is one of confusion and "ill health," and the study of the past can help us figure out how and where philosophy went wrong; the study of the history of philosophy can be therapeutic for the present (Bennett 1988). The fourth group combines all three of these justifications, arguing that philosophy can profit from both the failures and successes of the past (Mash 1987).

Essentialistic justifications are cashed out in terms of the nature of philosophy and the way it develops. At least four versions of them have been proposed. One, not explicit among historiographers of philosophy, although applicable to philosophy and used in some sciences, argues that the ontogeny of a discipline recapitulates its phylogeny. The acquisition of philosophical knowledge by an individual person goes through stages that mirror those that the human race as a whole has experienced in its philosophical understanding. The study of the history of philosophy, then, provides a shortcut to the level of understanding that individual philosophers seek. Another argues that the dialectical nature of philosophy requires that we study its past. Regardless of whether this dialectical nature is taken to apply to the dialogue thought to be fundamental to the philosophical enterprise (Veatch 1988) or to a set of stages of development that repeat themselves (Hegel 1974), it appears essential that philosophy engage its past. In the first case, this is because the variety of the past makes it an ideal interlocutor; and, in the second, it is because any stage in the development of philosophy relies on prior stages. A third justification argues that the understanding and management of science and technology is possible only on the basis of historical experience and the history of philosophy supplies it (Krüger 1984). A fourth argues that philosophy is a cultural enterprise that relies on historical elements such as language, values, presuppositions, and so on; to understand the philosophical present, then, we need to go back to the past, for it is from the past that the present has arisen (Gracia 2000).

4. TEXTS

The object studied by historians of philosophy consists of the views of past philosophers, but they have no way of establishing direct contact with those views except through texts. Their access to Kant's philosophy, for example, is only through the texts that express Kant's views, whether they were composed by the author himself or by subsequent historians. The study of the history of philosophy amounts, then, to the study of texts, and this poses a set of questions that fall within what is frequently called hermeneutics. They may be divided roughly into four categories, depending on whether they have to do with texts themselves, their interpretation, their authors, or their audiences.

With respect to texts, the most pertinent questions concern their nature and identity. For purposes of the

history of philosophy, the texts that matter most are written. Oral texts are relevant only insofar as they have survived either in written reports or have been taped. Historians who wish to give an account of William of Ockham's logic, then, begin by looking at copies of the pertinent texts from Ockham, say the *Logica*. But it turns out that the copies of the text they have are not the autograph Ockham wrote. Rather, they are reconstructions produced by editorial processes that took into account various manuscript versions of Ockham's text, and relied on the judgment of various editors as to the most historically accurate reading. This means that historians need to be aware of the distinction between the historical text—the one produced by Ockham—and the text they currently have, which may be called the contemporary text.

Even when historians have access to a philosopher's autograph, however, they may still ask themselves whether the script they have in front of them is the one intended by the author, for the philosopher may have written something he did not intend, or failed to write something he intended. So in addition to the historical text and the contemporary text, historians could take into account what they consider to be the intended text. But there is still more, for some historiographers argue that there is another text that is pertinent, namely the text the author should have written. Ockham may have written something that did not fit his view, because he was distracted or even failed to understand all the implications of his own position. Hence, in addition to the historical, contemporary, and intended, there is also what might be called the ideal text. These different ways of conceiving texts give rise to wide disagreement among historiographers concerning the kind of text that is most pertinent for the study of the history of philosophy.

Two questions in particular are pertinent concerning the interpretation of texts: "What is an interpretation?" and "What is its purpose?" According to a common conception, an interpretation of a text is the understanding that an interpreter has of the text; according to another, it is a text added to the text under interpretation. A example of the first sort is Thomas Aquinas's understanding of Aristotle's *Metaphysics*; an example of the second is Aquinas's *Commentary on Aristotle's "Metaphysics."* The purpose of the interpretation may vary in each case, and this has also been a subject of disagreement, which most frequently occurs along two lines: understanding the meaning of the text or relating the text to something else. The first, in turn, can be broken down depending on various ways of conceiving the meaning of a text: in terms of

the author's understanding or intention, in terms of the understanding of a particular audience, or independently of either the author or any audience. The second purpose of interpretations has been prompted in part by questions raised about the nature and viability of meaning by such Analytic philosophers as W. V. Quine and such Continental philosophers as Jacques Derrida. These questions have undermined meaning-based conceptions of interpretation and have led some historiographers to favor relational ones instead (Daniel 1993). If the purpose of an interpretation is relational, then the interpretation depends on what the text is related to, such as another text, particular historical events, certain conceptual frameworks used in the interpretation, and so on.

Those who make interpretations dependent on authors need to establish the identity of the latter, but this again is contested, for at least three authors need to be considered: historical, pseudohistorical, and contemporary (the terms used to refer to them vary). The first is the person who produced the historical text—the person who wrote Ockham's *Logica* for instance. The pseudohistorical author is the person whom later historians think wrote the text. The pseudohistorical author of the *Logica*, for example, goes by the same proper name as the historical author, but it could in fact be different. The contemporary author is the author of the contemporary text. Recall that the contemporary text is a reconstruction of the autograph carried out by editors on the basis of various texts and readings, so it is likely that it is different from the historical text and, therefore, it would be incorrect to regard the historical author as having sole responsibility for it.

The audience also has frequently been thought pertinent for the interpretation of texts. And here, again, various understandings of it may be considered. For some, authors themselves may be conceived as audiences, whereas others refer to the audiences intended by authors, the audiences contemporary with the composition of the historical text under interpretation, or the audiences contemporary with interpreters. Naturally, these differences in audiences alter the character of an audience-based interpretation. It is one thing to grasp Aristotle's own understanding of his *Metaphysics* and another to comprehend what thirteenth-century scholastics thought of it.

5. APPROACHES

Different views concerning the interpretation of texts generate different approaches to them. Several taxonomies of these have been proposed, but most of them

include some of the following: ideological, sociological, biographical, scholarly, doxographic, apologetic, literary, idealistic, eschatological, dilettantish, and problematic. Ideological approaches use the history of philosophy for the justification of a chosen point of view and treat texts accordingly (Marxist historians). Sociological approaches break down into several, depending on whether they emphasize cultural (Gilson 1955), psychological (Kusch 2000), or generally contextual factors (Peckhaus 2000) in the study of the history of philosophy. Biographical approaches focus on personal histories (Rée 1978). Scholarly approaches seek to establish reliable texts, to produce accurate translations, to determine precise chronologies, and to reconstruct and expound the views of past authors and their relations without engaging in value judgments (Owens 1951). Doxography usually considers facts, figures, and ideas with a primarily informative aim (Diogenes 1925). Apologists see their goal as the defense of a particular author's point of view (John of St. Thomas 1931). The literary approach emphasizes form over content, stressing the need to take the former into consideration for the understanding of the latter (Danto 1985). Idealists consider the views they find in texts as imperfect renditions of what they think are perfect views, so they engage in speculative reconstruction (Russell 1937). Eschatologists view the history of philosophy as progressing toward some end, or as retreating from it (Aristotle 1984). Dilettantes focus on texts in isolation from historical contexts, being interested only in what they can find in them for their own philosophical purposes (Plantinga 1978). And those who adopt a problems approach look at the history of philosophy as a series of attempts to solve philosophical problems (Bennett). A recently proposed variant of the last is the framework approach. According to it, a proper historiographical method should make explicit the conceptual frameworks of problems and views used to study philosophical texts from the past in that such frameworks can be used to understand historical views better both in themselves and in relation to the views of the interpreters and their contexts (Gracia 1992).

A topic of occasional discussion in this context is the nature and value of what is frequently called the Principle of Charity. According to it, historians must attempt to develop the most favorable interpretations of the philosophical views they study. This applies whether the historians agree or disagree with them. If they agree, it is argued that this serves to support their own views, and if they disagree, that then they are presented with the best case against their own positions, forcing them to rethink those views or develop better arguments in their support.

6. GENRES

The genres used in the history of philosophy break down into at least two large categories: textual commentaries and systematic expositions. The first includes more or less literal commentaries. The second breaks down into general or particular histories. General histories of philosophy aim to provide accounts of the whole history of philosophy. Particular histories are concerned with the philosophy of particular periods, regions, nations, ethne, races, and authors, or with specific problems or ideas, and with their comparison. Here are some examples of particular histories: history of medieval philosophy, history of Latin American philosophy, history of French philosophy, history of Hispanic philosophy, history of Black philosophy, Hegel's philosophy, Gustav Bergmann's position on individuation, history of the problem of universals (in general or in a particular period), and the history of the idea of substance. Historiographers disagree on the comparative value of these genres, but they continue to use them.

See also Aristotle; Bergmann, Gustav; Continental Philosophy; Derrida, Jacques; Descartes, René; Feminism and the History of Philosophy; History and Value Judgments; John of St. Thomas; Kant, Immanuel; Ockhamism; Quine, Willard Van Orman; Thomas Aquinas, St.; William of Ockham; Women in the History of Philosophy.

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HOBART, R. E.

See *Miller, Dickinson S.*

HOBBES, THOMAS

(1588–1679)

Thomas Hobbes, often called the father of modern analytic philosophy, was born in Malmesbury, Wiltshire, England. Hobbes later enjoyed jesting about the significance of his manner of entry into the world. (He was born prematurely when his mother heard of the approach of the Spanish Armada.) "Fear and I were born twins," he would say, adding color to his conviction that the fear of death and the need for security are the psychological foundations both of worldly prudence and of civilization itself. He died at the age of ninety-one in Hardwick, Derbyshire, after a life of travel, study, polemical controversy, and philosophical and literary activity that in his later years had virtually established him as an English institution.

EARLY YEARS

Hobbes's father, Thomas Hobbes, was vicar of Westport, an adjunct of Malmesbury, but his conduct reflected little credit on his cloth. After being involved in a brawl outside his own church, he had to flee to London, leaving Thomas to be brought up by a wealthy uncle, who took the matter of his education very seriously. When he was only fourteen, Hobbes was sent to Magdalen Hall, Oxford, where he remained for five years before taking his bachelor's degree. He seems to have been bored by his Aristotelian tutors, although he acquired considerable proficiency in logic. The strong Puritan tradition of his college impressed Hobbes, but the drunkenness, gaming, and other vices that were prevalent equally impressed him. On leaving Oxford in 1608, Hobbes had the good fortune to become tutor to the young son of William Cavendish, earl of Devonshire. This circumstance introduced him to influential people, to a first-class library, and to foreign travel.

In 1610, on the first of Hobbes's visits to the Continent, he discovered the disrepute into which the Aristotelian system of thought was beginning to fall. Johannes Kepler had recently published his *Astronomia Nova,* and Galileo Galilei had just discovered the satellites of Jupiter through his telescope. Hobbes returned to England determined to devote himself to the pursuit of learning, a resolve that was probably strengthened by his meetings

with Francis Bacon. Hobbes, however, thought little of Bacon's so-called method of induction, with its stress on observation and experiment, which was later to become the inspiration of the Royal Society. Nevertheless, he agreed with Bacon in his contempt for Aristotelianism, in his conviction that knowledge means power to be used for the improvement of man's estate, and in his advocacy of clear and concrete speech instead of the vague abstractions of the schools.

At this period of his life Hobbes had turned to the classics to gain an understanding of life and of philosophy, which, he thought, could not be found in the schools. After a period of reading and reflection, he decided to translate Thucydides into English, a significant choice. Like Thucydides, Hobbes believed that history was written for instruction, and he wished to instruct his countrymen on the dangers of democracy. In 1628, when Hobbes published his translation, Charles I had been on the throne for three years and was already at loggerheads with Sir John Eliot and John Pym. Hobbes's translation was the first of his many attempts to bring his countrymen to their senses and to make them aware of the tragedy that they courted: that of civil war, from which proceed "slaughter, solitude, and the want of all things."

PHILOSOPHICAL AWAKENING

It was not until the time of his second journey to the Continent that Hobbes's career as a philosopher began. His patron had died, and as a temporary economy, Catherine, the countess of Devonshire, had dispensed with Hobbes's services. Hobbes took similar employment with Sir Gervase Clinton and, in 1629, accompanied Clinton's son on a journey to the Continent. There Hobbes developed a passionate interest in geometry, which impressed him as a method for reaching indubitable conclusions. Could not his convictions about the dangers of democracy be demonstrated? Could not his opinions about man, gleaned from his observation of the contemporary scene, from his insight into his own nature, and from his perusal of the pages of Thucydides and Niccolò Machiavelli, be postulated as axioms from which theorems about the conditions of a commonwealth might be generated?

Hobbes's discovery of geometry gave him a method of analysis and a conception of scientific method, but he still lacked a conceptual scheme to give content to his demonstrations about man and society. In Paris, during his third journey to the Continent (1634–1637), again in the service of the Devonshires as tutor to William, the succeeding earl, he became a member of the intellectual

circle of the Abbé Marin Mersenne, who patronized René Descartes and Pierre Gassendi. (Gassendi later became one of Hobbes's firmest friends.) Hobbes also made a pilgrimage to Italy in 1636 to visit Galileo, the leading exponent of the new natural philosophy. By the time of his return to England in 1637, he had conceived, perhaps at Galileo's suggestion, the main outlines of his philosophical system, in which the method of geometry and the concepts of the new science of motion were to be applied to man in society.

It is a mistake to think of Hobbes's interests as purely political. Hobbes claimed originality for his optics as well as for his civil philosophy, and at some point between his discovery of geometry and his return from his third journey to the Continent, he wrote his first philosophical work, the *Little Treatise,* in geometrical form, in which he sketched an explanation of sensation in terms of the new science of motion. His interest in sensation, according to his prose autobiography, arose from an encounter with some learned men who were discussing the cause of sensation. One of them asked derisively what sensation was, and Hobbes was astonished to find that none of them could say. From then on, he was haunted by the problem of the nature and cause of sense. He began to think he was near an explanation after it struck him that if bodies were always at rest or always moved at a constant rate, the ability to make discriminations would vanish, and with it all sensation. He concluded that the cause of everything, including that of sensation itself, must be in variations of motion.

In his verse autobiography, Hobbes graphically related how, on his third journey, he was obsessed by the omnipresence of motion. He was acclimating himself to Galileo's audacious suggestion that motion is the natural state of bodies and that they continue in motion to infinity unless they are impeded. This went against the crude evidence of the senses as well as against the established Aristotelian worldview, in which rest was regarded as the natural state. But if Galileo's supposition could be entertained, Hobbes thought, even apparition itself could be explained as a meeting place of motions, and from Galileo's law of inertia the phenomena of sense and imagination could be deduced.

The state of turmoil in England on his return drove Hobbes to make his first systematic attempt to employ his geometrical approach and mechanistic psychology to present the realities beneath the appearances of the contemporary issues. His *Elements of Law,* circulated in 1640 in manuscript form during the session of Parliament, was the result. This work, which demonstrated the need for undivided sovereignty, was published in 1650 in two parts, *Human Nature* and *De Corpore Politico.* However, its arguments were taken from general principles of psychology and ethics, rather than from appeals to divine right. Many regard Hobbes's *Human Nature* as one of his best works. It consists largely of traditional psychology coordinated and underpinned by the conceptual scheme he had learned from Galileo.

EXILE IN FRANCE

Hobbes claimed later that his life would have been in danger because of the views expressed in *Elements of Law,* had not the king dissolved Parliament in May 1640. Six months later, when the Long Parliament impeached Thomas Wentworth, earl of Strafford, Hobbes fled to the Continent in fear for his life, later priding himself on being "the first of all that fled." A warm welcome awaited him in Mersenne's circle, and he settled down in Paris to his most productive philosophical period.

His first work was the composition of some sixteen objections to Descartes's *Meditations,* which Mersenne submitted to Descartes in advance of its publication. This led to a rather acrimonious exchange between Descartes and Hobbes. In 1642 Hobbes published his *De Cive,* an expanded version in Latin of Part 2 of his *Elements of Law* (later to appear as *De Corpore Politico*). The additional sections dealt largely with a more detailed treatment of the relationship between the church and the civil power. During the period from 1642 to 1646, Hobbes published his *Minute or First Draught of the Optiques,* which he considered one of his most important and original works. He also started work on his most ambitious scheme—the construction of a trilogy on body, man, and citizen, in which everything in the world of nature and man was to be included in a conceptual scheme provided by the new science of mechanics. Hobbes made a beginning with *De Corpore,* which was to be the first work in the trilogy.

In 1646, however, political events again interfered with Hobbes's more abstract speculations. He was on the verge of accepting an invitation to retire in peace to a friend's house in Languedoc, in the south of France, when he was requested to act as tutor in mathematics to the future Charles II, who had just fled to Paris. Hobbes's tutorship, however, was interrupted, if not terminated, by a severe illness in 1647. He recovered after having consented to receive the sacrament on what he took to be his deathbed, and he was drawn again into political controversy by the presence of so many Royalist *émigrés.* A second edition of *De Cive* was published in 1647, but this was in Latin and had only a limited circulation. Hobbes

therefore decided to blazon abroad his views on man and citizen for all to read, in English, with the arresting title of *Leviathan*. With Mersenne's unfortunate death in 1648, Hobbes began to feel increasingly isolated, for he was suspected of atheism and was an outspoken enemy of the Catholic Church.

Political events in England provided a fitting prelude to the publication of *Leviathan*. Charles I was executed in 1649 and, until 1653, when Oliver Cromwell was made Protector, there was constant discussion and experimentation to find an appropriate form of government. *Leviathan*, published in 1651, was therefore very topical. It came out strongly in favor of absolute and undivided sovereignty, without the usual arguments from divine right. Indeed, Hobbes conceded popular representation but, by an ingenious twisting of the social contract theory, showed that it logically implied the acceptance of undivided sovereignty.

RETURN TO ENGLAND

Hobbes returned to England in 1651 after a severe illness and soon became embroiled in a heated debate with John Bramhall, bishop of Derry, Ulster, on the subject of free will. In 1645, in Paris, Hobbes had discussed the problem of free will with the bishop, and they both wrote their views on the matter soon afterward. A young disciple of Hobbes published his contribution in 1654, without Hobbes's consent, under the title *Of Liberty and Necessity*. Bramhall was understandably indignant and, in 1655, he published the whole controversy under the title *A Defence of True Liberty from Antecedent and Extrinsical Necessity*. In 1656 Hobbes replied by printing Bramhall's book, together with his own observations on it, which he called *The Questions concerning Liberty, Necessity, and Chance*. Bramhall replied in 1658 with *Castigations of Hobbes his Last Animadversions*, which carried an appendix called "The Catching of Leviathan the Great Whale." Bramhall died in 1663, and Hobbes had the last word a few years later.

There was another controversy in which Hobbes was caught up for the major part of the twenty years that were left to him. This one involved John Wallis, professor of geometry at Oxford, who mercilessly exposed Hobbes's attempt in *De Corpore* (1665) to square the circle—not then such a ridiculous enterprise as it now seems—and Seth Ward, professor of astronomy, who launched a polemic against Hobbes's general philosophy. These two men were members of the "invisible college" that the king had recognized as the Royal Society in 1663. They were Puritans in religion and Baconians in their approach to

science. Hobbes had annoyed them not simply by his attack on their religion and his contempt for the method of induction, but also by his diatribes on the universities as hotbeds of vice and sedition. Hobbes replied to their published criticisms with an emended English version of *De Corpore* with "Six Lessons" appended for Wallis. This was in turn attacked by Wallis, and the controversy dragged on for many years, often descending into personal vituperation on both sides.

Not all of Hobbes's remaining years, however, were spent on this abortive controversy. *De Homine*, the second part of his trilogy, was published in 1657. This dealt with optics and human nature, matters on which Hobbes's opinions were already well known; accordingly, it attracted little attention and was not translated.

After the Restoration, Hobbes was granted a pension and "free accesse to his Majesty, who was always much delighted in his witt and smart repartees" (John Aubrey, *Brief Lives*, pp. 152–153). Only once again did he fear for his life. After the Great Plague (1665) and the Great Fire of London (1666), some reason was sought for God's displeasure, and a spasm of witch-hunting shook Parliament. A bill was passed by Parliament for the suppression of atheism, and a committee was set up to investigate *Leviathan*. The matter was eventually dropped, probably through the king's intervention, but Hobbes was forbidden to publish his opinions thereafter.

In 1668 Hobbes finished his *Behemoth*—a history of the period from 1640 to 1660, interpreted in the light of his beliefs about man and society. He submitted it to King Charles, who advised against its publication (it was published posthumously in 1682).

Even at this advanced age Hobbes was still capable of exerting himself both physically (he played tennis until he was seventy-five) and philosophically. John Aubrey, later his biographer, sent him Bacon's *Elements of Common Law* for his comments; and Hobbes, after protesting his age, managed to produce his unfinished *Dialogue between a Philosopher and a Student of the Common Laws of England* (published posthumously in 1681). This minor work was interesting in that Hobbes anticipated in it the analytical school of jurisprudence of the nineteenth century and came out unequivocally in favor of what has been called the command theory of law. At the age of eighty-four Hobbes wrote his autobiography in Latin verse after completing one in prose. At eighty-six, for want of something better to do, he published a verse translation of the *Iliad* and the *Odyssey*.

LOGIC AND METHODOLOGY

Hobbes lived during the emergence of men who challenged not only traditional tenets about political and religious authority but also the wisdom of the past, especially that of Aristotle. Men were exhorted to find out things for themselves, to consult their own consciences, and to communicate with God directly, instead of through the established religious hierarchy. It was widely believed that all men have the gift of reason but that they make poor use of it through lack of a proper method. Books such as Bacon's *Novum Organum,* Descartes's *Regulae* and *Discourse on Method,* and Benedict de Spinoza's *Ethics* were written to remedy this defect. Thus, Hobbes was not exceptional in believing that knowledge, which meant power, could be obtained only by adopting a certain kind of method.

According to Hobbes, the knowledge whereby most men live is the knowledge gleaned from experience, culminating in prudence and history—"the register of knowledge of fact." Hobbes described experience as "nothing but remembrance of what antecedents have been followed by what consequents." Bacon had tried to set out this sort of knowledge explicitly in his *Novum Organum,* and it was taken by the Royal Society to be the paradigm of science.

DOCTRINE OF NAMES. Hobbes, however, was very contemptuous of such grubbing around and peering at nature, not only in natural philosophy but also in civil philosophy. Had Galileo or William Harvey, the pioneers of the new philosophy, made a laborious summary of their experience? And in civil philosophy, what store is to be placed on the dreary saws of practical politicians or the ossified ignorance and superstitions of the common lawyers? Mere prudence, which is the product of experience, should not be mistaken for wisdom. Wisdom is the product of reason, which alone gives knowledge of "general, eternal, and immutable truths," as in geometry.

In geometry, definitions are of paramount importance. Therefore, claimed Hobbes: "The only way to know is by definition." Thus, science is "knowledge of all the consequences of names appertaining to the subject in hand." It gives knowledge not of the nature of things but of the names of things. We start with certain terms or names about whose definition we agree. We connect these into such statements as "A man is a rational, animated body," just as we add items in an account. We then find that if we follow certain methods of combining the statements so created, conclusions can be drawn that are contained in the premises but of which we were ignorant

before we started reckoning. "For REASON, in this sense, is nothing but reckoning, that is adding and subtracting, of the consequences of general names agreed upon for the marking and signifying of our thoughts."

Obvious objections to such an account of scientific knowledge immediately come to mind. How, for instance, can we be sure that such a train of reasoning applies to anything? How are the meanings of Hobbes's names fixed, and how are the rules for their combinations determined?

Hobbes supposed that "names are signs not of things, but of our cogitations." Words are not the only things that can be signs; for instance, a heavy cloud can be a sign of rain. This means that from the cloud we can infer rain. This is an example of a natural sign; other examples are animal warnings of danger and summonses to food. These natural signs are to be distinguished from language proper, which consists of sounds, marks, and other such significations determined—as are the ruler of civil society—by decision. Animal noises come about by necessity, not by decision, as human speech does. That is why, on Hobbes's view, animals, though capable of imagery, cannot reason; for reasoning presupposes words with meanings fixed by decision.

Hobbes thought that every man has his own private world of phantasms or conceptions, for which words are signs that function for him like a private system of mnemonics. These words act as signs to others of what a man thinks and feels. Although some words signify conceptions, they are not names of conceptions; for Hobbes seemed to use the word *name* for the relation of reference between names and things, and words such as *signify* for the relationship between particular occurrences of a name and the idea in a person's mind. Some names are names of things themselves, such as "a man," "a tree," or "a stone," whereas others, such as "future," do not stand for or name things that as yet have any being. Such words signify the knitting together of things past and things present. In a similar way there are names, such as "impossible" and "nothing," that are not names of anything. Such names are signs of our conceptions, but they name or stand for "things" that do not exist.

Hobbes's doctrine was not altogether clear. He seemed to mean that all names serve as mnemonics to us of our conceptions and as signs to others of what we have in mind, but that only some names actually denote things in a strict sense. This leads to the distinctions that Hobbes introduced in relation to the logical function of names. Names can be either concrete or abstract. Concrete names can denote bodies, their accidents, or their names.

Abstract names come into being only with propositions and denote "the cause of concrete names."

UNIVERSALS. There are two classes of concrete names: proper names and universal names. A proper name, such as "Peter," is singular to one thing only; a universal name, such as "man," denotes each member of a class of things. A universal name, "though but one name, is nevertheless the name of diverse particular things; in respect of which together, it is called a universal; there being nothing in the world universal but names; for the things named are every one of them individual and singular."

Hobbes's doctrine of universal names was crucial to his attack on the scholastic belief in essences. The world, Hobbes maintained, contains no such essences for universal names to designate. "Universal" is the name of a class of names, not of a diaphanous type of entity designated by a name. The error of those who believe in essences derives from their tendency to treat a universal name as if it were a peculiar kind of proper name. It is the *use* of a name that makes it universal, not the status of the thing that the name designates.

Hobbes's doctrine of abstract names was more obscure but of cardinal importance in his account of scientific knowledge. Abstract names come into being when names are joined in propositions. A proposition is "a speech consisting of two names copulated, by which he that speaketh signifieth the latter name to be the name of the same thing whereof the former is the name." For instance, in saying "man is a living creature," the speaker conceives "living creature" and "man" to be names of the same thing, the name "man" being comprehended by the name "living creature." This relation of "comprehension" can be brought out in some languages by the order of words without employing the verb "to be." The copulation of the two names "makes us think of the cause for which these names were imposed on that thing," and this search for the causes of names gives rise to such abstract names as "corporeity," "motion," "figure," "quantity," and "likeness." But these denote only the causes of concrete names and not the things themselves. For instance, we see something that is extended and fills space, and we call it by the concrete name "body." The cause of the concrete name is that the thing is extended, "or the extension or corporeity of it." These causes are the same as the causes of our conceptions, "namely, some power of action, or affection of the thing conceived, which some call the manner by which anything works upon our senses, but by most men they are called accidents." Accidents are neither the things themselves nor parts of them, but "do never-

theless accompany the things in such manner, that (saving extension) they may all perish, and be destroyed, but can never be abstracted." Among such accidents some are of particular importance for science, those which Hobbes sometimes referred to as "universal things" or "such accidents as are common to all bodies." These are the abstract concepts by means of which a theory is developed about the underlying structure of nature. The endeavor of the scientist is to understand, by means of the resoluto-compositive method of Galilean mechanics, the universal cause—motion—without knowledge of which such fundamental theories could not be developed.

MISUSES OF WORDS. Hobbes has often been called the precursor of modern analytical philosophy because he was particularly sensitive to the manner in which ridiculous (and dangerous) doctrines can be generated through confusion about how words have meaning. One class of absurdities is generated by failure to understand the different ways in which the copula "is" can function. Such terms as *essence, reality,* and *quiddity,* beloved by the schools, "could never have been heard among such nations as do not copulate their names by the verb 'is,' but by adjective verbs as runneth, readeth." The word *is* in a proposition such as "Man is a living body" has the function of "comprehension" or class inclusion. Something of the form "If *x* is a man, then *x* is a living body" is being stated. There is no commitment to the existence of men that is implied when *is* occurs in such statements as "Here is Thomas Hobbes."

Absurdities also arise if names of accidents are assimilated to names of bodies. For instance, those who say that faith is "infused" or "inspired" into a person treat faith as if it were the name of a body, for only bodies can be poured or breathed into anything. An accident is not in a body in the same sort of way that a body can be in a body—"as if, for example, redness were in blood, in the same manner, as blood is in a bloody cloth." Hobbes was also eloquent on the subject of names that name nothing.

SCIENTIFIC TRUTH. Hobbes's theory of scientific truth was not altogether consistent. He started with the important insight that "true" and "false" are attributes of speech, not of things. Truth, then, "consisteth in the right ordering of names in our affirmations." It characterizes propositions in which names of limited generality are "comprehended" by those of wider generality: For example, "Charity is a virtue." Hobbes held, it therefore seems, that all true propositions are analytically true, which is a plausible enough view if only geometrical truths are at issue. But Hobbes often spoke as if all truth must con-

form to this model. He saw that this raises the question of how the initial definitions are to be fixed, and about these definitions he often seemed to take a conventionist view by suggesting that "truth therefore depends upon the compacts and consents of men." He often linked the contract theory of the origin of civil society with a theory about agreement on definitions. When he was speaking about natural science, however, his position was not so clearly conventionist. The difference was caused by his assumption that men construct states just as they construct circles or triangles. But since they do not construct natural bodies in the same way, the problem therefore arises as to how Hobbes thought that propositions of natural science, which did not come into being through decisions of men, say what is true about the natural world.

Hobbes thought that all the propositions of natural science are deductions from the basic theory of motion, in which there are primary propositions containing such simple unanalyzable concepts as motion, extension, and straightness. These are "well enough defined, when, by speech as short as may be, we raise in the mind of the hearer perfect and clear ideas of the thing named" (*De Corpore*). Such conceptions are featured in Hobbes's account of evidence, which is "the concomitance of a man's *conception* with the *words* that signify such conception in the act of ratiocination" (*Human Nature*). A parrot could speak truth but could not know it, for it would lack the conceptions that accompany the speaking of truth by a man who knows truth. "Evidence is to truth, as the sap to the tree … for this evidence, which is meaning with our words, is the life of truth. Knowledge thereof, which we call *science,* I define to be *evidence of truth,* from some beginning or principle of *sense.*"

Conceptions, in Hobbes's view, are explained causally in terms of motions that arise in the head and persist after the stimulation of sense organs by external bodies. Names, which are joined together in true propositions, are signs of these conceptions in that they mark them for the individual and enable other people to make inferences about what he thinks. Thus, Hobbes must have thought that when a man knows (as distinct from when he merely speaks) what is true, his conceptions, as it were, keep pace with what he is saying. Some of these conceptions, those involved in understanding primary propositions, are clear and distinct ideas of things named. Thus, scientific systems are somehow anchored to the world of nature by means of names that refer to attributes of bodies of which we have a clear and distinct idea.

This theory resembles, in certain respects, the self-evidence theory of the Cartesians. However, it seems inconsistent with the conventionalism of Hobbes's other remarks about basic definitions and is a very confused account in itself, not very helpful in elucidating what makes scientific propositions true. In the empirical sciences the clarity of the ideas in the initial postulates is neither here nor there. What matters is whether statements deduced from them can be observationally confirmed.

SCIENTIFIC INQUIRY. The ambiguity in Hobbes's account of truth is paralleled by the ambiguity in his account of scientific method, which he equated with the search for causes. One of his most famous definitions of philosophy or scientific knowledge (he did not distinguish between the two) occurs at the start of *De Corpore* (Molesworth ed.): "philosophy is such knowledge of effects or appearances, as we acquire by true ratiocination from the knowledge we have first of their causes or generation: And again, of such causes or generations as may be from knowing first their effects." By "cause" Hobbes meant, of course, antecedent motion, and he was unusual in thinking that even geometrical figures are to be explained in terms of motion because of the movements involved in constructing them.

Hobbes's distinction between these two forms of philosophical knowledge is important. In the case of acquiring knowledge of effects from knowledge of causes or generation, his conventionist account of truth holds good. For instance, in the case of deciding that a figure must be a circle from our knowledge of the motions from which it was produced, "the truth of the first principles of our ratiocination, namely definitions, is made and constituted by ourselves, whilst we consent and agree upon the appellation of things." He used this method in *De Corpore* to explain parallel lines, refraction and reflection, circular and other forms of motion, angles, and similar concepts. It also seems that he had this model in mind when he thought about the generation of the artificial machine of the commonwealth.

When dealing with knowledge of causes from effects, however, Hobbes's account is far less clear-cut and conventionist. At the beginning of Part 4 of *De Corpore,* for instance, he said: "The principles, therefore, upon which the following discourse depends, are not such as we ourselves make and pronounce in general terms, as definitions: but such, as being placed in the things themselves by the Author of Nature, are by us observed in them." The explanations that we give in the natural sciences may be true, but it is impossible to demonstrate that they are necessarily true, for the phenomena are not generated by

human contrivance, as are the phenomena of geometry and politics.

The method on which Hobbes was relying in both these types of scientific inquiry was, of course, the resoluto-compositive method of Galilean mechanics. In this method a typical phenomenon, such as the rolling of a stone down a slope, was taken. Such properties as color and smell, which were regarded as scientifically irrelevant, were disregarded, and the situation was resolved into simple elements that could be quantified—the length and angle of the slope, the weight of the stone, the time the stone takes to fall. The mathematical relations disclosed were then manipulated until functional relations between the variables were established. The situation was then synthesized or "composed" in a rational structure of mathematical relations. This is what Hobbes called analysis—the search for causes, given the effects. "Synthesis" consisted in starting from the known causes and deducing effects from them. In Galileo's hands this method was highly successful because he tested such deductions by observation. In Hobbes's hands the method was not so fruitful because it always remained an imaginary experiment.

Similar ambiguities in Hobbes's methodology complicate our effort to understand his conception of his trilogy on body, man, and citizen. He thought of geometry as the science of simple motions that could demonstrate how figures are generated by varieties of motion. Second came the philosophy of motion, as usually understood in the Galilean system, in which the effects of the palpable motions of one body on another were considered. Third came physics, the investigation of the internal and invisible motions that explain why "things when they are the same, yet seem not to be the same, but changed." Sensible qualities, such as light, color, heat, and sound, were to be explained, together with the nature of sensation itself. After physics came moral philosophy, the study of the motions of the mind—appetites and aversions. Such motions of the mind had their causes in sense and imagination. Finally, there was civil philosophy, the study of how states are generated from the qualities of human nature.

It is probable that Hobbes did not view the hierarchy of sciences as a rigorous deductive system. To start with, he never worked out the deductions in any detail—for instance, in the transition from what he called physics to moral philosophy, or psychology. Furthermore, what he said about the possibility of a self-contained science of politics contradicts his suggestion that it must be deduced from the fundamental theory of motion and

that it supports the conventionist account of truth in politics. Hobbes said that even those who are ignorant of the principles of physics and geometry might attain knowledge of the principles of politics by the analytical method. They could start, for instance, with the question of whether an action is just or unjust; "unjust" could be resolved into "fact against law," and "law" into "command of him or them that have coercive power"; "power" could in its turn be derived from the wills of men who established such power so that they might live in peace.

This line of argument, developed in *De Corpore* after admitting the possibility of using the synthetic method to start from the first principles of philosophy and deduce from them the causes and necessity of constituting commonwealths, is confirmed by Hobbes's injunction in the Introduction to *Leviathan* that a man who is to govern a whole nation must "read in himself, not this or that particular man; but mankind: which though it be hard to do, harder than to learn any language of science; yet when I shall have set down my own reading, orderly and perspicuously, the pains left another, will be only to consider, if he find not the same in himself. For this kind of doctrine admitteth no other demonstration." It appears that Hobbes envisaged a relatively self-contained doctrine of politics based on introspection. His trilogy was, therefore, probably not conceived as forming a strictly deductive system. Its various elements were to be more loosely bound together by the fact that all three were sciences of motion.

PHILOSOPHY OF NATURE

Hobbes's natural philosophy seems to have been stimulated largely by the problem of the nature and cause of sensation that had so long haunted him. His theory was that the cause of everything, including sensation itself, lies in the varieties of motion. His first sketches of such a theory were in his *Little Treatise* and his early optical treatises, and his *De Corpore* was an ambitious development of this fundamental idea. Geometry, physics, physiology, and animal psychology were all incorporated within the theory of motion. Sensation occupied a shadowy middle position between the gross motions of the external world and the minute motions of the bodily organs.

The strange thing about Hobbes's preoccupation with sensation is that he seems to have been little troubled by the problems that are almost the stock in trade of philosophers—the problems of epistemology. He assumed that things exist independently of our perceptions of them and was convinced that "conceptions and apparitions are nothing really but motions in some inter-

nal substance of the head." The "nothing but" is very hard to accept, for obviously when we speak of "thoughts" and "conceptions," we do not mean the same as when we talk of motions in the brain.

MOTION AND QUALITIES. On the status of the various sense qualities, Hobbes held, as did such natural philosophers as Kepler and Galileo, that secondary qualities—such as smells, colors, and sounds—are only appearances of bodies, whose real properties are those of extension, figure, and motion. Such secondary qualities are phantasms in the head, caused by the primary properties of external objects interacting with the sense organs, but the secondary qualities represent nothing outside. Hobbes argued that images and colors are "inherent in the sentient" because of illusions and because of images produced in other ways—for example, by blows on the optic nerve. But this proved too much, for representations of primary qualities are equally liable to deceive. Hobbes also proved too little, for he argued that secondary qualities represent no qualities of external objects because tastes, smells, and sounds seem different to different sentients. But there are standard tests for establishing the fact, for example, that a man is colorblind; and, as George Berkeley later showed, the perception of primary qualities is infected with a similar relativity owing to the point of view and peculiarities of the percipient. Hobbes, in fact, gave but a halting philosophical patter to justify a distinction deeply embedded in the thought and practice of the new natural philosophers, for the basic tenet of these thinkers was that bodies in motion exist independently of our perception of them and that mathematical thinking about them discloses their real properties.

Hobbes regarded sensation and apparition as a meeting place of motions. Sense organs, he thought, are agitated by external movements without which there would be no discrimination and, hence, no sensation. Therefore, to give the entire cause of sense, an analysis is required of all movements in external bodies, which are transmitted to the sense through a medium. But sensation is not simply the end product of external motions; it also functions as an efficient cause of actions of sentient beings. Actions, in Hobbes's view, are really reactions to stimuli that are passed on by means of the sense organs. Sensation acts as a bridge between movements in the external world and the behavior of animals and men.

Hobbes's mechanical theory was distinctive in that he extended the Galilean system in two directions: into geometry at one end, and into psychology and politics at the other. He thought that no one could understand the definitions of geometry without grasping how motion is involved in the construction of lines, superficies, and circles. Geometry is the science of simple motions. It paves the way for mechanics, which explains the effects of the motions of one body on another, and for physics, which deals with the generation of sensible qualities from the insensible parts of a body in contact with other moving bodies.

CAUSATION. All causation, in Hobbes's view, consists in motion. "There can be no cause of motion except in a body contiguous and moved." If bodies are not contiguous and yet influence one another, this influence has to be conveyed either by a medium or by emanations of minute bodies that impinge on others (the theory of effluxes). There can be no action at a distance. Hobbes combined this principle with his rendering of Galileo's law of inertia.

Hobbes extended this conception of causation to human actions: "A final cause has no place but in such things as have sense and will; and this also I shall prove hereafter to be an efficient cause." To bring about this transition from mechanics to physiology and psychology, Hobbes introduced the concept of "endeavour," which he defined as "motion made in less space and time than can be given … that is, motion made through the length of a point, and in an instant or point of time." In other words, he used the term to postulate infinitely small motions, and by means of this notion he tried to bridge the gap between mechanics and psychology. He thought that external objects, working on the sense organs, produce not only phantasms but also minute motions that proceed to the heart and make some alteration in the vital motions of the circulation of the blood. When these vital motions are thereby helped, we experience pleasure; when they are hindered, we experience pain. The body will be regulated in such a way that it will preserve the motions that help the vital motions and get rid of or shun those that hinder. This brings about animal motion. Even habits are nothing but motions made more easy by repeated endeavors; they are comparable to the bend of a crossbow.

Hobbes has often been called a materialist, but it is more appropriate to regard him as a great metaphysician of motion. He took concepts that have an obvious application to one realm of phenomena (mechanics) and developed a conceptual scheme that, he thought, could be applied to all phenomena. The plausibility of such a scheme derives from stressing tenuous similarities and ignoring palpable differences. There is a sense in which

social life is a matter of bodies moving toward and away from other bodies, just as there is a sense in which work is moving lumps of matter about. But such descriptions are either unilluminating truisms, or, if they carry the "nothing but" implication, they are misleading. Habits, for example, may be formed in part by a variety of movements, but to suggest that by "habit" we mean nothing but a buildup of movements is ridiculous. This either confuses a question of meaning with a question of genetic explanation or it demonstrates the length to which Hobbes was prepared to go in rigging appearances to suit his metaphysical redescription.

SUBSTANCE AND ACCIDENT. In his *De Corpore* Hobbes defined "body" as "that which having no dependence upon our thought, is coincident and coextended with some part of space." Bodies need not be visible. Indeed, "endeavours," which featured so widely in his system, are movements of minute unobservable bodies. Hobbes held that there is nothing else in the world but bodies, and he therefore did not flinch from the conclusion that "substance incorporeal" is a contradiction in terms. He argued that God cannot be such a substance. To Bishop Bramhall's question of what he took God to be, Hobbes replied, "I answer, I leave him to be a most pure, simple, invisible, spirit corporeal."

By "accident" Hobbes meant a property or characteristic that is not a part of a thing but "the manner by which any body is conceived." Most accidents, with the exception of figure and extension, can be absent without destruction of the body. But Hobbes was not altogether clear about the grounds for such an exception. If the grounds are the inconceivability of a body without figure and extension, why should not color be in the same category as figure? Hobbes regarded color as a subjective appearance brought about by the interaction of sense organs with the primary qualities of external objects; but if the criterion is one of conceivability, as Berkeley pointed out, it is as difficult to conceive of a body without color as it is to conceive of one without figure. Hobbes in fact defined "body" in terms of accidents that are mathematically tractable in mechanics and geometry. He tried to provide some kind of rationale for this basic assumption of the new natural philosophy by introducing the criterion of conceivability, which will not really do the work required of it.

Hobbes defined space as "the phantasm of a thing existing without the mind simply." By this he meant that what is called space is the appearance of externality. If the world were to be destroyed, and a man were left alone with his imagination and memories, some of these would appear external to him, or located in space, for the system of coordinates used to describe the relative position of bodies is a subjective framework. "Place is nothing out of the mind nor magnitude anything within it." A body always keeps the same magnitude, whether in motion or at rest, but it does not keep the same place when it moves. Place cannot, therefore, be an accident of bodies; place is feigned extension—an order of position constructed from experience of real extended things to provide a framework for their externality. Similarly, time is "the phantasm of before and after in motion." Time systems are constructed from the experience of succession.

Hobbes never made clear the relationship between any particular temporal or spatial system that an individual may devise and the system of coordinates adopted by the natural philosophers. Here again, Hobbes typically took for granted the system used by the scientists and tacked on a very brief philosophical story about its relation to the "phantasms" of the individual.

PSYCHOLOGY

Hobbes's psychology was not behavioristic, as it has sometimes been said to be, except insofar as behaviorism has often been associated with a materialistic metaphysical theory or with mechanical modes of explanation. Hobbes stressed the indispensability of introspection in the analysis and explanation of human behavior.

When Hobbes looked into himself he found, of course, motions that were in conformity with Galilean principles. He boldly proclaimed in *De Corpore* that "we have discovered the nature of sense, namely, that it is some internal motion in the sentient." The external body, either directly or via a medium, presses on the organ of sense, "which pressure, by the mediation of the nerves, and other strings and membranes of the body, continues inwards to the brain and heart, causeth there a resistance, or counterpressure, or endeavour of the heart to deliver itself, which endeavour, because outward, seemeth to be some matter without." Sensations are thus nothing but motions. They have the character of externality because of the "outward endeavor" of the heart.

PERCEPTION. Having provided a mechanical starting point for his psychology, Hobbes then tried to describe what was known about psychological phenomena in terms compatible with a mechanical theory. One of the most obvious features of perception is that it involves seeing something as something, some sort of discrimination or recognition. Hobbes's way of saying this was that sense

always has "some memory adhering to it." This was to be explained by the sense organs' property of acting as retainers of the movements of external bodies impinging on them. Without this retention of motions, what we call sense would be impossible, for "by sense we commonly understand the judgment we make of objects by their phantasms; namely, by comparing and distinguishing those phantasms; which we could never do, if that motion in the organ, by which the phantasm is made, did not remain there for some time, and make the same phantasm return."

The selectivity of perception raised a further problem. Why is it that men do not see many things at once? Hobbes again suggested a mechanical explanation: "For seeing the nature of sense consists in motion; as long as the organs are employed about one object, they cannot be so moved by another at the same time, as to make by both their motions one sincere phantasm of each of them at once." But this does nothing to explain why one object rather than another is selected. Hobbes's ideomotor theory made it hard to give a plausible account of the influence of interests, attitudes, and sets on what is selected in perception.

Hobbes also attempted a mechanical explanation of the phenomena of attention and concentration. When a strong motion impinges on the sense organ, the motion from the root of the sense organ's nerves to the heart persists contumaciously and makes the sense organ "stupid" to the registering of other motions.

IMAGINATION AND MEMORY. Hobbes's account of imagination was explicitly a deduction from the law of inertia. "When a body is once in motion, it moveth, unless something else hinder it, eternally … so also it happeneth in that motion, which is made in the internal parts of a man when he sees, dreams, etc. For after the object is removed, or the eye shut, we still retain an image of the thing seen, though more obscure than when we see it." Imagination, therefore, is "nothing but decaying sense." This decay is not a decay in motion, for that would be contrary to the law of inertia. Rather, it comes about because the sense organs are moved by other objects, and subsequent movements obscure previous ones "in such manner as the light of the sun obscureth the light of the stars."

Memory, Hobbes claimed, differs from imagination only in that the fading image is accompanied by a feeling of familiarity. "For he that perceives that he hath perceived remembers," and memory "supposeth the time past." Hobbes thus seems to have more or less equated

what is past with what is familiar, which is most implausible even if familiarity is often a hallmark of what is past. It is also difficult to see how, in his view, remembering something could be distinguished from seeing it for a second time, if the second impression of the thing is not very vivid.

Hobbes's fundamental mistake in all such descriptions and explanations was to attempt to distinguish performances, such as perceiving and remembering, by reference to subjective hallmarks vaguely consistent with his mechanical theory, rather than by reference to the epistemological criteria written into them. The fundamental difference between perception and imagination, for instance, is not one of vividness or any other such accidental property; it is an epistemological difference. To say that a person imagines a tree rather than perceives it is to say something about the status of what is claimed. To perceive is to see something that really is before one's eyes; to imagine is to think one sees something that is not there. Similarly, to remember is to be right in a claim one makes about something in the past that one was in a position to witness, whereas to imagine is to be mistaken in what one claims. There are, of course, further questions about the mechanisms by means of which people perceive, imagine, and remember; and it could be that some such mechanical story as told by Hobbes might be true about such mechanisms. But in the language of such a story the basic epistemological differences between these mental performances could never be made, and although the mechanical story might give an account of some of the necessary conditions of such performances, it is difficult to see how it could ever serve as a sufficient explanation of them.

THOUGHT. The same general critique concerning neglect of epistemological criteria must be made of Hobbes's treatment of thought, which he equated with movements of some substance in the head. There may be movements in the brain that are necessary conditions of thought, but no description of such conditions should be confused with what is meant by "thought." We do speak of "the movement of thought," but this is a description of transitions, as from premises to conclusions or from problems to solutions, not of movements explicable in terms of mechanical laws.

Even though Hobbes's general account of thought was rather hamstrung by his obsession with mechanics, he nevertheless had some quite illuminating things to say about trains of thought, an account that owed more to Aristotle than to Galileo. Hobbes distinguished

"unguided" thought from that directed by a passionate thought or plan. Unguided thought followed principles that later came to be called principles of association—for example, spatiotemporal contiguity and similarity. Hobbes, however, made no attempt to formulate principles of this kind. He was much more interested in, and attached much more importance to, guided thought, in which desire for an end holds the train of thought together and determines the relevance of its content.

Hobbes distinguished two main types of regulated thinking. The first was the classic Aristotelian case of deliberation, where desire provides the end, and the means to this end are traced back until something is reached that is in a person's power to do. This faculty of invention is shared by the animals, but they do not share the other sort of guided thinking that Hobbes called prudence. In prudence the starting place is an action that is in a person's power to perform, and the store of past experience is used to speculate on its probable effects. In this case, deliberation leads forward to an end that is either desired or feared. Hobbes seemed to think that people's prudence is in proportion to the amount of past experience on which they can draw. This sounds improbable, for although children cannot be prudent, many old people miss the relevance of their past experience.

DREAMS. Dreams fascinated Hobbes. He attempted to determine what distinguishes them from waking thoughts and to develop a mechanical theory to explain them. He claimed that they lack coherence because they lack the thought of an end to guide them. Dreams consist of compounded phantasms of past sensations, for "in the silence of sense there is no new motion from the objects, and therefore no new phantasm." Dreams are clearer than the imaginations of waking men because of the predominance of internal motion in the absence of external stimulation. There is no sense of time in dreams, and nothing appears surprising or absurd.

There is an intimate connection between dreams and bodily states. Lying cold, for instance, produces dreams of fear and raises the image of a fearful object. The motions pass both from the brain to the inner parts and from the inner parts to the brain. So, just as anger causes overheating in some parts of the body, overheating of the same parts can cause anger and, with it, the picture of an enemy. Dreams are thus the reverse of waking imaginations. Motion begins at one end during waking life and at the other end during sleep. This tendency to project images produced by bodily states gives rise to belief in apparitions and visions. Hobbes's treatment of dreams typified his approach to such matters. He seemed uninterested in the epistemological questions to which they give rise, as, for instance, in the thought of his contemporary, Descartes.

PASSIONS. Hobbes's mechanical theory of human action hinged on his concept of "endeavour," by means of which he tried to show how the gross movements of the body in desire and aversion could be explained in terms of minute unobservable motions in the body. He postulated two sorts of motion in the body. The first is its vital motion, manifest in such functions as circulation of the blood, breathing, and nutrition, which proceeds without external stimulation or the help of the imagination. The second is animal motion, which is equivalent to such voluntary movements as walking and speaking. This is always "first fancied in our minds" and is produced by the impact of external stimuli on the sense organs, an impact that gives rise both to phantasms in the brain and to internal motions that impinge on the vital motions of the heart. If the motion of the blood is helped, this is felt as pleasure; if it is impeded, as pain. Pleasure, Hobbes said, is "nothing really but motion about the heart, as conception is nothing but motion in the head." In the case of pleasure, the spirits—which were thought of as vaporous substances flowing through the tubes of the nerves—are guided, by the help of the nerves, to preserve and augment the motion. When this endeavor tends toward things known by experience to be pleasant, it is called appetite; when it shuns what is painful, it is called aversion. Appetite and aversion are thus the first endeavors of animal motion. We talk about "will" when there is deliberation before acting, for will is "the last appetite in deliberating."

Hobbes's theory of the passions was an attempt to graft the traditional Aristotelian account of them onto his crude mechanical base. Love and hate are more or less the same as appetite and aversion, the only difference being that they require the actual presence of the object, whereas appetite and aversion presuppose its absence. These, together with joy and grief, which both involve foresight of an end rather than just an immediately perceived object, are the simple passions out of which others are compounded. Social life is a race for precedence that has no final termination save death. "So that in the first place, I put for a general inclination of all mankind, a perpetual and restless striving of power after power, that ceaseth only in death." To endure in the race requires foresight and scheming; to fail to compete is to die. A man who is convinced that his own power is greater than that of others is subject to what Hobbes called glory; its oppo-

site is humility or dejection. Pity is grief for the calamity of another, arising from imagination that a like calamity may befall ourselves. Laughter is the expression of sudden glory caused by something new and unexpected in which we discover some superiority to others in ourselves.

Hobbes also introduced motion into his theory of individual differences. He thought that such differences are derivative from differences in passions and in the ends to which men are led by appetite, as well as to the sluggishness or agility of the animal spirits involved in the vital motions of their respective bodies.

The basic difficulty in understanding Hobbes's theory of motivation arises from his attempt to underpin a psychology derived from introspection, from the shrewd observation of others, and from the tradition going back to Aristotle with a mechanical theory whose outline was only very briefly sketched. Perhaps the essential criticism of any such theory is that actions cannot be analyzed into mere movements because, in any action proper—as distinct from a nervous tic or a reflex—the movements take place because of an end that the person has in mind. This end is what makes the action one of a certain sort, and, provided that the movements are directed toward this end, an almost indefinite range of movements can form part of the same action. Similarly, the movements involved in raising one's hand can form part of quite different actions, depending on the purpose for which the hand is raised—for example, to signal, to test the direction of the wind, to stretch the muscles, and so on.

Having something in mind—which is part of the concept of "action"—is not a movement, still less a movement of some internal substance of the head, if this is what Hobbes really believed. But Hobbes was not at all clear on the relationship between movements, whether observable or unobservable, and the cognitive components of appetites, aversions, and the various passions. Indeed, he seems to have held an extremely paradoxical and overintellectualistic view about the cognitive component of the passions. For he saw that passions are to be distinguished by their objects and by the judgment of the possibility of attaining such objects, yet he injected into his account a bizarre kind of egocentricity. For Hobbes, in all cases of passions the notion of "self" was part of the content of cognition. He seemed to think that all such "phantasms" of objects, by reference to which the passions are to be distinguished, involve the thought of ourselves doing something or of our power to do something. Pity is thus seen as grief arising from our imagining ourselves in the same predicament as that of the one pitied. Hobbes's analysis of laughter palpably suffered from the

same injection of egocentricity. Furthermore, how the highly sophisticated and narcissistic type of appraisal involved in the passions is to be reconciled with any attempt to represent them all as movements of the body and of some internal substance in the head is very difficult to determine.

For all its ambiguities, oversights, and obvious defects, Hobbes's psychology was remarkable, for he attempted to establish it as an objective study untrammeled by theological assumptions. To suggest that man is a machine was a great step forward in thought. Even though the hypothesis is probably untenable, it marked the beginning of the effort to use scientific methods and objective concepts in the sphere of human behavior. In the seventeenth century this was a novel undertaking, as well as a dangerous one.

ETHICS

Hobbes thought that, by employing the resolutive method, he could demonstrate the absolute necessity of leagues and covenants and the rudiments of moral and civil prudence from his two principles of human nature—"the one arising from the concupiscible part, which desires to appropriate to itself the use of those things in which all others have a joint interest; the other proceeding from the rational which teaches every man to fly a contranatural dissolution, as the greatest mischief that can arrive to nature." These two principles underlie Hobbes's account of the personal good, as well as his account of civil duty.

Hobbes was scornful of the notion that "good" and "evil" name any metaphysical essence. These words are "ever used with relation to the person that useth them: there being nothing simply and absolutely so; nor any common rule of good and evil, to be taken from the nature of the objects themselves." They name objects of our desires and aversions. We call a horse "good," for instance, because it is "gentle, strong, and carrieth a man easily." The desires of the individual determine what qualities are selected to furnish the ground for saying that an object is good.

Hobbes introduced a further refinement of this theory when he contrasted short-term goods with long-term goods. "Reason," he said, "declaring peace to be good, it follows by the same reason, that all the necessary means to peace be good also." This he contrasted with the sway of irrational appetite, whereby men "greedily prefer the present good." He thought that a man might not desire peace at a particular moment when influenced by some insistent desire; but when he sat down soberly in a cool

hour, he would see that peace is a necessary condition of satisfying most of his desires in the long run. Thus, peace is something that he must desire both because of his fear of death and because of the other things he desires to do that a state of war would make impossible.

Hobbes was a nominalist, and he thought that all words have meaning, as if they were some kind of name. He did not see, as Berkeley seems to have seen a little later, that words such as *good* have a prescriptive function and cannot be treated merely as if they were names. To say that something is good is to say that it is what it ought to be; it is to commend it. But also it implies that there are grounds for such commendation. It is to guide a person by suggesting grounds for his choice; it is not to order him or goad him. Hobbes saw that "good" is always thus connected with reasons, but he gave a very circumscribed account of what such reasons must be like, that is, characteristics of things desired. This was modified somewhat by what he said a man desires insofar as he uses his reason, that is, insofar as his "rational" as well as his "concupiscible" nature is involved. Hobbes's account of what a man desires would not be implausible if his account of human nature were acceptable, for then what men must desire could be predicted. But, if his account of human nature is rejected as oversimple, there cannot be quite such a tight connection as Hobbes suggested between "good" and what is, or will be, desired.

The connection is probably looser; given that words such as *good* have the practical function of guiding people's choices, it would be impossible to explain their effectiveness in this function if it were not generally the case that what was held up as good was something that people in general wanted. But it does not follow from this that any particular individual desires, or must desire, what is held up to him as good. Indeed, half the business of moral education consists in drawing people's attention to characteristics of things that they ought to desire but do not in fact desire.

STATE OF NATURE AND LAWS OF NATURE. Morality is not concerned simply with the pursuit of personal good; it is also concerned with the acceptance of rules that limit the pursuit of good when it affects that of others. A tradition going back to the Stoics held that there was a small corpus of such rules, called the law of nature; these rules, which were universal preconditions of social life, did not depend, as do custom and law, on local circumstances. The Dutch jurist Hugo Grotius regarded this law of nature as a self-evident set of principles binding on all men (on kings as well as on their subjects) that would

provide a rational basis for a system of international law; it was, he claimed, fundamental in the sphere of social rules in the same sort of way that Galileo's postulates were fundamental in the realm of nature. Morals could be brought within the expanding empire of the mathematical sciences.

Hobbes, therefore, was not original in his claim that "the true doctrine of the laws of nature is the true moral philosophy," nor was he original in likening its precepts to axioms. What was original was his claim that its precepts were axioms of prudence, insofar as "prudence" implies considerations limited to those that affect only the agent. For Grotius, the maintenance of society was a major need of man as a social animal, irrespective of purely private benefits. Hobbes, however, maintained that more or less the same set of rules that Grotius regarded as binding (such as keeping faith and fair dealing) could be shown to be axioms that must be accepted by any man who is both rational and afraid of death. "All society, therefore, is either for gain or for glory; that is, not so much for love of our fellows as for love of ourselves."

Man, Hobbes argued, shuns death "by a certain impulsion of nature, no less than that whereby a stone moves downward." This is what saves man from anarchy and civilizes him, for if man were driven merely by his "concupiscible" part, there would be no society, and the life of man would be "solitary, poor, nasty, brutish, and short." Men are equal enough in body and mind to render negligible any palpable claims to superior benefits, and even the weakest is able to kill the strongest. But man's fear of death brings him up short in his pursuit of power and leads him to reflect upon the predicament of a state of nature. His reason tells him that peace is necessary for survival and also "suggesteth certain articles of peace, upon which men may be drawn to agreement. These articles are they, which otherwise are called the Laws of Nature." One of these laws is that "men perform their covenants made." In this way Hobbes claimed to demonstrate "the absolute necessity of leagues and covenants, and thence the rudiments both of moral and of civil prudence."

Hobbes's demonstration gave only the semblance of validity because he isolated the concupiscible and rational aspects of man's nature from each other and, as in a Galilean imaginary experiment, explored the consequences of each independently. Given only man's self-assertion, then there must be a state of nature; given only his overwhelming aversion to death, then he must accept the conditions necessary for avoiding death. These axioms of prudence are hypothetical in relation to man's

assumed fear of death. They are rules that a rational man must accept insofar as he wants to avoid death. But men are only partly rational and, although they have an overwhelming fear of death, they also want other things, such as power and glory. Presumably Hobbes, like Machiavelli, could also have laid down rules for obtaining power and glory that would have borne no resemblance to the laws of nature. Thus, Hobbes could not have been trying to show that virtue, as defined by adherence to the laws of nature, is natural to man or a deduction from his nature, as have many thinkers who have adopted a psychological starting point. Indeed, the general relationship between Hobbes's psychology and his ethics is too obscure for us to know quite what he was doing.

The key to Hobbes's "demonstration" really lies in what he did with it, for he went on to point out that the laws of nature are only theorems that any rational man would accept. Since these laws need the backing of the sword to ensure peace, men have need of a "common power to keep them in awe, and to direct their actions to the common benefit." The rationale of Hobbes's demonstration can now be seen, for at the time that Hobbes was writing, England was precariously poised between anarchy and civil disorder. Hobbes's analysis was a Galilean "resolution" of such a situation into the simple components of human nature that formed its basis. He pointed out that, insofar as men want peace and security (and all men do want this, although they want other things as well), then they must see that, human nature being what it is, there are certain means that they must accept if they are to have what they want. It is irrational to want something and yet to refuse to take the only means that will ensure that what is wanted is obtained. Since the acceptance of social rules is based only on the fear of death, it is only the fear of death that will ensure that these rules are obeyed. Men therefore cannot have the peace they all desire unless they accept the sword of the sovereign that will make death the consequence of breaking the rules that are a necessary condition of peace.

DETERMINISM AND FREE WILL. The indeterminate position of Hobbes's psychology in relation to his ethics was encouraged by his belief in determinism—or "necessitation," as he usually called it—which he outlined in his controversy with Bishop Bramhall. Hobbes denied that there is any power in men to which the term *will* refers; what is commonly called will is but the last desire in deliberating. Furthermore, he argued, only a man is properly called free, not his desires, will, or inclinations. The liberty of a man "consisteth in this, that he finds no stop, in doing what he has the will, desire, or inclination to do."

Liberty is "the absence of all the impediments to action that are not contained in the nature and intrinsical quality of the agent." To speak of liberty is not to make any suggestions about the determinants or absence of determinants of man's deliberations or decisions; it is to suggest that man is not externally constrained in his actions. There is, therefore, no contradiction in saying that a man acts freely and that his actions are also determined. Since all actions have causes and thus are necessitated, it is pointless to use "free" in the sense of "free from necessitation," as distinct from "free from compulsion." There are no such actions, although we may think that there are because we are ignorant of the causes of actions.

There is much to be said for Hobbes's recommendation on the use of the word *free;* many others, such as John Locke and David Hume, have followed him in confining it to the absence of constraint on a man's actions. But Hobbes's claim that all actions are necessitated is not so straightforward. Certainly he was right in suggesting that all actions are explicable—if that is what is meant by saying that they have causes—but so many different things can count as causes, ranging from deliberation and understanding to a stab of pain or a crack on the skull. Since Hobbes thought of man as a natural machine, he therefore viewed all causes as mechanical pushes. His doctrine carried the suggestion that the behavior of men is not only explicable but also somehow unavoidable because men's decisions and choices are simply manifestations of internal pushes.

Significantly enough, Bramhall did not object to Hobbes's doctrine insofar as it related to actions shared with animals or to spontaneous actions. What he could not allow was that voluntary actions, which follow on election and deliberation, should also be "necessitated." Bramhall pointed out the difficulties of likening actions and the grasp of objects and of means of obtaining them, which are inseparable from the concept of "action," to processes in nature explicable in terms of antecedent motions. In this contention Bramhall was substantially right, for although actions may involve movements, they are not reducible to movements.

Hobbes also disagreed with Bramhall on the implications of his doctrine of "necessitation" for moral judgments and for the operation of the law. Bramhall argued that if human actions are necessitated, then praise and blame, reward and punishment, are both unjust and vain. To the charge that they are vain, Hobbes replied that they are to be viewed as further determinants of choice. Praise and blame, reward and punishment "do by example make and conform the will to good and evil." To the charge of

injustice, Hobbes argued that "the law regardeth the will and no other precedent causes of action"; also that punishments annexed to breaches of the law function as deterrents and necessitate justice. He went out of his way to distinguish punishment from acts of revenge or hostility and to stress its deterrent purpose, which is a sound position. Hobbes saw clearly that retribution is part of the meaning of punishment, but that it is the connection with authority that distinguishes it from other sorts of retributive acts. He also saw that, although retribution may be written into the meaning of punishment, its justification is not therefore necessarily retributive. Rather, it is to be justified for its preventive and deterrent function.

POLITICAL PHILOSOPHY

In his political philosophy Hobbes tried to conceptualize the relationship between the new nation-state, which had been emerging under the Tudors, and the individual citizen, who could no longer be regarded simply as having a set place in a divinely instituted order. In the old medieval society a man was bound by ties attaching to his status and by duties prescribed for him by the church. Tradition was the main form of social control, and traditions stretching back into the distant past assigned to a man his relatively fixed place in society. Aristotle's doctrine of natural kinds and natural places and his account of man as a social animal provided a fitting naturalistic foundation for the theological worldview that was accepted by rulers and ruled alike. But with the rise of individualism and the social mobility that accompanied the rise of commerce and capitalism, this old conception of man in society no longer applied. Men had shaken off the ties of their guilds and local communities, and the new natural philosophy was beginning to render the naturalistic foundations of the former worldview untenable.

Hobbes's picture of life as a race, in which we "must suppose to have no other good, nor other garland, but being foremost," was a gruesome caricature of an age of individualism, restless competition, and social mobility. But if the fetters of tradition were being cast away, what other form of social control could take its place to prevent the anarchy of a state of nature? The answer was to be found, of course, in the increasing executive power of the state and in the growth of statute law, together with the development of the individual conscience, whereby regulation from within replaced the external authority of the Catholic Church. Hobbes distrusted the anarchic tendencies of the individual conscience as much as he loathed the extramundane authority of the Church of Rome. Both were to be banished, along with traditional ties; civil

society could be reconstructed as a simple mechanical system.

SOCIAL CONTRACT. Hobbes had a model ready at hand by means of which he might present his Galilean analysis of the rationale of civil society—the social contract theory. The social contract theory, despite its obvious flaws, was an attempt to rationalize political obligation, to substitute an intelligible bargain for mystifying appeals to tradition and divine right.

The contract theory was resorted to mainly by those who wanted to challenge the absolutist claims of monarchs, to uphold the claims of the common law, or to lay down some sort of moral limits on control and interference by the central executive. Hobbes's feat was to employ this model to demonstrate that absolutism is the only possible logical outcome of consistent concern for individual interests. Indeed, he prided himself on grounding the authority of sovereigns, as well as the liberty and duty of subjects, upon axioms of human nature rather than on tradition and supernatural authority. In his attitude toward tradition and divine right, he was at one with the defenders of government by consent. But because of his overriding concern for security, and because of his rather depressing estimate of human nature, he came to the somewhat gleeful conclusion—highly displeasing to those who believed in government by consent—that absolutism could be the only rationally defensible form of government.

Hobbes did not seriously consider the social contract, as some did, as a quasi-historical hypothesis on how civil society might have come into existence. In his account the contract was featured as a framework for a Galilean resolution of civil society into its simple elements. Hobbes imagined the individual in a state of nature as having an unlimited right to "protect his life and members" and "to use all the means, and do all the actions, without which he cannot preserve himself." But he also has a right to all things "to do what he would, and against whom he thought fit, and to possess, use, and enjoy all that he would, or could get." Hobbes here was employing a very strange concept of right, for usually, when we talk about a right, we are indicating a rule that protects or should protect a person from interference in the doing of something that he might want to do. Hobbes, however, used the term in this way to talk about both what a person is entitled to do (when it is correlative with duties of noninterference on the part of others) and what a person cannot be obliged to renounce. When Hobbes declared that men have a "right of self-

preservation," he meant not that an individual is entitled by some rule (of law, tradition, or morals) to life but that he cannot be obliged to renounce it because it is psychologically impossible for him to do so. "Natural rights" therefore have a quite different meaning in Hobbes's writing than in the works of Locke, Samuel von Pufendorf, and other such defenders of natural rights. In these classical theories, natural rights are interests protected by natural law against the interference of others. Hobbes's natural-law theory is not connected in this way with his rather bizarre concept of natural rights.

Hobbes's "rights" of nature are derivative from man's tendency to assert himself and to seek power. But, as already shown, Hobbes held that man would also be driven by his fear of death to accept certain laws of nature, the second of which prescribed that every man should lay down his right to all things and "be contented with so much liberty against other men, as he would allow other men against himself." This could be done either by not interfering with others' enjoyment of their rights or by transferring one's right to another, in which case the transferrer is obliged not to hinder the recipient. Injustice consists in hindering a person whom it is a duty not to hinder. The mutual transferring of such rights is called a contract, and the third law of nature is "that men perform their covenants made."

COMMONWEALTH. Hobbes deduced a mutual transfer of rights from his postulate of rational action under the impetus of fear. But men are not yet safe, for there may be danger in keeping covenants and it may be, on occasion, in people's interest to break them. "And covenants, without the sword, are but words, and of no strength to secure a man at all." Matters must be arranged so that it will never be in anyone's interest to break covenants, which cannot exist where there is no "common power" to enforce them. Thus, a social contract must be presumed in which it is as if every man should say to every other man, "I authorize and give up my right of governing myself, to this man, or to this assembly of men, on this condition, that thou give up thy right to him, and authorize all his actions in like manner." This contract unites the multitude into one people and marks the generation of "that great leviathan, or rather, to speak more reverently, of that mortal God, to which we owe under the immortal God, our peace and defence." The definition of commonwealth is, therefore, "one person, of whose acts a great multitude, by mutual covenants one with another, have made themselves every one the author, to the end he may use the strength and means of them all, as he shall think expedient, for their peace and common defence." The

person that results is called sovereign, and everyone else is his subject. The sovereign is created by the contract but is not party to it. Thus, the people rule even in monarchies; a multitude becomes a people by having some device, such as that of representation, by means of which decisions binding on all are made on behalf of all. Some such "covenant" is implicit in speaking of a commonwealth as a people, as distinct from a multitude of men.

Up to this point there is much to be said for the sort of analysis that Hobbes gave, although some of its details are peculiar. He had considerable insight into the sort of thing we mean when we speak of a civil society, as distinct from a mere multitude of men. He saw clearly that societies are not natural wholes like toads, turnips, or colonies of termites. They exist because individuals act in accordance with rules that can be rejected, broken, or altered; they are artificial wholes. Therefore, if we are to speak of the "will" or "decision" of such an entity, there must be some higher-order rules of procedure, such as that of representation, by reference to which what is to count as a corporate decision is constituted. Individuals or groups of individuals are put in authority for such a purpose.

When Hobbes proceeded to the more concrete details of what must constitute the duties of rulers and subjects, however, he was not equally convincing, for this next step depended on his questionable account of human nature. The basic principle of human nature revealed by his Galilean resolution was "that the dispositions of men are naturally such that, except they be restrained through fear of some coercive power, every man will dread and distrust each other." No motive in human nature, except the fear of death, is strong enough to counteract the disruptive force of man's self-assertion. The fear of death must, therefore, be the explanation of the existence of civil society (insofar as there is a social order and not anarchy), and security must be the sole reason for the institution of the social order; there is simply no other reason for which men could be induced to give up their natural right to self-assertion. Since this is the sole reason for having a commonwealth, it follows logically that a commonwealth must be devised that will accomplish the end for which it exists. Sovereignty must be perpetual, undivided, and absolute, for to divide or limit sovereignty would be to risk anarchy; and such limitation would be illogical because it would be inconsistent with the raison d'être of sovereignty. *Salus populi suprema lex* (The safety of the people is the supreme law). Moreover, complete safety entails complete submission to an absolute sovereign. Thus, absolutism is the logical conse-

quence of government by consent, once the real interest of individuals, which is the presupposition of the institution of commonwealth, has been clearly understood.

There are two obvious flaws in this stage of Hobbes's argument. The first is the assumption that the desire for security, deriving from the fear of death, is the sole reason for the institution of commonwealth, a reason that Hobbes more or less wrote into the meaning of "commonwealth." It is obviously a very important reason, but that it should be the only reason is plausible only if Hobbes's psychology were to be accepted. Even so, Hobbes should not have written the reason for instituting a commonwealth into what is meant by "commonwealth." The second flaw was well brought out by Locke, who argued that, even if security were the sole reason for the institution of commonwealth, absolute authority is a dangerous expedient from the point of view of individual interest. For the hypothesis is that the timid individual would exchange the possible threat to life presented by 100,000 men, all of whom individually might attack him, for the threat to his life made possible by the arbitrary authority of one man who has 100,000 men under his command. "Are men so foolish that they take care to avoid what mischiefs may be done them by polecats or foxes, but are content, nay think it safety, to be devoured by lions?"

Hobbes was led to his advocacy of undivided sovereignty by his interest in constitutional and legal matters. When Hobbes was writing, there was a clash between the higher-order principles of common law and of statute law. The common-law principle that custom, as interpreted by the judges, is to be consulted in declaring what the law is, existed alongside the principle of statute law, that rules laid down by a determinate body or person (for example, Parliament or the king) determine what the courts must recognize as valid law. Statute law was on the increase during this period, and it was intolerable to any clearheaded man that these two principles should operate side by side. Hobbes advocated the unambiguous supremacy of the principle of statute law and the abolition of common law. The need to introduce clarity and coherence into the confused constitutional situation that prevailed in Hobbes's time was obvious enough. But for Hobbes to suggest that it was a logical truth that there must be an absolute sovereign in any commonwealth was to introduce dubious logical deductions into a field where a solution was more likely to be found by practical adjustments and compromises that reflected the strength of competing interests and were consonant with deep-seated traditions.

One of the traditions that Hobbes's geometric solution ignored was that of the liberty of the subject. In Hobbes's view, civil liberty lay "only in those things, which in regulating their actions, the sovereign hath praetermitted." It is unlikely, Hobbes suggested, that laws would be necessary to regulate buying and selling, and choice of abode, diet, a wife, a trade, and education. But whether such laws are necessary is entirely up to the sovereign. The liberty of the subject also consists in the lack of proscription of such acts that it would be vain to forbid because they are psychologically impossible for the subject to refrain from committing. These acts involve the right of the subject to preserve himself and to resist imprisonment. Hobbes also suggested that "in the act of submission consisteth both our obligation, and our liberty." Both the obligation and the liberty are to derive from the words "I authorize all his actions," which the subject is imagined to have expressed in instituting a commonwealth. The subject is released from his obligation only if the sovereign fails to do what he is there to do, namely, to guarantee security. This marks the extent of the subject's much-lauded "right to resist." Presumably Hobbes meant to stress that subjects submit voluntarily to authority. This is true enough, but what it has to do with the liberty of the subject, in any straightforward sense of "liberty," is difficult to grasp.

LAW. Hobbes's concept of the role of natural law, once the law of the state had been established, was not altogether clear. He maintained that the laws of nature were "but conclusions, or theorems concerning what conduceth to the conservation and defence of themselves; whereas law, properly, is the word of him that by right hath command over others. But yet, if we consider the same theorems, as delivered in the word of God, that by right commandeth all things; then they are properly called laws." These "laws" always obligate *in foro interno*—that is, in matters of private conscience—in prescribing a general readiness of mind; but *in foro externo,* that is, in actions, the laws may not be obligatory if certain conditions, such as peace and security, are absent. Such conditions, when present, will in fact render it to the interest of the subject that he follow the laws of nature. A law properly so called always obligates *in foro externo* because of its source in the command of the sovereign, as well as because civil society, by definition, provides the conditions of security and the sanction that will make it always against a man's interest to disobey it. But do the laws of nature oblige *in foro externo,* if not incorporated in the civil law, when the security of civil society prevails? This depends on how seriously Hobbes meant his reference to

theorems as authoritative edicts from God, for such derivation would give them a determinate source, as in the case of laws properly so called. Some take Hobbes seriously and claim that he really thought that the laws of nature oblige *in foro externo* as well as *in foro interno* whenever conditions of security prevail. Others hold that Hobbes never really thought that laws of nature oblige in a full sense *in foro externo* because his reference to their authoritative source is but a tactful concession to piety. He really thought of them merely as axioms of reason that oblige in a full sense only when they are issued by a temporal sovereign as commands and when conditions of security, together with sanctions, prevail in civil society.

Hobbes took this somewhat ambiguous view about the status of natural laws (or moral precepts) because of his extreme hardheadedness about laws properly so called. Law, he held, is the command of the sovereign, "the word of him that by right hath command over others." It is authority, not conformity with custom or reason, that makes a law. In this forthright view he was attacking the fiction of the common law that the law was there to be discovered, immanent in the customs of the people.

Whatever the merits of Hobbes's view—later adopted by the analytic school of John Austin—that laws are commands, Hobbes made a valuable contribution in helping to distinguish questions about law that are often confused. The question "What is a law?" should be distinguished from such other questions as "Is the law equitable or reasonable?" and "What makes a law valid?" Hobbes argued that a law is simply a rule issued by someone in authority. Whether it is reasonable or equitable is a further question, as are the questions of its validity, of its conformity with custom, and of the grounds on which a man could be obliged to obey it.

To claim that laws are commands was an oversimple and misleading way to bring out the prescriptive force of laws. But it was useful insofar as it connected law with authority, for laws, like commands, are utterances issuing from people in authority. In stressing the necessary connection between law and authority, Hobbes made an important contribution to political philosophy, for there is no necessary connection between authority and moral precepts or "laws of nature."

On the question of the person or body of men by whose authority laws should be made, Hobbes was more open-minded than is often realized. He thought that this was not a matter that could be demonstrated; it was a matter of factual argument. He believed that the relative advantages of each form of government had to be con-

sidered in the light of the sole end of security. It was a factual matter which type of government was most likely to promote such an end. On the whole, he argued, monarchy is preferable because it is more likely to be undivided, strong, and wise.

RELIGION

At the time Hobbes wrote, ethics and politics were inseparable from religion. Even the Royal Society was founded by men who believed that science would reveal more of the details of God's creation and thus enhance his worship. Hobbes was one of the pioneers in the process of distinguishing religious questions from other sorts. He rigorously excluded theology from philosophy and tried to map the proper domains of faith and knowledge. He outlined a theory of the causes of religion and superstition and discussed the grounds of religious belief, and he conducted an elaborate inquiry into the use of various terms in the Scriptures. But all this analysis and theorizing was subordinate to his main interest in religion as a possible source of civil discord. It is seldom realized that more than half of *Leviathan* is concerned with religious matters, with Hobbes trying to defend the "true religion" from both Catholicism and the priesthood of all believers. He saw clearly that these doctrines were two of the main obstacles in the way of the absolutism that he advocated.

Hobbes made some interesting speculations about the natural causes of religion, which he said were "these four things, opinion of ghosts, ignorance of second causes, devotion toward what men fear, and taking of things casual for prognostics." These seeds of religion could be cultivated according to natural invention, which leads to superstition and nature worship, or according to God's commandments. "Fear of power invisible, feigned by the mind, or imagined from tales publicly allowed, religion; not allowed, superstition. And when the power imagined is truly such as we imagine, true religion."

NOTION OF GOD. What, then, constituted true religion for Hobbes? To reasonable men, God's commands amounted to the laws of nature. God's nature, however, was a much more baffling matter, even for a rational man. Certainly God must have "existence," which Hobbes took to be an attribute of God, in spite of his remarks elsewhere about the ambiguities of the verb "to be." In *Leviathan* Hobbes held that God is the cause of the world, "that is, a first and an eternal cause of all things; which is that which men mean by the name of God." In his later *De Corpore,* however, he indicated the difficulties in the

notion of an unmoved mover. This was a difficult question for philosophers to determine and had better be handed over for decision to the lawful authorities. Hobbes also stressed God's irresistible power and maintained that the only solution to the problem of evil was to be found in this power. Did not God reply to Job: "Where wast thou, when I laid the foundations of the earth?" Job had not sinned; his suffering was an unfortunate consequence of God's manifestation of power.

The main function of reason, however, is to show what God cannot be—at ease, finite, figured, having parts, occupying a place, moved or at rest, plural, and having passions, rational appetite, sight, knowledge, and understanding. If we rely on natural reason, we must either qualify God in a negative way by adjectives, such as "infinite" and "incomprehensible," or by a superlative, such as "most high," and an indefinite, such as "holy," which are not really descriptions of his nature but expressions of our admiration. Thus, rational disputations about the nature of God are pointless and a dishonor to him, "for in the attributes which we give to God, we are not to consider the signification of philosophical truth; but the signification of pious intention, to do him the greatest honour we are able." The sovereign, therefore, must decide on God's attributes; and public, uniform worship must be instituted.

REASON AND REVELATION. Reason, however, should not be "folded up in the napkin of an implicit faith, but employed in the purchase of justice, peace, and true religion." There is nothing in God's word contrary to reason. We must, however, be prepared in this world "to captivate our understanding to the words; and not to labour in sifting out a philosophical truth by logic, of such mysteries as are not comprehensible, nor fall under any rule of natural science." Reason should be kept very much to the fore when one is confronted with those who claim revelation, for if a man says that God spoke to him in a dream, this "is no more than to say he dreamed that God spoke to him." There are psychological explanations of such phenomena that cast doubt on their reliability as valid communications with God.

Dreams, visions, and inspiration, however, should not be dismissed altogether, for it is by such means that prophets have been informed of the will of God. What is needed are criteria for detecting true prophets. Hobbes suggested two necessary criteria: the working of miracles and the teaching of doctrines not at variance with those already established. Since miracles had by then ceased, there was no sign left to single out true prophets. And, in

any case, the Scriptures, since the time of Jesus, had taken the place of prophecy.

Reliance on the Scriptures, Hobbes realized, is not altogether straightforward. Even supposing that it could be decided which books are authentic, and that the sovereign, by his authority, could make their teaching law, there is still the problem of what many of the terms used in the Scriptures mean. Hobbes went through most of the key terms in the Scriptures, giving meaning to them in a way consistent with his mechanical theory. He argued, for instance, that God must have a body and that the proper signification of "spirit" in common speech is either a subtle, fluid, and invisible body or a ghost or other idol or phantasm of the imagination; it may also have a figurative use in such a phrase as "spirit of wisdom." "Angels" signify images raised in the mind to indicate the presence of God. Hobbes made acute remarks about the nature of miracles that mingled radical probing with subtle irony (indeed, one often wonders whether his whole treatment of "the true religion" is not a colossal piece of irony).

On the relationship between church and state, Hobbes of course adopted an uncompromising Erastian position. A church he defined as "a company of men professing Christian religion, united in the person of one sovereign, at whose command they ought to assemble, and without whose authority they ought not to assemble." There is, therefore, no universal church to which all Christians owe allegiance, for there is no supreme sovereign over all nations.

Hobbes concluded *Leviathan* with his famous section on the Kingdom of Darkness, in which he castigated superstition and Catholicism as enemies of the true religion. The papacy, he remarked "is no other than the ghost of the deceased Roman empire, sitting crowned upon the grave thereof." The papacy ruthlessly exploits the fears of ignorant men to perpetuate the power of unscrupulous priests as a rival to the secular power.

Hobbes held that there is only one article of faith necessary for salvation: that Jesus is the Christ. On what authority did such a belief rest? Hobbes had some interesting things to say about the difference between knowledge and faith. The object of both is propositions, but in the case of knowledge we consider the proposition and call to mind what its terms signify. Truth here is a matter largely of following the consequences of our definitions. But when reasons for assent derive "not from the proposition itself but from the person propounding, whom we esteem so learned that he is not deceived, and we see no reason why he should deceive us; our assent, because it grows not from any confidence of our own, but from

another man's knowledge, is called faith." Faith, therefore, depends on our trust in a man rather than on our grasp of truth. The faith that Jesus is the Christ must therefore come from the Scriptures and our trust in those who wrote them. But who is to interpret them? "Christian men do not know, but only believe the Scripture to be the word of God." St. Paul said, "Faith cometh by hearing," and that, according to Hobbes, means listening to our lawful pastors, who are appointed by the sovereign to interpret the Scriptures for us. Charles II and Cromwell must have been flattered by the magnitude of the problems on which they were required to issue authoritative edicts: the creation of the world, God's attributes, the authenticity of miracles, and the proper interpretation of the Scriptures. Hobbes regarded religion more as a matter of law than of truth.

Hobbes's treatment of religion leaves obscure exactly what he himself thought about such matters. His technique was always to push radical probing to the limit, and when the basis for the traditional doctrines seemed about to be cut away, the sovereign was summoned as a sort of deus ex machina to put everything in its orthodox place. Hobbes was obviously extremely skeptical about what could be demonstrated in the sphere of religion, but it is difficult to say whether his suggestion that the sovereign should pronounce on such matters as the creation of the world and the attributes of God was a subtle piece of irony, a pious protestation to protect himself against the charge of atheism, or yet another manifestation of his overwhelming conviction that there must be nothing touching the peace of the realm that the sovereign should not decide.

See also Aristotelianism; Aristotle; Authority; Bacon, Francis; Definition; Descartes, René; Determinism, A Historical Survey; Determinism and Freedom; Dreams; Galileo Galilei; Gassendi, Pierre; Geometry; Grotius, Hugo; Harvey, William; Human Nature; Hume, David; Images; Kepler, Johannes; Laws of Nature; Locke, John; Logic, History of; Machiavelli, Niccolò; Mersenne, Marin; Motion, A Historical Survey; Peace, War, and Philosophy; Sensa; Social Contract; Spinoza, Benedict (Baruch) de; Thucydides; Universals, A Historical Survey.

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HOBBES, THOMAS [ADDENDUM]

LIFE

Thomas Hobbes, still widely regarded as the greatest of English philosophers, was born on April 5, 1588, in Malmesbury, England, the son of a clergyman who later disappeared into London and left his sons to be raised by their uncle. Thomas died on December 3, 1679, at Hardwick Hall and was buried at Ault Hucknall, having lived a long and eventful life. After study at Magdalen Hall in Oxford, Hobbes was awarded the degree of BA in 1608 and was appointed tutor to William (1591–1628), the son of William Lord Cavendish (d. 1626); he lived much of the rest of his life as a member of the Cavendish household. This position gave him an opportunity, otherwise unlikely because of his relatively humble beginnings, for travel and to meet many of the leading intellectuals of the age, including Marin Mersenne, Pierre Gassendi, and Galileo Galilei. In England he was loaned by the

Cavendishes to Francis Bacon, to whom he acted as amanuensis; according to John Aubrey (1950), Bacon claimed that Hobbes was his best amanuensis because he understood what Bacon was talking about. Hobbes developed a great interest in mathematics and claimed geometry as the model for philosophical work; he took geometry to be descriptive of the properties of space and had little time for uninterpreted calculi, especially algebra. This mathematical interest led him to work for some time on ballistics with the Duke of Newcastle (1592–1676; a Royalist leader during the English civil wars and cousin to Hobbes's employer, who had become the first Earl of Devonshire) and to be appointed in 1646 as reader in mathematics to the Prince of Wales in Paris.

There is a lack of detailed knowledge of Hobbes's life. While Miriam M. Reik (1977), Arnold A. Rogow (1986), and A. P. Martinich (1999) discuss various aspects about Hobbes's life, the most interesting source to read on this subject remains Aubrey (1950).

SYSTEM AND SCIENCE

Though rarely mentioned in modern scientific literature, Hobbes was known in his own day mainly as a natural scientist. Despite increased interest in his work on morals and politics over the last century, no notice is taken of his work in the hard sciences, and little by any scientists except in political science (especially international relations) and economics. In his moral and political theory, Hobbes took his main contribution to be basing his enquiries on scientific principles and thus turning morals and politics into sciences. Hobbes addressed political issues of the day and his writings should be considered in that context, but he was not merely joining in political argument; in his own view, he was changing it by making it scientific and thus capable of producing definitive answers. The period was one of considerable argument about the appropriate methods for science, one account of Hobbes's contribution to this being Steven Shapin and Simon Schaffer's *Leviathan and the Air Pump: Hobbes, Boyle, and the Experimental Life* (1985), which deals with the dispute between Hobbes and Boyle about the value of the experimental method.

Hobbes claimed that he had created a system of philosophy with continuous argument from physics to politics. His grand plan encompassed a set of three books to carry this argument from the one point to the other, but events in England led him to publish the political work first rather than last: *De Cive* was published in Paris in 1642 with *De Corpore* not being published until 1655 and *De Homine* in 1658. By that time, Hobbes's other main

political works had already appeared: *The Elements of Law* in two pirated parts in 1650 and *Leviathan* in 1651. There is much argument about the extent to which Hobbes's philosophy does form a system with the politics eventually following from the physics. Real debate on this issue springs from Leo Strauss's *The Political Philosophy of Hobbes: Its Basis and Its Genesis* (1936), in which he argues that Hobbes's political philosophy is independent of his natural philosophy. Major responses to Strauss can be found in John W. N. Watkins's *Hobbes's System of Ideas: A Study in the Political Significance of Philosophical Theories* (1965), M. M. Goldsmith's *Hobbes's Science of Politics* (1966), and Thomas A. Spragens Jr.'s *The Politics of Motion: The World of Thomas Hobbes* (1973). David Boonin-Vail's *Thomas Hobbes and the Science of Moral Virtue* (1994) includes discussion of the relationship between Hobbes's natural philosophy and his moral philosophy. Hobbes said that his political philosophy could be understood independently of his natural philosophy; many writers have taken him at his word and ignored the question of whether he has produced a system of philosophy of the sort he claimed.

RELIGION

In *The Political Philosophy of Hobbes: His Theory of Obligation* (1957) Howard Warrender argued that it was not science on which Hobbes's political philosophy was based, but God. This set the parameters for much discussion of Hobbes and provoked a renewed interest in Hobbes's religious beliefs. Most notable in this is Aloysius P. Martinich's *The Two Gods of Leviathan: Thomas Hobbes on Religion and Politics* (1992). S. A. Lloyd, in *Ideals as Interests in Hobbes's Leviathan: The Power of Mind over Matter* (1992) takes further the issue of the role of religious belief in Hobbes's moral and political philosophy.

METHOD

Hobbes officially espoused two methods of argument, which he claimed to have taken over from Galileo: the resolutive or analytical method, which involved taking things (at least in imagination) to find an explanation of them, and the compositive or synthetical method, which involved seeing how one had to put things together to construct what was to be explained. The compositive method, he says, is the only method that actually provides demonstration, and it is the method that should be used in teaching. Though he says that the analytical method will provide understanding of civil and moral philosophy to the less philosophically adept who lack a knowledge of geometry, one must conclude that it is the compositive

method he uses in his attempts to create a science of morals and politics.

The standard example of Hobbes's method, his discussion of the watch in the preface to *De Cive*, is a misleading example to take because it is an example of the resolutive method, taking the watch apart to understand how it works. More appropriate is the example of the circle in chapter 1 of *De Corpore*, since that is an example of the compositive method: Hobbes seeks real definitions and, specifically, definitions in terms of a method that is guaranteed to produce what is being defined. A circle, for example, is defined in terms of the movement of a point that remains equidistant from another point. Science, Hobbes says, seeks the causes of things, but care is needed in understanding what he means by "cause." He does not mean matter-of-fact causes in particular cases, as dropping a lighted match onto wood shavings might cause a house to burn down; the cause of something's being a circle, even if it was in fact stamped out by a die, is that it is a shape that could have been produced by moving a point so that it remained equidistant from another point. How a particular circle is, in fact, produced is not Hobbes's concern. His concern is with the compositive method, the setting out of a way of putting things together so as to guarantee that the outcome is whatever one is defining. His arguments about, for example, the state and the laws of nature should be read in the light of this method.

SCIENCE AND KNOWLEDGE

Hobbes distinguished science from "knowledge original," the latter being sense or remembrance of sense and the record of it in books being called history. Science is the knowledge of the truth of propositions and how things are called, the model Hobbes recommended being geometry. The truths of science, as Hobbes used the term and as is to be expected from the method he adopted, are conceptual or necessary truths on his account. One should take it, therefore, that his moral and political philosophy is not to be taken as history, but as applications of his compositive method.

HUMAN NATURE, MORALS, AND POLITICS

There was, in his own time, and still is, today, a common belief that Hobbes believed people to be essentially selfish. This idea of the role of self-interest in Hobbes's philosophy lies behind most of the interest that theoreticians of international affairs and economics show in his work. The most influential book taking this sort of interpretation of Hobbes is David P. Gauthier's *The Logic of*

Leviathan: The Moral and Political Theory of Thomas Hobbes (1969). This book led the reaction to Warrender's (1957) account. Gauthier introduced into discussion of Hobbes's moral theory the use of games theory, starting from the idea that Hobbes took all people to be naturally selfish and then, working from the further claim that, on Hobbes's account, both rights and obligations must have a prudential basis, constructed a Hobbesian argument that rational people must set up a sovereign if they are to achieve their own advantage. He concluded, furthermore, that the Hobbesian "moral" system is nothing more than universal prudence. Despite the work of Bernard Gert (1967) arguing persuasively that Hobbes did not regard people as naturally selfish, this general approach became for some time the received view of Hobbes. Jean Hampton employs the games-theoretical approach to interpreting Hobbes in its finest detail in *Hobbes and the Social Contract Tradition* (1986).

Unlike Hampton, some others taking a games-theoretic approach did not claim to be interpreting Hobbes's arguments but only to be using him as a starting point. Gregory S. Kavka's *Hobbesian Moral and Political Theory* (1986) makes that point explicit at the start. This is also true of many of the attempts to sort out a Hobbesian model for the study of international affairs, a move that has shared with the games-theoretic approach the assumption that the strong form of Hobbes's condition of mere nature (the relationship holding between people who have no common authority over them, so that each is bound only by his or her private judgment) is at least a coherent notion and can therefore constitute part of such a model.

Others followed Gert's (1967) interpretation of Hobbes, according to which Hobbes did not take everybody to be naturally self-interested. This alternative interpretation was present even when the games-theoretic approach was popular and has now come to dominate. Deborah Baumgold's *Hobbes's Political Theory* (1988) develops such an interpretation of Hobbes, as does R. E. Ewin's *Virtues and Rights: The Moral Philosophy of Thomas Hobbes* (1991), which also argues that Hobbes's condition of mere nature is not a coherent notion and was intended by Hobbes as part of a *reductio* argument, and Boonin-Vail's *Thomas Hobbes and the Science of Moral Virtue* (1994).

The different views of human nature led to different accounts of Hobbes's views of morals and politics. On the games-theoretic approach Hobbes was taken to be some sort of an ethical egoist as well as a psychological egoist. The main alternative to this in recent debate, mainly

sparked off by Gert's work (1967), when Hobbes is not taken to be a psychological egoist, has been that Hobbes is a virtues theorist (the view espoused by, for example, Ewin [1991] and Boonin-Vail [1994]), though interpretations of Hobbes's moral theory as depending on God (such as Lloyd's [1992] interpretation) still play a significant part in debate. Hobbes rejected Aristotle's moral theory because Aristotle took the relevant question to be whether a particular quality of character was a mean; the correct question was whether it tended to peace. The laws of nature, Hobbes says (among several different things he says about them), properly understood, are not laws, but are qualities fitting man for peace and for obedience. This suggests a virtues interpretation of Hobbes's moral theory, with his story of people agreeing on these laws of nature being the model produced by the compositive method to explain what these laws are.

Hobbes was clear that honest and intelligent people can disagree (though he often doubted the honesty or intelligence of those who disagreed with him), even in cases of morality. Where private judgments are in conflict and common action is necessary, disruption will occur. He makes the point firmly in, for example, chapter five of *Leviathan*. The only way of avoiding disruption, he believes, is to have a sovereign, a man or body of men, whose judgment is binding on those who disagree. Thus, the necessity of politics appears, in Hobbes's philosophy, as part of the working out of one's moral life.

THE PHILOSOPHERS' HOBBES AND THE HISTORIANS' HOBBES

Much work has been done, by Richard Tuck (1993), Noel Malcolm (2002), Quentin Skinner (1996), and others on the historical context of Hobbes's work and its significance in interpreting what Hobbes wrote. Philosophers, perhaps, had read Hobbes with too much concentration on what he took to be his universal science; historians, perhaps, had read him with too much emphasis on his concern with practical matters of the day. The different approaches became explicit with a disagreement between Warrender (1957) and Skinner (1996), but have largely fallen away as each group has come to pay more attention to the work of the other with a number of writers combining both sorts of interest in Hobbes.

See also Aristotle; Bacon, Francis; Boyle, Robert; Galileo Galilei; Game Theory; Gassendi, Pierre; Human Nature; Laws of Nature; Mersenne, Marin; Self-Interest.

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R. E. Ewin (1996, 2005)

HOBHOUSE, LEONARD TRELAWNEY
(1864–1929)

Leonard Trelawney Hobhouse, the British sociologist and philosopher, was born in a small village near Liskeard, in Cornwall. He was educated at Marlborough School and Corpus Christi College, Oxford, where he took firsts in classical moderations and "greats." During his undergraduate years he engaged in the study of current problems in politics and economics, along with other radically minded students such as Gilbert Murray and Arthur Acland. He was elected to a prize fellowship at Merton College in 1887 and to a fellowship at Corpus Christi in 1894.

Hobhouse's main interest was the study of the evolution of mind as the central factor in historical development. This, combined with an innate humanitarianism, made him dissatisfied with the passive role of an Oxford don, although even at Oxford he was active in the Labour movement, especially in such causes as trade unionism, the cooperative movement, and adult education. After leaving Oxford, Hobhouse became influential among the "New Liberals," who sought to combine Liberalism with a measure of organized collective action. He was very sympathetic to the Labour Party, although he never joined it. Toward the end of his life Hobhouse grew disillusioned with party politics, and by 1927 he had ceased to belong to any party.

On leaving Oxford in 1897, Hobhouse joined the staff of the *Manchester Guardian,* with which he was associated for most of the rest of his life in one capacity or another. Sociology and philosophy, however, were always his main interests. His *Mind in Evolution* (1901) and *Morals in Evolution* (1906)—a remarkable synthesis of anthropology, ethics, and the history of religious and social institutions—led to his appointment to the new Martin White part-time chair of sociology in the University of London, converted in 1925 to a full-time chair. Hobhouse first opposed Britain's entry into World War I, but he came to support the Allied cause wholeheartedly. He saw the war as the direct outcome of Hegelian teaching, and his own contribution to the war effort was *The Metaphysical Theory of the State,* an extreme attack on Hegelian political theory, especially as found in Bernard Bosanquet's *Philosophical Theory of the State.*

Hobhouse, besides being a philosopher of distinction, made important contributions to anthropological techniques and was a pioneer in comparative and social psychology and one of the founders of sociology as a synthesizing science. The encyclopedic scope of his work and the reluctance of English universities to accept the new subject of sociology contributed to an underestimation of his work in any one field. In philosophy his concern with the reconciliation of different schools meant that he did not himself belong to any one school, and this militated against his due recognition by philosophers.

It is impossible to separate Hobhouse's philosophy from the rest of his work, since his achievement lay in interpreting philosophically a wealth of general and detailed knowledge. There was, however, no question of fitting everything into a fixed scheme. His procedure was empirical and undogmatic, leaving a place for new facts from science and life. His comprehensive studies began with epistemology; went on to an evolutionary interpretation, first of mind in animals and humankind and then of moral and religious ideas; turned next to values in man and society; and ended with a grand synthesis of his philosophical and scientific theories.

The strongest influences on Hobhouse were Herbert Spencer's evolutionary philosophy, Auguste Comte's Positivism, and the social philosophy of John Stuart Mill and T. H. Green. He parted company with Spencer in regarding the appearance of minds as a turning point in the evolutionary process and in accepting the idealists' organic view of society. At the same time he rejected the idealists' reduction of all things to the spiritual. His theory of knowledge was realist and empirical; knowledge cannot make its own object, for it is based on experience and is of reality, not appearance. All knowledge is sociologically conditioned, but a positivist philosophy, applying our knowledge of these conditions, provides safeguards against error. The object of the physical sciences ("matter"), subject to mechanical laws, is only one aspect of reality; there is another aspect ("mind"), subject to teleological laws. Hobhouse traced the close relation of the two aspects in the developing world order.

See also Bosanquet, Bernard; Comte, Auguste; Epistemology; Green, Thomas Hill; Hegelianism; Idealism; Liberalism; Mill, John Stuart; Positivism.

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A. K. Stout (1967)

HOCKING, WILLIAM ERNEST
(1873–1966)

William Ernest Hocking, the American idealist and philosopher of religion, was born in Cleveland, Ohio. He spent his early years in the Middle West and studied civil engineering at Iowa State University. Private reading stimulated an interest in philosophy and led him to study at Harvard, where he was influenced chiefly by William James and Josiah Royce. He completed his undergraduate and graduate studies at Harvard University and spent most of his long teaching career there, retiring in 1943.

Although his philosophical system embodies elements of pragmatism and realism, it is primarily an affirmation of Other Mind, or God, as ultimate reality known directly and intuitively. Hocking thus stands in the idealist tradition in modern philosophy and referred to his own position most commonly as "Objective Idealism." Primitive experience, involving the knowledge of other selves and the world, is conditioned by an immediate awareness of Other Mind, standing in an I–Thou relationship to the self. Both sensory and emotive experience have cognitive connections that point beyond self to Other Mind. Hocking's emphasis is on feeling linked inextricably with idea, so that the two are joined in immediate consciousness as an "idea–feeling couple." This concept of the union of idea and feeling is the source of the strong strain of mysticism in Hocking's philosophy, but it is a mysticism that does not abandon the role of intellect in clarifying and correcting intuition. He advances the "principle of alternation" between intuition and intellect as fundamental to the appropriation of metaphysical truth.

In his first book, *The Meaning of God in Human Experience* (1912), Hocking developed an empirical philosophy of religion, grounded in the tradition of classical idealism and at the same time drawing heavily on the mystical experience. In so doing, he sought primarily to defend idealism against arguments of the pragmatists and realists, and he has continued this defense over the years. His Gifford Lectures of 1938–1939 and other later works show a continuing concern with the problem of "meaning in experience," of "fact and destiny," which challenges man to go beyond his day-to-day existence and seek understanding in the wholeness of things. Thus, as a philosopher Hocking dealt primarily with metaphysical and epistemological questions in a manner in which religious sensitivity played a prominent part.

At no point in his long career did Hocking devote himself exclusively to intellectual issues. He played an active role in seeking United States acceptance of the League of Nations and in the 1920s and 1930s he was especially interested in social and political problems of the Middle East. After that time he participated in a study of freedom of the press in the United States and was active in support of the United Nations and other political and ethical causes. These active concerns found expression in at least ten books and scores of articles and extended his influence far beyond the realm of academic philosophy.

See also Idealism; James, William; Royce, Josiah; Other Minds; Pragmatism; Realism.

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Hocking's major work is *The Meaning of God* (New Haven, CT: Yale University Press, 1912). Among other works that develop his philosophical and religious views are *Human Nature and Its Remaking* (New Haven, CT: Yale University Press, 1923); *The Self: Its Body and Freedom* (New Haven, CT: Yale University Press, 1928); *Types of Philosophy* (New York: Scribners, 1929; rev. eds., 1939, 1959); *Living Religions*

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Richard C. Gilman (1967)
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HODGSON, SHADWORTH HOLLOWAY

(1832–1912)

Shadworth Holloway Hodgson, the English metaphysician and epistemologist, was educated at Rugby and Oxford. Although he worked outside the universities, Hodgson was widely respected among English philosophers; he was elected president of the Aristotelian Society at its founding in 1880 and was reelected for thirteen successive years. In the United States, William James recognized the similarity of many of his own doctrines to those of Hodgson, and acknowledged Hodgson's priority despite their profound differences on fundamental points of metaphysics.

Independent and workmanlike, Hodgson was remarkably free from the characteristics and fashions of late Victorian philosophy. He remained steadfast in a central position, attacking the superficial clarities of the associationists on the one side and the vague generalizations of the Germanizing idealists on the other. His primary achievement was to keep alive the firmness of intellectual analysis peculiar to the epoch of Sir William Hamilton and H. L. Mansel. In particular he carried out the line of investigation begun in J. F. Ferrier's *Institutes of Metaphysics.* J. C. Shairp, principal of St. Andrews University and Hodgson's friend and mentor, was his link with Ferrier. Hodgson got from Ferrier a sense of the importance of the relationship of being empirically distinguishable but inseparable, in the way, for example, that color is visually inseparable from shape but nevertheless distinguishable from it. As developed by Hodgson, this principle meant that the notion of logical independence is much more complex than most philosophers have realized. Color, for example, although it is not isolable from shape, does vary independently of shape. From this point of view, Hodgson was able to repudiate the crude logical atomism then prevalent among the associationists with-

out running to the extreme of the sort of logical monism which denies outright the reality of independence.

At a deeper level still, Hodgson applied this same principle of distinguishability with inseparability to elucidate the relationship of consciousness to its objects, that is, of the subjective to the objective. This relationship was basic for Hodgson, and he felt it was disclosed by the kind of reflective analysis that René Descartes used in establishing his *cogito.* Indeed, one might say that Hodgson's starting point was the distinction between this reflective consciousness and a prereflective consciousness in which the distinction between subject and object has not yet emerged.

Although he lacked Ferrier's striking originality, Hodgson was a thinker of great intellectual honesty and thoroughness. What gives his work its special value is the modern manner in which his untiring examination of the fashionable nineteenth-century problems combined technical competence with clarity. The long discussion of G. W. F. Hegel in *The Philosophy of Reflection* is still of interest. So too is Hodgson's treatment of the relationships between particulars and universals and between perception and conception. His careful reconsideration of the problem of free will in *The Metaphysic of Experience* can also be profitably consulted. We are free in the sense that we determine our own actions, but that which does the determining in each case is a set of neurocerebral conditions that is not self-determined, accompanied by consciousness. In this way, he held, free will and determinism are compatible. He explained our awareness of being free as simply our awareness of the uncertainty of the outcome of our acts of volition.

Hodgson held that consciousness gives us knowledge of a reality which is independent of consciousness and which is its condition, even though consciousness is our only evidence for that reality. The material object revealed by consciousness causes sensations in consciousness. It is material, but it is composed of elements that apart from the object would not be material. Consciousness is an epiphenomenon. It is always conditioned by organic and interorganic interaction and never conditions such interactions. The proximate causes of all psychical events lie in the neurocerebral system. There might be immaterial causes of such events, but experience reveals none.

Hodgson resembles Edmund Husserl among later philosophers, rather than Bertrand Russell, G. E. Moore, and their followers. Hodgson's doctrine that things are what they are "known as" anticipated in a way Husserl's phenomenological reduction, and his technique of distinguishing between inseparables approximates to Husserl's reduction to essences. Hodgson's ethics, though

perhaps less interesting than his metaphysics, nevertheless shows the same conscientious struggle to clarify basic distinctions and can be as profitably studied as some other, better-known systems.

See also Analysis, Philosophical; Descartes, René; Ferrier, James Frederick; Hamilton, William; Hegel, Georg Wilhelm Friedrich; Husserl, Edmund; James, William; Mansel, Henry Longueville; Metaphysics; Moore, George Edward; Russell, Bertrand Arthur William.

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George E. Davie (1967)

HØFFDING, HARALD
(1843–1931)

Harald Høffding, the Danish philosopher and historian of philosophy, was born in Copenhagen and lived there throughout his life. From 1883 to 1915 he was professor of philosophy at the University of Copenhagen. Høffding received a degree in divinity in 1865, but he had already decided not to take orders. A study of Søren Kierkegaard's works, and especially of his views on Christianity, had led to an intense religious crisis ending in a radical break with Christianity. Høffding sought in philosophy a new personal orientation and gradually developed into an extraordinarily many-sided liberal humanist. His philosophical development was influenced during a stay in Paris (1868–1869) by the study of French and English positivism, especially that of Auguste Comte and Herbert Spencer. Høffding always worked hard, and his activity as a scholar ranged over every branch of philosophy, including psychology. His works display a vast knowledge, a keen eye for essentials, and a critically balanced judg-

ment. They were translated into many languages and widely used as textbooks. By the turn of the twentieth century Høffding's reputation was worldwide and he knew personally many leading thinkers. He was the outstanding Danish philosopher of his day, and in 1914 the Royal Danish Academy of Sciences and Letters assigned him the honorary residence of Gammel Carlsberg, where he lived to the end of his life. The residence later passed to the physicist Niels Bohr, a younger friend of Høffding.

Of Høffding's many works only five can be discussed here. *Psykologi i Omrids på Grundlag af Erfaring* (Copenhagen, 1881; translated by M. E. Loundes as *Outlines of Psychology,* London) is based on the traditional tripartite division of the mind into knowledge, feeling, and will but puts primary stress on the will in the widest sense of the term. In this sense the will includes conation, urge, endeavor, need, demand, and desire. The will is seen as primary, knowledge as guiding the will, and feeling as a symptom of need or desire, which are themselves elements of the will. Høffding's view anticipated modern need and dynamic psychology.

In *Etik, en Frernstilling af de etiske Principper og deres Anvendelse på de vigtigste Livsforhold* (Ethics: an account of ethical principles and their application to the chief conditions of life; Copenhagen, 1887) Høffding associated himself with British utilitarianism, which he called welfare ethics. The greatest happiness of the greatest number is the fundamental value. In the conflict between individual and social ethics, Høffding took the liberal view. The psychological basis of ethical valuation is a sympathetic feeling that at its highest development takes on the character of a universal and disinterested sympathy.

Den nyere Filosofis Historie, en Fremstilling af Filosofiens Historie fra Renaissancens Slutning til vore Dage (2 vols., Copenhagen, 1894–1895; translated by B. E. Meyer as *History of Modern Philosophy,* 2 vols., London, 1900; reprinted, 2 vols., New York, 1955) is a concentrated account of the various modern philosophers and philosophical schools marked by a fine balance between exposition and criticism. It is of special interest as the first study of modern philosophy to put the primary stress on the mathematico-mechanical science and methods of Galileo Galilei and Isaac Newton in presenting the development of epistemology. Among the philosophers treated, Høffding found Benedict Spinoza, David Hume, and Immanuel Kant especially congenial.

Religionsfilosofi (Copenhagen, 1901; translated by B. E. Meyer as *Philosophy of Religion,* New York, 1906), in three parts, treats religious experience from the standpoints of epistemology, psychology, and ethics. Høffding

claimed that the basis of all religion is a desire for belief in the existence of values, and that the various religions may be characterized by the kinds of values that they claim exist. The presentation is distinguished by its reasoned objectivity and its respect for religion. Høffding himself was an agnostic.

In *Den menneskelige Tanke, dens Former og dens Opgave* (Human thought: its forms and its problems; Copenhagen, 1910) Høffding set forth his theory of knowledge, including an outline for a doctrine of categories whose usefulness has been reduced by the development of modern logic. Høffding's interest in epistemology was psychological rather than strictly logical, and his interest in the psychological basis of knowledge was constructive rather than phenomenological. In general, Høffding followed Hume and Kant in regarding the forms and principles of human knowledge as being peculiar to human beings and their absolute ontological validity as being incapable of proof. The result is a compromise between empiricism and the Kantian critical philosophy.

See also Bohr, Niels; Comte, Auguste; Epistemology; Galileo Galilei; Hume, David; Kant, Immanuel; Kierkegaard, Søren Aabye; Neo-Kantianism; Newton, Isaac; Psychology; Spinoza, Benedict (Baruch) de; Utilitarianism.

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There is a brief autobiography containing an account of Høffding's fundamental views in *Die Philosophie der Gegenwart in Selbstdarstellungen,* Vol. IV, edited by Raymund Schmidt (Leipzig: F. Meiner, 1923). Kalle Sandelin, ed., *Harald Høffding in Memoriam* (Copenhagen: Gyldendal, 1932), contains an excellent bibliography that lists 393 publications by Høffding as well as 425 papers and reviews concerning his works.

Frithiof Brandt (1967)

HOLBACH, PAUL-HENRI THIRY, BARON D'
(1723–1789)

Paul-Henri Thiry, Baron d' Holbach, the foremost exponent of atheistic materialism and the most intransigent polemicist against religion in the Enlightenment, was born of honorable but obscure German parents in Edesheim, a small town in the Palatinate; his name was originally Paul Heinrich Dietrich. His upbringing and education were directed by his maternal uncle, Franciscus Adam d'Holbach, who had made a fortune in Paris and assumed French nationality. After studying at the University of Leiden, Holbach came to Paris, in 1749, married his second cousin Basile-Geneviève d'Aine, and soon became a French subject. On his uncle's death in 1753, he inherited the title of Baron d'Holbach, with properties yielding a handsome income of 60,000 livres. The following year his wife died, and in 1756 Holbach married her younger sister, Charlotte Suzanne d'Aine.

On settling in Paris, Holbach had associated with the younger *philosophes* who, with Denis Diderot, Jean Le Rond d'Alembert, and Jean-Jacques Rousseau, were grouping around the *Encyclopédie,* to which he also became a major contributor. His *salon* soon became the main social center, and a sort of intellectual headquarters, for the Encyclopedist movement. The gatherings on Thursdays and Sundays, during more than three decades, at Holbach's house in Rue Royale-Saint-Roch were famous not only for his excellent dinners but also as a unique "clearinghouse" for radical ideas of every type. The more intimate meetings at his country estate of Grandval, near Paris, have been described in fascinating detail in Diderot's letters. The members of Holbach's circle, besides the assiduous Diderot, included Melchior von Grimm, Claude-Adrien Helvétius, d'Alembert, Rousseau, Nicolas-Antoine Boulanger, Étienne Bonnot de Condillac, Jacques-André Naigeon, Baron de l'Aulne Turgot, and Marquis de Condorcet. Holbach also counted among his acquaintances many foreigners, notably David Hume, Edward Gibbon, Adam Smith, Joseph Priestley, Horace Walpole, David Garrick, Laurence Sterne, Cesare Beccaria, and Benjamin Franklin.

Because he left neither a body of correspondence nor personal papers, Holbach's character must be pieced together from contemporary accounts. The composite picture credits him with an impressive erudition, an extremely methodical mind, a collector's interest in art, and with the qualities of affability, discreet generosity, modesty, loyalty to friends, and a taste for virtuous simplicity. Diderot's more private remarks diverge somewhat from this public image, disclosing that the baron, at least with those nearest him, had moments of moodiness, petulance, and gruffness. But these traits just provide a touch of humanity without essentially altering the picture of him as the virtuous atheist. Even Rousseau, despite growing hostility, used him as the model for Monsieur de Wolmar, the altruistic unbeliever of *La nouvelle Héloïse.* Indeed, Holbach's comportment as a social being evidently conformed to his deep desire to illustrate, by his own life and personality, the truth of a most cherished

philosophical opinion, that atheism and morality are as plausibly bound together as religiosity and true virtue are not.

Although Holbach, until some years after his death, was publicly known merely as *le premier maître d'hôtel de la philosophie,* he had surreptitiously played a far greater role, known only to a few. Almost everything he wrote—whether because it expounded atheism and materialism, attacked Christianity, or castigated absolute monarchy, the state church, and feudal privilege—was highly subversive under the *ancien régime* and could have exposed him to the severest penalties. Consequently, his innumerable manuscripts were usually forwarded through secret channels to Holland for publication, after which the books were smuggled back into France. Owing to the strict anonymity that Holbach maintained, bibliographers have since been faced with insoluble problems of exact attribution concerning many texts linked to him.

PHILOSOPHICAL ORIENTATION

Holbach's literary career falls conveniently into three phases. A competent although uncreative student of chemistry, metallurgy, mineralogy, and geology, he translated into French, mainly during the 1750s, a number of works (mostly German) from these fields. He also contributed to the *Encyclopédie,* beginning in 1752, almost 400 articles dealing with the same sciences. These interests shaped Holbach's philosophical outlook, for his materialism corresponded to the methodology and scope of a rigorously scientific explanation of things. In particular, the new evidence offered by geology concerning Earth's history negated, in his view, the doctrine of creation, and with it the existence of God.

The second phase of Holbach's activity, coinciding with the 1760s, consisted of a relentless militancy against organized religion in general and the Catholic church in particular. Not content with the repeated broadsides of his own composition, he also translated anticlerical, deistic, or materialistic works by various British authors (among them Peter Annet, Anthony Collins, Thomas Woolston, John Toland, and Thomas Hobbes), and he published, with the collaboration of Naigeon, a number of French antireligious texts that had long been circulating clandestinely in manuscript copies. Among Holbach's own tracts, the most important were *Le Christianisme dévoilé, ou Examen des principes et des effets de la religion chrétienne* (1761); *Théologie portative, ou Dictionnaire abrégé de la religion chrétienne* (1767); *La contagion sacrée, ou Histoire naturelle de la superstition* (1768); *Lettres à Eugénie, ou Préservatif contre les préjugés* (1768); and *His-*

toire critique de Jésus-Christ, ou Analyse raisonnée des Évangiles (1770).

The themes recurring throughout these and similar books represent a vehement restatement of almost all the arguments for unbelief current in eighteenth-century France. The most characteristic are the following: The idea and cult of God sprang from the ignorant terror of primitive man seeking to placate the destructive powers of nature, and they have survived ever since through superstition; religious history is a catalogue of senseless disputes, intolerance, prejudice, persecution, and crime; the clergy is ordinarily engaged in exploiting the gullibility of the people for its own profit; religions have invariably supported tyrannical governments to further their own ambitions of domination; Scriptural "proofs" of Christianity are worthless as objective historical evidence; theological dogmas are a maze of delusion and mystification on which no rational, just, or useful social institution can be built.

ATHEISTIC MATERIALISM

The third and properly philosophical stage of Holbach's output began in 1770 with the *Système de la nature, ou des Lois du monde physique et du monde moral.* This first—and only—example in the Enlightenment of a comprehensive, unmitigated defense of atheistic materialism was the culmination of a whole trend of ideas already expressed in varying degrees by Julien Offray de La Mettrie, Helvétius, Diderot, and others. It caused much consternation in France, not only among spokesmen for the official faith but among the deistic *philosophes* as well. It was suppressed by judicial decree, and among the flood of refutations it provoked were those of Voltaire (the article "God" in the *Philosophical Dictionary*) and Frederick the Great (*Examen critique du Système de la nature*).

The *Système de la nature* defines man as a product entirely of nature, subject to the laws governing the physical universe that, in turn, constitutes the whole of reality. The soul, or spiritual substance, is an illusion; the moral and intellectual attributes of man are simply his organic machine considered in certain of its special, less visible operations. Since sensibility is a primary function of the animal organism, all our higher faculties are derived ultimately from the different forms that sensation takes. The only means of knowing man in nature is through the empirical and rational investigation of matter.

Nature is the sum of matter and motion. All matter is actually or latently in motion, since energy, or force, is among its inherent properties. The material universe is self-created and eternal. All change in nature represents a

communication of motion, a redistribution of energy, which modifies the corresponding combination or disposition of material particles, elements, or aggregates. The totality of matter and motion are eternal and constant, but the specific forms they exhibit—rocks, plants, animals, oceans, heavenly bodies, and so forth—are forever changing. Each thing or being tends, by the laws of attraction and repulsion, to persist in its essence, until it is finally transformed into something else. Man is no exception: The ephemeral life of his species depends on the stability of the physical environment.

There is neither chance nor disorder in nature: All is necessity and order, an irreversible chain of causes and effects. Freedom is objectively meaningless when applied to human behavior, which, controlled by such factors as temperament, education, and environment, takes part in the universal determinism of nature. Virtue and vice, moreover, need not depend on free will; they simply describe actions favoring or hindering the mutual happiness of society and the individual.

ETHICS

Holbach's principal aim was to construct a system of ethical and political values on materialistic grounds. The supreme natural goal of human existence is happiness, but no one can be happy without the services of others. Ethics, therefore, is the science of human cooperation to promote the well-being of the individual through that of society, and it is based on the positive knowledge of men's reciprocal social needs. If humankind has always been morally corrupt and unhappy, religion has been mainly to blame. Supernatural theology, by falsifying man's nature and linking his salvation to the illusory notions of God and immortality, has entirely subverted ethical truth. Holbach takes pains to show that, all attempted definitions of God being hopelessly self-contradictory, "God" is logically a meaningless term. It is understandable, then, that belief in God should have been historically of no moral utility. For religious morality, founded on dogmatic obscurantism and ritualistic futilities rather than on natural and social realities, has prevented human beings from perceiving and correcting the actual conditions productive of vice and misery. Atheism is thus the prerequisite of all valid ethical teaching. In place of the condemnation of sin, Holbach's exposition of secular and utilitarian ethics is typically accompanied by vibrant appeals to humanitarianism and moving exhortations to civic virtue—all in the name of "nature" and "happiness."

POLITICAL THEORY

In *Le bon-sens, ou Idées naturelles opposées aux idées surnaturelles* (1772), the most widely read of his books, Holbach offered a popular, unsystematic version of his philosophy. Thereafter, with the growing troubles of the Bourbon regime, he focused his attention on national problems and developed at great length the ethical and political sections of the *Système de la nature* in a new series of works: *Politique naturelle, ou Discours sur les vrais principes du gouvernement* (1773); *Système social, ou Principes naturels de la morale et de la politique* (1773); *Éthocratie, ou le Gouvernement fondé sur la morale* (1776); and *La morale universelle, ou les Devoirs de l'homme fondés sur sa nature* (1776).

His own term *ethocracy* describes the gist of Holbachian political thought. The state, whose role is simply an extension of the social ethics of enlightened self-love, ought to nurture, in every possible way, the virtues of cooperation on which the good of society and the felicity of each of its members depend. The social pact itself is based on the useful services that the individual and society are able to render to one another, and it remains valid only to the extent that its mutually beneficial aims are fulfilled. Since, therefore, the legitimacy of any government varies directly with the happiness of one and all living under it, Holbach proclaimed with courageous logic the people's right, if there were no other hope of assuring their welfare, to overthrow and replace their rulers. Where the happiness of a society was at stake, it was the sovereign; governments, which were merely means to an end, had no absolute or divine authority.

More specifically, Holbach proposed radical political and economic reforms for France in keeping with the ethocratic ideal. He advocated, as against the extremes of republicanism and enlightened despotism, a limited, constitutional monarchy, in which intermediate parliamentary bodies would represent the interests of society and would maintain a balance between the opposing dangers of either popular or autocratic tyranny. He called for the abolition of hereditary class privileges and for their replacement by a hierarchy of status based on the degree of socially useful service actually rendered by its members. He defended the principle of progressive taxation according to wealth and wanted individual ownership of property to be as proportionate as possible to the value of work performed, thus eliminating the extremes of opulence and poverty. He insisted on the complete separation of church and state and on the toleration of all religious sects, with the government as a neutral preserving peace among them. Freedom of thought and of the press were

to be inviolable; and government had the duty of providing a system of secular public education, with its main objective the inculcation of the social and civic virtues.

SOURCES AND INFLUENCE

Among the sources of Holbach's philosophy were classical and modern Epicureanism, the Cartesian universe of matter and motion in perpetual flux, the logical and metaphysical materialism of Hobbes, the determinism and "atheism" of Benedict de Spinoza, the sensationalism of John Locke, and Leibnizian dynamics. Nearer in time, Holbach was indebted to Helvétius for the utilitarian conception; to La Mettrie for the physiological psychology of the *homme machine*; and to the experimentalist, evolutionary materialism of Diderot, with whom he had the closest personal and ideological ties.

Despite serious shortcomings, Holbach's ideas are still of considerable interest. Although the value of his critique of Christianity is today limited by the one-sidedness and unimaginativeness resulting from his polemical stance and propagandist aims, historically it led toward the objective and psychological study of religion as a distinctly human invention. The *Système de la nature* suffers, no doubt, from too much reliance on outmoded scientific theories; from an excessive generalization and simplification of the concrete complexities of nature; and from a tiresome combination of doctrinaire tone and humorless prolixity that were, unfortunately, peculiar to the author. Nonetheless, it remains a classic text in the development of atheistic materialism as the philosophical expression par excellence of modern science. The main weakness of Holbach's political thought is that it exaggerated a rationalist, moralistic, and prescriptive approach to the subject at the expense of the perhaps more important role of economic, sociological, and historical laws of development on which political institutions, and the changes to be made in them, must depend. Nevertheless, it served significantly to prepare for the French Revolution and contributed subsequently to the progress of democratic and utilitarian doctrines.

See also Alembert, Jean Le Rond d'; Annet, Peter; Atheism; Beccaria, Cesare Bonesana; Collins, Anthony; Condillac, Étienne Bonnot de; Condorcet, Marquis de; Determinism, A Historical Survey; Diderot, Denis; Encyclopédie; Enlightenment; Epicureanism and the Epicurean School; Ethics, History of; Franklin, Benjamin; Gibbon, Edward; Helvétius, Claude-Adrien; Hobbes, Thomas; Hume, David; La Mettrie, Julien Offray de; Locke, John; Materialism; Naigeon, Jacques-André; Priestley, Joseph; Rousseau, Jean-Jacques; Smith, Adam; Spinoza, Bene-dict (Baruch) de; Toland, John; Turgot, Anne Robert Jacques, Baron de L'Aulne; Voltaire, François-Marie Arouet de; Woolston, Thomas.

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The System of Nature; or, The Laws of the Moral and Physical World. London, 1795–1796; 1797, 1816, 1820, 1834, 1839, 1840, 1863, 1884; Philadelphia, 1808; New York, 1835; Boston, 1853.

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Aram Vartanian (1967)

HÖLDERLIN, JOHANN CHRISTIAN FRIEDRICH
(1770–1843)

Johann Christian Friedrich Hölderlin, a German poet, novelist, philosophical essayist, and dramatist, was born

in Lauffen, Germany. His father died when he was two, leaving Hölderlin an inheritance administered by his mother, who demanded strict obedience to her plans for his future. His mother married Johann Christoph Gok, subsequently the mayor of Nürtingen, in 1774; and a half brother, Karl Gok, with whom Hölderlin maintained a significant correspondence, was born in 1776. His stepfather, whom Hölderlin admired, died in 1779, leaving Hölderlin in his mother's sole charge.

Hölderlin was educated first at the local school in Nürtingen, where he studied Latin, Greek, and rhetoric. He became friends there with Friedrich Wilhelm Joseph von Schelling. He then studied further in Lutheran monastery schools, first at Denkendorf (1784–1786) and then at Maulbronn (1786–1788). During this time he read Ferdinand Canning Scott Schiller, Friedrich Gottlieb Klopstock, and Pindar, and he began composing verses.

Hölderlin entered the Lutheran theological seminary in Tübingen in 1788, at the same time as Georg Wilhelm Friedrich Hegel. Schelling joined the seminary two years later, and Schelling, Hegel, and Hölderlin developed a close friendship. Together, they read Jean-Jacques Rousseau, Benedict (Baruch) de Spinoza, Gottfried Wilhelm Leibniz, Plato, and Immanuel Kant, and they shared enthusiasm for the French Revolution. Throughout his school years Hölderlin displayed intellectual ability, anxiety, emotional intensity, and a readiness to fall in love with intellectually inclined young women. His emotional and intellectual life made him chafe under the regimes and orthodoxies of the seminary, and he found himself pulled more toward poetry than toward a career in the ministry. He published his first poems in 1791, and he began work on the novel *Hyperion, or The Hermit in Greece*.

While continuing to accept the formal control of his future as a minister by the Lutheran consistory, Hölderlin left Tübingen in 1793 to become a private tutor in Waltershausen. From Waltershausen he traveled frequently to Jena in 1794, where he attended Johann Gottlieb Fichte's lectures, met Johann Wolfgang von Goethe, and visited regularly with Schiller, who published "Fragment of Hyperion" in his magazine. In 1795, with Wilhelmine Kirms, a married but separated lady's companion of his employers, he had a daughter, who died of smallpox at thirteen months. Following increasing difficulties in controlling his pupil, Hölderlin was dismissed from Waltershausen in 1795, but was provided with enough money to settle in Jena to study philosophy. There, he lived for a time with Isaac von Sinclair, a close friend and political

radical. Most of his strictly philosophical essays date from the 1794–1795 period of his Jena visits and residence.

In January 1796 Hölderlin again became a private tutor, now in the home of Jakob Friedrich Gontard, a wealthy Frankfurt banker. He continued to work in philosophy, and the famous "Oldest System-Program for German Idealism" fragment, arguably by Hölderlin but only later discovered in Hegel's hand and published first in 1918, dates from this period. Here, Hölderlin also encountered the beautiful and talented twenty-seven-year-old Susette Gontard, the wife of his employer, with whom he began a passionate affair. She figures as the model for Diotima in *Hyperion* and as the addressee in some of his finest poems. Volume one of *Hyperion* was published in April 1797. While in Frankfurt, Hölderlin continued to correspond with Schiller, and he imagined a series of "New Letters on the Aesthetic Education of Man," planning both to explain and to overcome all divisions between subject and object and between theoretical and practical reason. Already his friends had begun to worry about his enthusiasms, anxieties, and depressions. Hölderlin completed some fifty-five poems in Frankfurt and began work on the verse drama *Der Tod des Empedokles*.

In September 1798 the affair with Gontard became evident, and Hölderlin was forced to leave Frankfurt for Bad Homburg. He remained in Bad Homburg, except for occasional visits to Nürtingen, until 1800. During this time he continued work on *Hyperion* and *Empedokles*, and he began translations of Pindar and of the tragedies of Sophocles. He produced his poetological essays during this period, as well as many new poems. Volume two of *Hyperion* was published in 1799.

Beginning in January 1801 Hölderlin worked as a private tutor in Hauptwyl, Switzerland. In April he was dismissed, and he returned to Nürtingen. Schiller broke off their correspondence. Throughout the year he completed a number of great poems, including "Bread and Wine," "Homecoming," and "Voice of the People." In December he left on foot to travel to Bordeaux, France, where he arrived in January and remained for three months. In June 1802 he reappeared in Nürtingen, pale, emaciated, and obviously deranged. Hölderlin was able to continue work on the translations of Sophocles (published 1803) and Pindar, as well as on a few poems. In 1804 Sinclair arranged for Hölderlin a position as a librarian in Bad Homburg, without duties. With Sinclair, Hölderlin met in Stuttgart with political radicals conspiring against the landgrave. Sinclair was tried for treason in

1805 but released for lack of evidence. Hölderlin avoided trial by being judged mentally incompetent.

Sinclair gave up his care of Hölderlin in September 1806, and Hölderlin's mother had him forcibly committed to a clinic in Tübingen for the mentally ill. In the summer of 1807 Hölderlin was released into the care of Ernst Zimmer, a Tübingen carpenter who admired his work. "Patmos," "The Rhein," and "Remembrance" were published. He remained in the Zimmer household for the next thirty-six years, where he spent much of his time playing the piano and flute. Wilhelm Waiblinger began to visit Hölderlin in Tübingen in 1822, and in 1830 Waiblinger published *Friedrich Hölderlin's Life, Poetry, and Madness*. Hölderlin's *Selected Poems* was published in 1826. Hölderlin died in June 1843.

It is difficult to locate Hölderlin's work—poetic, philosophical, or poetological—within standard literary and philosophical categories. Dieter Henrich (1992, 1997) established Hölderlin's continuing Kantianism, both in accepting the separation of discursive consciousness from immersion in and intuitive awareness of absolute being and in accepting independence of free, moral personality as an ideal. But Henrich also emphasized Hölderlin's commitment to love and to connectedness to nature and to other human beings. This commitment lends to his writing a sobriety or earnestness, different from the later Romantic irony of Friedrich von Schlegel and from other projects of purely cultural cultivation that are less freighted with ontology. Nor, given his Kantian antidogmatism, does Hölderlin offer any system of human life in relation to the absolute, in the manner of the absolute idealisms of Hegel or Schelling. In Henrich's terms Hölderlin is best characterized as articulating a *Vereinigungsphilosophie*: an account of human beings as always seeking both independence-moral sublimity and love-connectedness. In this continual seeking, moments of remembrance and of gratitude for one's course of life are possible, but without any lasting conclusiveness.

Hölderlin's poetry—while typically firmly metrically controlled by Greek models, especially ones taken from Pindar, and so is more classical than effusive—is also characteristically difficult syntactically, even hermetic. Argument over Hölderlin's significance has concerned whether Hölderlin is better understood as a confident prophet of an imminent transcendence of one's present cultural plights, as Martin Heidegger (1949a) urges, or rather principally as a paratactic writer, resistant to all formally closed plots of human experience, as Theodor W. Adorno (1992) urges. Here, Henrich's reading of Hölderlin's *Vereinigungsphilosophie* has the advantage of accepting the insights but avoiding the errors of these other, sharply opposed readings.

Hölderlin's sense of the continuing openness, but also provisional formability, of philosophico-poetic thinking is reflected in his *Wechseltonlehre* or theory of the proper modulation of fundamental moods, in poetry and in life, and this sense is enacted in his poetic practice. Together, his theory and poetic practice provide an image of nonfoundationalist seriousness in thinking that is likely to continue to attract substantial attention and interest.

See also Adorno, Theodor; Fichte, Johann Gottlieb; Goethe, Johann Wolfgang von; Hegel, Georg Wilhelm Friedrich; Hermeticism; Kant, Immanuel; Leibniz, Gottfried Wilhelm; Neo-Kantianism; Plato; Rousseau, Jean-Jacques; Schiller, Ferdinand Canning Scott; Schlegel, Friedrich von; Spinoza, Benedict (Baruch) de.

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Richard Eldridge (2005)

HOLE ARGUMENT

The original "hole argument" (*lochbetrachtung*) was created by Albert Einstein. The point of the argument may be put as follows: If a physical theory's equations are *generally covariant* (that is, invariant under a wide group of continuous coordinate transformations) then the theory is in a certain specific sense *indeterministic*. Einstein put the argument to two different uses. First before the discovery of his final field equations for the General Theory of Relativity (GTR), the argument was put forward as a justification for accepting *non*-generally covariant field equations, namely those of the 1913 Einstein-Grossman *Entwurf* theory. Einstein was not fully satisfied with that theory, in part because he believed that general covariance was necessary if a theory were to capture a fully general relativity of motion, and so the hole argument served to help Einstein reconcile himself (temporarily and only partially) to the *Entwurf* theory. The second use of the hole argument came in 1915 when Einstein came to see the argument, taken in its first form, as a mistake. From his second point of view the argument rests on a mistaken interpretation of the mathematics of general covariance. The indeterminism allegedly shown by the hole argument is spurious, and the argument cuts no ice in favor of any particular theory or interpretation of the nature of space-time.

Seven decades later, after the rediscovery of Einstein's argument by John Stachel and John Norton, history repeated itself. A close cousin of Einstein's hole argument was put forth by John Earman and John Norton (1987) as an argument claiming to show that, if one embraces a *substantival* view of space-time, then in a generally covariant theory such as the GTR, one is committed to an unpleasant form of indeterminism. Earman and Norton argued that the problem is reason enough to justify rejecting a substantival view of space-time in GTR. But within a few years this view of the argument's significance was widely rejected. Instead most philosophers came to think that the hole argument's indeterminism is merely an artifact of a particular interpretation of the mathematical structure of GTR that we are not logically compelled to accept.

Regardless of which viewpoint is better supported, it is indisputable that Earman and Norton's hole argument led to a huge resurgence of interest in the interpretation of space-time in GTR, and lies at the core of much of the philosophy of space-time theories published since 1987. Subsequently philosophers have explored the status of general covariance, and therefore of the hole argument, in the domain of quantum gravity theories.

THE 1987 HOLE ARGUMENT

GTR describes the dynamical interaction of material substances in space-time with other material substances, as well as their interactions with the variably-curved structure of space-time itself. Einstein's field equations describe these interactions, and delimit the set of models, or physically possible worlds, corresponding to the theory.

A model of GTR is usually presented as a triple $<M, \mathbf{g}, \mathbf{T}>$ consisting of a four-dimensional, continuously differentiable manifold M, a metric-field tensor $\mathbf{g}$ (representing the geometry of space-time) defined everywhere on the manifold, and a stress-energy tensor $\mathbf{T}$ representing the material substances in space-time. Like $\mathbf{g}$, $\mathbf{T}$ is defined everywhere in the space-time, but unlike $\mathbf{g}$, $\mathbf{T}$ may be exactly equal to zero at some or even all points of space-time. (In the latter case we say the space-time is "empty," but it may still have an interesting structure as encoded in $\mathbf{g}$.) Notice that each of these objects is *four*-dimensional, representing not just how things are at a specific time but rather how things are over the entire history of the (model-) universe.

The manifold is a collection of points with a local and global topology built-in. For example some models of GTR have M structurally identical to $\mathfrak{R}^4$, which means that space-time can be coordinatized (all the points labeled) with four-dimensional Cartesian coordinates. The metric tensor defines the metric and geometric structure of the space-time: distances between points A

and *B*, whether points *A*, *B* and *C* are collinear, whether line *L* is a straight line (geodesic) or curved, and so on. Note that *M* by itself does not have such geometric structure; there are no distances between points in *M* alone, no straight lines, and so forth. Finally **T** represents the matter, the energy-momentum, existing in space-time.

Physicists and philosophers confront a set of interpretational issues regarding GTR and its model worlds, and one prominent issue is this: Should space-time be thought of as an object existing in its own right, that is as a *substantial entity*? To answer this question in the affirmative is to take GTR as vindicating space-time substantivalism, a close cousin of Newton's absolutism. But what exactly is space-time according to GTR? Earman and Norton (1987) argued that the manifold *M*, by itself, is what deserves the name of substantival space-time in GTR:

> We take all the geometric structure, such as the metric and derivative operator, as fields determined by partial differential equations. Thus we look upon the bare manifold—the "container" of these fields—as space-time …

> The advent of general relativity has made most compelling the identification of the bare manifold with space-time. For in that theory geometric structures, such as the metric tensor, are clearly physical fields in space-time. The metric tensor now incorporates the gravitational field and thus, like other physical fields, carries energy and momentum whose density is represented by the gravitational field stress-energy pseudo-tensor …

> If we do not classify such energy-bearing structures as the [gravitational] wave as contained within space-time, then we do not see how we can consistently divide between container and contained.

> (PP. 518–551)

If space-time substantivalism is understood as the thesis that (a) the manifold *M* by itself represents space-time and (b) its points are substantial entities themselves, then the ground is prepared for the hole argument. The general covariance of the Einstein field equations, interpreted in an active sense, allows one to take a given model $M_1 = <M, \mathbf{g}, \mathbf{T}>$ and construct a second via an automorphism *h* on the manifold. The automorphism maps points of *M* to other points of *M* in a smooth fashion. The effect of this re-arranging of the points is the production of a new model: $M_2 = <M, h^\star\mathbf{g}, h^\star\mathbf{T}>$ which also satisfies the field equations, and in which the "contents" of space-time, **g**

and **T**, have been "slid around" on the manifold. The kind of automorphism employed in the hole argument is usually called a "hole diffeomorphism." Think of M_2 as obtained from M_1 by sliding the metric and matter fields around on the point-manifold in the region of *M* called "the Hole," leaving everything unchanged elsewhere. (Equivalently one can think of the hole diffeomorphism as a kind of shifting-around of the manifold points, moving the points around "underneath" the metric and material contents of the space-time.)

If M_2 and M_1 agree or match for all events before a certain time *t*, but differ for some events afterward (inside the Hole), then we have a form of indeterminism, at least on the most straightforward way of defining determinism in the context of GTR. Relative to our chosen substantial entities, space-time points considered as the elements of *M*, we can say: In GTR, what happens at what space-time locations is radically underdetermined. Earman and Norton (1987) presented this indeterminism as an argument against the kind of substantivalism (*manifold* substantivalism) they see as most natural in GTR:

> Our argument does not stem from a conviction that determinism is or ought to be true. There are many ways in which determinism can and may in fact fail … Rather, our point is this. If a metaphysics, which forces all our theories to be deterministic, is unacceptable, then equally a metaphysics, which automatically decides in favor of indeterminism, is also unacceptable. Determinism may fail, but if it fails it should fail for reasons of physics, not because of a commitment to substantival properties which can be eradicated without affecting the empirical consequences of the theory.

> (P. 524).

Substantivalism about space-time is thus, according to this argument, ruled out as an acceptable interpretive option for GTR. Before we consider responses to the hole argument, we need to note three points. First this indeterminism is unobservable: M_1 and M_2 are qualitatively indistinguishable. Second, a tacit assumption of the hole argument is that the identities of the manifold points may be taken as given or specified, in some sense, independently of the material/observable processes occurring in space-time (represented by **g** and **T**). In fact one way of thinking of a hole automorphism is as a (continuous) *permutation* of the points underlying physical processes, or (equivalently?) as a *re-labeling* of the points. Third, a manifold is a collection of space*time* points, not space points. In other words the points do not have duration;

FIGURE 1

Outside the Hole:
h* = Identity, nothing
changed

Inside the Hole:
h* shifts matter &
metric with
respect to
manifold points

time

space   space

Cauchy hypersurface *t* = 0

<*M*, *h****g**, *h****T**>: identical to <*M*, **g**, **T**> everywhere
outside the Hole (hence at all times before *t* = 0).
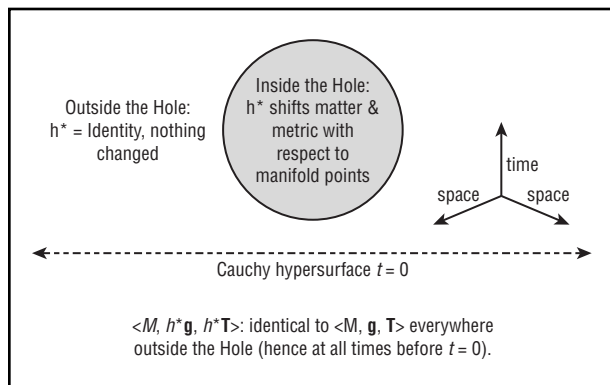
each one is an ideal point-event, a representative of a spatial location at a single instant of time. They do not exist *over* time and hence serve as a structure against which motion may be defined, as Newton's space points did. In light of the second point just above, the indeterminism at issue is not a failure of the determination of future events at pre-existing spatial locations, but rather a failure of the mathematics to specify which individual points would *pop into and out of existence* underneath specified physical events.

Not surprisingly most responses to Earman and Norton's hole argument have departed from these three points, arguing either that the indeterminism is innocuous, or that substantivalism can be reinterpreted in ways that do not lead to the apparent indeterminism.

RESPONSES TO THE HOLE ARGUMENT

Two authors, Cartwright and Hoefer, have responded to the hole argument by denying that it has any *prima facie* force at all. Their response attacks the logic of Earman and Norton's reasoning. Since the indeterminism is both unobservable and peculiarly metaphysical (involving as it does only questions of *which points*, considered as identity-bearing individuals, will underlie *which physical events*, it is not properly speaking a *physical* indeterminism at all and hence not something that ought to be ascribed physical/ ontological importance. Most other authors however have not questioned the logical force of Earman and Norton's argument, agreeing with them that determinism must "be given a fighting chance" (Earman 1989, p. 180). But most authors have also rejected the hole argument's anti-substantivalist conclusion. They argue either for a different understanding of substantivalism, a different definition of determinism, or both.

The first to respond to Earman and Norton's argument were Tim Maudlin (1988) and Jeremy Butterfield (1989). Both accepted the *prima facie* reasonableness of the hole argument but then argued that a metaphysical mistake was nevertheless being committed in the course of the hole argument. For Butterfield, the mistake lay in (a) taking the identities of manifold points between models as an unproblematic given and hence (b) defining indeterminism in too direct and unsubtle a fashion. Butterfield argued that we should avail ourselves of something like David Lewis's apparatus of counterpart theory in order to decide which points in a given model are identical with which points in a different model and accordingly revise the definition of determinism in terms of counterpart relationships. The technical details are too complicated to present here, but the upshot is that GTR turns out not to be indeterministic after all once both point trans-world identity and determinism are properly understood.

Maudlin rejected Earman and Norton's claim that the manifold by itself represents space-time. Instead he argued that the manifold plus metric is what represents space-time, and moreover that we should consider the spatio-temporal, geometric properties ascribed to points of *M* by **g** to be *essential properties* in a strong metaphysical sense. In support of the former point, Maudlin (1988) and Hoefer (1996) adduce the following points:

1) A manifold by itself has few of the paradigmatic spatiotemporal properties we would expect space-time to have: Distance relations between points, collinearity on a straight line, and so forth. In fact there is not always even a distinction to be found between space-like directions and time-like directions! So it is odd to think of *M* alone as representing space-time.

2) There is an easy way to separate between space-time (the "container") and its contents (the "contained"): it is the distinction between *M* + **g** and **T**. Mathematically the distinction is clear. Moreover, as was true for classical substances in the Newtonian tradition, **T** can vanish at some, or even all, space-time locations. **g** cannot vanish anywhere, in any genuine part of a GTR model space-time.

3) If it is accepted that **g** can carry genuine (stress-) energy content, that only makes it even more substantial than Newtonian space-time's structure was; it is hardly a reason for considering **g** not to be part of the characterization of space-time in GTR.

4)"[I]f the metric is classified as a physical field *in* space-time, rather than as representing part of space-time itself, the following odd situation emerges. Space-time itself is not appealed to in explaining the motions of material things; they are explained by relations to a different kind of physical field. Even distances and other geometric relations have nothing to do with space-time, but instead with the relations between two kinds of physical fields in space-time. When substantivalism starts to sound like relationism, something is wrong!" (Hoefer 1996, p. 13).

Most authors now seem to agree that Earman and Norton's identification of *M* as the sole representor of space-time is questionable. This alone does not block their hole argument, though it points the way toward various different versions of substantivalism, incorporating the metric as part-representor of spacetime, which may avoid the hole argument's indeterminism.

Maudlin's essentialism about the metrical properties and relations of space-time points blocks the hole argument by making the metrical properties of individual points be (metaphysically) essential properties: Thus, if model $M_1 = <M, \mathbf{g}, \mathbf{T}>$ represents a genuine physically possible world, then model $M_2 = <M, h^*\mathbf{g}, h^*\mathbf{T}>$ cannot in general do so, since it ascribes metaphysically impossible properties to the points of *M*. Thus, properly interpreted, GTR does not allow a determinism-violating plethora of indistinguishable space-times.

In only slightly different ways, Maidens (1993), Stachel (1993) and Hoefer (1996) diagnose the hole argument as resting on an interpretive mistake: The mistake of considering models such as M_1 and M_2 as representing (meta-) physically distinct space-times. As noted above, the differences between such models concern only *which substantial individuals* (manifold points) underlie *which material happenings and relations*. Without exaggeration one can put the distinction like this: While M_1 says that the point Larry underlies my fingertip at this moment, M_2 says that the (qualitatively identical, in all respects) point Fred does so instead. Earman and Norton's interpretation of substantivalism therefore ascribes *primitive identity* to the points of space-time, and models such as M_1 and M_2 differ only in what philosophers call *haecceitistic* ways, that is, in which properties are ascribed to which individuals, where the individuals are mere "bare particulars".

General relativists routinely deny the significance of such alleged differences, and say that diffeomorphic models like M_1 and M_2 represent just *one* physically possible world (thereby advocating *Leibniz Equivalence*). We should do the same, urge these authors; when we do, the hole argument evaporates, and we are nevertheless left with a strong form of substantivalism, one that takes $M + \mathbf{g}$ to represent space-time and considers any two diffeomorphic mathematical models as representing one and the same physically possible world. The disadvantage of taking this interpretive route is that one loses the ability to describe certain metaphysical possibilities that were accepted by Newton and Samuel Clarke, that is, the possibility that every event in the world's history could have taken place five meters to the East of its actual location. Some philosophers maintain that these metaphysical possibilities are an essential part of any substantivalist view.

Not all those inspired by the hole argument to work on spacetime issues try to shore up substantivalism. The hole argument inspired those with relationist leanings to revive the idea, advocated by Reichenbach earlier in the twentieth century but effectively killed by Earman (1989) and Friedman (1983), that GTR can be interpreted as fully compatible with relationism. Teller (1991), Huggett (1999), and Saunders (2003) are examples of this approach. What makes this position possible is the adoption of a liberal attitude toward the idea of *relations* between material things. If the manifold is viewed as only representing the continuity, dimensionality, and topology of spacetime (as some substantivalists would agree anyway), then what is really indispensable is the metric. Can it be interpreted relationally? Those philosophers who argue that it can are not espousing a Machian reduction of metrical structure to material relations. Instead they claim that the metric itself can be interpreted as merely giving the structure of actual *and possible* spatiotemporal relations between material things. $\mathbf{g}$ is not a thing or substance. Where matter is present, it is crucial to the definition of local standards of acceleration and non-acceleration; the Einstein field equations record just this relationship. In many ways the desires of traditional relationists (especially Leibniz, Huygens, and Mach) are—arguably—met by GTR when interpreted this way.

FURTHER DEVELOPMENTS

By the late 1990s a broad consensus was reached among philosophers of spacetime that there are acceptable interpretations of spacetime in the GTR context that do not run afoul of the hole argument indeterminism (both substantial and relational interpretations). In a series of papers, however, John Earman and Gordon Belot (2001) argued that consideration of the extension of GTR to a quantum theory vindicates the importance of the hole argument, and reveals the vacuity of certain philosophical

responses to it. The issues and arguments involved in this new broaching of the hole argument are complicated and technical; only a cursory review can be attempted here.

One approach to quantizing GTR begins by recasting the theory in the Hamiltonian formalism, wherein a three-dimensional configuration representing the state of the physical world evolves in accordance with the Hamiltonian equations of motion. This is a natural way of formulating GTR preparatory to attempting to quantize it, since there are established recipes for quantizing theories starting in the Hamiltonian framework. But the (active) general covariance of GTR makes for a resulting indeterminism in the Hamiltonian presentation of the theory, just as it did for the standard theory when interpreted as a theory about what happens at individual manifold points. Various ways of dealing with this indeterminism can be linked conceptually to respective philosophical responses to the hole argument, and they appear to lead to genuinely different *theories* after quantization is done. So Earman and Belot (2001) claim:

> There is a correspondence between interpretations of the general covariance of general relativity and approaches to—and interpretations of—quantum gravity … One demands that one's interpretation of general relativity should underwrite an approach to quantization which leads to a viable theory of quantum gravity, and that one's understanding of quantum gravity should lead to a way of viewing general relativity as an appropriate classical limit.
>
> (P. 249)

Different responses to the hole argument make for different interpretations of space-time in GTR, and according to Earman and Belot these correspond to different approaches to quantum gravity. The "relationist" response of Teller, Saunders, and others which rejects the idea that diffeomorphic models are distinct physical possibilities, corresponds to the "gauge invariant" approach to quantum gravity. But the quite similar interpretation of classical GTR that is offered by Maidens, Stachel, Hoefer, and others is pejoratively labeled "sophisticated substantivalism" by Earman and Belot, and they find it the one view unworthy of even entering the playing field of the interpretive game. They claim that these philosophers are obliged to produce a gauge invariant mathematical treatment of classical GTR in the Hamiltonian framework, which may or may not be possible:

> [W]e maintain that there is one sort of response to the hole argument which *is* clearly undesirable: the sort of sophisticated substantival-

ism which mimics relationalism's denial of the Leibniz-Clarke counterfactuals. It would require considerable ingenuity to construct an (intrinsic) gauge-invariant [LE-based] substantivalist interpretation of general relativity. And if one were to accomplish this, one's reward would be to occupy a conceptual space already occupied by relationalism. Meanwhile, one would forgo the most exciting aspect of substantivalism: its link to approaches to quantum gravity.

> (2001, P. 248)

Earman and Belot evidently still characterize substantivalism as essentially a matter of believing in space-time points as individuals with primitive identity (a key conceptual part of manifold substantivalism, as we saw above), and relationism as the denial of such points-as-primitives. Most philosophers would reject both viewpoints, in line with points 1–4 above that argue for including the metric field in our characterization of space-time. It is also unclear why the sophisticated substantivalist faces a technical difficulty of constructing a "gauge-invariant" interpretation of Hamiltonian GTR, unless the relationist that Earman and Belot cites approvingly does too—given that they occupy the same conceptual space.

Earman categorizes the loop quantum gravity approach of Rovelli and others as lined up with relationism. A crucial aspect of such a gauge invariant approach should be its evasion of hole argument-style indeterminism problems. But Rickles (2005) claims that a perfect analog of the hole argument can be constructed within the framework of loop quantum gravity. Rickles argues that indeterminism-via-surplus-structure can infect either relationist or substantivalist interpretations of GTR, whether in classical or quantized form, and therefore that the two issues should henceforth be kept apart.

As for the original hole argument itself, we should note that it was an argument that *used* general covariance to argue against a certain ontological view (manifold substantivalism), in the context of classical GTR. Regardless of what view of general covariance and determinism/indeterminism issues is eventually vindicated in the realm of quantum GTR (if one view is—there is no guarantee this will happen), it will not alter the dialectic of the hole argument itself, or the philosophical issue of whether GTR as a self-standing theory does or does not give us a picture of space-time deserving the label "substantial." Compare with the absolute/ relational debate in the context of classical Newtonian mechanics. Greater mathematical rigor and conceptual clarity in the founda-

tions of Newtonian mechanics did have a bearing on that philosophical debate, and led Earman (1989) and Michael Friedman (1983) to declare a hands-down victory for absolute space. But the nature and status of space-time in General Relativity has not been taken to be relevant to that earlier debate (or the correlate debate about space-time in Special Relativity), even though both of these earlier theories are "appropriate classical limits" of GTR. The moral would appear to be that philosophers should tackle interpretive issues one theory at a time. If and when a successful quantum gravity theory emerges, the substantival/ relational debate can be addressed anew in light of its particular mathematical structure.

See also Clarke, Samuel; Determinism, A Historical Survey; Earman, John; Einstein, Albert; Leibniz, Gottfried Wilhelm; Logic, History of; Mach, Ernst; Newton, Isaac; Reichenbach, Hans; Relativity Theory; Space; Time.

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Carl Hoefer (2005)

HOLISM AND INDIVIDUALISM IN HISTORY AND SOCIAL SCIENCE

In most recent philosophical discussion, the contrast between holism and individualism in history and the social sciences has been presented as a methodological issue. Stated generally, the question is whether we should treat large-scale social events and conditions as mere aggregates or configurations of the actions, attitudes, relations, and circumstances of the individual men and women who participated in, enjoyed, or suffered them. Methodological individualists say we should. Methodological holists (or collectivists, as some prefer to be called) claim, rather, that social phenomena may be studied at their own autonomous, macroscopic level of analysis. Social "wholes," they say, not their human elements, are the true historical individuals.

This issue obviously bears directly upon the way we are to conceive the relations between such social sciences as psychology and sociology, and between these and historical inquiry. But it is commonly thought also to involve us in wide-ranging metaphysical problems—those of historicism and organicism, for example—and to have grave ethical and political implications as well. Sir Isaiah Berlin, in *Historical Inevitability* (Oxford, 1954), moves quickly from methodological to metaphysical issues when he represents holists as believing in "invisible powers and dominions," conceived as "impersonal enti-

ties at once patterns and realities, in terms of which … men and institutions must behave as they do." And May Brodbeck, in "Methodological Individualisms: Definition and Reduction," expresses a common opinion when she writes: "Culturally, holism is intimately connected with hostility toward the liberal political individualism of the Western tradition." Individualists, in their turn, have been castigated by their opponents for encouraging laissez-faire in economics and anarchy in politics, the alleged natural consequences of adopting an "atomistic" view of social life. Indeed, the threat of appropriate social consequences seems to have been regarded by some as a reason for accepting one or the other of these methodological positions. F. A. Hayek and K. R. Popper are well-known champions of the principle of methodological individualism as a bulwark against the supposed horrors of the "planned society"—or at any rate, against anything worse than "piecemeal social engineering."

It is not, in fact, entirely accurate to say that the methodological, metaphysical, and political doctrines have invariably gone together. Thomas Hobbes, for example, was in effect a methodological individualist who advocated something close to political absolutism; and Maurice Mandelbaum, as will appear below, is a contemporary methodological holist who would certainly repudiate "invisible powers" and "impersonal entities." But political or ethical argument has, in any case, a dubious place in an examination of holism and individualism as methodological prescriptions for social and historical research. Even if metaphysical questions cannot ultimately be ignored, it is worthwhile, at least at the outset, to try to consider the contending methodological doctrines in their own terms. The discussion that follows makes no attempt to trace the considerable history of the problem in Western philosophy; rather, it is a report on what some contemporary philosophers have said by way of exposition and defense of the two positions. Since it has generally been the individualists who have taken the initiative in controversy, it will be convenient to set forth their position first.

METHODOLOGICAL INDIVIDUALISM

J. W. N. Watkins, one of the most prominent recent advocates of methodological individualism, has presented it as primarily a theory of sociological or historical explanation. In his "Ideal Types and Historical Explanation," Watkins stated its requirements thus: "Social processes and events should be explained by being deduced from (*a*) principles governing the behaviour of the participating individuals and (*b*) descriptions of their situations."

The elaboration of criteria for acceptable explanation is, of course, an activity characteristic of philosophers. What has most often concerned them, however, has been the formal or structural features of explanation, that is, the logical relation that must hold between an explanans and explanandum. Watkins's criterion, by contrast, is a material one. It makes a stipulation about the content of a social or historical explanans, holding that it must be "psychological," at least in the sense of being, in Watkins's words, about "the situations, dispositions and beliefs of individuals."

In formulating their material requirement, individualists often have in mind successful patterns of explanation in other branches of science. According to Watkins, the principle of methodological individualism is a correlate of the principle of mechanism in physics, which held triumphant sway from the seventeenth to the nineteenth centuries. An especially prestigious example of the application of the mechanistic principle is the explanation of the solar system by reference to Isaac Newton's laws and the positions, masses, and momenta of its component "individuals." Another example, often cited, is the explanation of the macro properties of a gas—its temperature, for example—as a resultant of the micro properties of its molecules. The best illustration of the same explanatory procedure in social science is afforded by classical economics, which regards macro states of the market as resultants of the dispositions and consequent activities of individual producers and consumers. There are differences (some will be discussed later) between the way particles in a mechanistic system are linked with what they explain and the way psychological facts about individuals are linked with social events. Methodological individualists, however, regard the likenesses as more instructive than the differences.

METHODOLOGICAL HOLISM

The rival thesis of methodological holism is that explanations in history and social science may (some would say "must") employ holistic societal laws or dispositions. Social dispositions are envisaged as being holistic, not only in the sense of being macroscopic relative to individual behavior but as being irreducibly so. Except in extreme versions of the theory (usually framed by opponents for polemical purposes), psychological elements are not actually excluded from a social explanans; they are merely regarded as insufficient. Thus, in their most usual form, the two methodological doctrines are not contraries but contradictories.

In elaborating their position, holists often match paradigm cases with the individualists. In economics, for example, they point to the Keynesian theory, which relates such variables as national income and savings, as showing the need to supplement the classical approach with a macroscopic one. In physics they note the decline of mechanism with the development of wave and field notions. And methodological holists do not limit their claims to cases in which social phenomena are explained by other societal factors. The explanation of individual actions themselves, they insist, may often have to be given partly in societal terms, employing laws that link individual behavior with types of social conditions. They deny, however, that this commits them either to organicism or to historicism. For sui generis societal laws can be of various logical types. They need not be organic, in the sense of relating the parts of the social system in a way that makes society self-regulating or self-maintaining, nor need they be developmental. There is thus no necessary connection between methodological holism and the dismal conclusion that men are caught up in some inexorable process that possesses something like a life of its own.

REFINEMENTS OF INDIVIDUALISM

The basic response of methodological holism to the individualist claim is that the procedures of history and social science are in fact largely holistic, and that attempts to apply the principle of individualism do not work. The theory of the social sciences should accept the consequences. To methodological individualists, on the other hand, failures of application simply indicate a need for further analysis and research. Yet the discrepancy between fact and theory has induced individualists to make a few concessions, which are often represented as "refinements" or "clarifications" of the original thesis. A brief look at four of these may help to sharpen the issue.

LEVELS OF EXPLANATION. Individualists generally concede, first, that macro explanations may sometimes be both true and informative. The temperature of a gas, for example, may be explained by referring to a heat source that was applied to it, or to such simultaneous macro conditions as its volume and pressure; the outbreak of a revolution may be similarly explained by referring to economic or social trends in the society as a whole. According to Watkins, all the methodological individualist claims is that until we manage to reduce such explanations to terms of the molecular theory of gases or the psychology of individuals, we fail to achieve a full understanding of what has occurred. Thus, what the indi-

vidualist seems to offer is not a criterion of being an explanation at all (for this, the satisfaction of formal criteria may be enough), but of being an ultimately satisfactory one. Yet the acceptability of "half-way explanations" (to use Watkins's term) is said to depend on the possibility of eventually reducing them to "rock-bottom explanations." The concession, in other words, is only with regard to "practice"; nothing is yielded at the level of "principle."

ANONYMOUS INDIVIDUALS. A second refinement arises out of the suspicion that what is actually possible in social science, even "in principle," is seldom an explanation in terms of the dispositions of the specific individuals involved. We might explain the rise in a stock's value, for example, by pointing out that the individual dispositions that most stockholders may be presumed to share lead them to be willing to pay a higher price under the circumstances; but we could hardly hope to ground our conclusion in knowledge of the detailed motives and beliefs of all the individuals involved. Methodological individualists consequently limit their prescription, even for "rock-bottom explanations," to typical dispositions of anonymous individuals. Such explanations, they will point out, still follow the model of mechanistic physics, in which information about specific particles is not required. Unlike physical particles, it cannot, of course, be presumed that human beings are all alike, or even that they are similar in all respects relevant to the social resultant that is being studied. This is particularly the case in historical inquiry, with its concern for unique rather than recurring circumstances and events. Thus, it will often be impossible to give adequate historical explanations without taking at least some named individuals into account. Even in the field of history, however, there is considerable scope for the anonymous.

UNINTENDED RESULTS. Advocates of individualism often emphasize that if explanation need not be in terms of the actions and dispositions of specific human beings, still less need it show that social phenomena are brought about deliberately, or even knowingly, by individuals. Methodological individualists do not question the contention, constantly reiterated by holists, that social phenomena are largely the *unintended* results of the behavior of hosts of interacting human beings. The individualist principle is thus to be distinguished from what K. R. Popper, in *The Open Society and Its Enemies* (London, 1945), has called the "conspiracy theory of society": the view that for every social effect there is a manipulator (hero or villain) to be found. Not that individualists doubt that public affairs are controllable through the knowledgeable

intervention of people; they hold, rather, that even when events are not so controlled, they can be explained individualistically. The individualist principle is also to be distinguished from a second doctrine with which Watkins felt it is sometimes confused, namely, the view that social phenomena "reflect" the dispositions of component individuals. Social characteristics are often, in fact, quite different qualitatively from the characteristics of the individuals referred to in explaining them. But there is likewise no qualitative similarity between the thermodynamic properties of a gas and the mechanical properties of its elements.

EXCEPTIONS. Some individualists are willing to make a concession that leads to still a fourth refinement of the original doctrine. They allow that there are some social phenomena, at least, that may not be open to individualistic explanation at all, although they usually add that these exceptions are not very important for the theory of the social sciences—certainly not important enough to justify the acceptance of methodological holism as a general principle for explanation in these fields. The exceptions fall into two classes. The first contains phenomena that can be treated only statistically. The second consists of occasional instances of what may be genuinely organic "social" behavior: Watkins mentioned the physical union of mating couples, the ecstatic singing of revival meetings, the rioting of panicking crowds. But, individualists argue, we cannot extrapolate from such cases to the nature of "higher-grade" forms of social organization. The latter, even when unplanned, are related by "ideas" and involve people widely separated in space and time.

ARGUMENTS FOR METHODOLOGICAL INDIVIDUALISM

Clarified and refined, then, the principle of methodological individualism asserts that *ultimate or final* explanation of the more *significant* social phenomena must be given in terms of at least *typical* dispositions (including beliefs, attitudes, and volitions) of *anonymous* individuals involved. Individualists often seem to present this principle as self-evident. Yet arguments for it have been offered, among the most characteristic in contemporary literature being the five that are considered below. No separate presentation of the case for methodological holism will be given, since holists are generally content to offer rebuttals of what their opponents claim.

METAPHYSICAL ARGUMENTS. One common argument appeals directly to ontological considerations. According to Watkins, "the ontological basis of methodological individualism is the assumption that society … really consists only of people." Social "things" may even be said to be "created" by individuals, by their attitudes as well as by their actions. "Remove the attitudes of food officials, shop-keepers, housewives, etc., towards ration books," Watkins observed, "and they shrivel into bits of cardboard." To a methodological individualist it seems paradoxical to suggest that social objects, thus constituted, could be explained other than individualistically. To try to explain individual actions in social terms seems to involve referring what really exists to a mere "construction." Yet although ontological individualism offers the methodological doctrine a "basis," Watkins conceded that the former does not actually entail the latter. It might still be true that what is constituted by individual actions and attitudes is governed by autonomous social law, although the ontology of individualism makes this difficult to believe.

Today, few holists would argue directly from a corresponding ontological thesis, which would rest upon some such principle as "a whole is not equal to the sum of its parts," the social whole thus being conceived as free to operate in accordance with laws which hold true at its own "level of existence." Typical of objections to this are Ernest Nagel's observation, in *The Structure of Science,* that wholes are recognized in physical science, too, apparently without presenting special problems for individualistic explanation; and Popper's jibe, in *The Poverty of Historicism,* that the metaphysical principle of holism, although "trivially true," applies even to three apples on a plate. However, most methodological holists (for example, Maurice Mandelbaum in "Societal Facts") prefer to argue that although social phenomena can be said to be ontologically dependent upon the actions and attitudes of individuals, the two are not simply identical. They point out, too, that their doctrine does not commit them to claiming that societies could exist without people, this being an absurdity eschewed even by full-blooded ontological holists like G. W. F. Hegel. The frequent use, in this connection, of the epiphenomenalist account of the mind-brain relation to show what might be meant by ontological dependence without identity is rather unfortunate. For, whereas a mind with no brain may be conceivable, few, if any, methodological holists would allow that society was conceivable without individuals. Many methodological holists, in fact, profess complete ontological individualism. What they demand of individualists is a willingness to try to *find out* whether there are any irreducible societal laws.

This takes us within range of a second metaphysical argument. According to Watkins, it is a "metaphysical commonplace that social events are brought about by people." He interpreted this "commonplace" to imply that individual men and women "together with their material resources" are the "only moving agents," indeed the "only causal factors," in history. Social wholes, whether or not they can be said really to exist, cannot *do* anything; in particular, they cannot affect the behavior of the concrete human beings who constitute them. Methodological individualists therefore disagree with economists who regard long-term cyclical waves in economic activity as, in Watkins's words, "self-propelling, uncontrollable and inexplicable in terms of human activities." They similarly oppose historical materialism, which, in its more uncompromising forms, at any rate, asserts a one-way causal relation between certain social conditions (the economic substructure) and the thoughts and actions of those who live under them. It is a "central assumption of the individualist position," Watkins declared, that "no social tendency is somehow imposed on human beings 'from above' (or 'from below')." Actually, even the more modest (and more usual) thesis of "interaction" between the social and the individual spheres is often deemed unacceptable by individualists.

The usual response of the holists to this line of argument is to ridicule the implied denial of social conditioning—as if people were not born into social situations in the first place. The "real oddity" of methodological individualism, wrote Ernest Gellner in "Explanations in History," is that "it seems to preclude *a priori* the possibility of human dispositions being the dependent variable in an historical explanation—when in fact this is what they often or always are." An associated peculiarity is that it precludes "the possibility of causes … being a complex fact which is not describable in terms of the characteristics of its constituent parts alone—which again seems often to be the case." Individualists, of course, would regard this charge as a misunderstanding of their doctrine. They would hold that the social conditioning of individuals, although real, is simply their conditioning by other individuals, referred to compendiously by holistic terms. And they would accept this claim that causes may be complex facts as long as the complexity of the cause is regarded as "resultant" from individual actions in the way indicated by the ontological argument. (Some individualists, however, would find it less easy to counter the argument that to speak of causes as "moving agents" at all is tacitly to accept an "activity" view of causation that has been suspect since David Hume.)

Alan Donagan, in *The Later Philosophy of R. G. Collingwood,* provided a version of the individualist's causal argument that turns on a conception of human action made familiar by idealist philosophers. The only way men's actions can be explained, Donagan maintained, is through their "thoughts"; it is not men's actual situations which explain what they do, but their conception of the situations (although it may be necessary to refer to the actual situation in explaining a man's success or failure in translating his intentions into action). Thus, if physical causes, like climate, operate in history, they must operate indirectly; and the same is true of such social events and conditions as an economic depression or a military victory. Unless we are to challenge the common assumption that the causal relation is transitive, however, methodological holists may well feel that such considerations, even if they are acceptable in themselves, do little to establish Watkins's original contention. For to say that social causes require the mediation of individual thoughts and responses is not to establish the latter as the only "moving forces" in history. On the contrary, to cause individuals to cause is still to cause.

EPISTEMOLOGICAL ARGUMENTS. The theory of action thus indicated has a bearing on a third general argument that is sometimes used by methodological individualists. This argument develops Watkins's contention that even if we learned to describe, predict, and control social events and conditions holistically, we still could not properly claim to understand them without treating them as a collection of individual responses. For "understanding," Watkins seemed to insist, requires the explanation of what happened in terms of *intelligible* human dispositions. What he appears to have had in mind is the discerning of the participants' reasons for doing what they did, which allows us the intellectual satisfaction of seeing why they thought their responses were appropriate. As Gellner has pointed out, there is a dual thesis here: first, that social or historical explanation must be couched in terms of the dispositions of individual human beings; second, that these dispositions must be of a special kind. For those who would claim, on general philosophical grounds, that explanation by reference to an agent's reason or motive is logically different from subsuming an occurrence under a law (or even under a "disposition" properly so called), the present claim opens up the possibility of giving individualistic explanations of social phenomena without reference even to psychological laws.

Many methodological holists would agree that to accept the additional thesis would make their position quite untenable, for it might be claimed that "intelligible"

dispositions could be sought at the level of social wholes only on the assumption either of an immanent group mind or of an external historical providence: in other words, methodological holism now *would* require ontological holism. Something just short of this nevertheless sometimes appears to be entertained. Thus Morris Ginsberg, in *On the Diversity of Morals* (London, 1956), while denying for ontological reasons that society is itself a mind, conceded that it has a "mental organization" or "inner side" that is not identical with the mentality of any of its component individuals. Most methodological holists, however, simply deny the necessity of the additional criterion of explanation. They would hold that the essential claim of methodological individualism could be achieved without reference to intelligible dispositions if appropriate psychological laws could be found. And they would similarly claim for their own position that subsumption under autonomous societal laws (if such laws could be found) would yield understanding in the only sense significant to "scientific" inquiry.

A fourth argument makes the even more basic epistemological claim that whereas we can observe human individuals, we cannot similarly obtain knowledge of the macro features of social groups. As Watkins put it: "The social scientist and historian have no 'direct access' to the overall structure and behaviour of a system of interacting individuals (in the sense that a chemist does have 'direct access' to such overall properties of a gas as its volume and pressure and temperature, which he can measure and relate without any knowledge of gas molecules)." Since reliable knowledge of the dispositions and situations of individuals is readily available, Watkins continued, and since these individuals constitute the group, "a theoretical understanding of an abstract social structure should be derived from more empirical beliefs about concrete individuals." How else can what is said about social wholes be verified? Such an appeal to "hardheaded" empiricism is a shrewd blow. For the contenders here are (with a caveat, perhaps, about history) two theories of "scientific" inquiry. It would be odd if they did not both claim to be "empiricist."

Faced with this argument, many methodological holists insist that *some* social phenomena, at least—for example, parades, trials at law, battles—are directly observable. It is true that no one will notice such things if he lacks certain interpretative ideas or concepts. But this is not a peculiarity of social observation. Individual human actions themselves will not be "observed" unless we are able to discern the intentions and motives of the actors; and it may be questioned whether these can be

known "directly" in a sense in which group phenomena cannot. The epistemological criterion of the individualists, in other words, either allows some social phenomena to be counted as observable or excludes the most interesting individual phenomena. Many holists nevertheless concede that the social wholes of most significance for history and social science cannot, in any ordinary sense, be directly observed. They reject instead the implication that this puts them at odds with accepted procedures in natural science. Not all physical theorizing proceeds, as in chemistry, from observables to what explains them: astronomy, for example, "constructs" its wholes as surely as sociology does. They admit, too, that assertions about societies must be verified by discovery of what individuals do. But they deny that this undermines their claim to possess knowledge, not just of the individuals but of the social wholes of which they are elements.

LINGUISTIC ARGUMENT. The fifth argument for methodological individualism, although it obviously has some affinity with both ontological and epistemological ones, is presented as a point of logic or semantics. As L. J. Goldstein stated it, in his "The Two Theses of Methodological Individualism," individualists require, as a condition of their being meaningful, "that all of the concepts used in social science theory be exhaustively analyzable in terms of the interests, activities, volitions and so forth of individual human beings." If this condition were met, the apparent holism of explanations employing societal laws would be tolerable, because it would be eliminable "by translation." Watkins himself denied that this conceptual thesis actually belongs to the central position of methodological individualism. The latter, he maintained, is a theory of explanation, not of concept-formation or description. Yet in arguing for the explanatory thesis, he characteristically slipped into the conceptual one. He maintained, for example, that to an individualist, the statement "The Jewish race is cohesive," if it is to be empirically meaningful, must mean such things as "Jews usually marry Jews"—a statement about anonymous individuals. And he commended Max Weber for insisting that the only way to make the meaning of social terms precise is to *define* them individualistically—as if such concepts appear holistic only when they remain vague or undefined.

Methodological holists have denied both that such analysis, definition, or translation is possible and that the conceptual thesis, even if sound, would establish the explanatory one. In arguing for the first of these positions in "Methodological Individualisms: Definition and Reduction," Brodbeck allowed that there are no insuper-

able problems for conceptual individualism so long as we are dealing with group concepts that are basically statistical—as in "He got his votes from the poor." Less straightforwardly statistical locutions like "Boom follows slump" might present problems for individualistic translation only because their implied statistical reference is vague. The real difficulty arises over such terms as "renaissance" or "the government." There seems to be no finite list of individual actions and attitudes that would count as their exemplifications; yet the problem does not seem to be one simply of vagueness. Appropriate exemplifications, furthermore, seem to vary from culture to culture, without our being able to say that the relevant terms are ambiguous—which suggests, perhaps, an evaluative element in their meanings. Terms within this range of social description appear to be logically holistic. As Mandelbaum has observed, the problem here is analogous to one which phenomenalists have paid great attention to in contemporary theory of perception. The full meaning of a material object statement, it is generally agreed, cannot be given by any finite set of sensation reports alone; we always need reference to "conditions of appearance," which are stated in the material object language. Attempts to translate societal statements into psychological terms founder on the similar need to specify the social conditions under which an action must be performed in order for it to count as an exemplification.

Mandelbaum himself actually wavered on this point. He conceded that partial translatability, at least, is required; otherwise there would be no way of verifying societal statements (an echo of the epistemological argument). He was sufficiently moved, too, by metaphysical considerations (both ontological and causal) to believe that full translation may be possible "in principle," even if this cannot be made the basis for a "practical" methodology. Many methodological holists have claimed, however, that full translatability would still not warrant the acceptance of the individualist thesis as it is most commonly understood, namely, that explanations should be (or should be capable of being) limited to psychological terms, with psychological laws as the only permissible kind of connecting generalizations.

SOME OBSCURITIES

Consideration of the claim that full translatability would not warrant acceptance of the individualist thesis calls attention to three important obscurities that have dogged much contemporary discussion. The first concerns the sense of "explain" in which a methodological individualist asserts that ultimately all explanations must be indi-

vidualistic. The conceptual claim, it should be noted, has been stated not only as an argument for the explanatory one but also as though it were itself a theory of explanation—and so it is, in one important sense of the term. According to Watkins, every complex social situation or event is "the result of a particular configuration of individuals, their dispositions, beliefs, and physical resources and environments." This is often, and plausibly, read as meaning that we must be able to explain large-scale social phenomena as configurations or resultants of individual ones. But to explain something *as* something else is to explicate its nature: It is to explain it in the sense of showing *what it really is.* Although this kind of explanation is common in history and social science, however, it does not seem to be what methodological individualists have usually had in mind when advancing their explanatory thesis. What they envisage is explanation in the sense of showing how or why something *came to be* what it is: explanation that goes on to give causes, for example. It remains to be seen whether the conceptual thesis has any bearing on individualist claims about such explanations.

It may be objected that this ambiguity underlying the notion of being a "resultant" need not destroy the support given by the conceptual thesis to the full explanatory thesis, since what is specified in the productive sense may itself be treated, in its turn, as a resultant in the constitutive sense, thus achieving full "reduction." But this directs attention to a second obscurity in the individualist thesis, the question whether a "why" or "how" explanation in which all societal terms were replaced by psychological ones would involve the reduction of societal to psychological *laws.* Holists such as Nagel and Brodbeck have contended that it would not, at any rate, achieve reduction in the sense most familiar to the philosophy of science. For the derivability of macro laws from micro laws, no matter what the field of inquiry, is at least partly an empirical matter. Even in such exemplary cases as the reduction of chemistry to physics, they have pointed out, composition laws, which specify the way individual behavior changes as groups increase in size, must be added to the ordinary laws of the micro discipline; and these, however "self-evident" they often seem, have an empirical status. If laws of individual psychology are to be related "reductively" to laws of group phenomena, empirical composition laws would similarly have to be found. The reduction could never be just a matter of definition.

Individualists may complain that this involves too restricted an interpretation of their demand that sociological and historical explanations be reduced to "psychological" terms. Thus, when Mandelbaum, a

methodological holist, attacked the conceptual thesis on the assumption that no statement will be counted as psychological if it employs any societal term, his argument was rebutted by Donagan, an individualist, on the ground that hardly any human dispositions would be psychological on such a criterion. Watkins made it clear that, for him, a psychological disposition is simply one which specifies a way of acting and thinking that is open to an individual. Thus, he argued against an anthropological holist that marriage rules are widespread dispositions of anonymous individuals in a society to behave in a certain way, and against a historical holist that the "Calvinistic outlook" of seventeenth-century Huguenot traders was similarly individualistic. Behind the uncertainty about what is to count as "psychological," there in fact appear to lie two different interpretations of the conceptual thesis itself. The first, which imposes a limitation upon the *ways of behaving* that may be cited in a "rock-bottom" explanans, is the translatability thesis. The second, to which many methodological individualists appear to retreat under pressure, is the much weaker demand that an acceptable explanation employ concepts which can be *attributed* to an individual, or jointly to a group of them.

Willingness to move in the latter direction suggests that contemporary methodological individualists and holists are not really as far apart as they often seem. In spite of their insistence that what they put forward is a *methodological* doctrine which is merely supported by metaphysical considerations, it seems clear that what interests methodological individualists most is the related ontological claim that human beings are the "ultimate constituents" of the social world. By contrast, although methodological holists find themselves continually under fire for allegedly flirting with dangerous metaphysical notions, it appears that what they are most concerned to uphold is the *logical* respectability of using holistic collective concepts and macroscopic laws, if need be. As was indicated, many methodological holists protest their allegiance to ontological individualism, and this appears to be a perfectly coherent claim. Some would even accord the corresponding methodological principle of individualism "regulative status" as formulating an ideal to be striven for. What they resist is the conclusion a priori that we can realize the ideal, and the associated temptation to refuse anything less.

See also Berlin, Isaiah; Hegel, Georg Wilhelm Friedrich; Hobbes, Thomas; Hume, David; Nagel, Ernest; Newton, Isaac; Philosophy of Social Sciences; Popper, Karl Raimund; Scientific Method.

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W. H. Dray (1967)

HOLISM AND INDIVIDUALISM IN HISTORY AND SOCIAL SCIENCE [ADDENDUM]

The current philosophical discussion on holism and individualism can be considered on the basis of the notions of supervenience and intrinsic properties. A prominent conception of supervenience is David Lewis's thesis of Humean supervenience:

> It is the doctrine that all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another. … We have geometry: a system of external relations of spatio-temporal distance between points. Maybe

points of spacetime itself, maybe point-sized bits of matter or aether or fields, maybe both. And at those points we have local qualities: perfectly natural intrinsic properties which need nothing bigger than a point at which to be instantiated. For short: we have an arrangement of qualities. And that is all. There is no difference without difference in the arrangement of qualities. All else supervenes on that. (1986, pp. ix–x)

This is a thesis of global supervenience, applying to the world as a whole. To put the matter in the formulation that tends to be preferred in today's discussion, "Any world which is a *minimal* physical duplicate of our world is a duplicate *simpliciter* of our world" (Jackson 1998, p. 12). Global supervenience thus conceived is not in dispute in the philosophy of social science. No serious holist denies that if you duplicate the whole domain of physical properties that are instantiated in the world, you thereby also duplicate all the social properties that are instantiated in the world.

The dispute is about what exactly has to be included in the supervenience base. According to Lewis (1986), apart from spatiotemporal relations, all the relations that are instantiated in the world supervene on the intrinsic properties of the individuals. If this idea is applied to social science, it is to say: Given the spatiotemporal positions of all the individual persons in the world (their worldlines), the intrinsic properties of all the individual persons in the world fix all the social and historical facts and institutions. The dispositions of individuals count among their intrinsic properties. While individualism implies this thesis, holism disputes it, holding that there are more nonsupervenient relations than the spatiotemporal ones. As regards social science, holists maintain that social relations do not supervene on the intrinsic properties of individual persons and their spatiotemporal arrangement.

The claim about intrinsic properties in Lewis's (1986) thesis of global supervenience is already disputed in fundamental physics. Quantum systems admit what is known as entangled states. Quantum entanglement can be taken to consist in certain relations among quantum systems; there are no intrinsic properties whatsoever that could constitute a supervenience basis for these relations. Quantum entanglement can therefore be considered as indicating the ultimate failure of the explanation paradigm of individualism, which is seen as being tied to classical, atomistic physics (Teller 1986).

The most serious challenge to individualism in the social sciences stems from the rule-following considera-

tions as put forward by Saul A. Kripke (1982) in his interpretation of Ludwig Wittgenstein's *Philosophical Investigations* (1953/1993). According to Kripke, Wittgenstein maintains that the conceptual content of the belief states of people does not supervene on their intrinsic properties—neither mental intrinsic properties such as mental ideas, nor physical intrinsic properties such as dispositions to behavior. Following Kripke's Wittgenstein, any mental idea and any disposition to behavior is finite and therefore insufficient to fix a precise conceptual content, which implies determining an indefinite number of cases. Furthermore, it is thereby insufficient to determine what is the correct application of a rule (concept) in contrast to its incorrect application. The problem of rule-following is an important challenge to individualism in the social sciences, because it calls one central presupposition of any individualistic position in question, namely that the content of our belief states is ontologically independent of social interactions.

The most prominent individualist reply to the problem of rule-following is to develop a sophisticated dispositionalism to overcome the objections from the finitude and the non-normativity of dispositions. The main versions make use of computationalism (Miscevic 1996) or teleosemantics (Millikan 1990), or a combination of both. However, according to teleosemantics the content of a belief state is determined by a biological function, and biological functions depend on the history of the organism in a given environment. Consequently, biological functions are not intrinsic properties so that, according to this view, the content of the belief states of a person does not supervene on intrinsic properties of the person either.

The holist reply to the problem of rule-following takes social relations to be the decisive factor in the determination of the conceptual content of our belief states. It thus implies social holism: Having beliefs with a determinate conceptual content depends on social interactions. The basic idea is that social interactions (social practices) put at the disposal of people a distinction between what they take to be correct and what is correct in the light of others. On this basis social interactions drive, notably via sanctions, a process that determines a conceptual content for the belief states of the people who participate in them.

There are two versions of this position: The more radical one is the skeptical solution to the problem of rule-following that Kripke (1982) himself attributes to Wittgenstein (1953/1993) and according to which there is no standard of correctness beyond communal agreement (see also Kusch 2002). The more moderate position takes

social practices to fix conceptual content, but maintains that there are truth conditions for our beliefs beyond communal agreement (Brandom 1994; see also Esfeld 2001, chapters 3, 5).

The debate that is initiated by the rule-following considerations enables us to cast the discussion between individualism and holism in the social sciences in the following framework: The point at issue is to what extent social facts and institutions depend on social relations that do not supervene on the intrinsic properties of the individuals that stand in these relations (cf. Pettit 1993, part 2). To the extent that one rejects such nonsupervenient social relations, one subscribes to individualism. A social holist goes as far as maintaining that even the conceptual content of the belief states of the individual persons is fixed by such social relations.

See also Extrinsic and Intrinsic Properties; Kripke, Saul; Lewis, David; Rule Following; Supervenience; Wittgenstein, Ludwig Josef Johann.

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Michael Esfeld (2005)

HOLKOT, ROBERT
(d. 1349)

Robert Holkot [Holcot] was the most significant Dominican theologian of the fourteenth and fifteenth centuries. He received his doctorate at Oxford, lecturing on Peter Lombard's *Sentences*, the main theology textbook, in the years 1331–1333, and served as regent master there, most likely from 1336–1338. He spent time in London as a clerk for Richard of Bury, the bishop of Durham, and probably lectured on the biblical Book of Wisdom at Cambridge from 1340–1342. From 1343 to his death from the plague in 1349, he resided at the Dominican priory in Northampton.

The Condemnations of 1277 and the arguments of John Duns Scotus at the turn of the fourteenth century established the view that no absolute necessity governs creation: God has always had the power to do other than he does and to create a reality other than this one. The working out of the implications for philosophy and theology of such a contingent reality framed scholarly debate during Holkot's time. The tools available to attack the problem had also undergone major changes. In the generation prior to Holkot, William Ockham had subjected thirteenth-century Aristotelianism to a severe critique. Holkot adopted Ockham's philosophy as his starting point.

The most important and controversial of Holkot's views involve his use of the distinction between God's absolute and ordained power. Omnipotence means that God has the absolute power to do whatever does not involve a contradiction. Because no necessity attaches to the ethical precepts that govern the created order (God could without contradiction have created a world in which merit would accrue to doing the opposite of each of the Ten Commandments), human salvation depends upon a covenant between God and human beings established under the New Law of Christ. God's ordained system, the system that instantiates one or another of the many possible creatable orders, displays his expressed power, but could have been, or in the future could still be, other than it is.

Because, in Holkot's view, divine goodness owes nothing to creation, there would be no contradiction in God's replacing the current order with another, even without fulfilling the promises or covenants integral to the current ordination. The principle of noncontradiction provides the ultimate security. If God were to change the ordained system, he would either inform people of the new conditions for salvation or not. If God did not,

then no one could be held accountable for the new conditions. It would involve a contradiction for God to hold people to account for what they can not know.

To analyze the contingent theological order, Holkot adapted the rules of "obligational" debate, a form of debate in which an "opponent" usually proposed some contingent possibility as the initial starting point, to be held true during the debate, and a "respondent" would admit or exclude further proposed propositions as they were consistent with or contradicted the initial proposition. For Holkot, God's revelations functioned like the initial proposals in such debates, and it was incumbent on the believer to hold them as true and to accept the consequences of supposing them true, all the while knowing that the contingent order of creation might mean they were false and never have been true. Holkot's development of this "obligational" theology was his most distinctive contribution.

See also Aristotelianism; Duns Scotus, John; Ockhamism; Peter Lombard; William of Ockham.

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Hester Goodenough Gelber (2005)

HOLOCAUST

A number of philosophical issues arise relating to the destruction of most of the Jewish community in Europe in the twentieth century by the Nazis and their allies. This event has been labeled the Holocaust—or *Shoah* in Hebrew—in order to indicate its unique status.

UNIQUENESS

Was the Holocaust unique? There has been an extended debate on this issue. The obvious response is that it was not unique, because other ethnic groups have also been singled out for destruction—and have been destroyed—by powerful enemies. Hitler famously referred to the massacres of the Armenians in Turkey in the early part of the twentieth century when the question arose as to whether people would object to the Holocaust. Because few were interested in the fate of the Armenians—who had so recently been massacred—who would care about the Jews? Throughout human history groups of people who were in some way distinctive have been singled out for persecution and death, and the Jews are hardly the only target. Nor was the Holocaust the only large-scale act of genocide to occur; even in the same century there were several other instances of attempts to destroy an ethnic group.

It has been argued that the Holocaust is unique because never before, or since, have the entire technological resources of the state been directed in such a protracted manner against an indigenous community. The Holocaust took place over many years, against a group of people who could not be realistically regarded as any sort of threat to the state, and was in many ways carried out in opposition to the main aims of the war. For example, when the German army was short of railway stock in order to transport troops, the organizers of the Holocaust increased their efforts to direct stock away from the military in order to continue with the policy of annihilation. Even when the war was clearly lost the policy continued to be pursued until almost the last moment of practicability.

Why does the issue of uniqueness matter? It matters because if the Holocaust was unique, then it may call for new answers and directions. For example, it may give some validation to the creation of the State of Israel as a home for the Jewish people who survived. It may also call for new responses because it would then represent a break in history, and in particular in Jewish history. After all, Jewish history is replete with disasters of one kind and another, and the large-scale destruction of Jewish communities is a familiar feature of that history over the millennia. Is the Holocaust just another disaster among many similar—albeit more limited—disasters? Or does it represent a change in quality, not just quantity?

RADICAL RESPONSES

One of the most radical responses to the Holocaust is provided by Richard Rubenstein (1966), who argues that the events of the Holocaust rule out the traditional God of the Jewish Bible. The traditional God participated in Jewish history; were such a God to exist he would surely have participated in the Holocaust, and prevented it.

Because he did not, it follows that the concept of God has to change. What is needed is a concept of God that takes people closer to nature rather than away from it. Thus the traditional Jewish laws and rituals that emphasize the denial of nature are to be transcended and replaced with a far more hedonistic form of practice. For Rubenstein the return of the Jews to Israel typifies this, to a degree, because it represents a return to the land and to a more rooted and organic form of existence. By forging a new relationship with nature, Jews can transcend the negativity of history—whose paradigm is the Holocaust—and change Judaism itself.

Irving Greenberg (1981) also takes the Holocaust to compel radical steps—an end to the idea of a covenant between the Jews and God. Whereas to begin with the Jews were the junior partner in the covenant—and later on became equal partners—after the Holocaust the Jews are the senior partner, because God has to show himself prepared to act on behalf of the survivors if he is to play any role in their continuing lives at all. The whole idea of an agreement implies that both parties to it will uphold their side of the agreement, and God has clearly not held up his side because he allowed the Holocaust to occur. While Greenberg does see the hand of God in some events after the Holocaust—in particular in relationship to the State of Israel—he clearly holds God in dereliction of his duty, and calls therefore for a new relationship with him.

Arthur Cohen (2002) derives from the Holocaust the silence of God, and his distance from human affairs. To a degree this is not a new factor, because God has always been remote; he has to be if he is to allow people to be free and make their own decisions. Yet the God who emerges is clearly not the ordinary God of religion, but rather a deity who often hides his face and leaves his creatures to get on with their lives by themselves. Clearly such a God cannot be implicated readily in the State of Israel either, and Cohen is skeptical of the point of such a state, reflecting the doubts of Franz Rosenzweig on Zionism. It is the role of the Jewish people to typify a long and difficult relationship with God, not to live in a state of their own like everyone else.

Clearly these responses to the Holocaust call for a new definition of the relationship between God and the world. They also call for a new understanding of what constitutes religious practice, because the old prayers and rituals of Judaism may seem to be irrelevant given this new concept of God. What is worth noting is the crucial significance of the Holocaust to the propounders of these views. The Holocaust is not taken to be one disaster coming after many other disasters, but as an event with an existential meaning all its own. It is a unique event and so calls for unique responses. If those responses demand an entirely new understanding of Judaism, then it would be intellectually dishonest not to establish such an understanding.

ART AND THE UNIQUENESS DOCTRINE

There are important implications of the uniqueness doctrine for art. Adorno famously is supposed to have said that after Auschwitz there could be no art. As a factual claim this is problematic, because not only has there been art subsequently, there was even art during the Holocaust. However grim the conditions are under which artists work, they always manage to operate—some even believe that the harder the conditions the more important it is to respond aesthetically. What Adorno may be suggesting is that the whole context within which art takes place has changed irrevocably due to the Holocaust, and so art that does get done no longer has the character that it appears to have. For example, it may be that the German language has been so corrupted by its use in Nazi Germany that it can never be used again in a fresh and creative way. Although this may be plausible about German, it hardly would extend to other languages—and in fact does not even seem to describe German. Indeed, there has been no shortage of successful German prose and verse since the Holocaust, and in fact that event has often been its subject. It is difficult to make sweeping claims about art, of course, but it does not seem to have been noticeably altered by the Holocaust, nor has art changed much since the Holocaust.

Adorno probably means something a bit less obvious by his claim. Art rests on a whole range of human practices and expectations, and the Holocaust seriously threatened many of these. A defenseless and inoffensive minority were ruthlessly murdered by their fellow citizens, not as a random act of violence but through the machinery of the state and with little evidence of anyone outside of the minority disapproving. The scientific and rational forces of society were used for this purpose, occurring in what had until then been widely regarded as one of the most civilized and advanced societies in the world.

Adorno is pointing to the end of what is sometimes known as the Enlightenment Project, the idea that over time the world would progress as a result of the growing reliance on rationality and science. During the Holocaust, rationality and science were put entirely at the disposal of the murderers, and those techniques were revealed to be mere tools to be employed without reference to moral

restrictions. The optimism of the Enlightenment was thereby undone and should be replaced to by a thoroughgoing realism about the possibility of human progress.

The implications for art are clear. Whereas in the past it was thought that art has a civilizing impact, the Holocaust taught people that it may be enjoyed just as much by the morally corrupt as by anyone else. Thus its status changes from being an aspect of human nobility and cultural progress to becoming a morally neutral means of distraction. Hence Adorno's claim that art has irretrievably changed after the Holocaust.

OTHER RESPONSES TO THE UNIQUENESS THESIS

Emil Fackenheim (1982) presents a powerful defense of the uniqueness thesis, deriving from it what he calls the 614th commandment (there are traditionally held to be 613 commandments applicable to the Jews) that Hitler is awarded no posthumous victories. Such victories include assimilation and the destruction of the State of Israel, but Fackenheim does not see the Holocaust as calling for a radically new approach to Judaism itself or to the relationship between Jews and God.

Another important thinker is Elie Wiesel (1969), who wrote powerfully on his experiences and those of others during the Holocaust. He also sees it as not calling for a new understanding of faith. In particular, to the question of where was God at Auschwitz, he replies with the question where was humanity? The Holocaust represents an event carried out by human beings against other human beings and it is squarely on the shoulders of the murderers that the responsibility should be placed. One cannot expect God to rescue people from the evil decisions and actions of others, because were he to do so their capacity to act freely would be severely constrained.

This latter point is drawn on extensively by Eliezer Berkovits (1973) and Ignaz Maybaum (1965), different thinkers who agree that the Holocaust can be put within a normal Jewish theological context. The Holocaust does not represent a break in history, it is just one more disaster undergone by the Jewish people, and these disasters do have a point to them. God has a role in mind for the Jews, and this is to represent the divine role in history. That the Jews are never entirely destroyed reveals God's actions on behalf of the Jews. For Berkovits the Jews have to undergo suffering in order to sanctify the Holy Name, the traditional interpretation of Jewish suffering. For Maybaum the Holocaust represents an important stage in human history, and the sufferings of the Jews are supposed to lead the gentile world to reflect on the direction that their actions are leading them to pursue. Both thinkers discuss the difficult balancing act that God undertakes. He has to separate himself sufficiently from his creation in order to allow people to be free, whereas at the same time he has to enter into the human world in order to play a part in history.

THE HOLOCAUST FROM A CHRISTIAN POINT OF VIEW

A theme of many Christian views calls for some introspection into the responsibility of various churches for antiSemitism and its eventual outcome in the Holocaust. There have also been more positive analyses, in particular the argument that only Christianity can properly explain human suffering, because only Christianity has at its heart the notion of a suffering deity, in the person of Jesus Christ. The normal conception of God in Judaism is abstract, and many leading Jewish thinkers—such as Maimonides—have strenuously fought against any anthropomorphizing of the concept of the deity. This rather distant notion of a deity is said to be unhelpful during events such as the Holocaust.

It is certainly true that if people are in pain it is good to be comforted by someone who knows precisely what it is like to share in that condition. However, it may be argued that if such a person were in a position to relieve the pain, and does nothing, then the comfort is somewhat reduced. People may be more interested in pain relief than in sympathy, and indeed the latter may be valued largely as a stage on the route to the former. The Christian approach to the Holocaust does, however, raise the important question that runs through the debate— namely, what concept of God can survive the Holocaust experience? The more radical responses insist that a new concept of God is needed, whereas the less radical approaches defend the continuation of the traditional notion of God, and see the Holocaust as just another stage in Jewish history.

THE INDESCRIBABILITY THESIS

Fackenheim (1982) and others have declared that the Holocaust is indescribable. This follows to a degree from its uniqueness. If it is, as an event, really unique, then it could be argued that it escapes the normal categories of description. The indescribability of the Holocaust also explains to a degree why it has been little discussed by philosophers. The indescribability thesis does not appear to be plausible, because there have been many accounts of the Holocaust, and there seems to be little difficulty in

describing it. Around the world there are museums, memorials, and libraries designed to ensure that the world does not forget the Holocaust. In order not to forget the event itself must be described.

The indescribability thesis is rather like the uniqueness thesis in that it is intended not to literally make a claim about the Holocaust, but instead is a metaphorical indication of the extraordinary nature of the attempted extermination of the Jews in Europe as carried out by Germany and its allies. To say that this is easy to describe and that it is just one example of mass murder among many others has seemed to many commentators to diminish the enormity of the Holocaust.

ISRAEL

As noted earlier, one of the effects of the Holocaust is taken to be the creation of the State of Israel. Fackenheim suggests that the Holocaust represented the breakdown of Christian-Jewish relations, and the State of Israel is a *tikkun*, a repair of those relations. In the same way that the Holocaust is a break in history, so is the creation of Israel. It may well be that there is a factual link between the Holocaust and the State of Israel, but from a philosophical point of view it is difficult to see the logical link. Could God not have brought about a state for the Jews in a less costly manner? Was it really necessary for so many innocent people to die? And what about the rights of the people displaced from Palestine to make room for a Jewish state? These people played no part in the Holocaust, and yet were uprooted from the land by Zionism. The opposition to Zionism frequently compares it as a doctrine with Nazism in order to try to weaken the idea that Israel's existence is justified by the occurrence of the Holocaust.

RELATED MORAL ISSUES

An event of the stature of the Holocaust brings out sharply some interesting moral topics, such as the responsibility of the bystander for what goes on in his or her country, and the possibility of forgiveness for a crime of such enormity. During the Holocaust a large number of civilians apparently could have helped the victims, but did not, or could have expressed their views on what was happening, but declined to do so. Of course, there would have been a cost involved, yet the attitude of many was that the events of the Holocaust were not their responsibility because they were not actually the perpetrators and they had not troubled to find out precisely what was going on.

Since the Holocaust, the responsibility of the bystander—as opposed to the actual criminal actor—has become much more of an issue. For the criminal actor, the excuse of only following orders has become less defensible. Agents are expected to be able to consider the moral acceptability of the orders they are given and not carry them out if they are immoral. Finally, the issue of forgiveness and national responsibility arises. Who if anyone is entitled to forgive the agents of the Holocaust? Under what circumstances should they be forgiven—if they should be forgiven at all? What responsibility do their descendents have for the well-being of the survivors, or the Jews in general, or the State of Israel? Is it appropriate to blame a country—Germany—when most of its citizens were born after the Holocaust? How far can a country be held to be guilty at any time?

See also Jewish Philosophy.

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Oliver Leaman (2005)

HOLT, EDWIN BISSELL
(1873–1946)

Edwin Bissell Holt, an American psychologist and philosopher, was noted for his innovations in philosophical psychology. His influence was greater in psychology than in philosophy. In his time he was the American psy-

chologist best known and most respected by the British. Holt completed his undergraduate and graduate work at Harvard and taught there from 1901 to 1918, first as an instructor and then as assistant professor of psychology. In 1926 he returned from retirement to become visiting professor of social psychology at Princeton, but he retired permanently in 1936.

NEW REALISM

Holt was one of the original six American New Realists who banded together in the first decade of the twentieth century in a polemic against idealism and representational realism. Holt was the only one, however, to attempt a systematic development of New Realism, first in a neutral monism, then, after giving that up, in a behaviorist theory of consciousness. In this attempt, Holt uncovered the fatal problems that were in New Realism from its beginning.

The New Realists took their start from the theory of consciousness of William James. James argued that consciousness was an external relation between a sentient organism and its objects, not a substance or entity. The latter view was the basis of the doctrine of the dualism of psychic and physical substances, and of an idealism that defined objects in terms of psychic or subjective substance, thereby giving them a mental or ideal status.

Holt replaced the dualism and psychic monism with a monism that was neutral, defining Being, or reality, neither in terms of mind (idealism) nor in terms of matter (materialism). The basic category of this neutral monism was "Being," which connoted nothing and denoted everything. This neutral Being could most readily be found in the concepts of logic and mathematics, the simplest known elements of Being. But in thus identifying Being with logical and mathematical terms and propositions, Holt gave it a distinctly mental or conceptual character. He admitted borrowing this approach from the idealist Josiah Royce, but he claimed that rather than arguing for idealism, his neutral monism reaffirmed the "sadly neglected truism" of New Realism: "everything is precisely what it is, and is not to be explained away as something else."

Yet Holt's analysis had an inescapable reductivist outcome. All things turn out to be "really" the same. That is, they turn out to be neutral entities (logical and mathematical terms) and the complexes made out of them (propositions), not the material things of common sense or the particles and elements of science. As one critic pointed out, this meant that it is the mathematical logician, not the physicist, who tells us what things are. By

failing to keep clear the difference between the simplest elements of Being and the simplest known elements of Being, Holt threw doubt on the neutrality of his monism. The supposedly neutral logical and mathematical entities, he said, generate the further terms and propositions that make up all systems of being, or universes of discourse, through a "motion" of their own. Though Holt denied that this motion was a mental process, he did term it a "deduction," an intrinsic activity at work in the universe. Like any other object or aggregate, consciousness thus can be "deduced" from Being, and since Being is neutral, consciousness too is neutral; for all the complex constructions in experience are basically composed of neutral entities that maintain their identity despite the constructions they go into.

It is to these propositions, then, generated by the neutral entities of logic and mathematics through a "motion" of their own, that the nervous system responds. Although he admitted this might be considered fantastic, Holt stood by his position. James had said that the content of knowledge is the object of knowledge; content and object are not two separate things but are numerically one. Holt modified this only by noting that since our knowledge of an object is never complete, our ideas are never completely identical with their objects. When we say "My thought is of an object," we should say "My thought is a portion of the object; a portion of the object is my thought." Holt thought the representationalists had failed to see that an idea can represent an object only to the extent that it is identical with that object. An idea cannot represent space, then, without itself being spatial; the only adequate idea of a minute or an hour is just a minute or an hour. Holt thus passed from a partial qualitative identity of knowledge or consciousness and its objects to a numerical or existential identity. He had forgotten that he had begun with James's idea of consciousness as a relation.

No other New Realist developed monism in this thoroughgoing fashion. Holt carried it to its furthest conclusion. If consciousness and its object are numerically identical, do objects then have the character of consciousness (panpsychism), or does the content of consciousness have the character of objects (an inverted panpsychism, or "panobjectism")? Holt's anti-idealism ruled out panpsychism; consequently the elements of consciousness became objects themselves among all other objects, and the world for Holt is populated with all those entities usually placed in consciousness: error, hallucination, delusion, secondary qualities, even volitions. The objective world contains physical counterparts to the

errors of ordinary sense experience. Errors of thought, always cases of contradictory propositions, are equally objective. The "real," or objective, world is contradictory through and through; nature is a "seething chaos of contradiction."

Holt, in a later paper on the locus of concepts, confessed that his neutral monism had led him to write a mistaken book, an "absurd hocus-pocus" conjured up because he did not know at the time the true locus of these neutral "timeless and changeless entities." His failure to maintain their neutrality is admitted: These entities have no objective existence in nature. Although he promised to return to the subject, Holt never did. Nor did he produce the planned second volume that was to carry out the epistemological implications of his neutral monism. Instead, he turned to the development of a behaviorist theory of consciousness.

BEHAVIORIST THEORY OF CONSCIOUSNESS

Holt saw that an extreme behaviorism would make the materialist's mistake of denying the facts, as well as the theory, of consciousness. While he described his own behaviorism as part of the "objective tendency" to abolish the subjective and to interpret mental phenomena in an "objective relational manner," he consciously sought to avoid slurring over or repudiating the "facts" of consciousness, and he modified his behaviorism accordingly.

Increasingly, ideas suggestive of subjectivity, if not dualism, such as integration of behavior, capacity to respond, suppression, and split personality, appeared in Holt's writings. The result was an oscillation between his objectivist, behaviorist ideas and the subjectivist ideas that he needed in order to do justice to the facts of consciousness.

In *The Freudian Wish,* he described behavior by examining the way in which reflexes are combined and integrated to produce that organized "synthetic novelty" which is the specific response, or behavior, and which is also the point at which awareness is born. He identified this response with Sigmund Freud's "wish," including in it purpose, tendency, desire, impulse, and attitude. It was the replacement, Holt claimed, for sensation as the unifying factor of psychology. But he denied that this view meant he was falling back on the psychic or subjective; the basis for the view was objectively observable in what an organism does. While he did not deny that we have unobservable thoughts, he argued that they are often an "embroidery, a mere irrelevance to action," and eventually

they too can be observed if one looks to behavior that is yet to come.

Holt thought the Freudian wish was the first key that psychology had discovered for an explanation of mind. It meant psychology "with a soul," not the "ghost-soul" but the "wishes" which are the soul. Like Aristotle, he identified the soul with the dynamic form of a body endowed with the capacity of life: it is what it can do. The behavior of such a body is distinguished from its random movements by its purposiveness, an objective reference that is found in every reflex. Behavior occurs when more than one reflex is set off by a stimulus. As the number of reflexes increases, the immediate stimulus "recedes" as the inciting and controlling factor. This recession of the stimulus is part of intelligence and deliberation. Holt also used it to give an account of consciousness and knowledge of spatially and temporally remote objects. Still, Holt could not avoid a basic monism. The "objective" world is the only world. What has been called the "subjective" world is the subtler workings of integrated objective mechanisms. It is the body that is the knower; the environing objects to which it responds are the known. And Holt revived his claim that the mind is the thing of which it is thinking.

By the end of his career, despite his lifelong objectivist-subjectivist oscillations, Holt was committed to an objectivist position. He described his last published book (on the learning process) as an essay toward radical empiricism, and it was supposed to complete James's work of ridding philosophy and psychology of the absurdities of subjectivism and any form of psychophysical parallelism. There is only a sketchy idea at the end as to what direction Holt's epistemology might have taken. He thought at that point that he was but one short step away from a definition of awareness and consciousness in physiological terms. His "objectism" was reaffirmed: he sought to formulate a wholly physical and physiological psychology as a basis for the solution of any psychological problem. But he admitted that such a psychology had not yet given the slightest clue to the problem of secondary qualities.

Holt's last published writing set forth a materialism without apologies. Mind and cognition are neither mental nor cognitive, but physical—a matter of nerves and muscles. The active self is the physical body, that and nothing else. An experience of "self" is an experience of parts of one's body. Anything other than that, whether a self, ego, soul, or knower, does not exist.

Still, Holt modified this objectivism. He admitted that our physiological apparatus of perception and

thought habitually distorts, mutilates, and disguises what it is perceiving. It subtracts from "the objective reality," and with the remainder it fuses inseparably "a vast amount of unreality of its own motor creating (subjective reality)." In a mistaken but significant interpretation of Immanuel Kant, Holt claimed that these distortions are strikingly analogous to the Kantian categories in their distortion of things-in-themselves in intuition and understanding.

The ghost of subjectivism remained. Holt and the New Realists may have exorcised its idealist form, but the need for its inclusion was a constant embarrassment to them and was eventually the reason for the failure of New Realism to be anything more than an anti-idealist polemic.

See also Aristotle; Behaviorism; Being; Freud, Sigmund; Idealism; James, William; Kant, Immanuel; Monism and Pluralism; New Realism; Panpsychism; Royce, Josiah.

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Thomas Robischon (1967)

HOME, HENRY
(1696–1782)

Henry Home (Lord Kames), an aesthetician and moral philosopher, was born at Kames, Berwickshire, Scotland. He was educated at home and indentured to a writer of the signet in Edinburgh, but he resolved to become an advocate and was admitted to the Scottish bar in 1724. He became a judge of the Court of Session in 1752 and assumed the judicial title of Lord Kames. He was advanced to the High Court of Justiciary in 1763 and was still serving at the time of his death.

Kames wrote a number of books, several of them on legal subjects. His *Sketches of the History of Man* (2 vols., Edinburgh, 1774) bridged his interests in history and philosophy, and he frequently referred to the *Sketches* in his *Essays on the Principles of Morality and Natural Religion* (3rd ed., Edinburgh, 1779). His other philosophical work is *Elements of Criticism* (2nd ed., Edinburgh, 1763), a discussion of aesthetic principles.

Kames argued that the fundamental principles of the fine arts, or the elements of criticism, must be drawn from human nature. The fine arts are suited to human nature because humans, as sensitive beings, are capable of pleasure; and the fine arts are calculated to give pleasure to eye or ear. Kames devoted the opening chapters of the *Elements* to an account of human emotions and passions. These chapters form the psychological prolegomena that he believed aesthetics requires. Perceptions and ideas occur independently of our wills, though we can sometimes will the cessation of a train of ideas. Ideas follow our perceptions and each other in accordance with the laws of association (resemblance, contiguity in time or place, and cause and effect). Emotions and passions occur in relation to our train of perceptions and ideas. A passion is an emotion that is accompanied by a desire. The general rule for the occurrence of emotions is that we love what is agreeable and hate what is disagreeable. Kames's basic principle of criticism is that every work of art that is conformable to the natural course of our ideas is so far agreeable, and every work of art that reverses that course is so far disagreeable. On the one hand, Kames wanted to establish that the agreeableness or disagreeableness of things is prior to our love or hatred; but on the other, he accounted for our emotional reactions to certain things by saying that the nature of man is originally framed with a relish for regularity, uniformity, proportion, order, and simplicity.

The fine arts that Kames had in mind are painting, sculpture, music, poetry, gardening, and architecture; but

the first three are not discussed systematically in the *Elements.* Poetry is given the most extended criticism. Kames was especially interested in plays, and gardening and architecture share a chapter. He divided aesthetic qualities into two sorts: those that an object may possess in itself and those that it has in relation to other objects. Qualities of the first sort are grandeur, sublimity, motion, force, novelty, "laughableness," and beauty, which he conceded are both intrinsic and relational. The relational qualities that Kames discussed are resemblance and dissimilitude, uniformity and variety.

Kames argued that it should be possible to establish a standard of taste against which productions in the fine arts might be judged. We believe that things of a certain kind have a common nature, and individuals are perfect or right insofar as they conform to the common nature of their kind. Thus, it should be possible to determine the common nature that works of art of a certain kind ought to share and to assess the success with which a given work of art meets the ideal of its kind. Kames noted that every person is not fit to become a judge of the fine arts, since not everyone is capable of the refinement of taste that is required. This is no great hardship on the bulk of humankind. The fine arts only contribute to our pleasure and amusement, and it is not as necessary for everyone to have an authoritative sense of right and wrong in the fine arts as it is for everyone to have an authoritative moral sense.

In *Essays on the Principles of Morality and Natural Religion,* Kames discussed a wide range of philosophical topics, including liberty and necessity, personal identity, belief, external senses, and cause and effect. His thinking is influenced by David Hume, either in quiet concurrence or by vigorous reaction. The two longest and most important essays are Essay II, "The Foundation of Morality," and Essay VIII, "Knowledge of the Deity."

For Kames, the foundation of morality is to be found in human nature. Looking there, he finds the moral sense that approves certain natural principles, which are enforced by natural rewards or punishments of pleasure or pain. These principles bind us to refrain from harming others, to tell the truth, to keep our promises, to act faithfully toward those who rely on us, to be grateful, and to be benevolent. While the moral sense is rooted in the nature of man, it admits of great refinements by culture and education.

A hasty reader might conclude that whenever Kames needed to solve a new perplexity in the foundation of morals, he discovered a new sense in humankind. For instance, he resolved the long-standing dispute over the artificiality of justice by declaring that justice is natural because it is founded on a natural sense of property. He claimed that this sense is necessarily antecedent to any social agreement; and indeed that any agreement to organize a society presupposes the existence in men of a sense of property.

In natural religion, Kames believed that he had brought to light a new argument to prove the existence of a god. In D. Cranz's *The History of Greenland* (London, 1767) Kames found an account of a Greenlander who argued in the following way for the existence of an artisan superior in power to man: A kayak is a work of art that can be made only by the most skilled of men, but a bird is an even greater work of art than a kayak; thus there must be an artisan to make birds who is even greater than man. Kames was most impressed by the fact that this argument came from a savage and concluded that "the perception we have of Deity must proceed from an internal cause, which may be termed the Sense of Deity."

In the *Essays,* Kames generalized the Greenlander argument, contending, "We are so accustomed to human arts, that every work of design and use will be attributed to man, if it exceed not his known powers. *Nor do effects above the powers of man unhinge our notion of a cause*: They only lead the mind to a more powerful cause." The italicized words in the passage above are especially interesting, because in an addendum to the third edition of the *Essays* (1779), Kames complained that Hume ignored the Greenlander argument in his *Dialogues concerning Natural Religion*; and Kames believed that argument immune from any strictures on natural religion was found in Hume's *Dialogues.*

See also Aesthetic Judgment; Hume, David; Pleasure; Religion and Morality.

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Elmer Sprague (1967)

HOMER

The Homeric poems *Iliad* and *Odyssey* (probably eighth century BCE) are of interest to the historian of philosophy because they provide the background, in language

and to some extent in thought, from which Greek philosophy emerged. The hexameters of Parmenides and Empedocles follow the Homeric pattern closely, and they both use Homeric words and coin words for themselves after the Homeric model. They also sometimes use the same thought forms. For instance, a comparison may be drawn between Parmenides' journey (see Fr. 1) and Odysseus's journey to the underworld (*Odyssey,* Book 11). The Homeric simile is the forerunner of the natural philosopher's "working model," by which an unfamiliar process is explained by comparison with a more familiar one. For example, to illuminate his description of an evenly poised battle Homer introduced a "careful working woman" weighing wool in her scales; Empedocles compared the breathing process in animals with operations performed with a household instrument, the *clepsydra.*

Apart from these questions of language and style, the *Iliad* and the *Odyssey* influenced the content of later philosophical thought in various ways.

THE WORLD

The Homeric world picture was of a flat, disk-shaped earth, with the sky set over the top like an inverted metal bowl and Hades underneath the earth in a more or less symmetrical relation to the sky. The sun, moon, and stars were taken to move across the fixed heaven from east to west, but the manner of their return journey was not clear. The space between the earth and the sky contained *aer* (mist), and above that was *aether* (the bright air of the upper heavens). The earth was completely surrounded by the river of Ocean, personified and deified as Okeanos. In one exceptional passage (*Iliad,* Book 14, 200–248) Okeanos is called "the begetter of gods" and "the begetter of all things." Aristotle (*Metaphysics* A 3, 982b27) half seriously suggested that Homer's Okeanos was the forerunner of Thales' cosmogonical water. Plato, even less seriously, suggested (*Theaetetus* 152E) that Okeanos provided the origin of Heraclitus's flux theory. These are farfetched ideas; the cosmology of Homer, such as it was, can hardly be seen as anything but a contrast with Ionian theories (see G. S. Kirk in *The Presocratic Philosophers,* Ch 1). But connections can be traced between some details of Homer's descriptions of the natural world and the speculations of later Greek philosophers of nature (see Charles Mugler, *Les origines de la science grecque chez Homère*).

THE GODS

The historian Herodotus observed that Homer and Hesiod together had determined for all the Greeks what their gods were like, and this is probably the greatest significance of the Homeric poems for the history of philosophy (*History* II, 53). There is one general feature about the Homeric gods that is of much importance: They were not dark gods, accessible only to mystics and appeasable by magic, but on the whole very human and rational. They had powers over the world of human experience, and their powers were defined and hierarchical; in this we can see a hint of the orderly cosmos of later theory.

Some philosophers objected to the Homeric gods. Xenophanes launched the first attack: The gods behaved immorally; moreover, the conception of them was relative to the believer (see Fr. 16: "Ethiopians imagine their gods as black and snub-nosed"). Heraclitus's objections were not explicitly against gods but against Homer as the educator of Greece; the Olympian gods were, however, near the center of his target. Plato's onslaught in the *Republic* (376Eff.) is well known; he wished to censor everything in the Homeric poems that was discreditable to the gods before the poems could be used in the education of the "Guardians" (it was general practice in Greece both before and after Plato's time to use Homer as the basis for moral and religious education).

MAN

The Homeric view of man shows interesting differences from later theories. There was no unified soul, contrasted with body, as in the Pythagorean-Platonic tradition; instead, the psychic functions were distributed without much consistency over a number of entities. The *psyche,* which held the position of greatest importance from the time of Pythagoras, was merely a life-soul in Homer; it played no part in the thoughts, emotions, and actions of the living man. The *psyche* survived after death; it did not, however, retain the complete moral personality, as in the Platonic eschatology, but was a bloodless, helpless shadow. The thoughts and feelings of the living man were attributed to the *phrenes* (roughly speaking, the organs of the chest, although in later Greek the word means "diaphragm"), the heart, and the *thymos* (a mysterious entity probably connected, like *psyche,* with breath). *Nous* (mind), which became the most important part of the *psyche* in the psychology of Plato and Aristotle, was generally restricted in Homer to the intuitive understanding of a situation (like the English "to see" in its metaphorical sense); consequently, it was often connected with sense perception, not contrasted with it as in Plato. Unlike *phrenes, nous* was not a physical thing for Homer but a function.

HUMAN ACTION

The actions of the human characters in the *Iliad* and *Odyssey* are represented as being influenced or manipulated more or less constantly by the gods. Actions that might be otherwise difficult to explain, such as a sudden access of superhuman courage, are especially attributed to the intervention of a god. But it is not only the inexplicable or the uncharacteristic that is described thus; a successful shot with the spear or an unsuccessful one, a plan adopted, a fit of anger, a bad bargain, an untimely sleep—these and many other unremarkable events are described as caused by a god. The gods handle the heroes as arbitrarily as a mortal king might treat his subjects, although not, as a rule, with savagery.

The fact that so much of human action is attributed to the gods has led modern interpreters to say that Homeric man is "an open field," that Homer denies free will, and that he has no concept of the human personality. This is true in a sense, but it is misleading. Homer was not a philosopher who had confronted the free-will problem and decided upon determinism; apart from an occasional exception he offered no theories about motivation and responsibility. From the point of view of the responsibility of human characters, there is no opposition between "caused by a god" and "due to a human agent"; for example, one and the same attack by Sarpedon is described as due to Zeus and a few lines later as due to Sarpedon's *thymos* (*Iliad,* Book 11, 292 and 307). The moral relations between human beings are on the whole, although not entirely, unaffected by the interventions of the gods; a god may stir a man to excessive anger, but it is still felt appropriate to blame the man for his anger. The individual characters of the heroes remain fairly stable; the activity of the gods is not such as to make human beings unpredictable. But the Homeric poems generally show a limited sense of moral responsibility. They were composed at a time when shame still predominated over guilt as a motivating force, and the intention of the agent and his knowledge of the circumstances of his act (the two factors that of course played the chief part in later legal and philosophical theories of responsibility) receive little attention.

Homer provided the material for much of later Greek literature, which examined the relation of Homeric gods and men in a new way. The problem of individual human responsibility for actions in which gods were said to be involved, though hardly seen by Homer, was much discussed by the fifth-century tragedians and Sophists (see, for example, Aeschylus, *Agamemnon* 1497ff.; Euripides, *Troades* 914ff.; Gorgias, *Helen*).

See also Aristotle; Empedocles; Heraclitus of Ephesus; History and Historiography of Philosophy; Parmenides of Elea; Plato; Platonism and the Platonic Tradition; Pre-Socratic Philosophy; Pythagoras and Pythagoreanism; Sophists; Xenophanes of Colophon.

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HÖNIGSWALD, RICHARD
(1875–1947)

Richard Hönigswald, the German philosopher, was born in Magyarovar, a small Hungarian town near the Austrian border. He received a degree in medicine from the University of Vienna in 1902 and then studied philosophy under Alexius Meinong at Graz and Alois Riehl at Halle, receiving a doctorate in philosophy in 1904. He taught at the University of Breslau from 1906 until 1930, when he accepted a chair in philosophy at the University of Munich. Because he was a Jew, Hönigswald was deprived

of his academic position in 1933. After the pogrom of 1938 he was sent to Dachau, but in 1939 he managed to immigrate to the United States. He lived in New York and engaged in research and writing until his death.

Hönigswald remained closer to the original doctrine of Immanuel Kant, as exemplified in the Transcendental Aesthetic, the *Critique of Practical Reason,* and the *Critique of Judgment,* than did such Neo-Kantians as Hermann Cohen, Paul Natorp, and Heinrich Rickert. However, he emphasized the insufficient consideration Kant had devoted to the importance of the concrete subject as a historical and empirical entity. Out of this criticism of Kant, Hönigswald developed his own influential theory of concrete subjectivity, the psychology of thinking (*Denkpsychologie*). According to Hönigswald, the concrete subject, an individual monad, is both fact (*Tatsache*) and principle (*Prinzip*)—that is, it is both a constituent of the world and an entity that recognizes itself as the correlate of the world, confronting it in cognition, volition, and artistic productivity. In the concrete subject, ground and grounded, objectivity and object, coincide; in a natural object they are separated. This doctrine forms the basis of Hönigswald's cosmology. In its attempt to determine the concrete subject's position in the world and its specific temporal structure in terms of a regional ontology, Hönigswald's philosophy exhibits similarities to Edmund Husserl's *Konstitutionslehre,* Martin Heidegger's analysis of *Dasein,* and Nicolai Hartmann's theory of stratified being. Hönigswald's approach differs from these in that he adhered to classical principles of validity (*Geltungsprinzipien*) in epistemology, ethics, legal and political philosophy, aesthetics, and the philosophy of religion. He found the key to the differentiation of the corresponding judgments and cultural realms in the constitutive features of the subject (thereby departing from Marburg and southwest German Neo-Kantianism), which he classed as intentionality, self-determination, reference to nature, and unlimitedness.

Hönigswald's philosophy of language made a considerable impact on Continental linguistics. Just as fact and principle coincide in the individual monad, Hönigswald claimed, the intermonadic reference of language constitutes the one other instance of the coincidence of fact and principle. Hönigswald's educational thought influenced such philosophers as Moritz Löwi and Alfred Petzelt, who, like him, emphasized the notions of tradition, concentration, and projection into the future. A number of thinkers, including Bruno Bauch, Theodor Litt, Wolfgang Cramer, and Hans Wagner, have engaged in evaluating Hönigswald's teachings for the study of fundamental problems in philosophy.

See also Cohen, Hermann; Hartmann, Nicolai; Heidegger, Martin; Husserl, Edmund; Kant, Immanuel; Language, Philosophy of; Meinong, Alexius; Natorp, Paul; Neo-Kantianism; Rickert, Heinrich; Riehl, Alois; Subjectivity.

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HOOKER, RICHARD
(1553–1600)

Richard Hooker, the English theologian and social and political philosopher, was born at Heavitree, near Exeter. His family was poor but well connected, and in 1568 Bishop John Jewel secured for Hooker a clerk's place at Corpus Christi College, Oxford. He became a fellow in 1577 and upon his marriage in 1581 was presented with

the living of Drayton-Beauchamp and a few months later with the mastership of the Temple in London. At the Temple, Hooker came into violent conflict with William Travers, a Calvinist who lectured there in the evenings. Although Hooker always retained a high regard for Travers's intellect and integrity, he was forced by his own convictions to oppose the views of Travers. It was during this controversy that Hooker seems to have conceived the idea of writing a systematic treatise to uphold the establishment of church and state as represented by Queen Elizabeth's policies. In order to carry out this plan, he requested a transfer from the unquiet position in London to a country rectory. Thus he went to Boscombe near Salisbury, where he was able to write and complete the first four books of his projected treatise, *The Laws of Ecclesiastical Polity,* by 1593 or 1594. In 1595 he was promoted to the rectory of Bishopsbourne near Canterbury, where he completed the fifth, purely theological part of his treatise by 1597. During the following three years he wrote another three books for the *Laws,* but he did not live to see them published. He died toward the end of 1600.

HOOKER'S IMPORTANCE

Hooker was not an original thinker. His importance lies in the fact that he drew upon the various currents of medieval thought in order to explain the ecclesiastical and political institutions of Elizabethan England. Together with Francisco Suárez and Cardinal Robert Bellarmine he belonged to the first Counter-Reformation generation, and like the two Jesuits he elaborated the final implications of Aristotelianism and of Thomism in social and political philosophy. But unlike his two Jesuit contemporaries, he did not live in the orbit of the Roman Catholic revival. To both Suárez and Bellarmine the Renaissance, the Protestant Reformation, and the Erastian state were merely threats they had heard of—threats from the outside. But Hooker was an Englishman who had grown up and lived through the turmoil occasioned by the attempt of radical Protestantism to force Queen Elizabeth from her conciliatory path. As a result he had to parry the practical attack of the extreme Protestant wing, and he finally came face to face with the secular state's opposition to that wing. This confrontation lends Hooker's thought an air of real drama; and if he was less systematic in his exposition than Suárez, his writings have the advantage of revealing a genuine intellect at work, wrestling with problems, not merely teaching what is imagined to be the truth.

THE SOURCE OF AUTHORITY

Hooker's analysis of the Puritan attack on the Elizabethan settlement in church and state had revealed to him the essential similarity of that case with a line of argument that had a long and distinguished medieval ancestry and in some ways went back as far as St. Augustine. The attack the Puritans mounted against the Elizabethan settlement drew heavily on John Calvin and to a lesser extent on John Wyclyf, and was ultimately analogous to all those medieval arguments that had denied the validity of natural law and therefore of the justification of secular authority in terms of natural law. Lacking a justification in natural law, the secular state, if it was to have any legal and moral basis at all, had to be subject to divine authority. To medieval writers this divine authority was represented on Earth by the papacy; to the sixteenth-century Calvinists, it resided in the presbyteries of the godly and the elect. In order to combat the view that men have no natural reason with which to discover a natural law, and the view that any law discovered or made by men is incompatible with divine law, Hooker fell back upon the philosophy of St. Thomas Aquinas. That philosophy had been developed during the thirteenth century to establish a doctrine of natural law and natural reason and to show how the rules thus discovered were fully compatible with those supernaturally revealed by God. The first book of Hooker's treatise is therefore a readable sixteenth-century compendium of Thomistic philosophy.

NATURAL AND REVEALED LAW

Like St. Thomas, Hooker believed that man is by nature a social animal and that both the impulse to live in society and the need for some kind of government is inherent in human nature. Man is therefore created by God with the rational endowments necessary for the conduct of society and government. All social and political arrangements are hence subject to natural law, which is immutable. But since conditions of life vary from time to time and place to place, it is necessary to supplement the dictates of natural law with positive or "human" rules. All this was taken from Aristotle, but translated by both St. Thomas and Hooker into the context of Christian thought. Men desire not only to live, however, but also to live well. This further desire implies that they must find their ultimate happiness. Such ultimate happiness cannot be found in the attainment of a temporal, and therefore temporary, good, but only in the ultimate perfection that is God. Owing to the Fall, man cannot know by natural reason what he must do to obtain this final supernatural end. God has therefore revealed to man certain rules to supplement

natural law. Hence it becomes clear that in order to achieve full human stature, man needs both natural law, for social and political purposes, and revealed law, for everlasting felicity. Revealed law is contained in the Bible and the traditions of the church. Natural law and revealed law are jointly, and not separately, the correct guide.

THE "LEX AETERNA"

In order to establish his point that the two sets of laws must be brought into operation jointly, Hooker delved into cosmology. God, he wrote, is the author of everything. He is a law unto himself, and that law is the *lex aeterna,* which is both the source of all other law and itself manifested in all other laws. In the divinely revealed law, it is manifested directly, so to speak; in natural law, indirectly. For natural law is discovered by human reason, and human reason is created by God according to the *lex aeterna*; therefore the dictates of natural law, and even the positive rules of human law, spring from the *lex aeterna.* God has given reason to every man. He has "illuminated" him. Although there is no explicit reference to St. Thomas in Hooker's text, this argument is a transcription of one of the central tenets of Thomism: *signatum est super nos lumen vultus tui, domine* ("the light of thy countenance is signed upon us, Lord"; Psalms 4:6–7). Hence we learn the will of God by using our reason.

OTHER THOMIST DOCTRINES

Hooker identified himself with all the more salient doctrines of St. Thomas. He argued that God is pure act and that in him existence and essence coincide; that angels are immaterial and that they differ from all natural, not purely intellectual creatures in that they behold the face of God directly; that the soul is the form of man, and not a separate substance as St. Thomas's opponents had argued.

The will of man, Hooker wrote, is free. Everything good that reason sees as such has something unpleasant annexed to it. And everything evil that reason sees as such has something pleasant attached to it. For reason cannot see the absolutely good. Hence, although we always will the good, we can never will the absolutely good; as a result the will is always free to choose between several relative goods. Hooker believed that the two springs of human action are knowledge (reason) and will. The will always wills the good; and the good is apprehended by reason. Sin results from the imperfect operation of reason, which can never apprehend the absolutely good. Sin is therefore intimately linked with both the freedom of the will and the imperfection of reason. It is never committed as a positive action or desired for its own sake, but is the result of a loss. Evil, by implication, is a privation.

These subsidiary arguments were important to Hooker not only because they enable the reader to identify the main lines of Thomism but also because they help to lead to the goal of the main argument. To avoid evil, it is necessary to supplement the law of nature. And since the law of nature is embodied in secular government, the revealed law is embodied in the church. Thus Hooker arrived at his main objective, the proof that church and state are intimately connected.

ECCLESIASTICAL AND SECULAR SOCIETY

As long as the argument remained confined to a high level of generality, it was easy to take for granted that this philosophy amounted in fact to a defense of the Elizabethan establishment, in which church and state were closely identified. Such reforms as Henry VIII and Elizabeth introduced into the church never really severed the visible continuity of ecclesiastical institutions and of canon law in England. The Elizabethan settlement, like Henry's acts of law, had been made by Parliament; in a very general sense, Parliament appeared to Hooker not as a purely secular institution. The bishops were part of it; and the electors themselves, being members of the church as well as members of a secular society, could easily be deemed to constitute in fact an ecclesiastical polity.

Hooker was explicit on the importance to his argument of the identity of the people who were the church with the people who were the commonwealth. He admitted that in countries where no such identity could be presumed, the natural society (being hierarchically lower than the ecclesiastical society) could not be deemed capable of making laws for the church. But in England, he was confident, complete identity obtained.

Thus Hooker was able to establish his initial point that the Puritan attack upon the Elizabethan settlement and the Puritan demand for the establishment of presbyteries and congregations was based on a false estimate of human nature. For it assumed that there was no natural law to justify the existence of secular society and of secular government, that all authority would ultimately have to be vested in the congregations representing the godly and the elect who embodied the only law there was, the divine law.

NATURALISM AND ANTI-PLATONISM

When Hooker turned to writing about the more particular arrangements of the Elizabethan settlement, he had difficulty squaring his Thomist theory with political practice, which was Erastian and naturalistic in the extreme. In an attempt to do so he drew heavily upon the ideas of Marsilius of Padua, who had completely subjected the church to the state. Hooker had begun as a confident Thomist; with the discovery that Thomism did not suffice to account for the intricacies of late Tudor politics, he found himself in a tangle once he began drawing upon ideas from the naturalistic thought of Marsilius, which was completely incompatible with Thomism.

The crux of the tangle was Hooker's unflinching Aristotelianism, probably absorbed when he was a student at Oxford. It was his Aristotelianism that prompted the experiment of bringing together the two great Aristotelian strands, that of St. Thomas and that of Marsilius, and yoking them to the defense of the Tudor state as Tudor ecclesiastical polity. If Hooker had been more observant and less wedded to Aristotle, he would have found another growing tradition of thought—Platonism—ready to hand.

Basically, Hooker was a Christian humanist, tolerant and fairly latitudinarian in theology. In the fifth book, which was devoted entirely to theology, he went out of his way to provide theological formulations that embraced to the point of ambiguity all the most controversial issues of the sixteenth century, so that as many disputants as possible would feel at home in his ecclesiastical polity. He was convinced that man was not wholly depraved and that the judicious exercise of human reason was absolutely essential to a Christian life. He saw no great and insurmountable chasm between nature and the supernatural and held that the mark of the Divine Creator can be detected in every creature.

Christian humanism had in a way been the mainstay of medieval Thomism. But in the sixteenth century, with Marsilio Ficino and Desiderius Erasmus, it had severed its connections with Aristotle and had been poured instead into the mold of Plato. Hooker was not only completely unaware of this revolution in thought; he actually went out of his way to attack one of the most popular Platonist teachers of his day, Peter Ramus. It is true that Ramus's variety of Platonism was a vulgar one and that one cannot blame Hooker for taking up cudgels against him. But viewed in perspective, Hooker's stubborn Aristotelianism acquired an unnecessarily aggressive edge when it was led into the fray against the Ramists, who were conspicuously active at Cambridge at that time. Against their nimble handling of Ramus's theories of rhetoric, Hooker reiterated all the old stock in trade of Aristotelianism and thought that he had vanquished his opponents simply by his demonstration that they differed from Aristotle. In this respect Hooker showed himself to be much more medieval than one is led to expect from his high baroque prose style and his freely discursive and informal way of arguing.

Through his conviction that Aristotelianism was the only satisfactory vehicle of Christian humanism, Hooker weakened his own case. For it was this conviction that deprived him of the opportunity of becoming the link between the humanism of John Colet, Erasmus, and Thomas More at the beginning of the sixteenth century and the Platonism of the Cambridge Platonists of the early seventeenth century. Platonism was fashionable enough in the England of Hooker: Edmund Spenser, William Harvey, Roger Ascham, Sir Philip Sidney were all Platonists in one way or another. But their Platonism was purely literary and emotional. Hooker was perhaps the only Elizabethan who could have deepened it. His Aristotelianism kept him aloof from these currents of thought, and thus he missed the unique opportunity that his great learning and the lucidity of his thought afforded him: injecting systematic philosophy into the Platonist current.

NATURAL LAW AFTER HOOKER

Although it may seem that Hooker's grand vindication of natural law helped to prepare the way for the revival of natural law in the seventeenth century, his arguments bear no relation to those of Hugo Grotius or of John Locke. To Hooker natural law was the dictate of reason; and reason was a discursive power of sensibility, capable of intuiting the good. It can therefore provide premises as well as help to draw out conclusions and dictate right conduct. To Grotius, on the other hand, the dictates of right reason were mere calculations of enlightened self-interest. In his theory of natural law, reason merely provided the long-term views necessary for survival, and natural law ceased to be identified with the rules set down, indirectly, by God. They were, on the contrary, made out to be completely independent of God.

See also Aristotelianism; Aristotle; Augustine, St.; Bellarmine, St. Robert; Calvin, John; Cambridge Platonists; Colet, John; Erasmus, Desiderius; Ficino, Marsilio; Grotius, Hugo; Harvey, William; Locke, John; Marsilius of Padua; More, Thomas; Natural Law; Plato; Ramus,

Peter; Social and Political Philosophy; Suárez, Francisco; Thomas Aquinas, St.; Thomism; Wyclyf, John.

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HORKHEIMER, MAX
(1894–1972)

Max Horkheimer, a German-American philosopher and social theorist, was born in Stuttgart, Germany, to a wealthy industrialist. After receiving a PhD in philosophy at the university of Frankfurt in 1922 with a dissertation on Kant supervised by Hans Cornelius, Horkheimer joined the *Institut für Sozialforschung* (Institute for Social Research) that was established in Frankfurt in 1923 as the first Marxist-oriented research center affiliated with a major German university. Under its director, Carl Grunberg, the institute's work in the 1920s tended to be empirical, historical, and oriented towards problems of the European working-class movement.

Horkheimer became director of the institute in 1930 and gathered around him many talented theorists, including Erich Fromm, Franz Neumann, Leo Lowenthal, Herbert Marcuse, and T. W. Adorno. Under Horkheimer, the institute sought to develop an interdisciplinary social theory that could serve as an instrument of social transformation. The work of this era was a synthesis of philosophy and social theory, combining sociology, psychology, cultural studies, and political economy.

During the 1930s, Horkheimer wrote many articles in philosophy, validating progressive ideals of reason, democracy, justice, morality, and other traditional concepts, while criticizing assaults on these ideals in the contemporary era and in particular developing critical perspectives on German fascism and its ideology. Most members of the Institute were both Jews and Marxist radicals and were forced to flee Germany after Hitler's ascendancy to power. The majority emigrated to the United States and the Institute became affiliated with Columbia University from 1931 until 1949, when it returned to Frankfurt.

From the mid-1930s, the Institute referred to its work as the "critical theory of society." For many years, "critical theory" stood as a code for the Institute's Marxism and was distinguished by its attempt to found a radical interdisciplinary social theory rooted in Hegelian-Marxian dialectics, historical materialism, and the critique of political economy. Members argued that Marx's concepts of the commodity, money, value, exchange, and fetishism characterized not only the capitalist economy but also social relations under capitalism, where human relations and all forms of life are governed by commodity and exchange relations and values.

In "Traditional and Critical Theory" (1937 [trans. 1972 in *Critical Theory*]), Horkheimer argued that "tradi-

tional theory" (which included modern philosophy and science since Descartes) tended to be overly abstract, objectivistic, and cut off from social practice. "Critical theory," by contrast, was grounded in social theory and (Marxian) political economy, carried out systematic critique of existing society, and allied itself with efforts to produce alternatives to capitalism and bourgeois society (then in its fascist stage in much of Europe). The goal of critical theory is to transform these social conditions, and help produce "an association of free people in which each has the same possibility of self-development" ("Traditional and critical theory," p. 219).

Working collaboratively with T. W. Adorno, their *Dialectic of Enlightenment* (1947 [1972]) sketched out a vision of history from the Greeks to the present that discussed how reason and enlightenment became their opposite, transforming what promised to be instruments of truth and liberation into tools of domination. Under the pressure of societal systems of domination, reason became instrumental, reducing human beings to things and objects and nature to numbers. While such modes of abstraction enabled science and technology to develop apace, it also produced societal reification and domination, culminating in the concentration camps that generated an instrumentalization of death. In the "dialectic of Enlightenment," reason thus turned instrumental, science and technology had created horrific tools of destruction and death, culture was commodified into products of a mass-produced culture industry, and democracy terminated into fascism, in which masses chose despotic and demagogic rulers. Moreover, in their extremely pessimistic vision, individuals were repressing their own bodies and renouncing their own desires as they assimilated and made their own repressive beliefs and allowed themselves to be instruments of alienated labor and war.

Sharply criticizing enlightenment scientism and rationalism, as well as systems of social domination, Adorno and Horkheimer implicitly implicated Marxism within the "dialectic of enlightenment" because it too affirmed the primacy of labor, instrumentalized reason in its scientism and celebration of "socialist production," and participated in Western modernity and the domination of nature. After the Second World War, Adorno, Horkheimer, and Pollock returned to Frankfurt to reestablish the institute in Germany, while Lowenthal, Marcuse and others remained in the United States.

In Germany, Adorno, Horkheimer, and their associates published a series of books and became a dominant intellectual current. At this time, the term "Frankfurt School" became widespread as a characterization of their version of interdisciplinary social research and of the particular social philosophy developed by Adorno, Horkheimer, and their associates. They engaged in frequent methodological and substantive debates with other theories, most notably "the positivism dispute," where they criticized empirical and quantitative approaches to social theory and defended their own more speculative and critical brand of thought. The German group around Adorno and Horkheimer was also increasingly hostile toward orthodox Marxism and were in turn criticized by a variety of types of "Marxism-Leninism" and "scientific Marxists" for their alleged surrender of revolutionary and scientific Marxian perspectives.

Horkheimer's *Eclipse of Reason* (1947) presents a popularized version of *Dialectic of Enlightenment* for an English-speaking audience and *Critique of Instrumental Reason* (1974) brings together Horkheimer's key essays since the end of World War II. The late Horkheimer became increasingly pessimistic and combined Schopenhauer's stoicism with a quest for the "totally other," a religious desire for transcendence that entered his materialist philosophy in later years.

See also Adorno, Theodor; Critical Theory.

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HOW AND WHY

See *Why*

HOWISON, GEORGE HOLMES
(1834–1916)

George Holmes Howison, the American personalist philosopher and mathematician, was a graduate of Marietta College in Ohio and professor of mathematics at Washington University, where he became a member of the St. Louis Philosophical Society. He taught philosophy at the Massachusetts Institute of Technology, at the Harvard Divinity School, and at the Concord School of Philosophy before moving in 1884 to the University of California, where he organized what was to become an influential department of philosophy.

Howison, calling his system "Personal Idealism," maintained that both impersonal, monistic idealism and materialism run contrary to the moral freedom experienced by persons. To deny the freedom to pursue the ideals of truth, beauty, and "benignant love" is to undermine every profound human venture, including science, morality, and philosophy. Thus, even Personalistic Idealism (B. P. Bowne and E. S. Brightman) and Realistic Personal Theism (Thomas Aquinas) are inadequate, for they make finite persons dependent for their existence upon an infinite Person and support this view by an unintelligible doctrine of *creatio ex nihilo.*

Howison's Personal Idealism, therefore, is founded on what he believed to be an undeniable fact: The freedom crucial to human existence is untenable if the individual is dependent for his existence upon any other being, including a Creator-God or an Absolute One. Therefore, self-determining beings must be uncreated and eternal; yet the unique quality of human freedom presupposes that each person stands in an individual relationship to other persons, subpersonal beings, and God.

How, then, does this plurality of uncreated beings compose a universe and not a mere collection of beings, a pluriverse? Howison answers that it is the very nature of undeniable, self-active, unified, thinking beings to define themselves and to fulfill themselves as individuals. In this very act of self-definition and self-fulfillment they find themselves related to other beings. "Thus, in thinking itself as eternally real, each spirit thinks the reality of other spirits."

Is there a God to unify the many grades of self-active beings? Yes, but any unification must not infringe upon individual growth to moral perfection. Creation as efficient cause must give way to creation in accordance with

an Ideal present in each being. The fulfillment of this Ideal calls for a world composed of "*all* the individual differences compatible with the mutual reality of all." Thus, basic harmony is possible because, as each individual defines himself, he finds the Ideal of self-definition by which to measure himself. And God, who is "defined as self-existent by every other self-defining being," is the indispensable standard for measuring reality.

In this Personal Idealism there is, then, no one Prime Mover or Creator. Reality is a republic of self-active, self-defining spirits, each moving toward the Ideal exemplified by God, "changelessly attentive to every other mind, rationally sympathetic with all experiences, and bent on its spiritual success." Nor are the vast number and the gradation of minds that compose the different levels of matter, life, and mind the product of evolution; what we know as nature and evolution is the product of the various kinds of self-active beings, moved ultimately by the final causes of their inner beings toward a common goal.

See also Bowne, Borden Parker; Brightman, Edgar Sheffield; Idealism; Materialism; Personalism; Thomas Aquinas, St.

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Peter A. Bertocci (1967)

HSÜN TZU

See *Xunzi*

HUANG ZONGXI
(1610–1695)

Huang Zongxi, also known as Huang Lizhou, was the most important figure during the transitional period from the late Ming to the early Qing dynasty. He was the last in line as a Sung-Ming neo-Confucian philosopher, and was also an intellectual historian who studied in depth the whole Sung-Ming neo-Confucian Movement. Huang was the disciple of Liu Zongzhou (1578–1645),

and compiled the influential *Mingru xue'an* (Cases in Ming Confucianism) according to the guidelines he learned from his teacher.

The dominant trend of philosophy in the Ming dynasty was Wang Yangming's (1472–1529) *xinxue* (learning of mind). It was in sharp contrast to Zhu Xi's (1130–1200) *lixue* (learning of principle), which had been the dominant neo-Confucian philosophy as well as state ideology since the Yüan dynasty, because Zhu's *Commentaries to the Four Books* had been adopted as the basis for civil service examinations since 1313. Zhu had taught a dualism of *li* (principle) and *qi* (material or vital force); *xin* (mind-heart), for Zhu, consisted of the subtlest kind of *qi* that encompasses *li* (principles). Wang felt that Zhu's dualism was detrimental to self-discipline. Instead Wang taught a monism that identified *xin* with *li*.

Liu was in sympathy with Wang, but when Wang put too much emphasis on *liangzhi* (innate knowledge of the good), some of his followers claimed that sages are all over the street. In order to remedy the situation, Liu shifted the emphasis to *chengyi* (sincerity of the will) and *shendu* (vigilance in solitude). Huang inherited his teacher's monistic outlook, and went further, claiming that *li* is but the *li* of *qi*, and that there is no *benti* (substance) aside from *gongfu* (discipline). Such a tendency inadvertently led to a radical naturalistic interpretation of monism, which abandons the transcendent aspect of neo-Confucian philosophy altogether, thus causing a paradigm shift in early Qing philosophy.

Although Huang had firm convictions of his own, he chose not to write on his philosophy; instead, he worked hard to compile case studies. Because Wang Yangming taught different things in different places and periods, Huang took pains to study the different branches of philosophy under the school, devising a scheme to cover them all (although he did not neglect the other schools of philosophy). With its breadth and depth, Huang's *Mingrue xue'an* was unprecedented. It became so dominant, in fact, that when it was published it was taken as the only doorway through which one should study Ming Confucianism. Huang had also planned to provide case studies in Sung-Yüan Confucianism, but he never completed the task; the study was finally put together by Quan Zuwang (1705–1755).

Huang was also an expert on textual studies of the Classics. A case in point was his study of *Yijing* (Book of changes). He and his brother argued that the diagrams attached to this classic, which had been around since the Sung dynasty, were spurious. Huang's influence was contagious; Yan Rouju (1636–1704), who claimed Huang as his mentor, produced a critical study that showed the *Book of History* in ancient script was spurious. It is well known that Zhu Xi had established the orthodox line of transmission of the Way by quoting from the alleged fabricated document. With Yan's study, the foundation of Zhu's claim was now apparently undermined. Again, inadvertently, Huang appeared to have helped Qing Confucianism undergo a paradigm shift from philosophy to philology.

When the Ming dynasty was overthrown by the Manchus, Huang reflected deeply on politics and wrote the *Mingyi daifang lu* (Waiting for the dawn: A plan for the prince). He felt that since the establishment of the dynasties the rulers had taken the country as their private property, thus causing much misfortune. Huang urged a return to the ancient time when sage-emperors served the country and the people without selfish desires. (Although the *Mingyi daifang lu* has nothing to do with democracy in the West. Huang's book was used as propaganda against the Qing regime, inadvertently propelling the intellectuals to hope for a republican government of, for, and by the people.) The last dynasty was overthrown in 1912.

See also Chinese Philosophy: Confucianism.

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Shu-hsien Liu (2005)

HUET, PIERRE-DANIEL
(1630–1721)

Pierre-Daniel Huet, the last Christian skeptic in the line of Michel Eyquem de Montaigne and Pierre Charron, was born in Caen, Normandy. His father had been converted from Calvinism. Young Huet studied with the Jesuits and, after taking a degree in mathematics, went in 1652 with the Protestant scholar Samuel Bochart to the court of

Queen Christina of Sweden. There, he discovered a manuscript of Origen, which later led him to write *Origenis Commentaria in Sacrum Scripturam* (Rouen, 1668). En route home in 1653 he stopped in The Netherlands, where he met many savants. A discussion with one of them, Rabbi Menasseh (Manasseh) ben Israel, led Huet to write *Demonstratio Evangelica* (1679).

From The Netherlands Huet returned to Caen, where he founded the Academy of Sciences, corresponded with learned men throughout the world, and worked on his studies on Origen. He often traveled to Paris and entered several of the learned literary salons. His reputation as a man of letters and science grew, and in 1670 Louis XIV appointed him to be Jacques Bénigne Bossuet's assistant as the dauphin's teacher. While holding this post, Huet started a famous set of editions of classical authors, *Ad Usum Delphini*.

After several years Huet decided to become a priest and was appointed abbot of Aunay and afterward bishop of Soissons. He did not like that post and exchanged it for the bishopric of Avranches. In 1699 he retired to a Jesuit institution in Paris, to which he had donated his enormous library (transferred after the suppression of the Jesuit order to the Bibliothèque Nationale, where it constitutes a basic part of the collection).

Huet wrote many works on history, philosophy, theology, and literature and was regarded by figures like Gottfried Wilhelm Leibniz as the most learned man of his age and as an excellent Latin poet. His most philosophically interesting works are the *Demonstratio Evangelica*, *Censura Philosophiae Cartesianae* (1689), *Nouveaux Mémoires pour servir à l'Histoire du cartésianisme* (1692), *Questiones Alnetae de Concordia Rationis et Fidei* (1692), and its notorious concluding section, the *Traité philosophique de la foiblesse de l'esprit humain*, published posthumously in 1723.

HUET'S SKEPTICISM

Demonstratio Evangelica shows signs of philosophical skepticism and empirical and liberal views. After arguing that no absolute certainty could be attained in mathematics or theology, Huet tries to establish religious truth inductively, by showing the common elements in all religions, ancient and modern. The privileged position of Christianity was primarily because of its expressing best the features of natural revelation. (Doctrinal differences within Christianity had little interest for Huet. Hence, he could join his friend Leibniz in trying to reunite all the churches.)

In Huet's papers there is some material that indicates the special flavor of his skepticism and religious approach. While he was bishop of Avranches, somebody noticed that a Jesuit from Normandy had received a doctorate for a dissertation claiming that there is no evidence that Christianity is true and that of all the religions in the world Christianity is the least probable. This raised a scandal, and the case was turned over to Huet to examine the Jesuit. Huet sent back a report saying that he agreed on everything. Since Christianity is a matter of faith, there should be no evidence and if it were at all probable, that would count as evidence. Further material about this may be found in the massive collection of his papers in the Medici library in Florence, Italy.

Huet's writings against Cartesianism show a much more developed epistemological skepticism. He utilizes all of Sextus Empiricus's weapons to attack René Descartes's claims that the *cogito* is the fundamental, indubitable truth and that whatever is clearly and distinctly conceived is true. Joining the previous critics Pierre Gassendi, Thomas Hobbes, and Simon Foucher, Huet, in an intensive examination of the Cartesian theory of knowledge, contends that "I think, therefore I am" is a dubious claim and that no certain knowledge about the world could be attained by Descartes's "way of ideas." In *Censura* and in an unpublished defense of it Huet argues not only that "I think, therefore I am" is an inference but also that it involves a time sequence from the moment when thinking is occurring to the moment when one realizes that one thought and that memory may be inaccurate. If one is immediately conscious of thinking, the realization about the existence is a possible future event. Hence, one cannot be simultaneously aware and certain of the ingredients of the cogito and, thus, of its indubitability.

Besides analyzing the Cartesian arguments, Huet ridicules both the theory and its founder. *Nouveaux Mémoires* is a spoof about Descartes's life after his supposed death in Stockholm, Sweden, in which Descartes tries to expound his philosophy in Lapland. Huet also joins the Jesuit anti-Cartesians in accusing Cartesianism of irreligion and incoherence, advocating, instead, a type of probabilistic nonmetaphysical view of the world.

THE 'TRAITÉ PHILOSOPHIQUE'

The full presentation of Huet's skepticism appears in the posthumous *Traité philosophique*, which the Jesuits denounced as a forgery written to embarrass the church. (The manuscript, which is in Huet's handwriting, and discussions in his correspondence eliminate any doubts

about Huet's authorship.) The traditional Pyrrhonian position is set forth, criticisms of skepticism are considered and refuted, and a modern skepticism are advocated in opposition to Cartesianism. Huet's skepticism consists of doubting that any genuine knowledge about reality can be attained by human means while offering experimental science and pure fideism as the means for finding out something about nature, God, and man. In *Traité philosophique*, in his correspondence, and in his marginalia, especially in his copy of Blaise Pascal's *Pensées*, an extreme fideism appears, in which it is denied that there can be any rational defense of religion. Huet thought Pascal too rationalistic because of his wager argument. Faith, and faith alone, could lead to any religious views. It is difficult to determine what or how much Huet himself actually believed. As a prelate and theologian, he was extremely latitudinarian and was in friendly contact with scholars everywhere, regardless of their religious or non-religious affiliations.

Huet's *Traité philosophique*, first published in 1723, was quickly translated into English, Italian, German, and Latin and was studied throughout the eighteenth century. David Hume read it and, like many others, was amused that the author was a total skeptic and a learned clergyman. Huet's contribution to skeptical discussion of the period underlines his explanation of how the skeptic can deal with normal human situations. Huet states, "It is one thing to philosophize, another to live." He then points out that the skeptic, like everybody else, lives according to customs and habits while at the same time doubting that there can be any justification. At the end of book 1, part 4 of *A Treatise of Human Nature* (1737), Hume gives pretty much the same explanation as Huet. Hume also cites Huet in the *Dialogues on Natural Religion*, posthumously published in 1779.

In his day Huet was influential and was taken seriously by Leibniz, Pierre Bayle, and others (Benedict [Baruch] de Spinoza even feared that Huet was writing a refutation of his views). A major transitional figure, he helped to destroy Cartesianism and to further empirical science. His immense erudition provided some of the basic materials for the Enlightenment. His pioneering work in comparative religion was taken by later scholars and was used as ammunition against traditional religion. However, his skeptical argumentation was taken less seriously than that of Bayle or Hume.

Recent studies suggest that Huet had an overall theological and philosophical perspective that would be united in the total corpus of his works. So far, there are only piecemeal pictures of it, which show him to be an important scholar of the early Enlightenment. There is still an enormous amount of unpublished material in his correspondence, his markings and notes on books in his library, and in manuscripts of works not completed.

See also Bayle, Pierre; Bossuet, Jacques Bénigne; Cartesianism; Charron, Pierre; Descartes, René; Enlightenment; Foucher, Simon; French Philosophy; Gassendi, Pierre; Hobbes, Thomas; Hume, David; Leibniz, Gottfried Wilhelm; Menasseh (Manasseh) ben Israel; Montaigne, Michel Eyquem de; Origen; Pascal, Blaise; Sextus Empiricus; Skepticism; Spinoza, Benedict (Baruch) de.

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Richard H. Popkin (1967, 2005)

HÜGEL, BARON FRIEDRICH VON

(1852–1925)

Baron Friedrich von Hügel, the Roman Catholic philosopher of religion and writer on mysticism, was born in Florence, Italy, and succeeded to his father's (Austrian) title in 1870. Most of his life was spent in England. His most important writings were *The Mystical Element of Religion as Studied in St. Catherine of Genoa and Her Friends* (London, 1908), *Essays and Addresses on the Philosophy of Religion* (London, 1921 and 1926), and *The Reality of God* (published posthumously; London, 1931).

Von Hügel's philosophical position was opposed both to idealism and to what he called positivism. By positivism he meant the doctrine that knowledge is exclusively confined to sense perceptions and to the laws that connect them. He rejected this position on the grounds that sense experience is accompanied by a strong "pressure on our minds" to credit it with "trans-subjective validity" (that is, to accept that it tells us something about an external world existing independently of our experience of it) and that refusal to assent to this pressure would mean that positivism collapses into skepticism, which is self-defeating. Moreover, since it is our own minds that we are immediately aware of, our apprehension of reality will be more certain if there is no phenomenal content. This idea paves the way for von Hügel's justification of the epistemological importance of mystical experience. He criticized idealism for a subjectivism similar to that implicit in positivism.

Von Hügel distinguished between knowledge of abstract ideas and of numerical and spatial relations, on the one hand, and knowledge of real existences on the other. The former is clear and readily intelligible; the latter is never totally clear, since any statement or set of statements about a real object will fail to exhaust what is to be discovered in it. The "higher," or more complex, the entity, the less clear is one's apprehension of it. Von Hügel was therefore concerned with opposing philosophical theories that claimed to give a clear and exhaustive analysis of types of existence (for example, he criticized David Hume's account of the individual). Reality, according to

von Hügel, is indefinitely apprehensible, a fact that serves to explain both the revisionism of science and the gropings of religion. The obscurity involved in religion is an index of the richness of its subject matter. "Religion," he said, "can't be clear if it is worth anything."

The concept of the Infinite occupies a central position in von Hügel's philosophy. He held that there was no good reason for neglecting or doubting the validity of man's sense of the Infinite, which should be taken quite as seriously as sense experience; in this, he in effect conjoined a critique of religious experience and traditional Catholic natural theology. The critique of religious experience involved the examination of the claims of great religious figures of all ages. He was opposed to simply accepting the testimony of the individual; rather, he pointed to the errors and excesses of many individual interpretations of religion, some of which involved the denial of plain facts. At the same time, he was sympathetic to the insights claimed by non-Christian religions. His doctrine of religious knowledge was not exclusive to any one tradition, although he was opposed to relativism. Von Hügel also argued against various theories arising from religious experience, such as the extreme dualism of Søren Kierkegaard and the monism of some mystics (for instance, the doctrine of the identification of the soul with God). He maintained that Kierkegaard differentiated to such an extent between God and man that intercourse between the two became incomprehensible. A crucial argument of von Hügel's was that the impinging of the Infinite on man's experience, emotions, and will implies the spiritual nature of the Infinite; for otherwise it would be hard to account for its inspiring power.

According to von Hügel's theory of knowledge, it is artificial to divorce the cognitive aspects of experience from the affective and volitional aspects; and therefore the religious apprehension of the Infinite is not limited to grasping a theoretical concept but includes a vital response. For this and other reasons, von Hügel defended a sacramental and institutional faith—namely, that of Catholicism. But in his openness to and sympathy with the critical evaluation of the biblical tradition by the methods of scientific history, von Hügel belonged to the Catholic Modernist movement.

See also Hume, David; Idealism; Infinite, The; Kierkegaard, Søren Aabye; Modernism; Positivism.

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A work on von Hügel is L. V. Lester-Garland, *The Religious Philosophy of Baron Friedrich von Hügel* (London, 1938).

Ninian Smart (1967)

HUGH OF SAINT VICTOR

See *Saint Victor, School of*

HUI SHI
(370–318 BCE)

Hui Shi (also Hui Shih) was an ancient Chinese logician and a major figure of the School of Names (*Ming-Jia*) whose members are also known as dialecticians or sophists for the sake of their emphasis on rational argumentations and their focus on deep structures of concepts. Hui Shi's philosophical thoughts are primarily delivered in his ten seemingly paradoxical propositions as recorded in the part "*Tian-Xia*" (ch. 33) of the *Zhuang-Zi*; these ten propositions are given as follows (with this author's brief explanation in brackets attached to each).

(1) "The greatest dimension [of the universe] has nothing beyond itself and is thus called 'the great unity,' while the smallest dimension [of the universe] has nothing within itself and is thus called 'the small unity.'" [The universe as a whole unity is both the greatest and the smallest in infinity; and the greatest and the smallest are intrinsically connected.]

(2) "That which has no thickness cannot be increased in thickness, and yet in extent it covers one thousand li [miles]." [This is one way to illustrate the point that being (extension) and non-being (non-thickness) come from each other.]

(3) "The heaven is as low as the earth; mountains are on the same level as marshes." [The high and the low in nature are not absolute but relative.]

(4) "The moment the sun reaches the zenith at noon, it is declining; the moment the creature is born, it is dying." [This characterizes the two features of changing and becoming process in nature: things will develop in the opposite direction when they become extreme; being and non-being interpenetrate each other.]

(5) "A great similarity differs from a little similarity; this is called 'the little similarity-and-difference.' All things are both similar/identical to one another and dif-ferent from one another; this is called 'the great similarity/identity-and-difference.'" [Things have not only their more or less similar or identical aspects but also their distinct aspects that distinguish one from another.]

(6) "The South has no limit and has a limit." [Some things have both their finite aspects and their infinite aspects at the same time. For example, the South as a location has its limit in space but has no limit in regard to, say, its development in time.]

(7) "One goes to the State of Yüe today and arrives there yesterday." [This highlights temporal relativity.]

(8) "Connected rings can be in separation." [Connected rings themselves are separated from each other in regard to the identity of each ring; each ring is at the same in connection with and separation from the other rings. The point is that seemingly opposed and unrelated states or processes can be possessed by the same thing and thus be interpenetrating and complementary.]

(9) "I know where the center of the world is; it is in the north of the State of Yan and the south of the State of Yüe." [This stresses spatial relativity.]

(10) "Extend love to all things; Heaven and Earth are the one unity." [The fundamental unification-character of all things in the universe constitutes the metaphysical foundation for extending love to all things.]

Hui Shi puts more emphasis on common aspects, connections, and unification of things in the universe (as highlighted in propositions 1 and 10) and relativity of their distinctions (as illustrated in propositions 2, 3, 4, 6, 7 and 9). In contrast, Gongsun Long, another major figure of the School of Names, stresses distinct aspects of things. Nevertheless, though the two thinkers appear to have different orientations, their difference is rather in emphasis. Hui Shi also pays attention to, or even stresses, distinct aspects, as suggested in propositions 5 and 8. Indeed, one central point suggested in Hui Shi's ten propositions is that many seemingly paradoxical or opposed contraries turn out to be interdependent, interpenetrating, and complementary. This essentially reflects the crucial point of the fundamental *Yin-Yang* way of thinking in view of cosmological and ontological characters of the universe. Moreover, as suggested by the points of all the ten propositions, Hui Shi, as "logician," is primarily concerned with metaphysical foundation of logical discourse rather than with its purely formal character.

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Bo Mou (2005)

HUMAN GENOME PROJECT

It was the Moravian monk Gregor Mendel, working in his monastery's garden in the 1860s, who cracked the secrets of heredity, but it was not until the beginning of the twentieth century that his insights were recognized and developed. Thanks particularly to the work of Thomas Hunt Morgan and his associates, working at Columbia University in New York, it was learned that the basic units of heredity, the genes, lie along thin, paired strings (chromosomes), in the centers of cells, and that these are not only the units of function—the things that carry the information used in building the finished organism—but also the units of heredity—the things passed on from one generation to the next.

In 1953, working in Cambridge, England, James Watson and Francis Crick confirmed the growing suspicion that the genes are long macromolecules of deoxyribonucleic acid (DNA), and famously they showed that the genes themselves consist of paired strings, twisted together in a double helix. The information carried by the genes comes not so much from the content of the DNA itself—a string or chain of four basic submolecules (nucleotides or bases)—but rather in the order of these submolecules along the chain. Information is read off from the DNA by another nucleic acid (RNA), and then this is used to pick up amino acids within the cell, which are then in turn strung together to make polypeptide chains, the building blocks (proteins) of new cells. Because there are twenty different amino acids used by the body, and because there are four different molecules in the DNA chain, in order take information from the DNA, there had to be (at a minimum) at least three nucleotides used in each transfer of information to catch without ambiguity a particular amino acid. Cracking this genetic code was the second great triumph of molecular biology of the 1950s.

With the basic theory now in place, biologists could turn their attentions to the discovering of the particular genes in particular organisms, a task made much easier, in the 1970s, by the discovery of powerful tools (recombinant DNA techniques) for dissecting the parts of the genome—the totality of a particular organism's genetic components. Thus was made realistically possible the idea of mapping the complete genetic content (the whole genome) of any particular animal or plant. Naturally, because people are humans, the idea of mapping human genes came to the fore, and thus the Human Genome Project (HGP) was conceived. Visionary credit is usually given to the biologist Robert Sinsheimer, who convened a crucial meeting of pertinent molecular scientists in California in 1985 to discuss and explore the feasibility of the project.

A task such as this is incredibly expensive, and governments of the world were soon asked for support and became involved both financially and organizationally. In the United States, the Department of Energy (DOE) was an early backer, a somewhat strange connection explained by the Department's involvement in the genetic effects of radiation on humans—a connection dating back to the Japanese atomic bombs and the testing of the subsequent Cold War. Less surprisingly, the National Institutes of Health (NIH) became involved and soon took the lead. By 1988, the codiscoverer of the structure of DNA, James Watson, had been appointed head of the project. (Watson resigned in 1992 and his post was then taken by the molecular biologist Francis Collins.)

The approach taken was basically one of brute force, squeezing out the information from the genome step by step, base by base. However, work in the 1990s was transformed not just by ever more powerful and rapid methods of getting results, but by the researcher J. Craig Venter. He argued for different strategies, initially aiming just to skim the genome for the really interesting results and leaving the rest until later, and then leaving governmentally supported institutions and going after private money, aiming to use even more powerful techniques to beat the NIH at its own game. In the end, both sides, public and private, announced a first draft of the human genome in 2000, and in 2003 a more detailed map was produced. The HGP was completed. Over 99 percent of the human genome has been mapped ("sequenced"), to an accuracy of 99.99 percent. Functionally speaking, there are about thirty thousand genes (a lot fewer than many would have estimated before the project began),

and a huge amount of the genome seems to be nonfunctional (it is estimated that "junk" DNA may be over 90%). The cost of this enterprise, factored in at 1991 U.S. dollars (when the estimates and projections were being done), was $2.7 billion. The genome sequenced was not taken from one individual person, but was a mixture of different people for the different chromosomes.

Focusing now on philosophical questions arising from the HGP, there are those more epistemological and those more ethical and social. This entry will take them in turn.

WORTHWHILE SCIENCE?

The big epistemological question that has haunted the HGP is whether it should have been done in the first place. As it was being discussed, many top-notch molecular biologists argued that it was unneeded and would divert resources and attentions from far more worthwhile projects. They felt that the project was motivated mainly by biologists who, feeling insecure around physical scientists, wanted their own equivalent of the moon-landing project—and it would have about as much scientific value.

Concerns such as this keep reappearing. Simply given a list of bases seems to have little or no scientific merit. The philosopher Alex Rosenberg gives a memorable metaphor. Imagine two stacks of phone books twisted around each other in a helix and reaching a mile and a half into the sky. The covers have been removed so each book leads at once to the next; the names have been removed so there are only lists of numbers—not in columns but one after another with no punctuation; area codes are assigned here, there, and everywhere at random, and no one has any idea what code corresponds to what geographical region. The only certainty is that 90 percent or more of the codes are fictitious and have no region to which they refer.

What, asks Rosenberg, is the point of having information on something such as this? Why bother to go to the effort of feeding all of these numbers into a computer? No one in their right mind would think it worth the effort. And yet this is equivalent to just what the HGP set out to do. And now that there is a string of numbers, so what? It is not that sequencing as such is worthless, but that unless there is some idea of what is being sequencing and why, it is misconceived effort. Far better to concentrate on specific problems—finding particular genes of interest and tracing their effects—than simply scooping up everything in one massive project.

Not surprisingly, from the beginning many biologists have disagreed. The junk DNA is a particularly sore issue because it does seem as if huge effort is being given over to mapping something—the vast portion of the genome—that is without function or purpose. The biologist and ethicist Frederick Grinnell argues that an attitude such as Rosenberg's is intellectual ludditism. It is precisely because scientists do not now see any function behind junk DNA that it should be explored and uncovered. Only then can its true nature be seen, and perhaps in fact they will find that far from being without purpose, perhaps junk DNA plays a crucial role in the living being.

Above the level of detail however—and more importantly—is that the project has never been simply one of listing bases on a line. From the start, biologists have been using the data to locate and to identify particular genes of interest, and to explore their functioning. As a tool, the results of the HGP have been made far more powerful because, from the beginning, the human genome was not the only genome being sequenced. Many others—bacteria such as *E. coli*, insects such as the fruit fly Drosophila, and mammals such as the mouse, as well as yeasts and plants—have been studied and mapped. The comparative results to which these have led have given rise to some of the most exciting and forward-looking branches of pure science active today. Particularly noteworthy is the field of so-called evolutionary development ("evo-devo"), where comparisons between gene sequences are a vital component of understanding and have led to insights as surprisingly unexpected as they are of far-reaching consequence. It is now known, for instance, that almost identical sequences of genes are to be found in organisms as separate as fruit flies and humans, pointing not only to shared ancestry but also to the fact that even today the ways in which these different organisms develop are identical, and for the same reasons. Results such as these are calling for significant rethinking of the workings of evolution. As Charles Darwin himself always suspected, so much change is a matter of making do with what one has rather than regrouping and starting again to go for an ideal solution.

No doubt more results will come in future years. While one may probably legitimately question the motives of all of the early backers of the HGP—the DOE certainly seemed to be looking for a project to justify its existence—it would be incorrect to say that no good science has emerged and churlish to say that the project has set molecular biology entirely down a misguided path.

EUGENICS

Even more than its potential scientific worth, the HGP was promoted as something that would have major social and ethical virtues, particularly in areas of medical care. As one moves toward these topics, what is first encountered is a cluster of issues around the topic of eugenics—however it may be called and described. Traditionally, "eugenics" referred to programs designed to improve the human race by interfering with or modifying its genetic constitutions. This could be thought of in two ways—positively, trying actively to perfect human genomes; and negatively, trying simply to eliminate the worst effects of the genes. The whole program fell into great disrepute because of the horrific activities of the Nazis, and today eugenics tends to be one of the topics from which people of all persuasions flee. Naturally, any suggestion that the HGP may in some way be an excuse for a new eugenical program is something that fills people with horror. It is something from which the promoters of the program have been at pains to divorce themselves.

Prima facie, one can see why there are worries. If the aim is simply to list the human genes, then the next move could well be trying to produce designer babies of some kind. But before one rushes to this as an inevitable conclusion, it is worth stopping and asking whether eugenics is necessarily always a bad thing. In particular, one may well reject positive eugenics—one may deplore the attempt to produce a race of superhumans—and yet endorse negative eugenics—attempting to eliminate horrendous genetic diseases. In fact, by another name, namely "genetic counseling," negative eugenics has never stopped. Paradoxically, although it was Jews who were the focus of the Nazi race laws, it is Jews who have been at the fore of genetic counseling as they try to discover carriers of the gene for Tay-Sachs disease, and through selective abortion prevent children being born with the affliction.

In this sense, therefore, one can see the completion of the HGP as a powerful tool in this direction, but at the same time argue that it is of positive moral and social worth rather than the other. Of course, one can see how this could be the thin end of the wedge to more draconian—perhaps even state-enforced—policies designed to eliminate even minor or idiosyncratic traits, or to eliminate those who may carry traits that could in certain circumstances prove wrong or disliked by some others in society. Perhaps Tay-Sachs disease yesterday, alcoholism (if it proves to have a genetic link) today, and homosexuality (again, if there is a link) tomorrow. This is clearly a danger, although whether the HGP as such should be faulted or whether any kind of genetic approach to humankind is more truly to blame is another matter.

In fact, one may argue that the HGP is a good thing in this respect, precisely because it takes the focus from individual genes and shows that the human being is a conglomeration of genetic factors. That (as the late Stephen Jay Gould pointed out) blunt "reductionistic" approaches to human nature—where each feature is supposedly controlled by one gene—are highly simplistic. Thirty thousand genes are not many to produce a complex entity such as a human being. It is clear that much about us is a product not just of one gene working in splendid isolation, but rather of many genes interacting to give rise to many complex traits. Hence, one starts to realize that, even with the best of intentions, thoughts of eliminating all genetic diseases are probably unrealistic. As one eliminates one gene, one affects the workings of others, which may in itself have negative effects. There is no simple route to perfection, and the HGP underlines this fact.

In any case, as has also been hinted at by the reference to evo-devo, the HGP is part of an ever-increasing awareness brought on by molecular biology. Simply thinking of genes leading to completed features is as naive as unqualified reductionism. There is no such thing as unadulterated genetic determinism, where people are the product of and only of their genes. It is always the genes in interaction with the environment, whether this be the physical environment or culture or whatever. Rather than argue that the HGP will at once lead to programs for genetic elimination, one could argue that the HGP will lead to programs to manipulate environments so that deleterious genes will not have full effect. Suppose that alcoholism is a function of the genes in some way. Rather than eliminating the genes and their carriers, one may rather try for programs that help people to learn to live adequately and happily with their biologically informed natures.

The point is that, as always in dealing with moral and social issues, scientific findings are never definitive or the last word. How one deals with these findings—including the findings of the HGP—is going to be a function of many things. While new knowledge can be dangerous, it is unfair to think that it will always be disastrous.

PARIAHS?

This leads at once to what is already an immediate and pressing concern. Now that there is the information from the HGP in the public domain, what is to stop institutions—public and private—from using this information

for their own ends, ends that may not necessarily be the ends of individuals? Take most obviously the question of insurance. The idea behind insurance is that people bet on ignorance, with a group of other people, to protect themselves if things go wrong. People buy health insurance knowing that 10 percent of the population will need a procedure; each individual in the group hopes he or she will not need the procedure, but knows that if so it will have cost (approximately) 10 percent of what it would have cost without the insurance. If people know they do not need the procedure, they will not buy the insurance— no man is going to buy insurance for gynecological problems. But, if a person is known to need the procedure, no one will sell that person the insurance—no one will sell cancer protection to someone with leukemia.

The worry is that the HGP is going to render some people pariahs and ineligible for insurance. Even worse, these will not necessarily be people who are or ever become physically sick. Thanks to the HGP, scientists are increasingly discovering genes that lead to various ailments or the predispositions to such ailments. This means that individuals can be tested against such standards to see if they are or are not possessors of the pertinent genes. Suppose that the knowledge obtained from the project enables a test for the disposition to a certain ailment or habit, alcoholism for instance. Normally, one may think that alcoholics should be discriminated against because of their habits; people with drunk driving convictions should pay more in car insurance. But is it fair to discriminate against the person who has a gene that simply sets up a predisposition? Does the state have the right to demand of a private insurance company that it not test for such a gene? Is this not unfair to others who buy insurance from that company? Do they not have the right to demand that their company obtain all pertinent information? The company surely has the right—the obligation—to discover if their would-be clients have drunk driving convictions.

The general problem has led some, notably the philosopher Philip Kitcher, to argue that the only viable solution to the new knowledge pouring forth from the HGP is some kind of state-supported, universal health care. Private insurers are simply going to be unwilling and unable to carry on with such plans unless there are massive, state-enforced rules preventing the obtaining of pertinent knowledge—which in itself is not necessarily a good thing (because, apart from anything else, one may need such knowledge), and probably not enforceable anyway. Society generally frowns upon fetal sex-determina-

tion, but that is little barrier for those determined to find and act on such information.

Even if Kitcher's proposal is followed through—after all, virtually every sophisticated society other than the United States already has such health care—this does not solve other related problems, such as life insurance. The moral ambiguity of such issues and the difficulties of working toward satisfactory solutions presents two notions of prejudice. On the one hand is the social prejudice that will be shown against those unable to buy such insurance. On the other hand is the potential for the prejudice abhorred by insurers, namely that society should not discriminate unfairly against the fortunate for the benefit of the unfortunate. A business deal is a business deal, not a policy of social welfare.

ASSESSMENT

One point is clear. The HGP is not some isolated phenomenon; it is part of a general move toward the understanding of organisms at the genetic level, and of technological applications that stem from such understanding. It is hardly a philosophical argument to point out that no amount of bemoaning the fact is going to stop this process. But philosophical argument does show that although there are great dangers and problems, there are also exciting opportunities and prospects, theoretical and practical. The philosopher's aim must be to guide in the right direction the bounties that stem from this new knowledge and its powers.

See also Philosophy of Biology; Science Policy.

Bibliography

FURTHER READING

The Internet is the place to start with the quest for information. Organizations such as the National Institutes of Health have detailed and clear web pages and links to other pertinent sites. Two books that capture the excitement of the new genetics are by the science writer Matt Ridley, *Genome* (New York: HarperCollins, 2000), and *Nature via Nurture* (New York: HarperCollins, 2003). A collection of philosophical articles on the HGP is included in *The Philosophy of Biology*, edited by David L. Hull and Michael Ruse (Oxford: Oxford University Press, 1998). This includes Rosenberg's article with his analogy. Frederick Grinnell replies in "Philosophy of Biology and the Human Genome Project" (*Biology and Philosophy* 15 [2000]: 595–601). A good starting guide to some of the social and moral issues is by Philip Kitcher, *The Lives to Come: The Genetic Revolution and Human Possibilities* (New York: Simon and Schuster, 1996).

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HUMANISM

Humanism in the present era signifies an ideological doctrine that places human beings, as opposed to God, at the center of the universe. Although a focus on human nature and human life can be traced back ultimately to ancient Greek thought, humanism in the modern sense, with its anthropocentric belief in the boundless potentiality of unfettered human reason and its secular conviction that human destiny is entirely in human hands, has its roots in the Enlightenment of the eighteenth century. This philosophical orientation should not be confused with the intellectual movement known as Renaissance humanism. Unlike its contemporary namesake, Renaissance humanism was not specifically concerned with promoting and exalting human values. It was, instead, a hugely influential cultural and educational program dedicated to the revival of the classical ideal of cultivated and civilized learning, referred to in Latin as *humanitas* and in Greek as *paideia*. For humanists of the Renaissance and their successors, the only way to achieve this ideal was through the *studia humanitatis*, the study of Graeco-Roman civilization through its literature, history, philosophy, and surviving artifacts. The zeal for recovering and reviving antiquity reached its height from 1300 to 1650. Recent scholarship has, however, highlighted earlier periods in which brief bursts of enthusiasm for ancient learning can be identified.

HUMANISM IN THE MIDDLE AGES

An intensified interest in the classical legacy, leading to a general cultural revival, occurred in the Islamic world during the tenth century. In contrast to Western Europe, where the Latin heritage was always supreme, Arab scholars, both Christian and Muslim, were concerned exclusively with Greek erudition. Moreover, their interest was entirely in the scientific and philosophical patrimony of ancient Greece, leaving aside its literary and historical works. During this period a large number of texts by Plato, Aristotle, Euclid, Ptolemy, Hippocrates, and Galen were translated into Arabic, sometimes via Syriac intermediaries. The philological efforts that went into this enterprise bore fruit in the achievements of thinkers such as Avicenna (980–1037) who were able to build up their own philosophical, scientific, and medical systems by drawing on the Greek material newly available to them.

Two epochs during the Western European Middle Ages witnessed revivals of ancient learning that have been seen as foreshadowing the humanism of the Renaissance. The first, associated with the reign of Charlemagne,

occurred in the eighth and ninth centuries. In this period a small group of scholars, most notably Lupus of Ferrières (c. 805–862), studied, edited, and copied texts by Cicero, Valerius Maximus, and Aulus Gellius, among other Latin authors. It was partly thanks to their philological interests and skills that these works survived and were transmitted to later generations. Another Carolingian intellectual, John Scotus Eriugena (c. 810–c. 877), used his knowledge of Greek, a rare accomplishment in the Middle Ages, to gain access to Neoplatonic sources, which played a significant role in his highly original philosophical and theological writings.

The second period of medieval humanist activity took place in the twelfth century. A coterie of scholars, mainly located in northern France, began to study writings from classical antiquity with a new intensity and sense of purpose. They explored a wider range of Latin texts than their Carolingian predecessors, including late ancient translations of Greek works, such as Chalcidius's partial version of and commentary on Plato's *Timaeus*, dating from the fourth century, and the Aristotelian translations and commentaries of Boethius (c. 480–c. 524). They pursued predominantly scientific and philosophical interests, though less single-mindedly than the Arab scholars of the tenth century, and with a considerable emphasis on the Roman as well as the Greek tradition. The outlook of John of Salisbury (c. 1115–1180), an Englishman educated in Chartres and Paris, reflects the characteristic strains of humanism in this era. His knowledge of Latin literature, much of it culled from medieval *florilegia*, or anthologies, rather than through direct acquaintance with the ancient texts, was impressively broad though often shallow and perforce patchy. He wrote in a fluent and accomplished Latin style though without any attempt to imitate classical authors; and though he peppered his treatises with quotations and anecdotes from ancient literature, these snippets were deployed solely for his own purposes with no concern for their original context and import. Other twelfth-century scholars engaged in cosmological speculation and provoked accusations of heresy by employing Platonic concepts to investigate the relationship between God and the created universe.

FROM MEDIEVAL TO RENAISSANCE HUMANISM

Another product of twelfth-century France was the development of a new approach to Latin grammar based on a philosophical and logical analysis of syntax rather than on the careful study of Roman authors. Codified in two

enormously influential manuals, Alexander of Villedieu's *Doctrinale* (1199) and Evrard of Béthune's *Graecismus* (1216), both written in verse for easy memorization, this unclassical method of teaching grammar quickly spread to Italy where it remained the staple of elementary education in Latin until the end of the fifteenth century. Equally successful was Geoffrey of Vinsauf's *Poetria nova*, a verse textbook on rhetoric written between 1208 and 1213. Devoid of classical examples, it provided rules for obtaining an abstract eloquence unrelated to the prose of ancient Roman authors. This technique fitted in well with the *ars dictaminis*, a simplified method of composing public letters that had been widely adopted in Italy for the training of notaries, lawyers, and chancery officials. Their need for a practical, efficient, and uncluttered form of Latin expression led to a rejection of Roman models.

The first glimmerings of humanism appeared against the background of—and most likely in reaction to—this neglect of the classical tradition in thirteenth-century Italy. The Paduan notary and judge Lovato dei Lovati (c. 1240–1309), usually described as a *pre-* or *proto-humanist*, broke new ground with his attempt to write Latin verse epistles in the style of Roman poets. Medieval scholars who took an interest in classical literature had not aspired to write Latin in an authentically ancient manner. Lovati, by contrast, made a deliberate (though far from successful) effort to imitate the vocabulary, meter, and tone of the Roman poetry he admired, including the tragedies of Seneca, whose metrics he explained in a brief treatise, and the lyric poems of Catullus, Tibullus, and Propertius, which were hardly known at the time. In his official capacity, however, Lovati continued to write the traditional Latin of the *ars dictaminis*. His disciple Albertino Mussato (1261–1329) not only composed a Senecan verse tragedy, *Ecerinis*, but also extended the classicizing reform of Latin to prose by modeling his history of Emperor Henry VII on Livy. Yet he, too, continued to use medieval Latin in public letters and speeches, as did other humanists throughout the fourteenth century.

It was with Petrarch (Francesco Petrarca, 1304–1374) that the nascent humanist movement came into its own. He became an exemplary figure whose predilections, interests, and activities set the agenda for later generations of humanists. In his own Latin compositions, he emulated both the prose and poetry of Roman authors as well as working out a sophisticated theory of imitation. He collated and edited manuscripts of Livy and applied his philological acumen to the correction of other classical texts. He recovered works that had been effectively lost since antiquity, including Cicero's letters to Atticus. He

rejected medieval scholasticism, with its emphasis on Aristotelian logic, natural philosophy, and metaphysics, and favored instead the rhetoric of Cicero and Seneca, which had the power to move hearts and stir emotions. He felt that he was living at the dawn of a new era following a dark age of ignorance and barbarism; and he believed that the moving force behind this large-scale cultural transformation was the gradual recovery of the heritage of classical antiquity through his own efforts and those of like-minded scholars.

RENAISSANCE HUMANISM IN FIFTEENTH-CENTURY ITALY

There have been attempts by modern scholars to connect the rise of Renaissance humanism with the political circumstances of fifteenth-century Italy. Its origins have been linked to the struggle of republican Florence against the monarchical tyranny of Milan in the early years of the century, or it has been seen as both reflecting and fostering a new spirit of active engagement of the citizenry in communal affairs. This notion of *civic humanism* has not stood up well in the face of overwhelming evidence showing that humanism flourished in a wide variety of political and social contexts. Similarly, the multiplicity of mutually contradictory views held by humanists on any given subject has undermined persistent efforts to align the movement with a particular ideological bent or philosophical persuasion. The only conviction that humanists demonstrably held in common was their passionate dedication to study of classical antiquity.

Paul Oskar Kristeller's definition of a humanist as a professional teacher of the *studia humanitatis* therefore corresponds most closely to the historical facts and has consequently won widespread acceptance. The term humanist, or *umanista*, in fact derives from late fifteenth-century Italian university slang that denoted a teacher or student of the *studia humanitatis*, just as a *legista* was someone who taught or studied law. The expression *studia humanitatis* itself had even longer associations with the movement. Petrarch noted it in his manuscript of Cicero's *Pro Archia*, a speech he himself discovered in 1333, and his devoted follower Coluccio Salutati (1331–1406), the first in a long line of humanist chancellors of Florence, began using it in 1369 to describe the study of classical literature. It soon became a frequent refrain, indeed a battle cry, among humanists defending or promoting their own activities.

Although Kristeller's account of the *studia humanitatis* as consisting of five academic subjects—grammar, rhetoric, poetry, history, and moral philosophy—has also

been widely adopted, it needs further refinement. These subjects may have been at the center of the Italian humanist curriculum during the fifteenth century. Yet their own interests ranged far beyond these fields, extending into all disciplines that relied on the wisdom of the ancients. In the Renaissance this meant almost every branch of learning: medicine, law, science, political thought, music, architecture, and all branches of philosophy. It was on this basis that Angelo Poliziano (1454–1494), the most learned classical scholar of the Italian Renaissance, decided that he would no longer lecture at the University of Florence on Latin and Greek literature, the normal subjects for a humanist professor but, instead, give a course on Aristotelian logic. Such an audacious move predictably provoked cries of derision from the philosophers whose academic territory he was invading. He responded to this outrage by maintaining, in his inaugural lecture of 1492, that as an expert on antiquity he was qualified to interpret any ancient text, not just poetry, history, and rhetoric, but also medicine, law, and philosophy. He further demonstrated this point in a dazzling series of philological investigations ranging over a broad spectrum of texts, including the *Corpus iuris civilis* (the sixth-century codification of Roman law), the scientific writings of Pliny the Elder, and the Greek sources of Latin medical terminology.

Fifteenth-century Italian humanists contributed to the *studia humanitatis*, broadly construed, in a number of ways. In the first place, they uncovered manuscripts of classical Latin texts that had been virtually unknown throughout the Middle Ages. In the wake of Petrarch's discovery of Cicero's letters to Atticus and *Pro Archia*, Salutati turned up a copy of his familiar letters while a humanist of the next generation, Poggio Bracciolini (1380–1459), found more unknown speeches of Cicero. Poggio's energetic hunt through monastic libraries in northern Europe also produced a complete copy of Quintilian's *Education of the Orator*, previously circulating in fragmentary form, and a masterpiece of Roman poetry, Lucretius's *On the Nature of Things*. Other important works unearthed by Italian humanists include the histories of Tacitus and the *Brutus* of Cicero.

When humanists found new works, or more accurate copies of ones that were already known to them, they ensured their further survival and diffusion, before the invention of printing, by copying and circulating them in manuscript. One of the innovations introduced by Italian humanists was to replace the crabbed and illegible gothic handwriting used in the late Middle Ages with an elegant and readable script that they believed was modeled on ancient Roman letter forms but that, in reality, dated from the Carolingian era. They also devised a cursive script, which is the ancestor of our italic character. In addition to copying texts, humanists also attempted to correct the errors that had inevitably crept into those texts through centuries of scribal transmission. They did this by comparing readings in different manuscripts or by making conjectural emendations—techniques that classicists still use today though with far greater methodological sophistication.

The next stage in dealing with the text of an ancient author was to explain and interpret it, often for the benefit of students. A large number of humanist commentaries on classical works grew out of university lectures. At a lower level, humanists also made their living as schoolteachers, equipping youngsters with the basic tools of Latin literacy that would enable them to gain access to the literary monuments of antiquity. Humanists such as Pier Paolo Vergerio (1370–1444) and Battista Guarino (1434–1503) wrote treatises touting the novelty of their teaching methods and boasting that the classical education they provided would inculcate a love of virtue and nobility in their young charges. Such extravagant claims no doubt assisted humanists to corner the educational market in the Renaissance. As is now known, however, the textbooks used in elementary Latin training changed relatively little from the thirteenth to the end of the fifteenth century. Moreover, the pedagogical techniques employed by humanists, which emphasized rote memorization and focused on grammatical, historical, and literary minutiae, were ill-suited to produce moral improvement. At the later stages of schooling, humanists made a greater impact, giving Virgil and Cicero a more prominent place in the curriculum than they had previously enjoyed and downgrading late ancient authors such as Boethius.

Fifteenth-century Italian humanists continued the classicizing reform of Latin style initiated by Lovati, Mussato, and Petrarch. By the early decades Cicero had become the accepted model for prose writers though it was not until the end of the century that a slavish and exclusive imitation of Cicero came into fashion. As an aid to writing correct classical Latin, Lorenzo Valla (1407–1457) compiled his *Elegantiae*, a catalogue of subtle linguistic distinctions, fine shades of meaning, and nuances of usage, based on his exhaustive knowledge of the entire Roman literary canon. In a bravura display of humanist historical scholarship, Valla deployed this same knowledge to discredit the "Donation of Constantine," a document underwriting papal claims to temporal sovereignty, as a crude medieval forgery. He also believed, like

Poliziano, that his superior command of Latin permitted him to interpret the *Corpus iuris civilis* more accurately than the legal scholars of his day.

Valla not only had an unrivaled mastery of classical Latin, he also knew ancient Greek well enough to translate the historians Herodotus and Thucydides. His expertise in both languages also allowed him to point out errors in the Vulgate, the standard Latin version of the New Testament, by comparing it with the Greek original. The revival of the study of Greek, which was well on its way by Valla's time, was one of the most important achievements of humanism. Very few medieval scholars had any acquaintance with Greek; and even though the works of some authors, including Aristotle, had been translated into Latin, the bulk of Greek philosophy, science, history, and literature was unknown in Western Europe. Beginning with Petrarch, humanists recognized the importance of recovering the Greek as well as the Latin heritage of antiquity. By traveling to Greece or studying with Byzantine émigrés in Italy, they learned the language and started to apply the techniques of editing and interpretation that had been developed for Latin texts to Greek ones. Greek, nonetheless, remained the preserve of a minority of humanists who served the larger intellectual community by translating a large body of texts into Latin. The writings of the Greek Church Fathers, many of them translated by Ambrogio Traversari (1386–1439), general of the Camaldulensian Order, formed an important element in this corpus.

Humanists were not concerned solely with texts. The material remains of antiquity, which were especially plentiful in Italy, were also of great interest to them. They visited architectural ruins and avidly collected Roman coins, inscriptions, and sculptures. Humanist historians, such as Flavio Biondo (1392–1463), subjected these artifacts to critical scrutiny and used them to supplement written records. This aspect of humanism laid the groundwork on which the disciplines of archaeology, numismatics, and epigraphy were later constructed.

RENAISSANCE HUMANISM IN SIXTEENTH-CENTURY EUROPE

By the turn of the sixteenth century, humanism had begun to spread from Italy to other European countries. The movement took on new contours and colors, reflecting the different cultures into which it was transplanted. Nonetheless, the humanist program that had taken shape in fifteenth-century Italy did not undergo radical changes but continued to develop within the same broad outlines. This process is well illustrated in the writings of the most

outstanding and influential humanist of the period, Erasmus (c. 1469–1536). In his educational works the Dutch scholar banished the last vestiges of the medieval tradition of learning Latin and presented a thoroughly humanist pedagogical method firmly based on the study of Roman and Greek authors. Erasmus also brought the humanist reform of Latin style to new heights. With the entire resources of classical Latin at his command, he adopted and promoted a flexible and eclectic approach to prose composition, rejecting the rigid Ciceronianism of his day. Carrying forward the achievements of Valla and Traversari, Erasmus demonstrated the relevance of humanism to Christian as well as pagan antiquity by applying philological techniques to the text of the New Testament and producing numerous critical editions and translations of the Church Fathers.

The inroads that fifteenth-century Italian humanists had made into disciplines such as medicine, philosophy, and law were extended during the sixteenth century by scholars from all over Europe. The Englishman Thomas Linacre (c. 1460–1524) helped to edit the Greek text of Galen and translated many of his treatises into Latin. The Flemish scholar Justus Lipsius (1547–1606) reconstructed the philosophical system of the ancient Stoics, relying on Greek as well as Latin sources, and gave impetus to a popular fad for Stoicism that lasted until the 1660s. The French humanist Guillaume Budé (c. 1467–1540) brought the weight of his vast classical erudition to bear on the elucidation of obscure passages and terms in Roman law. He also wrote learned treatises on Roman coinage and Greek grammar.

Though Latin remained the *lingua franca* of humanism, facilitating communication among scholars of different nations, a feature of the movement in the sixteenth century was the increase of humanist writings in the vernacular. This phenomenon was not unheard of in the fifteenth century: Leon Battista Alberti (1404–1472) wrote a humanist treatise on household management in Italian, partly in order to demonstrate that the language was a suitable vehicle for scholarly discourse. Now, however, it proliferated and attained a respectability that it had previously lacked so that even a hard-core humanist such as Budé was prepared to write his treatise on the education of the prince in French. *The Prince* of Niccolò Machiavelli (1469–1527) and the *Essays* of Michel de Montaigne (1533–1592) are just two examples of influential works in the vernacular that were steeped in humanist culture.

THE LEGACY OF RENAISSANCE HUMANISM

The humanists' aim of reviving and restoring the heritage of classical antiquity was largely achieved by the seventeenth century. Although a few discoveries were yet to be made, almost all ancient Greek and Latin writings known today were available to scholars who could consult them in printed editions, often accompanied by learned commentaries and, in the case of Greek works, Latin translations. It was at this stage, however, that the seismic changes in European culture brought about by the Scientific Revolution, and the rise of modern philosophy made this body of knowledge, so revered by the humanists, increasingly irrelevant to contemporary needs. They continued to develop ever more sophisticated methods of investigating the textual and material remains of antiquity, gradually transforming themselves into the classicists and archaeologists of the present day. By 1809, when the term *humanism* was first coined by a German philologist to defend the study of Greek and Latin, the movement had become synonymous with the profession of classical scholarship. Although greatly marginalized since its heyday in the Renaissance, humanism continued to exert a significant and widespread cultural influence until well into the twentieth century through the resilient ideal of the classical education.

See also Aristotle; Avicenna; Carolingian Renaissance; Cicero, Marcus Tullius; Enlightenment; Erasmus, Desiderius; Galen; Hippocrates and the Hippocratic Corpus; John of Salisbury; Petrarch; Plato; Stoicism.

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Jill Kraye (2005)

HUMAN NATURE

The phrase "human nature" is multiply ambiguous. Some early modern thinkers such as Thomas Hobbes, John

Locke, and Jean-Jacques Rousseau tended to mean by it the supposed nature of human beings before the advent of organized human society. But there is every reason to believe that human beings have always been highly social creatures, and that the idea of individuals coming together to form society is a myth.

Another ambiguity, exemplified in the opposition between Mencius and Hsun-tzu in the ancient Confucian tradition in China, and between differing traditions within Christianity, is over whether human nature is basically good and in need only of appropriate sustenance and education, or whether we are inherently evil and stand in need of discipline or radical transformation.

A further difference is between a conception of human nature as what is in each individual at birth (or, given modern understanding of genetics, at conception), as opposed to the nature of the fully formed adult after maturation, socialization and education. This has given rise to endless nature versus nurture debates.

The distinction between a priori and a posteriori truths allows us place both for philosophical analysis of concepts of human nature, and for the discovery of empirical facts in physiology, psychology, anthropology, sociology, and history.

A PRIORI THEORY: RATIONALITY

What is most distinctive of human beings as opposed to other animals— rationality, language, consciousness, self-consciousness, freewill, moral responsibility, the ability to love? (And must all these go together?) How would we recognize beings from outer space as having any of these capacities? Perhaps the most obvious criterion they would have to meet to count as rational thinkers and agents is that they should be able to give reasons for their beliefs and their actions, in language of some sort that we could come to understand.

What makes such rationality possible in us? Plato and René Descartes believed that we are essentially immaterial souls, so our distinctively rational nature lies beyond scientific investigation. But must minds, consciousness and rationality involve something nonmaterial, or are we made of matter alone? Aristotle saw our rationality as superimposed on what we share with the animals (perception and self-movement), which is itself superimposed on the basic functions of all life including plants (metabolism and reproduction). According to this understanding, we are animals of a special rational kind.

But even if we reject a dualism of substances, and say that mind or soul is whatever the brain enables us to do,

we find an unavoidable duality of aspects. There are mental descriptions of our beliefs, desires, hopes and fears, and there are physical descriptions of neuron firings and chemical changes. We thus use an irreducible duality of explanations—justifying our actions and beliefs in terms of reasons, and explaining brain events in terms of their physiological causes.

EMPIRICAL THEORY: HUMAN NATURE AND NURTURE

Into this a priori conceptual framework we can fit empirical discoveries about human nature (and perhaps one day, about other rational beings elsewhere). There are plenty of such facts about the structure and functioning of our bodies—it is surely the size and complexity of our brains that explains our linguistic and rational abilities. There are also facts about our mental capacities, for example our recognition of faces, our tendency toward pair-bonding, and the need of children for attachment to parents.

In the light of Charles Darwin's theory of evolution, we can offer a scientific account of how the basic physical and mental commonalities of humans have evolved on this planet. With the aid of genetics and the fossil record, scientists are now piecing together the complicated story of how the faculties of rational thought and agency have come to be embodied in the human species. But we have to be very careful in applying Darwinian theory to human phenomena. Sociobiologists and evolutionary psychologists have tended to exaggerate. It is highly disputable whether every detail of contemporary human behavior has an evolutionary explanation; for example, donations to charity, the pursuit of religious vocations, and politicians' decisions to go to war.

Our reasons for action involve our beliefs and values, expressed in terms of our culturally developed concepts. Culture is at least as crucial to the realities of our contemporary human nature as evolution. It is superimposed on basic human biology, of course. That there are *some* innate tendencies in human nature is indisputable—for example, our sexual behavior. But the forms sexuality takes vary considerably between societies, and over time, and in devotedly celibate individuals its expression may be suppressed. The details of our behavior depend on the particular culture we have been brought up in. In the high-tech capitalist economy that now dominates the world, much of the social influence is exerted through the power of money, advertising, and the media. But it should not be forgotten that much behavior

depends on individual choices, as existentialists and religious traditions have emphasized.

HUMAN NEEDS AND RIGHTS

Like Plato and Aristotle, Immanuel Kant offered an objective basis for ethics, appealing both to pure reason and to empirical facts about human nature. Though Kant seemed to want to derive morality from rationality alone, he can be seen as appealing to a fundamental moral principle of respect for all rational beings "as ends in themselves." In this, he was obviously inspired by the Judeo-Christian ideal of love for one's neighbor as oneself, whereas Plato and Aristotle were more selective in their bestowal of respect for others. Karl Marx's and Jean-Paul Sartre's sense of human possibilities and the injustice of their denial were surely also influenced by the Judeo-Christian tradition. The Confucian notion of benevolence, and the Hindu and Buddhist programs of detachment from self, seem to point in the same direction of universal compassion.

Respect for all rational beings implies recognition of the rights and needs of all human beings. Rights imply corresponding obligations on other people, and the most appropriate place for talk of rights is in the negative cases: the rights not to be killed, injured, tortured, enslaved, imprisoned without trial, or exploited for someone else's benefit.

In his "second ethics," Sartre thought of human needs as objective values which demand to be fulfilled, if human beings are to flourish. The notion of need applies at several levels. There are things we need to maintain life and health—air, water, carbohydrates, protein, vitamins, medicines. There are psychological needs—most fundamentally the need of children for loving care, and there are typical adult needs for friendship, for sexual fulfillment, and for children of one's own. There are also needs for education and group membership, and needs to work, or contribute in some way to society.

When a human need is not met, it does not follow that someone is to blame. But when a human right is abused, then some person or group or social agency has done or encouraged the killing or torture, the enslavement or exploitation. And why have they done it? The answer will typically involve their seeing some advantage to themselves. There may be sadistic individuals who find intrinsic pleasure in causing pain, and many more are prepared to inflict suffering in the name of a "greater" cause (nation, party, or church), but most people do what they see as best for themselves. As Kant said, there is a "radical evil" in human nature, which consists in the tendency to prefer one's own interests over those of everyone else. But this is consistent with saying that we also have a potential for goodness and love.

LOVE

In the light of scarcity of resources, and individual and social evils, can we still entertain any hope for ethical and social progress, like Kant and other Enlightenment thinkers? Scarcity may perhaps be alleviated by scientific discovery and technological ingenuity. But new affluence breeds new needs and demands. There is an inherently competitive streak in human nature; we constantly rank ourselves against others. Our competitive tendencies may be acceptable in business and sport and in scientific and artistic achievement, but they easily turn into ruthlessness, cheating or greed. They may help drive social and cultural progress, but they need limitation by higher ideals of compassion and the common good.

What remedies are there? The first step is surely to name the evils, to try to make people aware of what is wrong, in ourselves and in society. For we are adept at finding good names for what we do: there are many possibilities of self-justification, self-deception, Freudian repression or Sartrian bad faith, and what Marx called "ideology," which covers up exploitation.

The notion of rationality alone does not give us much guidance as to what is ultimately worth aiming at, which of our desires are to be encouraged and developed, and which should be suppressed or transformed. People can be superbly intelligent and energetically persistent in action, yet utterly selfish or perverse.

The notion of love is perhaps more promising, provided we distinguish it, as in the Christian tradition exemplified in C. S. Lewis, from erotic and parental love, and from merely human friendship (as in Aristotle). The New Testament presents us with the ideal of *agape* (divine love, traditionally translated as "charity"), as presented in I Corinthians 13, Galatians 5, and I John 4. Sigmund Freud thought it impossible to fulfill, but even that dour old pessimist Arthur Schopenhauer recognized the possibility of saintly renunciation of self (and also, aesthetic contemplation) as a way that human beings can sometimes escape the near-universal domination of biologically based "will."

See also Altruism; Egoism and Altruism; Evolutionary Ethics; Moral Psychology.

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Leslie Stevenson (2005)

HUMBOLDT, WILHELM VON

(1767–1835)

Wilhelm von Humboldt, the Prussian statesman, humanist, and linguistic scholar, was born in Potsdam; a younger brother was the scientist and explorer Alexander von Humboldt. Wilhelm von Humboldt's early education was placed in the hands of private tutors and was augmented by private instruction in Greek, philosophy, natural law, and political economy from distinguished men of Germany's Enlightenment. From these youthful studies Plato's idea of the soul and Gottfried Wilhelm Leibniz's concept of force left lasting impressions on his thought.

During and after his university years at Frankfurt an der Oder (1787) and at Göttingen (1788–1789), Humboldt began to question the rationalistic presuppositions of the Enlightenment. Like Johann Gottfried Herder, he viewed human society as a manifold of organic forces, closer to nature than to reason, and came to believe that true knowledge of humanity depended on the cultivation not of pure analytical reason but of deep-lying intuitive faculties.

Humboldt's political philosophy was outlined in a long essay, *Ideen zu einem Versuch die Grenzen der Wirksamkeit des Staats zu bestimmen*, written in 1791. Focused on the central theme of his thought—the inalienable value of the individual—this work propounds the humanistic creed that man's goal is "the highest and most proportional development of his powers to a complete and consistent whole." Reason must guide this development, but reason for Humboldt was a formative rather than a generative faculty. He criticized state control of education and religion for inflicting an arbitrary framework on diverse, organically developing human forces, whose unity could not be imposed from without but sought only from within.

In the last decade of the eighteenth century Humboldt was occupied with various scholarly projects, none of which he completed; at the same time his growing friendship with Friedrich Schiller and Johann Wolfgang von Goethe brought him into contact with contemporary aesthetic problems. From 1802 to 1807 he was Prussian ambassador to the Vatican, and in 1808 he was appointed to the ministry of religious and educational affairs in Berlin, in which position he drafted several papers on education and was chiefly responsible for the foundation of the University of Berlin. Thereafter, he served as Prussian diplomatic representative in Vienna (1810–1813), at the peace negotiations before and after Napoleon Bonaparte's downfall (1814–1815), and in London (1817–1818). Defeated in his effort to achieve a constitutional monarchy for Prussia in 1819, he retired from public service and devoted the remainder of his life to study.

HISTORY

Humboldt's humanism was based on his idea of historical experience. "The broadening of our existence and of our knowledge," he wrote in a letter of 1823, "is possible historically only through the contemplation of previous existence." Searching for a discipline by which man's accumulated historical experience could become the

foundation for a philosophy of man, Humboldt had already written several essays and drafts outlining principles for the study of Greek antiquity (*Über das Studium des Altertums und des griechischen insbesondere*, 1793), for a comparative anthropology (*Plan einer vergleichenden Anthropologie*, 1795), and finally for the historian's profession (*Die Aufgabe des Geschichtschreibers*, 1821). Sharing his generation's enthusiasm for ancient Greece, Humboldt believed that the study of Greek culture in its broadest aspects would promote a true philosophical knowledge of men, including "the knowledge of the manifold intellectual, sentient, and moral human powers." For Humboldt the Hellenic world was a unity of diverse forces, a cultural unity that his own times lacked but might regain through a comprehensive study of the Greeks. His plan for a comparative anthropology was to study the moral character of different human types; a great variety of sources would provide the data for establishing an ideal norm, which was not adequately represented by any specific individuality. To comprehend the wholeness in the diversity of human types required aesthetic insight, which was fundamental to the art of the historian. In an essay on Goethe's *Hermann und Dorothea*, he concluded that epic poetry, of which Goethe's drama was an example, could be compared to history. "The condition of the soul which gives rise to the necessity of history (in the truest and highest sense of the word) is similar to that out of which an epic is produced with the help of imagination and art." In Humboldt's essay *Die Aufgabe des Geschichtschreibers*, in which the affinity of his thought to Friedrich von Schelling's philosophy is clearly manifested, the historian's imagination is likened to the poet's. It differs from the free fantasy of the poet's in that it is more strictly subordinated to the historian's experience and feeling for reality; it is actually a "divining faculty" (*Ahndungsvermögen*) and a "connecting ability" (*Verknüpfungsgabe*).

The most notable feature of this essay is Humboldt's attempt to elucidate the role of ideas in history. "Everything that is active in world history," he declared, "is also stirring in the inner being of man." The ideas in history have preserved human experience in the mind. "The eternal original ideas of everything conceivable provide existence and value, the beauty of all physical and spiritual forms, the truth in the unalterable working of every force according to its indwelling law, the justice in the inexorable course of events which are eternally regulated and meted their just reward." For Humboldt the goal of history is "the realization of the idea representing itself through humanity from all sides and in all forms in which the finite forms can be connected with the idea."

The task of the historian is therefore to represent this process of ideas being actualized in history.

LANGUAGE

Humboldt's language studies represent his chief legacy to posterity and marked, according to Ernst Cassirer, a new epoch in the history of the philosophy of language. Humboldt saw in the origin of language that crucial moment when man emerged from nature and, thus, the moment of connection between nature and idea. Language is for Humboldt the faculty by which man is identified as man. Speech and understanding are only different products of the power of language. The formation of languages depends on the spiritual forces of humanity, and languages are thus not merely an intermediary between individuals but "the most radiant sign and certain proof that man does not possess intrinsically separate individuality." Languages delineate the cultural characteristics of nations, each of which has its own individuality and arouses a sense of unity in men.

Humboldt's chief contribution to the study of linguistics was his concept of the "inner form" of languages (*innere Sprachform*), which consists of more than just external grammatical principles; it implies a deep-rooted subjective view of the world, a spiritual attitude, that controls the formation of concepts. "Because of the mutual dependency of thought and word," he wrote, "it is evident that the languages are not really means of representing the truth that has already been ascertained, but far more, means of discovering a truth not previously known. Their diversity is not a diversity of sounds, but of world outlook."

Humboldt's idea that each language has its own characteristic outlook, or inner form, found support in the linguistic studies of A. F. Pott and Heymann Steinthal in the nineteenth century and was suggested anew in the twentieth in the works of Benjamin Lee Whorf and Edward Sapir. His influence can also be traced in other areas of nineteenth-century thought—a passage from his political treatise provided the motto for J. S. Mill's essay *On Liberty*; his notion of the idea in history is closely related to Leopold von Ranke's doctrine of ideas; and his notion of historical experience is basic to the philosophy of Wilhelm Dilthey. In the twentieth century Cassirer, in the first volume of *The Philosophy of Symbolic Forms*, provided a penetrating evaluation of Humboldt's linguistic insights and a general philosophical context for the unmethodical profusion of his thought.

See also Cassirer, Ernst; Dilthey, Wilhelm; Enlightenment; Goethe, Johann Wolfgang von; Herder, Johann Gottfried; Language, Philosophy of; Leibniz, Gottfried Wilhelm; Mill, John Stuart; Plato; Schelling, Friedrich Wilhelm Joseph von; Schiller, Friedrich; Semantics, History of.

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HUME, DAVID
(1711–1776)

David Hume, considered by many the finest Anglophone philosopher, one of the first fully modern secular minds, and, along with Adam Smith, the leading light of the Scottish Enlightenment, was the author of four major philosophical works and many essays.

Born on April 26, 1711, in Edinburgh, Scotland, Hume spent his childhood mostly at Ninewells, the family estate near Berwick. Though his family was of good social standing, they were not rich, and, as the second son, he had to be prepared to earn a living to supplement an inadequate inherited income. He attended Edinburgh University from the ages of eleven to fifteen, in which city he remained to study law. Finding this not to his taste, Hume returned to Ninewells and threw himself into an intensive program of intellectual self-development. He read widely in ancient and modern literature, improved his knowledge of science and languages, and devoted himself above all to philosophy. In this way, sometime before he turned eighteen, Hume achieved the breakthrough that, he reported, "open'd up to me a new Scene of thought, which transported me beyond Measure, & made me, with an Ardor natural to young men, throw up every other Pleasure or Business to apply entirely to it" (*The Letters of David Hume* 1932, vol. 1, pp. 13–14).

However, the strain eventually told on Hume's health, and he was obliged to curtail his studies and pursue a more active life. To this end, he secured employment with a Bristol merchant in 1734. Though this venture into the world of commerce was brief, his health was sufficiently restored to enable him to undertake the composition of the systematic philosophical treatise by which he hoped to make his literary mark. To stretch his meager

income further than was possible in Britain, Hume relocated to France—first to Reims, then to La Flèche in Anjou—where he was able to benefit from the outstanding library of the Jesuit college.

Hume returned to England in 1737 with the intention of publishing the first two books, *Of the Understanding* and *Of the Passions*, of the work he decided to call *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects*. After publishing them as volume 1 in 1739, he went home to Scotland to revise the third book, *Of Morals*, which he published as volume 2 the following year. Never before or since has anyone so young published a philosophical work so comprehensive, ambitious, original, or accomplished. Still, Hume's obvious aspiration to be acknowledged the Isaac Newton of philosophy did not sit well with contemporaries. Reviewers were mostly hostile and uncomprehending, so that the *Treatise* "fell *dead-born from the Press*; without reaching such distinction as even to excite a Murmur among the Zealots" (1987, p. xxxiv).

Having wisely taken the precaution to publish anonymously, Hume soon recovered from his failure and decided to apply his immense literary gifts to the more widely accessible medium of the essay. His *Essays, Moral and Political* of 1741 and 1742 duly succeeded where the *Treatise* failed. With a public won, together with a keen sense of its tastes, Hume presented a selection of the doctrines of the *Treatise* with some previously unpublished material in the form of *Philosophical Essays concerning Human Understanding* in 1748 (retitled *An Enquiry concerning Human Understanding* in 1758). With its companion published three years later, *An Enquiry concerning the Principles of Morals*, Hume firmly established his reputation as one of the leading philosophical thinkers of his day. Around the same time Hume composed his *Dialogues concerning Natural Religion*, but was prevailed on not to publish it during his lifetime. From that point on, Hume devoted himself to essays and wrote his most popularly successful work of all: the six-volume *History of England: From the Invasion of Julius Caesar to the Revolution of 1688* (1754–1762).

Hume held a number of posts during his life, though he never succeeded in securing an academic position. In 1745 he served as tutor to the mentally unbalanced Marquess of Annandale. From 1746 to 1749 he was secretary to Lieutenant-General James St. Clair (1720–1806), whom he accompanied on a military expedition to Brittany. He was keeper of the Advocates Library in Edinburgh from 1752 to 1757. In 1763 Hume became private secretary to Lord Hertford (1718–1794), the British ambassador to France, where he spent the next three years being continually fêted and forming friendships with several leading figures of the French Enlightenment, including Denis Diderot, Jean Le Rond d'Alembert, and Jean-Jacques Rousseau (though this last connection was to end in conflict). The last position he held was that of secretary of state in the Northern Department, from 1767 to 1768.

Physically, Hume was tall, somewhat ungainly, and, by the mid-1740s, corpulent. He never married, initially for lack of means to support a family, and afterward from a preference for bachelor life. Hume's most extraordinary quality was his personality. Warm, generous, even-tempered, and honorable in all matters, he gained and kept an enormous number of close, devoted friends. This included many prominent clergymen who time and again staunchly defended him against his persecutors. Hume was thus able to spend his final years in Scotland in tranquillity, surrounded by well-wishing friends and family. When death came on August 25, 1776, he took it in the best spirit imaginable, while also making sure that no tales could be spread that his religious skepticism had weakened in the end.

Hume's influence on philosophy during his lifetime was nothing like what it later became. His moral theory undoubtedly made an impact on Smith's *Theory of Moral Sentiments* (1759), while his theory of the understanding provided Thomas Reid with his principal foil in *Inquiry into the Human Mind, on the Principles of Common Sense* (1764). Reid and other less respectful philosophers of the Scottish "commonsense" school focused many of their severest criticisms on the *Treatise*. Their misunderstandings and misrepresentations of that work so infuriated Hume that he published an advertisement with the final edition of the *Enquiries* produced under his supervision (1777), desiring that these maturer efforts would "alone be regarded as containing his philosophical sentiments and principles."

A sea change in the reception of Hume's theory of understanding occurred in 1783, when Immanuel Kant declared that Hume's treatment of cause and effect was responsible for awakening him from his dogmatic slumber. Kant's own transcendent importance in the history of philosophy, and the scholarly attention devoted to almost his every word, led to a reappraisal of the worth and importance of the philosopher Kant credited with making his achievements possible, and it was not long till the *Treatise* came to be recognized as Hume's masterpiece.

Being cast as Kant's John the Baptist did, however, have its downside, and many have labored to bring

Hume's legacy out from under the shadow of Kant. Influenced by the latter, philosophers in the nineteenth century, and for much of the twentieth as well, tended to esteem Hume almost exclusively for the power of his skeptical arguments regarding reason, the natural world, and religion. Since then, the positive, constructivist aspects of his theory of understanding have come to be equally prized, as have his theories of passion, actions, morality, and aesthetics. Today, interest in Hume's philosophy is greater than ever and the wave shows no sign of cresting.

THE TREATISE AND THE ENQUIRIES

Most scholars accept the essential correctness of Hume's assertion that there are few substantive differences between the *Treatise* and the *Enquiries*, and none of great consequence. Instead, the earlier and later works differ primarily in inclusiveness and style. The *Treatise* was pitched at the highest level, to pass muster with the most learned, exigent readers. Questions left unraised in the *Enquiries* were pursued at considerable length, whole batteries of arguments were assembled in support of major theses, and every effort was made to be both systematic and comprehensive.

By contrast, the *Enquiries* were aimed at the same readers who enjoyed Hume's more philosophical essays. This seems to have been the principal reason for his decision to omit from the first *Enquiry* almost everything in parts 2, "Of the Ideas of Space and Time," and 4, "Of the Skeptical and Other Systems of Philosophy," of book 1 of the *Treatise*. Much of parts 1, "Of Ideas," and 3, "Of Knowledge and Probability," were also sacrificed, so that what remains seems less like a condensation of the *Treatise* than a greatly expanded and improved version of the abstract of the *Treatise* that Hume published in 1740. The second *Enquiry* drew on the moral philosophy of book 3 of the *Treatise*, while eschewing the theoretical framework of the latter in favor of a more strictly literary approach (which both explains why Hume thought it his finest work and why so few today agree). Neither *Enquiry* contains any considerable trace of book 2 of the *Treatise*, on the passions, and though occasional echoes of it are to be found in Hume's essays, they give no idea of the impressive, highly sophisticated theoretical framework one finds in book 2 of the *Treatise* (and the same is true of Hume's *A Dissertation on the Passions* [1757]). Thus, despite Hume's wish not to be judged by the *Treatise*, its unity, scope, and rigor make it the work that best represents what is most important and enduring in his philosophy.

HUME'S SCIENCE OF HUMAN NATURE

Hume believed human nature to be the proper focus of the philosopher because its first principles necessarily carry over to every human endeavor, cognitive and conative alike. A science of human nature affords fundamental insight not only into such domains as morals, aesthetics, and politics but "even *Mathematics, Natural Philosophy, and Natural Religion*," which "are in some measure dependent on the science of MAN; since they lie under the cognizance of men, and are judged of by their powers and faculties" (1978, p. xv). Situating himself in the line of British empiricist thinkers extending from Francis Bacon and John Locke, Hume restricted the investigation of human nature to evidence gleaned from "careful and exact experiments, and the observation of those particular effects, which result from its different circumstances and situations" (p. xvii). It constitutes a science insofar as one "must endeavour to render all our principles as universal as possible, by tracing up our experiments to the utmost, and explaining all effects from the simplest and fewest causes." This may require one to revise initial determinations in the light of new experiments (Hume's evolving characterization of the difference between memory and imagination is a prime example), and obliges one to determine whether the fundamental principles of human nature have even wider scope (thus, Hume considered it a plus that much of his account of human nature extends to animals as well). Finally, the mandate for maximal simplicity means that the science of man should take the form of a system, deriving its principal authority from "the agreement of [its] parts, and the necessity of one to explain another" (p. 154).

THE ELEMENTS OF HUME'S SCIENCE OF HUMAN NATURE

OBJECTS. Hume considered human nature always and only in terms of perceptions. *Perception* is Hume's substitute for Locke's term *idea*, and it refers to all objects insofar as they are immediately present to one by consciousness, be it in sensation, reflexion, or thought (*reflexion* is Hume's catch-all term for the objects present to internal sense or inward sentiment, including passions, emotions, desires, volitions, and mental operations generally). For Hume, just as for Locke with *idea*, the indeterminacy of *perception*—the impossibility of contrasting it with anything that is not a perception because "[t]he mind never has anything present to it but the perceptions"—is its principal virtue. If things other than perceptions exist, then, as what never "can be present to the

mind, whether we employ our senses, or are actuated with passion, or exercise our thought and reflection" (1999, p. 202), they are no different from perfect nonentities so far as one's thoughts and actions are concerned. By contrast, even objects as fanciful as a billiard ball that transforms itself into wedding cake on being struck, though never present to the senses, are still objects of one's thought, and so too perceptions.

Perceptions come in two kinds: impressions and ideas. Impressions comprise sensations and reflexions, and ideas thoughts (the mental contents of thought, considered in themselves rather than in the capacity of signs used to signify other perceptions, whether by resemblance, linguistically, or in any other significative capacity). According to Hume, the difference between impressions and ideas consists in the greater "force and vivacity" of the former. This does not mean that impressions always make a forceful impression, for they can be so gentle as altogether to escape notice. Nor does it mean that they are vivid in the usual sense, since seeing a gray blur on an otherwise black night (visual sensation) is still more vivid than a brilliantly lit, detailed image in a daydream (visual idea).

The best indication of what Hume had in mind by "force and vivacity" is his subsequent equation of it with belief in the real existence of a content present to one in sensation, reflexion, or thought, all perceptions. According to Hume one believes in the reality of something that one merely thinks if one's conception of it exhibits force and vivacity, as when, on seeing smoke coming into the room, one not only thinks of a fire somewhere outside the room but believes that a fire really exists. Similarly, "the *belief* or *assent*, which always attends the … senses, is nothing but the vivacity of those perceptions they present" (1978, p. 86). More particularly, the vivacity of a perception seems to consist in a feeling distinctive of the manner in which an object in sensation or reflexion is apprehended, or an object in thought is conceived, in virtue of which it is regarded as really existent—actual rather than merely possible, fact rather than fiction.

If this reading is correct, then one needs to distinguish two senses of *exists* in Hume: an object, even if it is a mere fiction, exists simply in being present to consciousness (p. 66–67), but it is taken to be really existent if, in addition, it is perceived or conceived in a lively manner (pp. 84–123). Sensations and reflexions are impressions because human (and animal) nature is so constituted that these objects have only to appear to be believed really existent, whereas objects present to one only in thought are not believed really to exist unless cir-

cumstances intervene to induce one to conceive them with a high enough degree of force and vivacity. One of the principal occupations of Hume's theory of understanding was to determine what those circumstances are and to identify the underlying principles.

Finally, Hume distinguished perceptions according to whether they are complex or simple. In general, an impression or idea counts as simple if it cannot be distinguished into two or more components (different significative uses to which the same simple perception may be put do not compromise its intrinsic simplicity). But Hume also seems to allow that perceptions distinguishable in this way may still be simple if it is impossible for them to be derived by the combination or blending of perceptions already in one's possession (e.g., "The impressions of touch are simple impressions, except when consider'd with regard to their extension" [1978, pp. 230–231]).

THE COPY PRINCIPLE AND HUME'S THEORY OF ORIGINS. The "*full* examination" of the question of how impressions and ideas "stand with regard to their existence, and which of the impressions and ideas are causes and which effects" is "the subject of the present treatise" (1978, p. 4). To this end, Hume notes that one's simplest perceptions all seem to come in duplicate impressions and nearly exactly resembling ideas, and asks if there is any causal significance to this relation. He then formulates perhaps the most important principle of his science of human nature: because experience shows that simple impressions invariably precede their resembling ideas, "all our simple ideas in their first appearance are deriv'd from simple impressions, which are correspondent to them, and which they exactly represent" (p. 4). The causal dependence of ideas on impressions expressed in Hume's copy principle owes its importance to his preeminent methodological concern to find a better method of clarifying the ideas at the heart of traditional metaphysical disputes than definition can provide:

> Complex ideas may, perhaps, be well known by definition, which is nothing but an enumeration of those parts or simple ideas, that compose them. But when we have pushed up definitions to the most simple ideas, and find still some ambiguity and obscurity; what resource are we then possessed of? By what invention can we throw light upon these ideas, and render them altogether precise and determinate to our intellectual view? Produce the impressions or original sentiments, from which the ideas are copied. These impressions are all strong and sensible.

They admit not of ambiguity. They are not only placed in a full light themselves, but may throw light on their correspondent ideas, which lie in obscurity. And by this means, we may perhaps attain a new microscope or species of optics, by which, in the moral sciences, the most minute, and most simple ideas may be so enlarged as to fall readily under our apprehension, and be equally known with the grossest and most sensible ideas, that can be the object of our enquiry.

<div align="right">(1999, PP. 135–136)</div>

Hume's science of human nature is, in the first instance, a critique of traditional philosophical definitions whereby they are supplemented or, more usually, supplanted, by psychological accounts tracing ideas to their originating impressions. These accounts inform everything else in the science, and it is often impossible to understand the positions Hume takes without returning to his explications of the relevant ideas in terms of their originating impressions.

RELATIONS. To understand the nature of relation for Hume, one first needs to consider the two ways in which relations may be affirmed. If one can affirm a relation independently of the senses, and so of all matters of fact and real existence, one's affirmation is a case of knowledge and the relation affirmed is a necessary one. For "the necessity, which makes two times two equal to four, or three angles of a triangle equal to two right ones, lies only in the act of the understanding, by which we consider and compare these ideas" (1978, p. 166). When immediate, the knowledge of a relation is intuition, when it consists of a continuous sequence of intuitions, it is a demonstration.

Knowledge of a relation of ideas is attainable (1) when one is sensible of the impossibility of forming one idea without including another as a constituent, as, for example, one cannot form the idea of a valley without incorporating into one's conception the idea of mountains (p. 32), or, (2) even if the ideas can be conceived separately, one is sensible of the impossibility of conceiving a change in their relation without conceiving a change in the ideas themselves (p. 69), as "the shortest distance between two points is sa straight line" is known to be necessary even though shortness (a quantity) and straightness (a quality) are conceivable independently (pp. 49–50). (The first type coincides with Kant's notion of an analytic judgment, the second with that of a synthetic *a priori* judgment; Hume did not, however, see fit to subdivide intuitive knowledge this way, that is, he either did

not recognize or did not attribute to the question of the possibility of synthetic *a priori* judgments the same importance Kant would afterward accord it.) Either way, one's affirmation of a relation amounts to knowledge if and only if one is sensible of the impossibility of conceiving the ideas concerned in any other relation (pp. 652–653).

Where knowledge is lacking, and other relations between the ideas (or none at all) are conceivable, one can still affirm a relation between distinct perceptions with probability, that is, with a certainty extending anywhere from just above logical possibility all the way to a certainty so great as to be immune to doubt (termed *proofs* by Hume, e.g. "the sun will rise tomorrow" and "all men must die"). Such relations consist essentially in transitions of thought characterized by a quality Hume termed *facility* (1978, pp. 99, 204, 220, 260). There is considerable evidence that Hume conceived of facility as affective; that is, like the vivacity of impressions or ideas in virtue of which one believes them really to exist, the facility constitutive of probable relations is a content the mind does not conceive but feels. Facility and vivacity tend to go together in Hume's theorizing. When a relation between ideas is known, facility and vivacity affect are redundant to the relation and its affirmation since one is "necessarily determin'd to conceive them in that manner" (p. 95). Only when one remains free to conceive both sides of the question can assent be supposed to be a matter of feeling rather than an act of thought. In this regard, one of the most important principles of Hume's theory of understanding is that the more facile the transition from a lively perception to an idea in thought (= the stronger the relation), the more nearly the vivacity of one's conception of it (= belief in its real existence) approaches that of the lively perception itself (pp. 98–99).

Association. The effect of a facile transition between perceptions is to associate them in reflexion or thought, and it is in this association that their relation consists. With the precedent of Newtonian gravitation in mind, Hume saw fit to characterize association as "a kind of ATTRACTION, which in the mental world will be found to have as extraordinary effects as in the natural, and to shew itself in as many and as various forms" (1978, pp. 12–13). In the absence of the real connections falsely imputed to perceptions by the sophisticated and simple alike, the associative ties felt between perceptions are the source of all order and unity among them. Finally, in accordance with his scientific ideal of maximal generality and simplicity, Hume resolved all species of association into expressions of three fundamental associative princi-

ples: the contiguity of perceptions in space or time, their resemblance, and their connection as cause and effect—as "these are the only ties of our thoughts, they are really to us the cement of the universe, and all the operations of the mind must, in great measure, depend on them" (p. 662).

Natural and philosophical relations. Not all relations are constituted by facile transitions of thought. Hume designated those that are natural and those that are not philosophical relations. Since one can arbitrarily compare anything with anything else, and since no two objects admit comparison unless they have some degree of resemblance, resemblance counts not only as a natural but also as a philosophical relation; and philosophical resemblance is, in turn, the condition for other natural relations to assume a nonassociative philosophical dimension: identity, space and time, quantity (in number), quality (in degree), cause and effect, and contrariety. The crucial thing to remark here is that, except in cases of intuitive or demonstrative knowledge, philosophical relations seem to have no independent power to generate belief (vivacity), and so are parasitic on natural relations for their power to influence one's thoughts and actions. Hume made this explicit in the case of the cognitively preeminent relation, causation, for "tho' causation be a *philosophical* relation, as implying contiguity, succession, and constant conjunction, yet 'tis only so far as it is a *natural* relation, and produces an union among our ideas, that we are able to reason upon it, or draw any inference from it" (1978, p. 94).

HUME'S REJECTION OF ABSTRACT IDEAS. Hume expressed complete agreement with George Berkeley's exclusion of abstract ideas from the explanation of general ideas and terms. The keystone of this critique of abstraction is the separability principle that Hume, like Berkeley before him, made a centerpiece of his philosophizing. According to this principle, whatever objects (perceptions) are different are distinguishable, and so separable in thought; and vice versa (1978, p. 18). So far as abstraction is concerned, this means that one cannot abstract any X from any Y unless X can be perceived and conceived even in the absence of Y. For example, because the distinction between the shape and color of a visible object fails to satisfy the separability principle, the notion that these are distinct perceptions (different abstract ideas, as Locke supposed) has to be rejected as an illusion cast by language. For while there is indeed a significant distinction to be drawn in the use of the idea of a visible object to designate, on the one hand, things resembling it in shape and, on the other hand, things resembling it in color, when the idea is considered in itself, apart from any

significative use to which it may be put, its shape and color are ineluctably one.

Accordingly, differences of aspect—that is, distinctions that fail to conform to the separability principle (sometimes called distinctions of reason)—are never intrinsic to the object to which they are ascribed, but are instead always the by-product of the relations in which it stands to other objects. Thus, a globe of white marble may be found to resemble a black globe of papier-mâché, a white cube of sugar, or an oblong piece of red marble; and since resemblance is an associative relation, the facile transition from a white globe to a black globe will set up an relational dynamic in which it becomes easier to make a transition next to the idea of a blue globe, red globe, or yellow globe, than to any nonspherical white or red object. In the same way, a transition from the white globe to a white cube will make it easier to transition next to the idea of a white oblong or any other white shape than to a black globe or red oblong. It is in these divergent axes of resemblance relations, ramifying in various directions from the same object, as it were, that aspects have their basis.

Resemblance association alone does not, however, suffice to explicate general representation. Custom is equally indispensable, "If ideas be particular in their nature, and at the same time finite in their number, 'tis only by custom they can become general in their representation, and contain an infinite number of other ideas under them" (1978, p. 24). The habits instilled by frequently encountered axes of resemblance association lie in readiness to be triggered by any of the infinitely many possible stimuli (determinate, nonabstract impressions or ideas) capable of triggering it (= representational generality); and which of the many habits it happens to trigger will determine to which species a given stimulus will be recognized as belonging (i.e., under which general sort it will be subsumed or classified). For example, a single, fully determinate (nonabstract) perception of an equilateral triangle one inch in circumference can serve as a general representation of figures, rectilinear figures, regular figures, triangles, or equilateral triangles, according to which custom one uses it to represent or which custom it triggers in a particular context (pp. 21–22). Finally, with the addition of words to overcome the confusion that would otherwise result either from the capacity of the same idea to trigger any of various customs, or from the same custom to be triggered by dissimilar ideas, one arrives at Berkeley's principle "that all general ideas are nothing but particular ones, annexed to a certain term, which gives them a more extensive signification, and

makes them recall upon occasion other individuals, which are similar to them" (p. 17).

SPACE AND TIME. Hume's treatment of abstract ideas exemplifies his general method of tracing ideas to their originating impressions; only here, where association and custom are indispensable, the experience of the operations of one's own mind (transitions of thought, the facility affect essential to associative relation, and the triggering of customs) proves to be the source of contents essential to these ideas. The abstract ideas of space and time are a case in point. Just as the shape and color of a visible object are one and indistinguishable, so, too, are extension and color. That is, the only idea one can derive from an impression of, say, uniform purple is the idea of uniform purple. To distinguish the extension from the color, one must compare the impression to others, associate them according to their resemblances, and, from the different axes of resemblances thus formed, arrive at last at an ineluctably relational conception of their difference.

Even so, to form a visual idea of space it is not enough simply to find what is resembling between purple, green, yellow, and other uniformly colored expanses, or between these and nonuniformly colored expanses. Visual space is the idea of something in which visible objects do or can appear and disappear, change their color and contour, grow, shrink, and alter their relative visible positions and situations inside, outside, alongside, adjacent, separated, above, below, right, left, in front, or behind one another. An idea with such limitless determinability is impossible except when visual perceptions are conceived of as an ordered manifold, or nexus, formed of coexistent loci (points) that preserve their relative positions to one another (their situation and relations) through any and all changes in respect of light and color ("co-existent parts dispos'd in a certain order, and capable of being at once present to the sight" [1978, p. 429]). That is, for Hume, the visual idea of space is the outcome of comparing visible objects, associating them according to their various resemblances, and forming habits when these associations are continuously reinforced, whether by frequent recurrence or some other cause. The key, as with aspects and distinctions of reason generally, is that visible space is never anything present to our eyes, prior to and independently of experience and habit, but rather something that exists only in and through the actions and affects of associative imagination (imagination in its associative capacity).

Unless this is appreciated, one cannot hope to understand how, on Hume's view, it is possible to form an idea of space common to vision and touch alike, notwithstanding the qualitative incommensurability of the objects of the two senses. For, lacking the ability to discriminate aspects immediately (nonrelationally), one can no more distinguish the extension of a tangible object from its other distinctively tactual qualities (hard or soft, smooth or rough, and wet or dry) than one can distinguish the extension of a visible object from its color. Consequently, to find visible and tangible space in any way resembling in appearance (sensible quality), one would have to find wet to be "like" yellow, red "like" softness, and so on, which of course is impossible. The locus of resemblance in virtue of which tangible and visible objects alike are supposed to instantiate the same general idea of space must instead lie in the operations the mind performs on these otherwise incommensurable appearances.

In particular, by contrast with data of the other senses, one is able to discern, and keep track of, distinctions of the finest, subtlest kind among visible and tangible appearances—distinctions sufficient in each case for association and custom to yield the abstract idea of an ordered manifold of coexistent loci (points) that preserve their relative positions to one another (their situation and relations) through any and all changes. To the imagination, then, producing and operating with two such similar manifolds feels so similar that, notwithstanding their radical qualitative disparity as appearances, it ranks them under a single, highly general idea of space. Moreover, thanks to the innumerable correlations (constant conjunctions) disclosed by experience between the objects situated in the respective imaginary spaces of each sense, one fancies that one is dealing not with distinct instances of the same general idea, but with a single, mulitsensory space, with its own, sense-divide transcending objects.

Hume's account of the origin of the idea of time differs from that of space in two principal regards: (1) whereas ideas of spatial features originate only in vision and touch, temporal ideas can be "deriv'd from the succession of our perceptions of every kind, ideas as well as impressions, and impressions of reflection as well as of sensation" (1978, pp. 34–35); and (2) whereas the manner of appearance of the spatial is defined by "that quality of the co-existence of parts," the temporal "is compos'd of parts that are not co-existent … and consequently that idea must be deriv'd from a succession of changeable objects" (p. 36). These differences aside, the psychological processes whereby ideas of the temporal are acquired are identical to those that give rise to ideas of the spatial.

From an unchanging object no idea of time can be derived "since it produces none but co-existent impres-

sions"; only "a succession of changeable objects" can yield the idea of something composed of noncoexistent parts. But since the successiveness of, say, five notes played on the flute cannot be perceived or conceived independently of the sounds—"The ideas of some objects it [the mind] certainly must have, nor is it possible for it without these ideas ever to arrive at any conception of time" (p. 37)—any supposition that the former, as the manner of appearance of these auditory objects, is something really distinct from these objects themselves falls foul of Hume's antiabstractionist separability principle. So, just like the idea of space, that of time can only be formed by comparing distinct perceptions and associating them in resemblance relations, until a custom is produced that stands in readiness to be triggered by all and only those stimuli to which ideas of succession and duration are applied. Time, understood as an ordered manifold of determinable positions composed of indivisible, noncoexistent instants, is thus, on Hume's account, as much an amalgam of the senses and associative imagination as space.

It is in connection with time that Hume formulated another of his principles, restricting the application of ideas according to the copy principle, "Ideas always represent the objects or impressions, from which they are deriv'd, and can never without a fiction represent or be apply'd to any other" (1978, p. 37). Like the copy, separability, and other principles of concern to Hume, this principle governs only one's perception of objects in sensation, reflexion, and thought, and does not imply any restriction on one's talk of objects. Nevertheless, since perceptions are the only objects that can ever be present to one's mind, the principle restricting the application of ideas according to the copy principle restricts one's discourse to the extent that objective meaning can attach to what one says only insofar as it cashes out ideationally. And temporal ideas are a case in point: While one is free to speak of unchanging objects, no objective meaning can attach to one's discourse since one has no ideas other than those copied from fleetingly existent perceptions.

Denial of infinite divisibility. Because one's abstract ideas of space and time "are really nothing but particular ones, consider'd in a certain light" (1978, p. 34), Hume concluded that infinitely divisible space and time are impossible even to conceive. For since particular ideas are one and all copied from particular impressions, and since experience shows that one's impressions admit being divided to the point where an indivisible temporal and/or spatial minimum is reached, it follows that the ideas one derives from these impressions can never serve to conceive an infinitely divisible spatial or temporal object.

(For similar reasons, Hume denied the conceivability of a vacuum in space or time.) Thus, whatever mathematicians may pretend to the contrary, the first principles of mathematics "are founded on the imagination and senses: The conclusions, therefore, can never go beyond, much less contradict these faculties" (p. 638).

HUME'S THEORY OF UNDERSTANDING

Causal relations are the centerpiece of Hume's theory of understanding. Without them, "[i]nference and reasoning concerning the operations of nature would, from that moment, be at an end; and the memory and senses remain the only canals, by which the knowledge of any real existence could possibly have access to the mind" (1999, p. 149). This is because, of all relations linking ideas to impressions, none approaches cause and effect in its power to produce belief (enliven ideas). If I see smoke coming into the room, my belief in the reality of the unseen fire causing it is as great as in the smoke itself. If the hearing of voices on the other side of the fence brings persons to mind as their cause, I not only think there are people there, I believe them really to be there. Thus, whenever I infer a cause for a given effect or an effect for a given cause, I thereby expand the scope of what for me constitutes reality beyond the immediate evidence of my senses and memory.

Although the other principles of association, contiguity and resemblance, also have power to enliven the ideas they associate with impressions, without the support of causal relations "their influence is very feeble and uncertain" (1978, p. 109). For while I can think constant relations of time and place exist beyond the scope of my senses and memory, or think an identity based on the resemblance between nonsimultaneous resembling objects, it is only insofar as causal relations underlie them that I am able to believe these relations really to exist (pp. 73–74). Thus, when it comes to explaining reasoning in matters of fact and real existence, one has no choice but to focus on the relation of cause and effect, as "the only one, that can be trac'd beyond our senses, and informs us of existence and objects, which we do not see or feel" (p. 74).

ANALYSIS OF CAUSE AND EFFECT. Hume identified four constituents crucial to the idea of cause and effect: objects relatable as cause and effect must be distinct in the sense specified in the separability principle; they must be contiguous in time and (where the objects concerned are spatial) in place; the cause must precede the effect; and there must be a necessary connection between them.

Since the first three are fairly straightforward, Hume focused on necessary connection, with an eye to clarifying the idea by tracing it to its originating impression.

To understand why Hume proceeded as he did in this matter, the inherently paradoxical character of the idea of a necessary connection between distinct existents must first be taken into account. It stipulates a necessary connection between the existence of items presupposed as distinct. For example, one does not consider valleys and mountains candidates for terms of a causal relation because their necessary connection is merely conceptual, incorporated into the ideas themselves: Valleys cannot be conceived to exist in the absence of mountains and vice versa. By contrast, fire and smoke qualify as candidates for terms of a causal relation precisely because each can be conceived to exist without necessitating one to conceive the existence of the other. But there lies the rub: If to conceive them as distinct is to conceive the existence of the one to be possible even in the absence of the other, and to conceive them as necessarily connected is to conceive the existence of the one to be impossible in the absence of the other, then their combination in a single concept seems self-contradictory.

The general causal maxim. By far the most important illustration of the unintelligibility of the notion of necessary connection is Hume's analysis of the general causal maxim that everything that begins to exist must have a cause of its existence (1978, pp. 78–82). While recognition of the contingency of any determination in accordance with the maxim was a commonplace among pre-Humeans—that this specific thing causes that one—the truth of the maxim itself—that everything that comes into existence must have some cause—was taken to be an intuitively certain necessary truth, and so "one of those maxims, which tho' they may be deny'd with the lips, 'tis impossible for men in their hearts really to doubt of" (p. 79). Still, for Hume, the notion that the general maxim is a matter of knowledge rather than probability is easily refuted by a simple consideration of the concept of necessary connection itself. Its presupposition that the objects to be related in it are distinct already of itself implies the possibility that each of the objects can be conceived to exist in the absence of the other (pp. 79–80). Since even so much as a single conceivable exception is sufficient to show that a general proposition is not knowable intuitively or demonstrably, Hume concluded that the certainty of the general causal maxim is of a completely different nature, consisting not in any necessity of thought (relation of ideas) but in irresistible feeling (great force and vivacity), founded on experience and rooted in

the nature of human (and much nonhuman-animal) associative psychology (pp. 82 and 172; Kant rightly recognized in this result a challenge to the possibility of metaphysics itself).

THE ORIGIN OF THE IDEA OF NECESSARY CONNECTION. A source of the idea of necessary connection in the objects present to one in sensation or reflexion is precluded by the fact that all perceptions as such conform to the separability principle, and so are "distinct" in the sense implying that it is always possible to conceive any one to exist in the absence of any other, or all others. Accordingly, Hume sought the origin of the idea in the experiencing subject and the ways it regards its objects, and, in particular, in the acts and affects incident to customary transitions from impressions to ideas (1978, pp. 165–166). When one object is found by experience to constantly succeed another, a habit is formed so that when one of them is present in sensation or reflexion, it straightaway brings to mind its constant concomitant, and one not only conceives it but believes it really to exist. The facility of this transition, with the force and vivacity felt in the conception of the idea when the transition to it is from an impression, constitutes the sole and entire content of the impression-of-reflexion original of the idea of necessary connection (1999, p. 145). To be sure, a projective illusion induces one to ascribe the impression of reflexion immanent to associative imagination to the objects it considers (1978, p. 167). Nevertheless, the necessity of causes is never anything but a subjective necessity felt in the mind that considers objects, and it is in this sense that the "necessary connexion betwixt causes and effects," and "the transition arising from the accustom'd union … are, therefore, the same" (p. 165).

Since Hume defined causal necessity both as a philosophical relation, in terms of constant precedence, and as a natural relation, in terms of customary association, many interpreters have supposed that the former has a meaning and scope of application unrestricted to associative imagination. Against this, one should note that, for Hume, (1) the idea of necessary connection is an essential element in all ideas of causal relations, (2) constant precedence as such does not include an idea of necessary connection, (3) the only source from which the idea of a necessary connection can be derived is customary association, and (4) ideas can never represent any objects other than those from which they are derived.

Accordingly, the only thing that can distinguish philosophical causation from constant precedence is the addition of the idea of necessity derived from customary

association, so that the necessity that "makes an essential part" of both definitions of causality is "at bottom the same" (1999, p. 160). This means that philosophical causation owes its influence on one's thoughts and actions entirely to its inclusion of a content no less bound up with conscious mind than pleasure, fear, or love; and to forget this by attempting to apply causal concepts directly to objects, apart from "that determination of the mind, which is acquir'd by custom," is to "either contradict ourselves, or talk without a meaning" (1978, p. 267).

EMPIRICAL RATIONALITY. In matters of fact and real existence, reasoning, as Hume understood it, is a transition in thought from a more vivid impression or idea to a less vivid idea in which the latter is conceived with more vivacity because of the relation the transition effects between them (where facility feeling is the essence of the relation). Since, in Hume's view, the enlivening of ideas primarily depends on their association with impressions, and since causal relations far exceed any other in their ability to enliven ideas to the point where they approach the vivacity of impressions, customary transitions from impressions to ideas are at once the source of the impression originals of ideas of necessary connection and the template of all empirical reasoning. This is just to say that the one indispensable item of evidence in any inferential matter of fact or real existence is an impression of necessary connection. For, in the absence of such an impression (maximally vivid perception), there could be no belief that an idea is connected to an impression in the manner requisite to enliven it, with the consequence that the impression would not then be regarded as a reason to affirm the idea. Thus, to explicate the nature of empirical reasoning, and to distinguish reasonable (factually justified) cases of reasoning from unreasonable ones, Hume undertook an investigation into the causes of such impressions.

The nonrational basis of empirical reasoning. The principal, and the most efficacious cause, of impressions of necessary connection is frequent experience of the items connected in them in an unvarying sequence— termed *constant conjunction* by Hume. As the evidence for this causal connection is itself a remembered constant conjunction (between relations of constant conjunction and subsequently felt impressions of necessary connection), Hume queried whether one infers the necessary connection from experience "by means of the understanding or of the imagination; whether we are determin'd by reason to make the transition, or by a certain association and relation of perceptions" (1978, pp. 88–89).

Nothing in Hume's philosophy has received more attention than his solution to this question (usually called the problem of induction). He began by premising that if reason were responsible for the conclusion that a necessary connection exists whenever a relation of constant conjunction is found, then the inference would be grounded on the "principle, *that instances, of which we have had no experience, must resemble those, of which we have had experience, and that the course of nature continues always uniformly the same*" (1978, p. 89). The question thus becomes whether one's belief in this uniformity principle is itself a product of rational argument, demonstrative or probable, or whether the implicit confidence one places in it derives from a different, nonrational source (associative imagination). Demonstrative reasoning (knowledge) is easily ruled out, since "[w]e can at least conceive a change in the course of nature" and "[t]o form a clear idea of any thing, is an undeniable argument for its possibility, and is alone a refutation of any pretended demonstration against it" (p. 89). Hume next excluded probable reasoning on the ground that it cannot be the source of a belief it presupposes:

> We have said, that all arguments concerning existence are founded on the relation of cause and effect; that our knowledge of that relation is derived entirely from experience; and that all our experimental conclusions proceed upon the supposition, that the future will be conformable to the past. To endeavour, therefore, the proof of this last supposition by probable arguments, or arguments regarding existence, must be evidently going in a circle, and taking that for granted, which is the very point in question.
>
> (1999, P. 115)

Since the past can only matter to one in forming of beliefs about the present or future in probable reasoning if one already believes the future is conformable to the past, one's belief in this uniformity must have a basis other than probable reasoning. According to Hume its basis is none other than customary association, which instills in one a belief in the uniformity of nature long before one has left one's cradle and determines the reasoning of brute beasts in the same way it does humans (1999, p. 118 and 1978, p. 178).

Philosophical and unphilosophical probability. When conjunctions of perceptions are remembered to be less than constant, one's evidence of necessary connection falls short of the certainty of proof. How much credence should one accord each of the competing causes and/or effects? That is, what constitutes reasonable belief here?

According to Hume the natural procedure is also the rational one: the accumulated belief (vivacity feeling) is distributed among the contrary causes or effects according to their relative constancy in past experience, subtract the lesser from the greater, and accord only so much credence (vivacity) to the latter as remains (1978, pp. 132–140). In other words, experience shows that one proportions belief in causal connections according to the constancy of the conjunction of the items concerned in them in the past and that this experience is so natural and universal that such proportioning has in all times and places been regarded as the hallmark, if not indeed the essence, of reasonable belief, or philosophical probability.

Of course, Hume was well aware that experience shows there to be many other causes of impressions of necessary connection than experienced conjunction and that these causes sometimes prevail over the evidence of experience: the ebb and flow of passions, calculations of interest and gain, laziness, hastiness, credulity, the persistence of tenets in education that have ceased to be proportioned to experience, and so on. One may be tempted to object that Hume's distinction between such unphilosophical (unreasonable or even irrational) reasoning and reasonable inferences proportioned to experience is arbitrary, since both alike are functions of feeling (vivacity transference effected by facile transitions of thought). Was he simply endeavoring to reflect linguistic practice? More likely, Hume's distinction derives from the account of the origin of impressions of necessary connection on which all causal inference depends. Experience is the natural and original cause of ideas of causal relations: It operates most constantly and steadily on the imagination and is most inseparable from the nature of that faculty (compare to 1978, p. 280). So, even in the absence of any objective or normative paradigm of rationality, nature itself, on Hume's account, sets experience at the foundation of empirical rationality.

A WORLD IN IMAGINATION. In denying that one has intuitive or demonstrative knowledge of the truth of the general causal maxim, Hume at the same time affirmed that one has another kind of certainty that everything must have a cause of its existence, arising from observation and experience (1978, p. 82) and consisting in the great vivacity of one's idea of the relation of any beginning of existence (thing, action, or state) to something precedent from which its existence follows by necessity (p. 172). The consequence is an unquestioning assumption, in any particular instance, that a cause inferred for a given effect is itself the effect of some other cause. For example, if the sight of smoke makes me think and believe that there is a fire in the hall outside, I at the same time take for granted a cause of this fire, a cause of this cause, and so on. If I reflect on this regress, I might attribute the fire to the frayed wiring I saw earlier, this to the gnawing of mice, the presence of mice in the building to the construction going on next door, the construction to the renovation plans of the new owner, the purchase of the building to the death of the old owner and the greed of the new one, and so on. But even if my theory should turn out to be mistaken (it was arson), I still remain absolutely certain of the existence of some chain of causes leading to the fire.

Since similar causal chains, with fewer or more of the blanks filled in, are taken for granted in respect of every beginning of existence, the space and time of real things demarcated by the purview of one's senses and memory comes to be dwarfed by the sphere comprised of the realities one infers to exist by means of customary association in relations of cause and effect:

> 'Tis this latter principle, which peoples the world, and brings us acquainted with such existences, as by their removal in time and place, lie beyond the reach of the senses and memory. By means of it I paint the universe in my imagination, and fix my attention on any part of it I please. I form an idea of ROME, which I neither see nor remember; but which is connected with such impressions as I remember to have received from the conversation and books of travellers and historians. This idea of Rome I place in a certain situation on the idea of an object, which I call the globe. I join to it the conception of a particular government, and religion, and manners. I look backward and consider its first foundation; its several revolutions, successes, and misfortunes. All this, and every thing else, which I believe, are nothing but ideas; tho' by their force and settled order, arising from custom and the relation of cause and effect, they distinguish themselves from the other ideas, which are merely the offspring of the imagination.
>
> (P. 108)

INDIVIDUALS

Hume explicated one's ideas of complex individuals (bodies and minds), both at a time (which he called simplicity) and over time (identity), as fictions resulting from failures to distinguish relations of genuine individuals from these individuals themselves. While granting that, in appearance, these fictitious individuals do not resemble

genuine ones, he insisted that their feeling to the imagination in contemplating its objects is so similar in the two cases, and the associative influence of the resemblance relation so strong, that one affirms their simplicity or identity even in the face of contrary appearances (1978, pp. 202–204 and 253–254).

Hume opted for associationist explications of these ideas because he could find no way to make sense of complex individuals objectively. The only kind of simplicity one is capable of conceiving in objects (impressions and ideas) is incompatible with complexity and manifestly different from it: Perceptions may be simple, in which case there must be only one, or complex, in which case there must be more than one, but since they cannot be both one and more than one at once, the notion of a complex individual is, strictly speaking, unintelligible. The predicament is even worse when it comes to the identity of an object over time. Since "all impressions are internal and perishing existences, and appear as such" (1978, p. 194), no idea can be copied from them that is not of existents "interrupted, and perishing, and different at every different return" (p. 211). Hume took this so far as to insist that duration is inconceivable apart from succession, and so can never be represented otherwise than as a multiplicity (p. 37). To be sure, one can represent something as the same as itself at one and the same time; but this is unity, not identity (pp. 200–201). Thus, unlike simplicity, the notion of identity seems to premise a combination of unity with number that, objectively at any rate, seems unintelligible.

PERFECT IDENTITY. While there may be nothing objectively to distinguish the presence to consciousness of a single continuing existent from a succession of distinct qualitatively identical fleeting existents, on the subjective side there is a feeling that suffices to mark a difference:

> The faculties of the mind repose themselves in a manner, and take no more exercise, than what is necessary to continue that idea, of which we were formerly possest, and which subsists without variation or interruption. The passage from one moment to another is scarce felt, and distinguishes not itself by a different perception or idea, which may require a different direction of the spirits, in order to its conception.

(1978, P. 203)

Presumably, one's mind might have been so constituted that, instead of being all but effortless, the act of successively repeating the same idea might have required great exertion and a continuous redirection of the spirits to effect it. In that case, however, the change (succession of the distinct) would be as unmistakable here as with a kaleidoscopically varying flux. Alternatively, instead of being "scarce felt," contemplating a qualitatively invariant succession might involve no feeling at all. Still, in that case, there would be nothing to induce the imagination to confuse the observation of a continued, invariant sequence of perceptions with interrupted or variable ones and Hume's account of complex individuals could not even get off the ground. Thus, the original of the idea of what Hume called *perfect identity* lies not merely in the objects contemplated but also in the sustained affective disposition of the imagination in successively reproducing the same idea.

THE IMPERFECT IDENTITY OF BODY (CONTINUED AND DISTINCT EXISTENCE). Perfect identity is terminated by the first interruption or variation sufficient to necessitate a new direction of the spirits. However, "a succession of related objects places the mind in this disposition, and is consider'd with the same smooth and uninterrupted progress of the imagination, as attends the view of the same invariable object" (1978, p. 204). Since the very nature or essence of relation is facility, a succession of a single relation of ideas (facility feelings) produces the same continuity of affective disposition distinctive of a successive repetition of the same idea, and so leads one to confound them (= imperfect identity). In the case of bodies (continued and distinct existents) the principal relation is resemblance:

> We find by experience, that there is such a *constancy* in almost all the impressions of the senses, that their interruption produces no alteration on them, and hinders them not from returning the same in appearance and situation as at their first appearance. … This resemblance is observ'd in a thousand instances, and naturally connects together our ideas of these interrupted perceptions by the strongest relation, and conveys the mind with an easy transition from one to another. An easy transition or passage of the imagination, along the ideas of these different and interrupted perceptions, is almost the same disposition of mind with that in which we consider one constant and uninterrupted perception. 'Tis therefore very natural for us to mistake the one for the other.

(P. 204)

To be sure, the identity the imagination wishes to ascribe to these appearances directly conflicts with the new direction of the spirits necessitated by their interrupted

appearances. Since these interruptions "are so long and frequent, that 'tis impossible to overlook them; and as the *appearance* of a perception in the mind and its *existence* seem at first sight entirely the same, it may be doubted, whether we can ever assent to so palpable a contradiction, and suppose a perception to exist without being present to the mind" (1978, p. 206). Given that one does so virtually every moment of one's life, the question for Hume was not whether but how one reckons with the contradiction. He found the answer in the associative nature of the idea of the mind to which perceptions appear. If the mind is not, as most of Hume's predecessors believed, a real substantial unity on which perceptions essentially depend, but something conceivable only associatively, as a "connected mass of perceptions," then "there is no absurdity in separating any particular perception from the mind" (p. 207). That is, if, in accordance with the separability principle, one can conceive any perception to exist in the absence of any other or even all others, then one can conceive any perception to exist in the absence of the mind if the mind is, indeed, just another perception (namely, a complex idea produced in associative imagination).

By calling such absences interruptions in its appearance, one can attribute to the perception a reality independent of the mind. Of course, since the separability principle holds of all perceptions without exception, this is something one is capable of doing with any perception whatsoever—smells, pains, fears, desires, volitions, and thoughts no less than spatial (visible and tangible) objects. That one only exercises this conceptual capacity in the case of spatial objects is due solely to the fact that they alone exhibit the constancy requisite to produce resemblances sufficiently strong between interrupted perceptions to generate an affective disposition liable to be mistaken for perfect identity.

Even so, the distinction between the appearance and reality of spatial objects employed here is merely external (relative). Consequently, it can only disguise, not eliminate, the feature that sets up the palpable contradiction in the first place: the appearance and reality of perceptions are one and indistinguishable. Given that "all impressions are internal and perishing existences, and appear as such," the distinct, continued existence one accords to visual and tactual impressions has nothing whatsoever to do with either the reality or the appearance of these perceptions, and everything to do with operations of the imagination that considers them. That is, the only idea one is capable of forming of the identity of bodies is inseparably bound up by content with the subjective acts and affects of association imagination, and so is fictitious through and through.

In designating body a fiction, it was by no means Hume's intent to imply that one does or even can doubt its reality. For not only is the fiction rooted in fundamental principles of human nature, it is in effect self-confirming. The memories whereof ideas of bodies consist are, in general, one's most vivid ideas. Since the effect of the fiction of a continued existence is to unite the scattered memories of resembling appearances in a single idea, their vivacity feelings are pooled together in that idea, thereby producing the strongest conviction in the real existence of the continued existent thereby conceived (1978, pp. 208–209). For this reason, "[w]e may well ask, *What causes induce us to believe in the existence of body?*, but 'tis vain to ask, *Whether there be body or not? That is a point, which we must take for granted in all our reasonings*" (p. 187).

THE SIMPLICITY OF BODY: THE IDEA OF SUBSTANCE. Hume explicated the idea of simplicity of bodies (their individuality at a time) by means of an associative fiction closely analogous to that responsible for one's idea of their identity. The appearance and reality of one's perceptions are ignored because of the powerful influence on the imagination of its own affective disposition when it contemplates coexistent perceptions bound together by customary associations of contiguity and causality:

> The connexion of parts in the compound object has almost the same effect, and so unites the object within itself, that the fancy feels not the transition in passing from one part to another. Hence the colour, taste, figure, solidity, and other qualities, combin'd in a peach or melon, are conceiv'd to form *one thing*; and on account of their close relation, which makes them affect the thought in the same manner, as if perfectly uncompounded.
>
> (1978, P. 221)

Here, too, the contradiction between one's feelings and the manifest difference in appearance between a genuinely simple object and a body—that is, the distinctness in the latter, according to the separability principle, of the color from the taste, these from the visible figure, these in turn from its tangible solidity, and so on—is too pronounced to ignore, and so must be palliated by some fiction, even if the contradiction can only be disguised thereby, not eliminated. Accordingly, we "feign an unknown something, or *original* substance and matter, as

a principle of union or cohesion among the qualities, as what may give the compound object a title to be call'd one thing, notwithstanding its diversity and composition" (p. 221).

THE IMPERFECT IDENTITY OF THE MIND (SELF AND PERSON). In the case of the mind, one is induced to attribute identity in the face of recalcitrant appearances more by causal relations than by resemblance:

> As to *causation*; we may observe, that the true idea of the human mind, is to consider it as a system of different perceptions or different existences, which are link'd together by the relation of cause and effect, and mutually produce, destroy, influence, and modify each other. Our impressions give rise to their correspondent ideas; and these in turn produce other impressions. One thought chaces another, and draws after it a third, by which it is expell'd in its turn.
>
> (1978, P. 261)

One is a witness continuously, almost from the beginning of conscious life, to impressions causing idea copies of themselves to be formed, of these ideas being the occasion of further thoughts, passions, desires, and/or volitions, these in turn causing copies of them to be formed, and so on. One's perceptions may be subject to constant change, but never, even for a moment, is a causal relation between them of some kind absent from one's purview. Since "the very essence of these relations consists in their producing an easy transition of ideas" (1978, p. 260), the facility feelings incident to contemplating an unvarying, uninterrupted series of causal relations signify the presence in one of an unvarying, uninterrupted affective disposition. The strength of this disposition, with the strength of the feeling of its resemblance to the affective disposition incident to perfect identity, leads one to attribute an identity to this system of causal relations (pp. 253–254), notwithstanding that, on the side of the appearances, one's perceptions are "a perpetual flux and movement" and nothing "remains unalterably the same, perhaps for one moment" (pp. 252–253). (Hume's account of the simplicity of the self is essentially the same as that of body [p. 263].)

Second thoughts. Hume's explication of the idea one has of oneself thus shows it to be no less fictitious than that of the idea of external objects: nothing "really binds our several perceptions together," it merely "associates their ideas in the imagination"; one never observes any "real bond" among them, one "only feel one among the ideas we form of them" (1978, p. 259). Still, by excluding

all real relations from the account of the self, Hume eventually came to realize that he had no way to "explain the principles, that unite our successive perceptions in our thought or consciousness" (appendix published with the second volume [book 3 1978, p. 636] of the *Treatise*). Hume saw no way out of this quandary, nor did he ever return to this topic in any subsequent work.

SKEPTICISM

Was Hume a skeptic? Though generally reputed to be among the most extreme of skeptics, the question is not so absurd as it may seem. If a skeptic is one who doubts or even rejects the use of reason as a means of arriving at truth, then Hume was no skeptic. So long as one is guided by intuition in one's inferences in mathematics and by experience in matters of fact, "Our reason must be consider'd as a kind of cause, of which truth is the natural effect" (1978, p. 180). Furthermore, Hume recognized that many beliefs are pointless to doubt because one is literally incapable of disbelieving them or not taking them for granted in all one's reasoning, including such philosophically contentious topics as the existence of external objects and the self, space and time, and the necessity of a cause to every beginning of existence.

Consequently, many commentators have come to regard Hume's skepticism as considerably more moderate and narrowly focused than traditionally supposed. For them, what makes Hume a skeptic is that he supposed one's ineliminable beliefs skeptically unassailable not because they are founded on reasons too strong to be undermined by skeptical argument but because they are not founded on reasons at all. It is nature, not reason, that has determined one to believe certain things. Nor is reason, when understood as Hume would have one do, capable of supplying these beliefs with a rational basis immune to skeptical assault.

The problem with this view is that it focuses almost exclusively on beliefs to the neglect of their ideational contents. If Hume did indeed deem belief in the existence of body skeptically unassailable, it must also be remembered that psychological processes—the actions and affects of associative imagination—are not merely essential to the formation of the idea in which this belief is reposed but also contribute elements essential to its content (i.e., apart from which bodies are inconceivable), and limit its application accordingly. Indeed, what is perhaps most distinctive of Humean skepticism is the conceptual dimension, in which association supplies subjective-psychological surrogates, as the only way around the "contradictions which adhere to the very ideas of matter,

cause and effect, extension, space, time, motion; and, in a word, quantity of all kinds" (1992, pp. 189–190).

For Hume, it is impossible even so much as to conceive these things without incorporating into one's ideas of them contents copied from impressions as irreducibly subjective as pain or disgust. What does it matter that the belief (vivacity) conferred on these ideas renders them skeptically unassailable if the ideas themselves are of such a nature that no skeptic would think to contend against them? One's reliance on associative imagination for the content of one's ideas comes at a price. If, for example, "we suppose necessity and power to lie in the objects we consider, not in our mind, that considers them," then, apart from this, "it is not possible for us to form the most distant idea of that quality" (1978, p. 167). This restriction on the scope of application of concepts so fundamental to human understanding as causation and body to the purview of a suitably constitutive experiencing mind unquestionably qualifies as a form of extreme skepticism.

VARIETIES OF HUME'S SKEPTICISM. When Hume himself characterized his philosophy as skeptical, he meant that it abounds with "discoveries concerning the weakness and narrow limits of human reason and capacity" (1999, p. 145). Although virtually everything in Hume's philosophy is directed to this end, among the arguments, analyses, and approaches to which he explicitly appended the term *skeptical*, three seem most deserving of being singled out.

Skepticism with regard to reason. After explicating empirical rationality as inferential belief proportioned to the evidence of past experience in *Treatise* I.iii, Hume advanced an argument in I.iv.1 to show that the result of adhering always and only to the canons of empirical rationality leads inexorably to the conclusion that "all is uncertain, and that our judgment is not in *any* thing possest of *any* measures of truth and falsity," so that "the understanding, when it acts alone, and according to its most general principles, entirely subverts itself, and leaves not the lowest degree of evidence in any proposition, either in philosophy or common life" (pp. 183 and 267–268). While most commentators consider his reasoning fallacious, Hume himself clearly deemed it impeccable and irresistible on any conception of empirical rationality, his own included (pp. 184–185). What interested him was why the argument nevertheless fails to convince. The reason he offered is that "[n]ature, by an absolute and uncontroulable necessity has determin'd us to judge as well as to breathe and feel" (p. 183).

More particularly, the argument lacks the affective force on which all relation (facility) and belief (vivacity) depend, "Where the mind reaches not its object with easiness and facility, the same principles have not the same effect as in a more natural conception of the ideas; nor does the imagination feel a sensation, which holds any proportion with that which arises from its common judgments and opinions" (p. 185). Vivacity (belief) follows facility (relation); so even if experience and custom support a certain inference, if for some reason, however trivial, facility feeling fails, vivacity will as well. And the circumstance in which understanding would subvert itself is a case in point:

> We save ourselves from this total scepticism only by means of that singular and seemingly trivial property of the fancy, by which we enter with difficulty into remote views of things, and are not able to accompany them with so sensible an impression, as we do those, which are more easy and natural.… We have, therefore, no choice left but betwixt a false reason and none at all.
>
> (P. 268)

Skepticism with regard to the senses. However impossible it may be for one in ordinary life not to believe in the distinct, continued existence of the bodies one sees and touches, only "a very little reflection and philosophy is sufficient for us to perceive the fallacy of that opinion" (1978, p. 210). Still, even if the more philosophical part of humankind recognizes this, they typically attempt to salvage the common opinion by arguing that unperceived objects correspond to perceptions that resemble them in various particulars but not their internal perishing existence. Many interpreters believe that Hume judged the philosophical view capable of sustaining skeptical scrutiny. This, however, is hard to credit in the face of his assertion that the philosophical view "contains all the difficulties of the vulgar system, with some others, that are peculiar to itself" (p. 211). If it contains all the difficulties, how can it withstand skeptical scrutiny any better? Hume's skepticism regarding the vulgar view centered on the content of the idea of a distinct, continued existence: the indispensability to it of something of the nature of an affective disposition (as is true of the idea of identity itself, this being the only means whereby the manifest differences between an interrupted or varying existence and a genuine identity can be overlooked and the two confounded).

Since the idea carries this content with it into all its applications, Hume cannot have exempted its philosophical employment from the same skeptical arguments to

which he subjected its vulgar. Indeed, because the philosophical view was erected in express opposition to the verdict of the most powerful, deep-seated natural human psychological propensity to believe in the distinct, continued existence of immediately perceived visible and tangible objects (sensations), only the weakest, most ephemeral conviction can be accorded to the philosophers' objects (p. 213). Finally, Hume contended that philosophers, having no means of conceiving their would-be objects except their own perceptions, in effect do no more than "arbitrarily invent a new set of perceptions" (p. 218). If, to avoid this implication, they suppose their objects to be specifically different from everything one can conceive, the result will be an "unknown, inexplicable *something* … a notion so imperfect, that no sceptic will think it worth while to contend against it" (1999, p. 203).

Academic, or mitigated, skepticism. Despite the extremity of the skepticism resulting from the "deficiency of our ideas" (1978, p. 267), Hume saw fit to describe his philosophy as an exercise in "mitigated scepticism" (1999, pp. 207–211). A skepticism qualifies as such if, instead of advocating the rejection of reason in all its forms, it counsels one to reject all abstract reasoning other than mathematics, and all reasoning regarding matters of fact and experience that is not carefully and precisely calibrated to accord with the deliverances of experience.

Does Hume's own philosophical reasoning meet these criteria? It was because the empirical investigation of human understanding turns up no evidence of any other faculties besides sense and imagination that he endeavored to account for all the phenomena of perception, judgment, and reasoning (mathematics included) in terms of their operations. And it was because the only empirical source to which ideas of causal connection, substance, real existence, space, time, and the mind could plausibly be ascribed as associative imagination that he was compelled to conclude that even one's most basic, indispensable concepts of objects incorporate an ineliminably subjective element of feeling into their content (facility and vivacity). To be sure, with the understanding thus transformed (in part) into an organ of feeling, Hume's philosophy became the first to set reason on a par with pleasure and pain, passions, desires, and everything else previous philosophers had denigrated as belonging to the baser, animal part of human nature; and this may seem skeptical indeed. But since his conclusions are fully consonant with the strictures of a mitigated skepticism, he could at least be confident that his books would not be

incinerated by anyone answering his call to "commit to the flames" any volume that fails to respect them.

THE WILL

Will is "the internal impression we feel and are conscious of, when we knowingly give rise to any new motion of our body, or new perception of our mind" (1978, p. 399). There is no implicit proposition the affirmation of which constitutes the act of volition. Volitions, for Hume, are not ideas or manners of conceiving, but feelings, felt excitations to mental or physical action. They are full-fledged perceptions (impressions of reflexion) in their own right, distinct from all others under the separability principle, capable of existing in complete isolation (p. 625). As such, they are completely indefinable: like flavors, to know volitions—to be able to form (copy) clear ideas of them—it is necessary to have the corresponding impressions; to lack the impressions is to be completely ignorant of will, to be unable to form even the most obscure idea of it.

With nothing more to be said of the will *per se*, Hume focused on the causes of its actuation. Nothing precludes reason from doing so since here, as always, "to consider the matter *a priori*, any thing may produce any thing" (1978, p. 247). Still, as a matter of fact, one finds "that reason alone can never be a motive to any action of the will" (p. 413). Convinced by reason that I am about to be devoured by a ravenous beast, for example, I would be completely indifferent to the fact, and not be provoked by this belief to any exercise of will, without the mediation of some passion in response to (caused by) the belief. Indeed, if human nature was such that being devoured by the beast was one of our fondest desires—because, say, passing through the digestive tract of a beast of that species was indispensable to reproduction—then this belief, with the passion, would excite actions to facilitate our capture. Alternately, our passionate response to the belief might be as tepid as that of a fifth grader to his or her belief regarding the result of the fifteenth of a series of long-division homework problems, so that we merely yawn at the imminent prospect of being devoured. Only passions actuate the will. Reason, according to Hume, is neither a necessary nor sufficient to do so.

For similar reasons, Hume argued that reason can never directly oppose, curb, or in any way act as a counterweight to the actuation of the will by passions. It can do so only indirectly, by giving rise to some new passion, as when it informs one that the object of one's desire is unattainable, or attainable only by a different course of action, whereupon it will produce an aversion to counter, or a desire to override, the existing passion. Conse-

quently, when one speaks of "sweet reason" prevailing over "brute passion," it is not passionless, volitionally impotent, reason that is being invoked, but other, calmer passions. Their gentleness should not, however, be confused with weakness:

> 'Tis evident passions influence not the will in proportion to their violence, or the disorder they occasion in the temper; but on the contrary, that when a passion has once become a settled principle of action, and is the predominant inclination of the soul, it commonly produces no longer any sensible agitation. … We must, therefore, distinguish betwixt a calm and a weak passion; betwixt a violent and a strong one.

(1978, PP. 418–419)

Is there such a thing as a rational passion? According to Hume, no. For even though a belief can be the invariable cause of a certain passion, passions are one and all original existences: none of their features are copied from the ideas that cause them or in any way derivable from them (1978, p. 415); and even when a passion has an object—as pride takes the idea of oneself for its object and love the idea of someone else—the object remains distinct (by the separability principle) from the passion itself, and only becomes an object to it by the mediation of some feeling of pleasure, such as that given by the beauty of the beloved or the opulence of a house that has passed into one's ownership (p. 279). Passions are therefore never rational in and of themselves; and since experience shows that only passions can actuate the will, reason

> is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them. … 'Tis not contrary to reason to prefer the destruction of the whole world to the scratching of my finger. 'Tis not contrary to reason for me to chuse my total ruin, to prevent the least uneasiness of an *Indian* or person wholly unknown to me. 'Tis as little contrary to reason to prefer even my own acknowledg'd lesser good to my greater, and have a more ardent affection for the former than the latter.

(PP. 415–416)

GOOD/BAD AND PLEASANT/UNPLEASANT ARE INDISTINGUISHABLE. Since reason, considered apart from whichever passions its deliverances may provoke, leaves the will indifferent, it cannot be the source of any of one's ideas of good and bad. This means that nothing propositional in character (rule, maxim, principle) can be

intrinsically good or bad: carnally, spiritually, aesthetically, or in any other way. Since the only place left to look for the impression originals of ideas of good and bad are pleasant and unpleasant feelings (sensations and passions), goods and ills must all be pleasures and pains of one sort or another (1978, p. 439). Thus, for Hume, the standards one applies in all one's value judgments have their origin exclusively in pleasant and unpleasant sensations or reflexions, and neither the goals of one's actions, the deeds themselves, one's volitions to perform them, nor the character of the person who wills can be supposed good or bad either intrinsically or in relation to any rule of conduct (maxim and principle) under which they fall; they are good or bad solely by virtue of the feelings that caused them and/or the feelings they arouse.

DENIAL OF FREE WILL. The question of freedom of the will takes on a different aspect according to how a philosopher analyzes volition. If one deems will and reason inseparable, as Berkeley did, and conceives of volition as the affirmation or denial of a proposition, like René Descartes, then any external cause that necessitates one to affirm or deny will be construed as a constraint on the freedom of one's will. But if, like Hume, one distinguishes reason from will and equates volition with a nonintellectual feeling of excitation to action (impression of reflexion), then a free will, unrestrained by any necessitating cause, would be one that acted blindly and randomly, unresponsive to one's desires and heedless of one's beliefs, and so is something rather to be dreaded. Thus, from his standpoint, it is fortunate that experience shows one will not to be free, but instead to act only when necessitated to do so by some passion, be it calm or violent, beneficial or destructive, responsive or unresponsive to the deliverances of reason.

Complementing Hume's denial of free will is his analysis of causal necessity in the operations of bodies as consisting of nothing more than facile transitions of thought from one perception to its customary conjunct. For this means that there is nothing "the mind can perceive, in the operations of matter, some farther connexion between cause and effect … that has not place in the voluntary actions of intelligent beings" (1999, p. 157). All there is to causal necessity is what one experiences in every facile transition from an impression to the idea of its usual antecedent or successor. Thus, Hume's necessitarianism does "not ascribe to the will that unintelligible necessity, which is suppos'd to lie in matter," but "ascribe[s] to matter, that intelligible quality, call it necessity or not, which does or must allow to belong to the will" (1978, p. 410).

Consequently, to prove that one is in practice a necessitarian, protestations to the contrary notwithstanding, he had only to assemble reminders that one naturally and inevitably draws on one's past experience of regularities in human voluntary behavior to predict the actions of minds in precisely the same way one does to predict the actions of physical objects (1999, p. 150). To object that one encounters contrariety in the human sphere and often finds the actions of minds puzzling and unpredictable is futile since the same is true in the physical sphere as well, nor does one infer the freedom of bodies from causal necessitation because of the contrariety one finds there.

Illusions of freedom. Hume identified several reasons why one nonetheless insists on supposing oneself to be free. First, by not distinguishing the will as effect from the will as cause, one confuses two different notions of freedom. The will is free as a cause to the extent the actions of one's body and mind are subject to its control, that is, causally necessitated by it. This is the freedom one would lose if one's body or mind became unresponsive to the will or responded only to some external control. By contrast, the will is free as an effect only if its action is not necessitated by any cause, including one's own passions and beliefs, and so acts at random. The latter is the kind of freedom no one wants and, on the evidence of experience, no one has. But it is precisely this sort that matters philosophically, since the other is not only compatible with universal causal necessitation but would not be worth having otherwise.

There is also a psychological illusion of freedom implicit in the idea of necessity itself. When one perceives two objects, one does not feel a causal connection between them unless and until one observes their similarity to past constantly conjoined objects between which such a connection is felt, and then transfer the idea copied from this feeling (the reflexive impression of necessary connection) to the objects presently before one. By contrast, when one is not an observer but a performer of actions, no such reflection occurs, and consequently no connection is felt between one's perceptions (1978, pp. 408–409). For example, if I believe someone has betrayed me, and I become enraged and smash a vase against the wall, I feel no causative forces necessitating my actions; it is only afterward, when I reflect on what happened, that I recognize the necessitation of my action by the passion and the passion by my belief. Even so, I am still apt to resist the claim that in so doing my will and action were no less necessitated than a body released from a height is necessitated to fall. But apart from the fact that "there is

no known circumstance, that enters into the connexion and production of the actions of matter, that is not to be found in all the operations of the mind" (p. 404), this is simply to say I can reimagine the situation so that, instead of the vase, I hurled something else or nothing at all, or that I somehow stopped myself from becoming enraged in the first place. That is not the same as supposing my volition to have been unnecessitated. It only means that, given different antecedents, different causes would have necessitated something other than the action I performed under the circumstances that actually prevailed.

THE PASSIONS

Though Hume devoted as much of the *Treatise* to developing a theory of the passions as he did to the understanding, the former has never attracted as much attention as the latter has. This is regrettable. Hume's theory of the passions is the mirror image of his theory of understanding: just as he was able to show the understanding to be as much an organ of feeling as of thought by explaining its most basic and important operations in terms of principles of association, so, too, by showing how surprisingly far these same principles go toward explaining the operations of the passions, he was able to reveal a deeper, underlying affinity between reason and feeling that otherwise, apart from his associationist doctrine, must remain concealed. This fundamental unity of perceptions that, to all appearances, seem disparate, or even opposed, was surely prominent in Hume's mind when he compared the place of association in the science of man to that of universal gravitation in Newtonian science of nature. One may therefore hope that Hume's theory of passions will someday receive the same amount of careful study and attention that has hitherto been reserved for other topics in his philosophy.

DIRECT PASSIONS. Hume distinguished passions into two basic types: direct and indirect. Direct passions such as grief, joy, hope, fear, despair, and security arise immediately from some good or ill (pleasure or pain), or are themselves productive of good or ill (natural impulses such as punishing enemies and rewarding friends, as well as natural instincts such as hunger, lust, and other bodily appetites). Because their immediate cause or effect is some impression or idea of pleasure or pain, Hume could identify no role for the association of ideas in explaining their origin and only an occasional, incidental role for the association of impressions (where there is only association by resemblance). Nevertheless, he found a number of cases in which associative imagination proves crucial to

enable passions already present in the mind either to commingle (or not) or to oppose one another (or not).

INDIRECT PASSIONS. The passions of principal interest for Hume's associationist science are those he classified as indirect ideas and their associative relations are found to be causally essential to their production. The most fundamental indirect passions are pride/humility and love/hatred, but they also include ambition, vanity, envy, pity, and malice. These share a causation that takes the form of a "double relation of ideas and impressions" (1978, p. 286). Thus, an object causes a pleasure of some kind; if the object happens to be related to me by a strong enough relation, this relation of ideas (of the object to me), together with the pleasurable quality (impression) of the object, causes me to feel the resembling (because also pleasing) passion of pride (impression), whereas that same object, if productive of something unpleasant, will, given the same relation to me, cause the resembling (displeasing) passion of humility. Take away that object's relation to me, and I will feel neither pride nor humility in response to its pleasing or displeasing quality; take away its pleasing or displeasing quality and again I will neither passion. Consequently, pride and humility are found by experience to exist only in conjunction with an idea of myself, another object strongly related to (associated with) me, and some pleasing or displeasing quality related to (associated with) that object.

What differentiates love and hate from pride and humility is simply the object of the passion. For just as I take pride in my body or mind, or some object, insofar as it possesses some pleasing quality and has a strong relation to me—my looks, my brilliance, the imposing house I own, the beautiful painting I created, the coveted office to which I have been elected, and so on—so, too, I love or esteem someone else from precisely the same causes. Otherwise, these passions exhibit the same double relational structure.

Hume was well aware of the profusion of seeming counterexamples to this structure and spared no effort to rebut or deflect them. Still, to many, these efforts have something ad hoc about them, and Hume tends to be condemned for too rigid an adherence to theory in the face of recalcitrant phenomena. But much of this criticism may be due to a failure to appreciate the significance that double relations in question are associative in character, that is, their essence consists in facile transitions felt between impressions and ideas (1978, pp. 289, 309, 335–336, 378). This is never clearer than when, in the last three of Hume's "Experiments to Confirm This System"

(pp. 332–347), he shows what seem to be counterexamples are really cases in which something interferes not with the relation considered abstractly (philosophically) but with the degree of facility felt in it, so that one or both of the relations requisite to produce an indirect passion are deprived of their associating quality, either by losing facility or because some opposing, even more facile transition prevails. Thus, when one factors in the affective dimension of Humean associationism, one can begin to appreciate Hume's evident excitement at the prospect of an explanatory principle that, for the first time, permits a systematic exposition of the human conative mind (pp. 346–347).

SYMPATHY. The compass of one's passions would be narrowly confined to those with whom one has close personal relations if sympathy did not overcome one's indifference by communicating to one the feelings of others and enabling these to arouse one's own feelings, whether they be strangers, those known to one only by reputation, persons long dead, members of far away societies, even characters in myth. Thus, sympathy plays a key role in the operation of the passions in the wider context of human society. Regarded from Hume's perspective, however, sympathy is simply an extension of the associationist principle into the societal sphere. For, in and of itself, it is just one among species of the general associationist operation of enlivening ideas related to impressions to the point where they approach or equal the vivacity of the impressions themselves; one can call it sympathy when it increases the vivacity of an idea related to the passion felt by another to the point where it equals or approaches the original impression (1978, p. 319).

MORALITY

Hume's approach to morality is of a piece with the rest of his philosophy. Are there specifically moral ideas, or does moral discourse have nothing in the only object ever present to one—one's perceptions—to confer objective meaning on its pronouncements? If there are ideas, then their content must be determined by tracing them back to their originating impressions: whether they have their source in the perception of some object in sensation or reflexion (impression) or in acts of associating ideas of these objects. With the origin of moral ideas determined, enough would become evident about their place in the cognitive and/or conative economy of the human mind to permit the discovery of the fundamental principles governing moral judgment and action.

The question whether causal discourse has a basis in the objects present to one's mind came down to the question whether one experiences nothing but constant conjunctions or whether there is something more—even if that something should turn out not to be the objectively real necessary connections one's discourse might lead one to expect. In the case of moral discourse the question that was decisive for Hume regarding its objective significance is whether one's experience of good and ill is limited to passions and desires, or whether there is, in addition, a source of distinctively moral ideas.

Hume's confidence that there is more to causal discourse than experienced constant conjunction stemmed from a conviction that, given only this, reality, for one, would be restricted to the narrow compass of the senses and memory. Where morality is concerned, his confidence in its ideational foundations seems to have derived from the abundant evidence of morally motivated actions: action undertaken not for selfish reasons, from partiality for those one loves, from dread of the consequences of not performing them, or for any identifiable purpose other than the sheer morality of it. Accordingly, in tracing ideas of moral good and ill to their origin, Hume's first task was to determine whether they derive from the features or relations of the objects immediately present to one in perception or, like ideas of necessary connection, from something felt in their contemplation.

MORAL IDEAS ARE COPIED NEITHER FROM OBJECTS NOR THEIR RELATIONS. For Hume, morality would count as objective if actions or things were moral or immoral prior to and independently of any course of reflection on them and, *a fortiori*, any feeling that arises only in the course of such reflection. For example, if willful murder were objectively immoral, then some impression embodying its immorality must exist to be copied in an idea. But what does one find when one considers such crimes objectively but a sequence of thoughts, passions, motives, volitions, and actions? The action itself is not immoral or else an avalanche would be immoral for taking the lives of skiers. That the action is voluntary does not of itself make it immoral or else lions would be guilty of immorality every time they killed. Nor does its immorality consist in the anger, greed, or other passion that determined the will, since these feelings are in themselves neither moral nor immoral. Finally, even if the course of reasoning that eventuated in the resolve to murder included an awareness that murder is wrong, its immorality, if objective, would derive not from this thought as such, but from the preexisting objective state of affairs recognized in it.

If not in the objects whereof willful murder consists, does its immorality reside in some relation of these objects discoverable by reason? Reason, as explicated by Hume, consists either in (intuitive or demonstrative) knowledge of the relations of ideas derived from objects or in belief (a vivid idea) regarding a matter of fact inferred from some other matter of fact. Against the former supposition, Hume argued that none of the knowable relations into which ideas can enter—resemblance, contrariety, degrees in quality, and proportions in quantity and number—seem capable even of distinguishing the moral from the nonmoral, much less the moral from the immoral.

If there is some other kind of knowable relation in which objective morality consists, Hume confessed to being ignorant of it. But even if there were, it would have to satisfy two conditions that seem impossible to meet. In the first place, to be a knowable yet genuinely moral relation, it could only relate two species of objects to the exclusion of all others: internal actions of the mind to external objects. Otherwise, internal actions of the mind that never eventuate in any deed could be moral or immoral, as could deeds with no mental components (thoughts and volitions). Still, so selective a relation of ideas seemed to Hume beyond the scope of what is intuitable or demonstrable by mere human minds. Second, even if such a relation did exist and were known, it would still remain for one actually to intuit or demonstrate its power to determine the will of every being possessed of a knowledge of it, divine no less than human. Since the components of the relation—knowledge and volition—are distinct perceptions, such determination could only take place via causal necessitation. Still, if Hume's analysis of causal connections shows anything at all, it is that no connection is ever intuitable or demonstrable "by the simple consideration of the objects," since "[a]ll beings in the universe, consider'd in themselves, appear entirely loose and independent of each other. 'Tis only by experience we learn their influence and connexion; and this influence we ought never to extend beyond experience" (1978, p. 466). Therefore, it seems that no moral relation can ever be knowable and vice versa.

Objective morality is also not discoverable by probable reason. Deeds objectively comprise thoughts, passions, volitions, and bodily actions. In which relation of these does its morality consist? Even if experiment revealed the existence of some hidden object, a neurochemical perhaps, that reliably tracked the distinctions one makes between the moral and nonmoral, and the moral and immoral, one's ideas of the moral and

immoral could still not be originally derived from such a source since, in and of itself, neurochemicals are just as nonmoral as any of the more obvious objects concerned in moral and immoral deeds. Thus, there is nothing rationally discoverable in the objects, and expressible by an "is" or "is not," that can lead one simply by reasoning to any properly moral recognition, expressible by an "ought" or "ought not" (1978, pp. 469–470).

THE SUBJECTIVE ORIGIN OF MORAL IDEAS IN INTERNAL SENTIMENT. With objects excluded as the source of moral ideas, Hume saw no alternative but to conclude that, like ideas of cause connections, they have their origin in something one feels in the act of contemplating objects. However, the exclusion of empirical reason as their source ipso facto precludes the facility and vivacity affects immanent to associative imagination. Instead, moral ideas originate in a species of impression of reflexion that is entirely independent of imagination. This, for Hume, is not to deny that experience shows that certain processes of thought are causally essential to moral impressions; it is only to say that these processes—by contrast with the impression originals of ideas of necessary connection and identity—contribute nothing to their content. As such, moral sentiments are distinct from these processes, and from every other perception, under the separability principle, and so might conceivably have arisen in total isolation from processes of thought, as hunger and sexual appetites do, or from causes different from those experience in fact reveals. The special status of the impression of reflexion source of moral ideas therefore derives not from any special authority intrinsic to these feelings themselves—they are simply one among many other varieties of pleasure and pain—but from the unique circumstances of their causation and the special place in one's life they derive therefrom.

THE CAUSATION OF MORAL SENTIMENTS. Experience reveals that moral sentiments are aroused only in the course of reflecting on the doings of human beings, specifically the mental characteristics responsible for their voluntary actions, and of these only those most firmly rooted in a person's character: the most efficacious and enduring characteristics of the identity that constitutes an individual human mind. This causation explains why moral feeling weakens or vanishes altogether when one contemplates actions not considered to be tests of character, because, say, their performance was prompted by an uncharacteristic whim, an excusable misjudgment regarding the facts, fever, disease, medicinal side effects,

or involuntarily through some unavoidable external cause.

The causal structure of moral feeling resembles that of the indirect passions of pride/humility and love/hate in that it involves a double relation of impressions and ideas: an object (idea) related to a person (another idea) is the subject of some pleasant or unpleasant feeling (impression) that, because of the relation between the objects, gives rise to its resembling (pleasing or displeasing) moral feeling (another impression). Indeed, with the proviso that the causes of moral feelings are restricted to mental characteristics strongly related to the person, the pleasures and pains that arouse moral feelings prove to be precisely the same ones that arouse feelings of pride/humility in oneself and to love/hate toward others (1978, pp. 574–575), so that moral feelings may be regarded as "nothing but a fainter or more imperceptible" (p. 614) variety of these passions themselves.

There are, however, two further features of the causation of moral sentiments that distinguish them from indirect passions:

Moral feeling requires a general point of view. The indirect passions are invariably partial for or against their particular object (oneself or another). Moral sentiments, by contrast, tend to be felt only when "we fix on some *steady* and *general* point of view" in which one abstracts from "our situation of nearness or remoteness, with regard to the person blam'd or prais'd, and … the present disposition of our mind" (1978, pp. 581–582). Moral feelings are at their strongest (remembering that, for Hume, the strength of a sentiment is often inversely proportional to its violence) when the character of the person is viewed from the standpoint where it

> appears the same to every spectator. … And tho' such interests and pleasures touch us more faintly than our own, yet being more constant and universal, they counter-ballance the latter even in practice, and are alone admitted in speculation as the standard of virtue and morality. They alone produce that particular feeling or sentiment, on which moral distinctions depend.
>
> (P. 591)

From a personal perspective, one may be far more moved by the moral perfections of a best friend than by those of some moral giant of the past like Gandhi. Still, this delight is not moral sentiment. That feeling can arise only when one brackets out one's personal feelings for the person, whereon one cannot help feeling a far stronger feeling in contemplating Gandhi than one's friend (though

this is no guarantee that, when it comes to determining the will, one's moral sentiments will be strong enough to prevail over nonmoral ones).

Moral feeling requires sympathy. Since reason is impotent to determine the will and useless by itself to distinguish moral right from wrong, moral action is wholly at the mercy of moral sentiment. But if moral sentiments can arise only through their association with other pleasures or pains (in the context of a double relation of impressions and ideas), how is it possible for moral feeling to arise if it requires one to regard persons from a general point of view in which abstraction is made from everything determinative of one's present affective disposition? Hume's answer is that the capacity to remain affectively engaged depends on one's ability to sympathize with the persons one considers from a general point of view. Thanks to this societal variety of association, one continues to feel pleasure or displeasure from the consideration of the mental qualities rooted in the characters of persons one considers impartially. Since this permits the condition for the double relation of impressions and ideas requisite to produce moral sentiment is met, one then has only to contemplate the character from the general point of view requisite for moral sentiment for the pleasant or unpleasant feelings produced by sympathy to cause a corresponding pleasant or unpleasant moral sentiment.

VIRTUE AND VICE. Another way in which the impression of reflexion originals of moral ideas and those of ideas of necessary connection are alike is that, despite being subjective (felt only in contemplating objects), they are illusorily projected onto the objects contemplated and treated as though they were properties of the objects themselves (1978, pp. 167, 224–225). In the case of moral feelings, the objects that take on moral attributes are the mental characteristics whose agreeableness or disagreeableness cause moral feelings, whereon they count as virtues or vices: "*taste* … gives the sentiment of … vice and virtue … [and] has a productive faculty, and gilding or staining all natural objects with the colours, borrowed from internal sentiment, raises, in a manner, a new creation" (1998, p. 163).

Hume's typology of virtue of and vice. Hume distinguished four (nonexclusive) types of virtue:

(1) Mental qualities immediately agreeable to their possessors, such as skill, greatness of mind, cheer, equanimity in the face of adversity, and courage

(2) Qualities immediately agreeable to others, such as tact, delicacy, wit, and good manners

(3) Qualities useful to their possessors, such as intelligence, industriousness, skill, patience, and perseverance

(4) Qualities useful to others, such as gratitude, faithfulness, reliability, and charity

The pleasure one takes in these mental qualities in and of themselves is enhanced by the moral pleasure with which one responds to them, thereby adding a moral beauty to their original, nonmoral beauty. Similarly, the displeasure occasioned by their contraries is augmented by moral displeasure, and to their natural ugliness moral repugnancy is added. This, in turn, increases the effects these qualities have on other passions, above all the pride or love and humility or hatred felt on their account. Indeed, as mental qualities capable of stirring moral sentiments in one when considered with sympathy from a general point of view, pride/humility and love/hate now take on a moral value in their own right. Thus, if the pride another takes in his or her character is the effect of real virtues and proportionate to them, our contemplation of his or her pride (a pleasing quality) can only add to the pleasure we derive from contemplating the pleasing qualities in which he or she takes pride, whereas if his or her pride is a perverse pleasure deriving from morally repugnant mental qualities, his or her feelings about him- or herself can only increase the contempt we feel in contemplating those qualities.

Hume seems convinced that many of the qualities commonly deemed virtuous in his and other societies would not be considered virtues, or even be deemed vices, if people could overcome the distorting influences that prevent them from attaining a truly impartial, sympathetic perspective on human characters. Religious education, for example, can condition one to regard as virtuous the asceticism of monks, the fanaticism of zealots, or the credulity of the faithful—qualities of mind that would otherwise be certain to strike one as both repellant in themselves and harmful (1998, pp. 146–147). But, for Hume, the fact that miseducation, harsh conditions of life, and other factors can lead people to mistake virtues for vices and vices for virtues no more makes the one really the other than the fact that people are often influenced to discount or ignore past experience in their reasoning means that there is no real difference, rooted in human nature, between good and bad empirical reasoning. Nothing—interest, expediency, or serendipity—can make disagreeable or harmful mental qualities be, or appear to be, anything other than they really are. Nevertheless, outside influences may intervene to prevent one from attaining the constancy and universality of perspective, and/or the sympathetic engagement, requisite to

bring one's moral sense to bear on such disagreeable or harmful qualities and respond to them with the contempt they would otherwise naturally and universally inspire.

Of course, even if human nature ensures that universal agreement regarding virtue and vice is possible in the abstract, things are different when it comes to judging, in any particular instance, whether an action issued mainly from moral, immoral, or amoral motives, and in which proportions. Hume was keenly aware, in his capacity as philosopher no less than that of essayist or historian, that motives for particular actions can be complex and obscure, even to the agent, and that agreement in one's judgments regarding the morality may be impossible owing to differences in experience, education, access to information, and individual mental abilities. Matters are further complicated by the fact that moral sentiments must compete with other passions for influence on the wills of agents and the hearts of judges. Nonetheless, even if human nature cannot always reveal what one ought to do in each particular instance, Hume still deemed moral sentiment a universally valid standard accessible to anyone concerned to know what kind of person he or she ought to be; and, in this regard, moral sentiment serves as a dependable guide in moral decision making and judgment.

ARTIFICIAL VIRTUES. Institutions such as property, contracts, government, intergovernmental relations, and marriage must exist before the virtues of justice (the rightful possession of property), promise-keeping, allegiance, treaty-keeping, and chastity are even possible. A first precondition is that everyone, or nearly everyone, realize that they stand to benefit when every member of society, selves included, adheres to the rules requisite for these institutions to exist and flourish. Second, each person's recognition of their interest in everything that promotes universal adherence to these rules leads them to take pleasure in those mental qualities of persons that contribute most to making them just, faithful keepers of promises, loyal subjects, good treaty-makers and -keepers, and good husbands or wives. Only then, when reflecting on these pleasing qualities of persons from a general point of view, will each person's moral sense respond to these qualities with its own distinctive feeling, whereupon qualities originally prized only from self-interest at last come to elicit one's admiration as virtues.

What prompted Hume to classify these and other virtues as artificial rather than as natural, even though their origin in a recognition of the utility of certain mental qualities is no different from many natural virtues? Justice, for example, presupposes property, which, as an institution founded on a tacit convention, is, in Hume's view, thoroughly artificial, and in that sense unnatural. Although there is possession, property in the strict sense (as carrying an obligation not to hinder possession) does not yet exist in a state of nature, where something is mine if, by strength or wit, I can get it and keep anyone else who wants it from taking it. When goods are either too plentiful or too scarce, and generosity is confined to one's closest relations, there is no interest or intrinsic virtue to inhibit one from taking anything one wants from anyone else, even if one's need for it is not desperate. But when goods are neither too plentiful nor too scarce, a condition in which everyone takes whatever they want whenever they can prevents anyone from enjoying the benefit of secure possession of the goods they want or need for future use. The resulting dissatisfaction with the existing state of things thus creates an openness to change.

The problem is that it is not in my interest to leave anyone else in secure possession of my goods if I cannot be assured that the other person will do the same for me. This impasse is broken only with the establishment of a tacit convention, based on self-interest, of leaving others in possession of their goods provided they are prepared to leave one in possession of oneself. Moreover, since it is in the interest of all to be able to exchange some of the goods one has for others one needs or desires more, the convention of secure possession must also provide means whereby the goods of another can become one's own and vice versa, so that secure possession is transferred with them. Thus, through the artifice of tacit conventions, property in goods, over and above their mere possession, first comes into existence.

The reason that Hume classified justice in matters of property as an artificial virtue is that there is nothing about any good one desires to possess or retain, considered in and of itself, that can convey to one an idea of it as property. Property is unintelligible apart from established conventions, and conventions, however universal, tacit, and informal, are always artificial. For this reason, Hume denied that there is any natural interest or virtue in justice. Only after one has been inducted into the mysteries of the institution of property can one arrive at a recognition of one's interest in universal adherence to the rules requisite to maintaining it and so, *a fortiori*, come to prize as virtues the mental qualities most conducive to that interest. The same is true of every other virtue that presupposes human institutions founded on tacit conventions secured by a recognition of self-interest: contracts, laws, public offices, government, and so on. So, even though artificial virtues are no less genuine or powerful

expressions of moral sentiment than natural ones, Hume deemed them as unnatural to one's species as speaking English or paying in British currency.

RELIGION

One cannot be certain what Hume's actual views were with regard to belief in God. He was quite clear that he was not a Christian, and he seems to have regarded all religions as expressions of superstition, vestiges from less enlightened times that might (or might not) someday be superseded or wither away. However, Hume was also somewhat skeptical concerning contemporary atheistic conceptions. Matters are further complicated by the times in which he lived. Apart from legal sanctions (after a period of relative openness, new censorship laws began appearing in the late 1730s), a person's career prospects, social position, and tranquillity would be put in jeopardy by too open an expression of views liable to be construed as impious. For anyone unconcerned with mundane matters, zealous in the cause of atheism and enlightenment, desirous of being the focus of controversy, or sufficiently naive, these impediments might not matter. But Hume was not such a person. He was too worldly wise and fond of his place in society to bring down on himself the consequences of a frontal assault on the religious beliefs and institutions dear to the overwhelming majority of humankind. So, while many would agree with contemporary charges that his views on such matters as the general causal maxim and freedom of the will are implicative of atheism, Hume himself always professed the contrary (1978, pp. 409–10, 633n; 1999, pp. 160–164 1745/1967). And though his writings on religion seem to lead inexorably to the conclusion that a rational faith in God or revealed religion is an impossibility, he never ceased to proclaim that "the existence of a DEITY is plainly ascertained by reason" (1992, p. 280).

What is one to make of Hume's claims that his philosophy is consistent with, even supportive of, a rational belief in God? If these pretensions had been sincere, he would have had every reason to advertise the opinion, as other philosophers did who employed skepticism to humble reason to elevate faith. But one finds no evidence of this in his philosophizing beyond occasional brief asides, which seem too casually thrown out for one not to suspect that they are there merely to provide cover for his skeptical forays. It seems unquestionable that Philo, rightly regarded as Hume's principal mouthpiece in the *Dialogues concerning Natural Religion*, was not serving in that capacity when he declared that "[t]o be a philosophical skeptic is, in a man of letters, the first and most essen-

tial step towards being a sound, believing Christian" (1992, p. 292). Hume's actual skepticism points in a different direction, as a close examination of the arguments in his writings on religion reveals.

THE IDEA OF GOD. Hume professed agreement with Locke and other anti-innatists that the idea of "an infinitely intelligent, wise, and good Being" has its origin in one's "reflecting on the operations of our own mind, and augmenting, without limit, those qualities of goodness and wisdom" (1999, pp. 97–98). Nevertheless, he also maintained that the attempt to realize this definition in an idea is fraught with difficulty. Not only is "the capacity of the mind … limited, and can never attain a full and adequate conception of infinity" (1978, p. 26), even large numbers are representable only by means of the power of multiplying ideas, and, like all powers, rests ultimately on custom (pp. 22–23). The case of qualitative superlatives such as wisdom and goodness is even more problematic, for, finite or infinite, they "are not, like quantity or number, susceptible of any exact mensuration, which may be the standard" (1992, p. 281). In addition, Hume devoted the greater part of the *Dialogues* to showing that the empiricist definition of the divine founded on qualities of the human mind can never provide one with an idea remotely adequate to underwriting the conception of God featured in the discourse of philosophical theologians. Had he been bolder, he might also have applied to the case of God the implications of his associationist explications of the ideas of power and efficacy (necessary connection), substance, identity over time, the simplicity of complex beings, personhood, and reason. For their result is to show that these ideas are all inseparably bound up by content with the actions and affects of associative imagination, and so cannot be used to comprehend anything that exists prior to and independently of idea-enlivening, transition-facilitating. Therefore, it is ironic (no doubt intentionally so) that Hume ended up on the same side as the most pious monotheists (represented by Demea in the *Dialogues*) in insisting on the incomprehensibility of the nature of the divine.

A PRIORI ARGUMENTS FOR THE EXISTENCE OF GOD. The ontological argument for the existence of God advanced by many philosophers before Hume depends on treating existence as a property of God in the same sense in which goodness, wisdom, power, and other attributes are ascribed to the nature of divinity, and, moreover, like them, a necessary property. Hume argued against the first part of the thesis by denying that existence can ever be conceived of as a property, be it of God

or any other being. For to be able to do so, existence would have to be a distinct idea in its own right, capable of being combined with other ideas to form a complex idea, and there is no such idea in one's possession. Nor is the real existence attributed to God when, instead of merely conceiving him to exist, one believes him actually to exist, any new addition to the idea either, "When I think of God, when I think of him as existent, and when I believe him to be existent, my idea of him neither encreases nor diminishes" (1978, p. 94).

Even if there was an idea of real existence one could conjoin with one's idea of God, one still could not suppose it to apply necessarily, "Nothing that is distinctly conceivable implies a contradiction. Whatever we conceive as existent, we can also conceive as non-existent. There is no being, therefore, whose non-existence implies a contradiction. … The words, therefore, 'necessary existence' have no meaning; or, which is the same thing, none that is consistent" (1992, p. 251). If it is objected that God might in fact be a necessary existent even if existence does not attach to God of necessity in the idea one's feeble mind is able to form of divinity, the reply is that the same may be true of the unknown nature of any object, sensible objects included. The point is that one can never have reason to include existence in one's idea of God as a necessary attribute.

A POSTERIORI ARGUMENTS FOR THE EXISTENCE OF GOD.

Insofar as Hume's explications of ideas such as cause and effect show them to be bound up by content with the actions and affects of associative imagination, the scope of their application is limited to the purview of appropriately constituted conscious minds. Consequently, in order to even to raise the question whether experience provides any justification for inferring the existence of God, Hume had first to set aside these explications. This should not be forgotten when trying to assess the true nature and scope of his critique of *a posteriori* theistic reasoning.

COSMOLOGICAL ARGUMENTS FOR THE EXISTENCE OF GOD.

Many philosophical theists employ the general causal maxim to argue from the fact that something exists that some first cause must exist as well, since the supposition of an infinite regress of causes implies that the whole chain of causes and effects would lack a cause or reason for existing, and this is inconsistent with the maxim. Hume regarded such reasoning as fallacious:

> [T]he uniting of these parts into a whole, like the uniting of several distinct countries into one kingdom, or several distinct members into one

body, is performed merely by an arbitrary act of the mind, and has no influence on the nature of things. Did I show you the particular causes of each individual in a collection of twenty particles of matter, I should think it very unreasonable should you afterwards ask me what was the cause of the whole twenty. This is sufficiently explained in explaining the cause of these parts.

(1992, PP. 252–253)

ARGUMENTS FROM DESIGN.

Though given a pass in the *Treatise* and elsewhere in Hume's corpus, Hume subjected the design argument for the existence of God to critical scrutiny in section 11 of *Enquiry concerning Human Understanding*, "Of a Particular Providence and of a Future State." The discussion takes the form of a dialogue between Hume and a paradox-loving skeptical friend who imagines what Epicurus might have said in his defense if brought before a tribunal on charges of impiety and endangering the state because of his denial that religion (the existence of God and of a providence and future) can be established "upon principles of reason" (1999, p. 189).

For the sake of argument, Epicurus grants that the order, beauty, and wise arrangement everywhere observed in the universe cannot have resulted from material causes alone, so that the point at issue is what kind of author(s) can be inferred from the work according to the canons of empirical reasoning. Since the cause is something that has never been observed by any mortal, and since the given effect (the totality of design in nature) is so singular as to afford no basis for determining the general characteristics (species) of its cause, Epicurus maintains that one has no choice here but to subject one's reasoning to the "maxim, that where any cause is known only by its particular effects, it must be impossible to infer any new effects from that cause, since the qualities, which are requisite to produce these new effects along with the former, must either be different, or superior, or of more extensive operation, than those which simply produced the effect, whence alone the cause is supposed to be known to us" (1999, p. 196n).

This means that one must incorporate into one's conception of the cause the abundant empirical evidence of disorder, ugliness, indifference to human welfare, and the unjust distribution of talents, goods, and fates. So, even with the concession that matter and motion are insufficient to account for the world, the cause one is warranted in inferring from the effect as one empirically finds it falls far short of the superlative, benevolent intel-

ligence proponents of the design argument claim to be able to infer.

In the *Dialogues* this line of argument is deepened and expanded, even while Hume maintains the pretense that the design argument suffices to prove the existence of a deity and fails only when it comes to providing insight into the nature of that deity (like Kant after him, Hume suggests, in the *Dialogues* [dialogue 5], that empirical reasoning would need to be supplemented by *a priori* if this want were to be made good). It is impossible here to do justice to this splendid work, possibly the finest philosophical dialogue since Plato. Suffice it to say that its conclusion is "that the causes or causes of order in the universe probably bear some remote analogy to human intelligence" (1992, p. 291).

What this means becomes clearer in the light of Philo's observation in dialogue 7 that intelligence is just one of four known causes of order in the world and that the same claim of a remote analogy with the cause(s) of order in the universe can, with equal reason, be made for instinct (a bird's design of its nest), generation (of offspring by animals), and vegetation (seeding). Since even an atheist can admit that, in this highly attenuated analogical sense, it is proper to think of the cause of order in the world as similar to intelligence—and possibly to many other, as yet unknown principles of order as well—nothing of any consequence seems to be warranted by the conclusion reached in the *Dialogues*. Indeed, it is no wonder that Hume has Philo argue that the difference between atheists and certain theists is merely verbal (1992, pp. 280–281).

Nor does Philo deny that, among the unknown principles of order in the world, some may be inherent in matter itself, such that over vast periods of time, a minute probability that the motions of particles will eventuate in the production and replication of stable, orderly forms must eventually be realized (1992, pp. 244–247). Since other principles of order, known and unknown, may themselves be explicable in terms of principles inherent in matter, even the modest conclusion reached at the end of the *Dialogues* is put in jeopardy by this concession— "So dangerous is it to introduce this idea of necessity into the present question! And so naturally does it afford an inference directly opposite the religious hypothesis!" (p. 1992, p. 253) Since Hume elsewhere made no secret that he embraced necessity in precisely this sense, one cannot help wondering if the neo-Epicurean excursus in *Dialogues* (dialogue 7) was not intended to remind his reader of Hume's own explication of cause and effect, to the end of rejecting all causal reasoning in matters of religion—as

happens overtly in *Enquiry concerning Human Understanding*:

> It is only when two *species* of objects are found to be constantly conjoined, that we can infer the one from the other; and were an effect presented, which was entirely singular, and could not be comprehended under any known *species*, I do not see, that we could form any conjecture or inference at all concerning its cause. If experience and observation and analogy be, indeed, the only guides which we can reasonably follow in inferences of this nature, both the effect and cause must bear a similarity and resemblance to other effects and causes, which we know, and have found, in many instances, to be conjoined with each other. I leave it to your own reflections to pursue the consequences of this principle.
>
> (1999, p. 198)

REASON AND REVELATION. Is it ever rational to accept the truth of revealed religion? Those who answer affirmatively typically point to prophecies fulfilled and miracles performed. Since such evidence comes to nearly all of us by way of oral or scriptural testimony, Hume asked if conditions exist under which one could rationally credit reports of prophesies and miracles and, if so, whether any revelation has ever met these conditions. The key to his reasoning in this matter is the recognition that human testimony on any topic owes whatever authority it has in the eyes of reason to the same source causal inferences do: past experience. Finding there to be a fairly constant conjunction between the facts as reported by witnesses and as ascertained by other means, one has only to hear or read (have an impression of) a report for one's mind not only to think (form an idea) of the event reported but also to believe it to the extent (enliven the idea to the degree) warranted by experience. For, besides lending authority to testimony in general, experience also teaches one that particular reports are more or less credible depending on the reporter, the circumstances under which the report is given and received, and the event reported itself. If a report falls short of maximum credibility on any of these counts, then reasonable persons must refuse to give it the same credence they accord to empirical beliefs founded on a frequently encountered, perfectly constant conjunction, having the certainty of proofs.

Reports of miracles are intrinsically suspect because the events they report are, by their nature, the least creditable. As defined by Hume, an event is miraculous only if it meets two conditions: it contradicts a law of nature and

does so "by the particular volition of the Deity, or by the interposition of some invisible agent" (1999, p. 173n). A law of nature is a causal sequence found by constant experience to be invariable, and so has the highest authority empirical reason can confer. Accordingly, to determine whether one can rationally credit any report of a miracle, one must follow the procedure empirical reason prescribes whenever two beliefs regarding matters of fact are found to conflict: deduct from the empirical support of one of the beliefs the amount of support possessed by the other and, if any support remains, accord it only so much credence as that remainder warrants; otherwise, discount it or (if the beliefs have equal support) refrain from believing either way. However, when one does this, one finds that

> no testimony is sufficient to establish a miracle, unless the testimony be of such a kind, that its falsehood would be more miraculous, than the fact, which it endeavours to establish: And even in that case, there is a mutual destruction of arguments, and the superior only gives us an assurance suitable to that degree of force, which remains, after deducting the inferior.
>
> (P. 174)

Since it is impossible that experience could ever give one reason to regard the falsehood of any report of miracles as more improbable than the falsehood of a law of nature, even the most credible testimony imaginable could not win one's acceptance if belief were always proportioned to experience. The same is true of prophecies, for these are simply a species of miracle ("If it did not exceed the capacity of human nature to foretel future events, it would be absurd to employ any prophecy as an argument for a divine mission or authority from heaven" [1999, p. 186]). Thus, one's acceptance of revealed religion can never possess the rational authority to which belief proportioned to the evidence of experience can alone lay claim.

RELIGIOUS BELIEF. Having established that one has no clear idea of God to underwrite religious discourse nor any rational basis for religious belief, Hume devoted the remainder of his discussion of miracles, as well as other writings ("The Natural History of Religion" [1757] most notably), to examining the nature and causes of religious belief. The upshot is that one believes in God and accepts the proofs of purported revelation from the same causes that lead one to form other beliefs not proportioned to experience (unphilosophical probabilities): failure to clarify one's ideas or to ascertain the existence of ideas

corresponding to one's words; education; credulity; self-interest; the influence of the passions; eloquence and other appeals to imagination that detach reason from its moorings in experience; the errors and exaggerations that tend to creep in with each new telling of a story; and so on. The implication is that, however widespread a religious belief may be, it is not imposed on one by human nature, and so is not irresistible in the way that belief in causes, continued distinct existents, and the self are.

Hume did not deny that religious belief can ever be agreeable or useful, either for the individual or society, but he did seem to think that, in the forms it actually takes—especially when vitiated by superstition or enthusiasm—it is neither. For example, in two essays, "Of Suicide" and "Of the Immortality of the Soul" (written in 1755 but published posthumously in 1777 [though a French edition appeared in 1770]), he argued that there is no rational or moral basis for the prohibition of the former or for belief in the latter. Still, his single most important philosophical contribution to the effort of combating the deleterious influence of religion is the example set by his theory of morals: It illustrates how universally valid moral standards can be understood nontheologically, in terms exclusively of natural sentiment and artificial interest.

See also Aesthetics, History of; Alembert, Jean Le Rond d'; Bacon, Francis; Beauty; Berkeley, George; Causation: Metaphysical Issues; Causation: Philosophy of Science; Colors; Common Sense; Cosmological Argument for the Existence of God; Determinism, A Historical Survey; Determinism and Freedom; Diderot, Denis; Enlightenment; Human Nature; Induction; Kant, Immanuel; Locke, John; Newton, Isaac; Perception; Philo Judaeus; Reason; Reid, Thomas; Revelation; Rousseau, Jean-Jacques; Skepticism, History of; Smith, Adam; Space; Virtue and Vice; Volition.

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Wayne Waxman (2005)

HUMOR

Although the laughable is not usually thought of as a subclass of the beautiful (Aristotle, indeed, said that it was a subclass of the ugly), the problem of "humor" is a special case of the central problem of aesthetic theory. To find something laughable is to have a special kind of aesthetic emotion, but it is not at all easy to say just what features of the laughable situation evoke this emotion. Theories of humor attempt to answer this question.

TYPES OF HUMOR

The only way to evaluate theories of humor is to see how well they apply to different types of jokes or humorous situations. For this we need a list of the main types of humor. The attempt to provide one may, however, prejudge the issue, since the basis of classification may itself presuppose a theory of humor. Moreover, if any one theory is right, then in the final analysis jokes will be of only one type: They will all turn on release of inhibitions, or superiority to the misfortune of others, or whatever it may be.

With these reservations, the following may be regarded as the main types of humorous situations: (*a*) Any breach of the usual order of events, as wearing an unusual costume or eating with chopsticks when one is used to knife and fork (or with knife and fork when one is used to chopsticks). (*b*) Any breach of the usual order of events that is also felt to break a rule, whether of morality or etiquette. The drunkard, the glutton, the hypocrite, the miser are all stock figures of comedy, on the stage and elsewhere. (*c*) A special case of the second type is indecency, as in Restoration comedy or any smoking-room story. This has a different flavor from comic vice,

just as comic vice has a different flavor from mere novelty and oddity. (*d*) Introduction into one situation of what is felt to belong to another, as George Bernard Shaw's reference to conventional sexual morality as "the trade unionism of married women" or Mark Twain's introduction of a Connecticut Yankee into the Court of King Arthur. Finding connections between things we usually keep in separate compartments of our minds is, according to one version of the incongruity theory, the ultimate source of all humor. Whether this is correct or not, it is certainly one source that needs to be noted. (*e*) Anything masquerading as something it is not. This has been a favorite stage device, from *Twelfth Night* to *Charley's Aunt,* and is common enough in other forms of comedy. (*f*) Wordplay, of which puns are the most obvious, but not of course the only, example. (*g*) Nonsense, especially of the Edward Lear or Lewis Carroll type, which often turns on wordplay but is distinct from it. (*h*) Small misfortunes, like those provided by the banana skin, the custard pie, the thumb beneath the hammer. (*i*) Want of knowledge and skill, as in the schoolboy howler or the circus clown clumsily attempting to imitate the acrobat. (*j*) Veiled insults, as in the catty remarks in *The School for Scandal.*

THEORIES OF HUMOR

Most theories find the essence of humor in one or another of the following: superiority, incongruity, and relief from restraint. It has also been suggested that humor derives from ambivalent feelings, in which attraction and repulsion are both present.

SUPERIORITY THEORIES. If we laugh at the miser, the drunkard, the glutton, the henpecked husband, the man who gets hit by the custard pie, the schoolboy howler, the person with faulty pronunciation, may it not be because we feel superior to all of these? This could account for our pleasure in humor. Accordingly, Thomas Hobbes regarded laughter as the result of a sudden access of self-esteem ("sudden glory") when we realize that our own situations compare favorably with the misfortunes or infirmities of others. We also laugh, he said, at our own past follies—provided we are conscious of having surmounted them—or at unexpected successes.

In support of Hobbes, or perhaps as a modification of his view, it may be said that in humor at its best we are conscious of surveying the whole human scene from some godlike level at which all men and women look pretty much alike: all weak, all lovable, all transparently obvious in their petty pretenses. If "superiority" is interpreted as this god's-eye view rather than as simply a

sneering contempt for some failing we do not have, it is possible to account for laughter not merely at comic vice but also at comic virtue, as in Mr. Pickwick or Don Quixote. It may even explain why we often laugh with comic vice rather than at it. No one feels superior to Falstaff, but we may feel pleasantly conscious of "seeing through" him, and perhaps, in sympathizing with him, we feel superior, if only for the time being, to the conventional morality he flouts.

By extending Hobbes's theory in this way, it is possible to account for many of our classes of humor: indecency and masquerade as well as comic vice, small misfortunes, and ignorance. Alexander Bain extended Hobbes in two directions. Sometimes, Bain suggested, our laughter may be a manifestation not of our own feeling of superiority but of our sympathy with someone else who has triumphed in some way. This would account for laughter at veiled insults. Second, the triumph need not be over a person; it can be over anything at all that is conventionally treated with respect. Mark Twain's debunking of feudal values was not directed at any individual, and Samuel Butler degraded a sunrise by comparing it to a boiled lobster. According to Bain, the essential feature of humor is degradation. Some writers have argued, not very plausibly, that in wordplay we triumph over the degradation of words. More credibly, nonsense may be regarded as the degradation of what Arthur Schopenhauer called "that strict, untiring, troublesome governess, the reason." Even incongruity, it is argued, always involves degradation. Typically, the incongruous effect is obtained by the bringing of something exalted into contact with something trivial or disreputable. Shaw's phrase has its force because trade unionism is much lower on the conventional scale of values than is chastity: The pleasure in seeing them linked is, at least in part, malicious.

Henri Bergson maintained that the particular characteristic exciting derision is inflexibility, the inability to adapt oneself to the ever-changing demands of life. Laughter is always at "something mechanical encrusted upon the living." With Molière in mind, Bergson claimed that the comic character is usually a man with a fixed idea. This fits in with early stage comedy and with the etymology of the word *humor:* A humor was originally a quirk, a kink, a mental (and primarily a physiological) oddity that throws a man off balance and twists his view of life. Hence, the comic character is simply a man with an obsession. The joke is to see how this obsession crops up again and again in the most varied situations, so that he always behaves in a manner wildly inappropriate to the circumstances as others see them but entirely appropriate to his own ruling passion.

With more ingenuity than plausibility, Bergson attempted to apply his formula to wordplay, which consists, he claimed, in showing that language is too rigid to be an accurate mirror of an infinitely fluid universe. His main emphasis, however, was on the social function of laughter; it is leveled, according to him, at the eccentric or nonconformist. This seems an unduly restricted view: The most penetrating humor is often aimed at the social code itself. There is nothing in Bergson's theory of humor that need have prevented him from conceding this: The conventions of society may often enough be characterized as "something mechanical encrusted upon the living."

INCONGRUITY THEORIES. It can be doubted whether the concepts of "superiority" or "degradation" or even "inelasticity" do justice to the very large element of humor that consists in the intellectual and emotional pleasure of finding connections where none were thought to exist. It is true that if this were the whole of humor, humor would be indistinguishable from fancy or imagination; but then, if "degradation" were the whole of humor, humor would be indistinguishable from malice.

Immanuel Kant asserted that humor arises "from the sudden transformation of a strained expectation into nothing," and since his time incongruity has often been identified with "frustrated expectation." But there is more to incongruity than mere surprise, or even anticlimax; we must be, as it were, jolted out of one mental attitude into another completely and violently opposed to it. Usually this results from bringing together two things normally kept in separate compartments of our minds. Shaw's aphorism about the trade unionism of married women may once again serve as an example. Another is Butler's "God and the Devil are an effort after specialisation and division of labour." In Kant's view, the "degradation" of one of the two disparate ideas is quite incidental. What is important is that they normally evoke very different attitudes and that the connection between them appears to be genuine, not artificially contrived. It is on these two features that the neatness of a joke depends.

Kant's formula may be regarded as defective in that by putting the emphasis on surprise it ignores the logical connection between the two ideas that are linked. This is Schopenhauer's criticism. He claimed that all humor can be "traced to syllogism in the first figure with an undisputed major and an unexpected minor, which to a certain extent is only sophistically valid."

This formula applies most obviously to the mock-heroic or to certain types of satire. The point of Henry Fielding's *Jonathan Wild,* for example, might be summarized syllogistically as: All generals and those who behave like generals are heroes; highwaymen behave like generals; therefore, highwaymen are heroes. Here the major premise is, conventionally, undisputed. The minor is, no doubt, "only sophistically valid," but only "to a certain extent"; there is enough resemblance in behavior to give the satire sting.

The formula applies, however, to other types of humor as well. Oscar Wilde is reported to have said, when he was in prison, "If this is the way the Queen treats her convicts, she doesn't deserve to have any." Here the major premise is: "Those who ill-treat their dependents deserve to lose them." This generalization is then made to apply to a case in which losing them would be no hardship and deserving to lose them no demerit. What is sophistical about the minor premise is the assumption that a convict is, along with a servant, a child, and the like, the kind of dependent to whom the generalization applies.

The objection to Schopenhauer's analysis is that it stresses the formal side of a joke to the exclusion of the content. For him, humor was purely a matter of finding connections where (except in a "sophistical" sense) none exist. By this view, all humor is of the type of Richard Whately's *Historic Doubts Relative to Napoleon Bonaparte.* The essence of it lies in the ingenuity of the argument, underlined by the absurdity of the conclusion. If any derision creeps in, it is at the expense of the reasoning, or perhaps of the governess Reason herself.

What this overlooks is the part that the abrupt dissolution of an attitude plays in our emotional lives. Kant's phrase "strained expectation" hints at this but does not characterize it adequately. *Jonathan Wild* would not be funny if it were not for the whole complex of emotions that cluster round the concepts of patriotism and national glory. To take another example, Gerald Bullett's adaptation of Alfred, Lord Tennyson, "Wearing the white feather of a blameless life," is funny, not merely because of its close resemblance to the wording of the original ("the white *flower* of a blameless life") but because of the startling difference in attitude that results from the alteration of a single word.

So far as superiority theories call attention to the emotional element in humor, they do something to correct this inadequacy. It is doubtful, however, whether the emotion involved is either self-congratulation or malice. In any community certain attitudes are felt to be appropriate to some things and not to others, and there develop

"stereotypes" of such figures as the typical politician, poet, businessman. The humorist drags into light the inconvenient facts that shatter these attitudes and puncture these stereotypes. Sometimes, as Bergson pointed out, the humor is at the expense of the person who is unable to live up to the conventional requirements, and here malice may creep in, but often enough the effect is to cast doubt on the conventional attitudes and values. Sometimes it is not clear which effect is intended. Wilde's witticism "Work is the curse of the drinking classes" may be taken either as a gibe at the working classes or as a questioning of the conventional Victorian attitudes to work and to drink. In either case one element in our enjoyment is certainly the sense of enlarged horizons that comes from seeing unexpected connections. This is in part an intellectual pleasure. So far as it is a conventional attitude that has been convicted of inadequacy, the accompanying emotion may be not malice or superiority but a feeling of liberation at the removal of intellectual blinkers.

RELIEF THEORIES. Liberation, or relief from restraint, is regarded in a third type of theory as the central element in humor.

It is well known that people who have been undergoing a strain will sometimes burst into laughter if the strain is suddenly removed. It has been argued that all laughter is of this type and that any joke will be found, in one way or another, to remove the restraints which society imposes on our natural impulses. It is the liberation of our impulses from social constraints, not of our intellects from too narrow a point of view, that is emphasized by this type of theory.

What are these impulses that need liberating? One obvious one is the sexual impulse. Since the mention of the (conventionally) unmentionable is in itself a sufficient cause of laughter, it seems reasonable to say that at least one important type of humor depends on our being able to give vent to forbidden thoughts and feelings.

But thoughts about sex are not the only ones that society calls on us to suppress. Our aggressive impulses are also repressed. Children are taught that it is "rude" both to expose their bodies and to speak insultingly to others. Consequently, the relief theory can account, plausibly enough, for the malicious element in humor and, in general, for most of the aspects of humor that have given rise to superiority theories. Even nonsense can be explained, if it is conceded that trying to be rational all the time is a strain for most of us.

Relief theories have been given considerable impetus by the rise of psychoanalysis. Sigmund Freud himself wrote a book on humor, in which he suggested that there is a basic resemblance between jokes and dreams. Both are essentially means of outwitting the "censor," the name by means of which Freud personified our internal inhibitions. In dreams forbidden thoughts are distorted and disguised; in humor insults are veiled, masquerading perhaps as compliments, and sexual references lurk behind apparently innocent remarks.

Freud did not, however, regard all humor as the release of inhibition. He distinguished between "harmless wit," indulged in for its own sake, and "tendency wit," which gives us the additional gratification of giving rein to repressed sexual or aggressive impulses. Harmless wit delights us because it provides us with "infantile play-pleasure." In learning to use words, Freud pointed out, children "experience pleasurable effects which originate from the repetition of similarities, the rediscovery of the familiar, sound-associations," and the like. In other words, the pleasure of playing with words and ideas, on which incongruity theories place so much stress, is admitted by Freud to be enjoyable for its own sake, not just as a means of seeking relief from restraint. It is, indeed, because this intellectual play is enjoyable in itself that we can use it to beguile the censor. When Wilde, for example, complained that "the youth of to-day are quite monstrous; they have absolutely no respect for dyed hair," we must suppose that the censor is so diverted by the discovery that this remark differs only in one word from the conventional headshaking of the stuffier kind of matron that the malice in the remark (its complete exposure of the matron's pretensions and its revelation of her envy of youth) is allowed to go unchecked.

Freud explained "infantile play-pleasure" by invoking the concept of "psychic economy." In this he was influenced by Herbert Spencer. Spencer thought that humor consists essentially in the abrupt transition of thought from a noble or elevated idea to a trivial or degrading one, leaving the psyche with an unexpended fund of nervous energy that overflows into laughter, which is, according to him, a physical release of energy. Freud adapted this notion for his own purposes, identifying "psychic economy" first with the line of least resistance and then with the brevity and neatness that is the soul of wit.

Neither Spencer's nor Freud's use of the concept is very satisfactory. It may be pointed out against Spencer that when, for example, an innocent remark is transformed into a sexual reference, the second might be expected to call forth more emotional energy than the first. Against Freud it may be said that the lazy pleasure of following the path of least resistance is very different from our appreciation of the skill with which a master of humor links disparate ideas. When writers such as François Rabelais, G. K. Chesterton, Christopher Fry, James Joyce, and even Laurence Sterne play with words and ideas, it is exuberance rather than economy that they display.

RELATION OF THE THEORIES TO THE TYPES

If the theories are evaluated by their ability to explain the main types of humor listed earlier, it would seem that none is completely adequate by itself. Each of them relies mainly on particular kinds of humor, either ignoring the rest or giving relatively lame accounts of them. Satire and laughter at small misfortunes are very well explained by superiority theories. Incongruity theories find difficulty in dealing with these but are much more satisfactory than superiority theories in dealing with wordplay, nonsense, and indecency. Relief theories can explain malice and indecency, and perhaps nonsense, but are driven to admit that wordplay and the finding of unexpected connections have an intrinsic appeal that cannot be reduced to relief from restraint.

See also Aristotle; Bain, Alexander; Bergson, Henri; Butler, Samuel; Carroll, Lewis; Freud, Sigmund; Hobbes, Thomas; Kant, Immanuel; Schopenhauer, Arthur.

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HUMOR [ADDENDUM]

Since 1980 a number of philosophers have explored the psychology, aesthetics, and ethics of humor. The incongruity theory dominates though, as in earlier theorizing, the precise relation of humor to incongruity is seldom made clear. Not just any experience of incongruity constitutes humor. Coming home to find one's family murdered would be incongruous but not funny. Even incongruity intended to be humorous may not be funny to everyone. What seems necessary for humorous amusement is that the incongruity be enjoyed.

The enjoyment of incongruity is not sufficient for amusement, however, for one may enjoy something bizarre or fantastic for its incongruity without being amused. Some people also enjoy grotesque and macabre works of art and horror movies and novels in part for their incongruity. In aesthetics there is no general agreement on what distinguishes amusement from such cases; one suggestion is that in amusement we tend to laugh.

Another psychological and aesthetic issue is the relation of humor to emotions. Since Plato most philosophers have treated amusement as an emotion, but there are significant differences between amusement and standard emotions. The practical orientation of standard emotions is lacking in amusement. Emotions evolved in early mammals as adaptive reactions to threats and opportunities. The bodily changes in fear and anger, for example, energize animals and humans for fighting or fleeing. Sexual love motivates reproductive activity and parental love motivates nurturing. But the bodily changes in amusement do not prepare us to take action; indeed, uncontrollable laughter is incapacitating.

A second difference is that amusement does not require belief in the reality of its object as emotions typically require belief in the reality of their objects. News that I have won the lottery might make me feel joy, but that joy evaporates when I discover that the news was false. Humor, by contrast, seems to work as well with playful, merely entertained thoughts as with beliefs. Indeed, those who produce jokes and other forms of comedy work mostly with intentional objects known by

everyone to be fictional. A third difference is that in standard emotions, there is a positive or negative attitude toward the object of those emotions while in amusement there need be no positive attitude toward the amusing object. People value what they love and what brings them joy, but they need not value the things they find funny. If at a funeral one sees someone dressed in a garish yellow and pink outfit, one may be amused without having a positive attitude toward that person or the outfit. Indeed, Aristotle classified the humorous as a species of the ugly.

These differences between amusement and standard emotions suggest that humor involves a more sophisticated kind of mental processing than is found in at least the basic emotions, and a different relation between its mental and physical components. Those who want to continue the Platonic classification of amusement as an emotion, then, one should at least provide an explanation of why these differences should not push amusement out of the category of emotion.

Turning lastly to the ethics of humor, since the mid-1970s, philosophers have examined humor that seems to express morally objectionable beliefs and attitudes, such as racism and sexism. Joke telling is often based on stereotypes representing various groups as stupid, lazy, greedy, or promiscuous. Are those who tell such jokes asserting or presupposing the truth of those stereotypes? One strong position, called *moralism* by Berys Gaut, says that appreciating a joke involves subscribing to the beliefs and attitudes it expresses, and so joke tellers are fully answerable to ethical considerations. At the other extreme is *antimoralism*, which treats humor as a form of play in which ideas and attitudes are merely entertained and not subscribed to, so that joke telling is not bound by ethical constraints. Antimoralists often point out that one can laugh at an ethnic joke merely for its cleverness. A joke about stupid Frisians can be amusing even though one has no idea who Frisians are! However, moralists point out that racists tell racist jokes to express and spread their beliefs and attitudes and not simply to play with ideas.

Whereas ethical examinations of humor have focused on what can be wrong with it, a few have shown how humor, particularly about oneself, can foster virtues such as humility, patience, tolerance, and forgiveness. The person with a rich sense of humor also tends to think critically, which has made humor a natural accompaniment to philosophy since Socrates.

See also Plato; Socrates.

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HUS, JOHN
(c. 1369–1415)

John Hus, the Czech church reformer and national hero, was born at Husinec in southern Bohemia. He made his way through the University of Prague, receiving his A.B. in 1393, his M.A. in 1396, and his B.D. in 1404. Some of the logical works of John Wyclyf were known in Prague in the early 1390s, and there is still extant a copy of a half dozen of Wyclyf's philosophical works in Hus's hand, made in 1398. Wyclyf's realism (*universalia ante rem*) found a warm welcome among Czech professors and students, not least because the German community at the university was strongly Ockhamist and Wyclyf's vigorous defense of universals (prior to individuals) fortified the Czechs' position. He was deeply influenced by the Augustinianism of the Victorine school of the twelfth century.

Hus became well known and popular, partly for his teaching and partly for his preaching in the vernacular. In 1402 Hus was named stated preacher in the Bethlehem Chapel, and his sermons in Czech were well attended by Czechs of all classes. In October 1401 Hus was elected dean of the arts faculty and in 1403 rector of the university (though there is some uncertainty as to this first rectorate). By this time disputes over Wyclyf's teachings had become acrimonious, and Hus with some of his friends undertook to defend Wyclyf from charges of heresy against a party largely of German professors, who demanded strict condemnation of Wyclyf's teachings. Hus continued his preaching and writing in the interest of reform, but in 1408 the Prague conservative hierarchy (mainly German) lodged specific charges of heresy against him. Soon thereafter the struggle for predominance in the university broke out between Czech and German. The Germans had three votes, the Czechs only one. Hus led the fight for a reversal of the proportion, and King Wenceslaus decided in the Kutná Hora decree of 1409 that the Czech professors and students should have three votes and all others combined, one vote. The Germans left in a body to form the University of Leipzig. Hus, as leader of the national Czech party, was elected rector of the university.

Opposition to Hus on the part of the conservative Czech clergy remained, and the serious charges of 1408 were renewed in 1409 and 1410. He disobeyed a summons to Rome and was excommunicated in 1411. Hus had formed his opinions clearly by then and was prepared to defend them under any conditions. He believed firmly in predestination and the unity of the church under the headship of Christ. He was deeply influenced by the teaching of Wyclyf but in one important matter he categorically disagreed. He rejected Wyclyf's teaching on the Eucharist, accepting completely the church's doctrine of transubstantiation. Realist philosophy was important in the formulation of his theological positions, and his competence in Scholastic exposition is evident in all his writings. From the excommunication of 1411 to his death four years later it was clear that his position and that of the established hierarchy were irreconcilable. In 1412 King Wenceslaus reluctantly had to withdraw his protection, and Hus went into exile to relieve the city of Prague from the interdict. It was during his exile that he finished his most important work, the *De Ecclesia,* very similar to a book under the same title by Wyclyf. He argued against

the authority of the pope and the cardinalate over the church and their control of the means of salvation, basing his conclusions on the doctrine of predestination. "The church is the body of the predestinate." Inasmuch as only God knows who is predestinate, the pope's function and power are readily dispensable. The hierarchy could not tolerate so basic an attack on its existence. Hus appealed to the general council called for November 1414 at Constance and, receiving a safe-conduct from Emperor Sigismund, arrived in Constance on November 3. However, the safe-conduct was soon disregarded; Hus was imprisoned and interrogated at length. He asked simply to be shown from Scriptures or the Fathers where he was in error. The council demanded that he make a blanket recantation. No compromise was possible. Hus's concept of the church as the body of the predestinate, regardless of the decision of the pope and the hierarchy, was declared pure heresy. He was "relaxed to the secular arm" on July 6, 1415, and burned at the stake that morning. His martyrdom set off the Hussite Wars (1419–1434), which in turn isolated Bohemia from the rest of Europe for several generations. Hussitism, as it developed, took forms that Hus might not have approved.

Hus may not have been one of the leading minds of his century. On the other hand his commentary on the *Sententiae* of Peter Lombard, composed in 1407–1409, is a very impressive work and shows complete familiarity with the dominant currents of philosophical thought in the fourteenth and fifteenth centuries and an easy ability in the handling of contradictory arguments. His realism is confident and precise.

See also Augustinianism; Peter Lombard; Realism; Universals, A Historical Survey; Wyclyf, John.

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HU SHI
(1891–1962)

Hu Shi, the Chinese pragmatist, was educated in China, at Cornell University, and at Columbia University under John Dewey. He was successively professor, chancellor of Peking National University, ambassador to the United States, and president of Academia Sinica in Taipei, Taiwan.

In 1916 he inaugurated the Literary Revolution in China by advocating the use of the vernacular style for writing instead of the formal, classical style, which, radically different from the spoken language, had become rigid and decadent. He succeeded in spite of strong opposition and thus set Chinese literature free. Since freedom of expression means also freedom of thought, the new literature led to the Intellectual Renaissance in China in 1917.

Hu did not claim to be a philosopher, but his own credo represented a new philosophy in China at the time. According to Hu Shi the universe, infinite in space and time, was not supernaturally created but is naturalistic and is governed by natural laws. All things, including psychological phenomena, have a scientific basis and can therefore be scientifically understood. Immortality is not personal but the sum total of individual achievement living on in the Larger Self. Truth must be historically and scientifically tested and is best expressed in democracy, freedom, progress, and social action.

His contributions to Chinese philosophy are important. As the leading disciple of Dewey in China, in 1919 he introduced pragmatism, which exerted tremendous influence and became the first concerted philosophical movement in twentieth-century China. Although the philosophy declined in influence in the later 1920s, its spirit of practical application, emphasis on problems

instead of theories, the insistence on results, the critical approach, and the scientific method had become the generally accepted outlook in China.

In his writings on Chinese philosophy Hu Shi was the first to give it a clear outline, free from religious beliefs and legendary philosophy. He provided it with a historical and social environment. Laozi, for example, was presented as a rebel against oppressive government and hypocritical society. Hu Shi discovered the methodology in Chinese philosophy, notably the "rectification of names" in Confucianism, the "three standards" or "laws of reasoning" in Mohism, and the method of "names and actuality" in other philosophers. He removed the mysticism of Laozi and Zhuangzi, whom he regarded as realists championing the cause of complete individual freedom. While these views are extreme, he created an entirely new atmosphere in Chinese philosophy.

See also Chinese Philosophy; Dewey, John; Laozi; Pragmatism; Zhuangzi.

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HUSSERL, EDMUND
(1859–1938)

Edmund Husserl (1859–1938), the founding figure of the philosophical movement known as phenomenology, was born in Prossnitz in Mähren, then part of the Hapsburg Austro-Hungarian Empire but now Prostějow in Moravia in the Czech Republic. Husserl studied astronomy at Leipzig from 1876 to 1878 and mathematics in Berlin from mid-1878 to 1881 under the eminent mathematicians Karl Weierstrass (1815–1897) and Leopold Kronecker (1823–1891). Husserl completed his mathematical training in Vienna, receiving the PhD in January of 1883, and while completing his degree, he attended the philos-

ophy lectures of Franz Brentano (1838–1917). Husserl went back to Berlin briefly for further study with Weierstrass, but soon returned to Vienna to study philosophy again with Brentano from 1884 to 1886. At Brentano's suggestion, Husserl studied with Carl Stumpf (1849–1936) at the university at Halle, where in 1887 he submitted a *Habilitationsschrift* titled "Über den Begriff der Zahl. Psychologische Analysen." Husserl taught at Halle from 1887 to 1901, at Göttingen from 1901 to 1916, and at Freiburg from 1916 until his retirement in 1928.

Husserl published relatively little during his lifetime, and his publications were for the most part a series of introductions to phenomenology that were largely methodological and programmatic. However, these works were far from the total of his output. At his death he left more than forty-five thousand pages of unedited manuscripts written in shorthand, the continuing publication of which since 1950 has shed much light on the details and development of Husserl's philosophy.

PSYCHOLOGISM, PSYCHOLOGY, AND PHENOMENOLOGY

Husserl's *Philosophie der Arithmetik* (1891) attempts to realize Weierstrass's program of grounding mathematics in the cardinal numbers by describing those mental acts in which we are conscious of cardinal numbers. While Husserl was satisfied with his discussion of the intuitive presentation of the lower cardinals, he was dissatisfied with the psychologism in his analysis of the symbolic presentation of the higher cardinal numbers. Internal exigencies in Husserl's continued reflections on logic and mathematics—even by 1891—eventually turned him away from psychologism. By 1893 and 1894, Husserl clearly distinguished the subjective presentation, that is, the psychological act presenting an object, from both the logical content of the presentation and the object presented in the presentation, a threefold distinction much indebted to Bernard Bolzano (1781–1848) and Kasimir Twardowski (1866–1938). Husserl in the following years completed his critique of psychologism, culminating in his lectures on logic at Halle, lectures that form the basis for the *Prolegomena* to the *Logische Untersuchungen* (1900–1901), which is considered by many the locus classicus of the critique of psychologism.

Husserl criticizes psychologism for its reduction of the ideality and transcendence of logical objects (e.g., meanings, concepts, judgments, number, and so forth) to the reality and immanence of psychological contents, and for its reduction of the ideality and universality of logical laws to the factuality and generality of empirical, psycho-

logical laws. While rejecting psychologism, Husserl does not, however, altogether reject the descriptive-psychological approach of the *Philosophie der Arithmetik* or its results, for his anti-psychologism is united with the recognition that insofar as logical laws govern the ideal, objective content of acts of thinking, the relation between these ideal contents and the acts in which they are thought must be elucidated. Husserl's problematic in the main body of the *Logische Untersuchungen*, then, is to account for the relation between meaning and mind while preserving the objectivity and ideality of meaning. He typically poses this problem as a problem in epistemology, specifically, the problem concerning the relationship between the subjectivity of knowing and the objectivity of what is known. So, Husserl is committed to finding a new, nonpsychologistic epistemology to account for the relations among acts, ideal contents, and objects.

In the first edition of the fifth of the *Logische Untersuchungen* Husserl identifies phenomenological contents with psychological contents and distinguishes these from intentional contents. Ideal, intentional contents, in other words, are not properly included within the scope of a phenomenological description, and Husserl must account for meaning by appealing solely to the phenomenological-psychological contents. This is suspiciously close to a psychologism that accounts for meaning by focusing on the act. In the discussion of expressive acts in the first investigation Husserl avoids this conclusion by making the contents of the act that account for its intentional directedness the instantiation of an ideal essence, a meaning-species. The meaning itself remains objective and ideal, and the particular act's relation to this ideal meaning is one of instantiation such that the expressive act intends an object, whether or not that object exists, by means of conferring this meaning on a sensible sign.

Husserl contrasts these meaning-conferring intentions with fulfilling intentions that involve the actual presence of the object to consciousness and therefore involve some intuitive dimension. As Husserl later in the sixth of the *Logische Untersuchungen* turns to the discussion of these fulfilling acts, he recognizes that there are problems in his general account of meaning. Because fulfilling acts present the objects emptily intended in expressive acts, the sense of the fulfilling act is rooted in the object itself rather than in an ideal meaning-species. It is the sense of the object, the significance it has for us in its actual presence, that confirms or disconfirms what we intend as its sense in the expressive act that confers meaning on a sensible sign. Hence, Husserl recognizes that an

account of meaning cannot focus exclusively on the subjective conditions of objective knowledge.

In the second edition of the *Logische Untersuchungen* and *Ideen zu einer reinen Phänomenologie und phänomenologischen Philosophie. Erstes Buch* (both 1913), Husserl incorporates the intentional contents into the phenomenological contents on which he reflects. He thereby turns to the investigation of the correlation between what he in *Ideen* calls the *noesis*, that is, the intending act, and the *noema*, that is, the object just as intended. Some interpreters of Husserl's theory of intentionality as expressed in *Ideen* understand the noema to be an abstract, ideal intensional entity ontologically distinct from the intended object. This abstract entity can in turn be understood on the model of the *Logische Untersuchungen* as a type that is tokened in different acts having the same determinate object, or it can be understood as an abstract particular by means of which an object is intended. On both interpretations, the noema serves as a mediator between the act and its intended object. Other interpreters, however, claim that Husserl's continuing reflections on intentionality, especially those acts that can serve as fulfilling acts in which the object is intuitively grasped, made him aware of the philosophical difficulties in saying that the act's intentional relation to an object is mediated by an abstract entity. For these interpreters, the noema is the intended object just as intended (whether or not that object actually exists), and the object is the identity in the manifold of noematic presentations (whether veridical or not).

THE PHENOMENOLOGICAL REDUCTION AND TRANSCENDENTAL PHENOMENOLOGY

Husserl's goal was to develop a new philosophical science as the radical critique of the possibility of experience, a science that did not take the possibility of cognition for granted. However, because any science existing on the same plane as the natural and psychological sciences already presupposes both the possibility and the general validity of the experience of the world, this new science must exist on a different plane. This new plane—the plane of transcendental subjectivity—is disclosed by the methodological technique of the phenomenological reduction. Reminiscent of the universal Cartesian doubt, it is nevertheless different therefrom. Whereas the distinguishing characteristic of Cartesian doubt is that it annuls the positing of an object's existence or the validity of a judgment, the distinguishing characteristic of the phenomenological reduction is that it withholds participa-

tion in the positing of the existence of objects and the general validity of experience that characterizes one's natural experience—a positing Husserl characterizes as the general thesis of the natural attitude.

In suspending one's participation in the affirmation characteristic of ordinary experience, the objects given in experience are not lost to reflection but are instead considered only as presumed existents. They remain available for reflection just insofar as they are experienced; the index attaching to them, however, has changed, and their status as objects of experience has been modified so that they are now viewed exclusively in their being as objects of that experience in which they are originally posited. Concrete transcendental subjectivity includes its object as intended without reducing that object to an immanent, psychological content.

The reduction is a change in attitude that leads our attention back to the subjective achievements in which the object as experienced is disclosed in a determinate manner and to the achievements in which we realize the evidence appropriate to confirming or disconfirming their natural experiences. The reduction, in other words, leads our attention to the intentional correlation itself, and Husserl's discussions of intentionality and the reduction are inseparable. The subjective achievements, insofar as they are the medium of access to objects as experienced, have a certain kind of priority over the object that they disclose, but Husserl does not believe that all intelligibility derives from these achievements. The investigation of intentional achievements reveals: (1) how it is that we come to experience objects in determinate manners, including those objects that are always already there for us as transcendental subject before thinking becomes active in the world; (2) how our different experiences are related to one another, and, therefore (3) how the different kinds and levels of objectivity are related; and, finally (4) how our experience confirms or disconfirms in fulfilling intentions what was emptily or mistakenly intended.

Natural straightforward experience is directed to objects in their significance for us. However, it is possible to adjust the manner in which we attend to the object, and when doing so we focus attention not on the object as such but on its significance for us, its noematic sense. This is not to turn our attention to some different entity called a *sense* or *meaning*; it is simply to refocus attention from the significant object to the significance of the object as the object of an intending act. The methodological point picks out what the substantive analyses of meaning reveal as a way of proceeding; that is, we need to focus our attention on both the subjective and objective

conditions of meaning by focusing on the essential features of the correlation between the noetic and noematic dimensions of the experiences in which objects are disclosed in determinate ways. To turn our attention to this correlation is to perform the phenomenological reduction.

TEMPORALITY AND PASSIVE SYNTHESIS

The revision of the theory of intentionality and the development of the methodological principle of the phenomenological reduction are two of the three major developments in Husserl's thought during the Göttingen years. The third is the development of his views on the nature of the consciousness of inner time, a development that leads to the disclosure of absolute consciousness. A phenomenological description of the awareness of experience as temporally extended—that is, as beginning in the past, enduring in the present, and aimed at the future—requires that Husserl distinguish two strata in consciousness: (1) the nontemporal, time-constituting absolute consciousness that makes possible the awareness of inner time by virtue of a compound intentionality directed at once to the now, the just elapsed, and the yet to come; and (2) the flow of temporally ordered experiences themselves. This distinction accounts at once for the temporality of lived experience, for the momentary, prereflective awareness of that experience as a temporal unity, and for the prereflective self-awareness of one's own temporally ordered and unified stream of experiences.

Whereas the revisions in the theory of intentionality and the methodological discussions centered around the phenomenological reduction find their way into *Ideen*, the reflections on the nature of inner time-consciousness and absolute consciousness, which had reached a mature form by 1911, do not. The implications of the reflections on time-consciousness point toward a less static and more genetic account of the origin of sense or meaning, an account whose development becomes a dominant aspect of Husserl's reflections in the 1920s. These analyses, which develop an approach known as genetic phenomenology, take the form of extensions of the theory of time-consciousness, and in them Husserl describes the intentionalities at work in what he calls passive syntheses. These syntheses occur on two levels: the primary passivities of near and distant association and the secondary passivities of history, tradition, and community. This project comes to fruition in *Formale und transzendentale Logik* (1929) and *Die Krisis der europäischen Wis-*

senschaften und die transzendentale Phänomenologie (1936).

TRANSCENDENTAL LOGIC

Formale und transzendentale Logik, in which Husserl returns to the issue of the grounding of logical and mathematical sciences, brings his career full circle. The nature of logic cannot be fully clarified without the phenomenological reduction, for the reduction enables us to see more clearly how sense—in a manner relevant for logic—arises in our experience. Acts of judging are directed to categorially formed, complex states of affairs. The logical or apophantic domain first emerges in a critical turn occasioned by a concern with the truth or falsity of judgments. The positing involved in the straightforward encounter of objects and states of affairs is neutralized. However, this positing is not denied or negated; nor does the original state of affairs disappear from view to be replaced by a new entity—the proposition—that was always there but an unnoticed mediator in our intentional relation to the state of affairs. Instead attention is turned to the objective sense of the state of affairs as intended in the judging, and this objective sense is considered simply as a supposition in order to seek confirmation or disconfirmation of the state of affairs as supposed.

The judged state of affairs and the proposition are properly distinguished, therefore, by means of a difference in the way the meant objectivity is apprehended. Straightforward experience apprehends the categorial objectivity or state of affairs as such; critical reflection apprehends the state of affairs as supposed—that is, the supposition or proposition and, more precisely, the noematic sense of the intended state of affairs. Such critical or propositional reflection is continuous with our natural concern with the way things are. The natural concern with the truth of things is addressed in the interplay between the critical and natural attitudes, between the judgment as such and the state of affairs as such, between propositional reflection and the categorial intuition of states of affairs. Although it is only phenomenological reflection that grasps clearly what occurs in our apprehension of the logical domain, the critical reflection that focuses on the sense or logical content of an experience is different from the phenomenological reflection that views the object as the correlate of an intending. In a phenomenological reflection, the proposition is considered not in relation to the state of affairs straightforwardly experienced, but in relation to the critical experience in which it is intended.

Formale und transzendentale Logik also explores the relation between the Aristotelian and Leibnizian traditions in logic. Husserl contrasts formal apophantics derived from Aristotle with formal ontology derived from Leibniz's notion of mathesis universalis, but he also views them as inseparably united. The ground of their unity is the intentional relation between acts and their objects. Formal ontology results from the articulation of the formal structures, relations, and combinations of objects. Formal logic arises from the articulation of these same formal structures, relations, and combinations considered as meanings, as objective states of affairs merely as supposed. The meaning-forms are teleologically ordered toward fulfillment in our intuitive apprehension of object-forms. If the meanings are confirmed in fulfilling experiences, then the identity obtaining between meaning-forms and object-forms is disclosed. The identity-in-correlation of the logical and the ontological, therefore, is properly and fully a mathesis universalis realized only at what Husserl calls the third level of logic, the logic of truth.

While both the Méditations cartésiennes (1931), which, like Ideen, present an overview of Husserl's transcendental philosophy, and Formale und transzendentale Logik incorporate the results of Husserl's reflections on time-consciousness and passive synthesis, they remain focused on the nature of theoretical knowledge and the objectivity appropriate to it. They point to the need for regressive inquiries into the constitution of sense, inquiries that reveal the layering of sense over time and its development in intersubjective communities of inquirers. However, they continue to neglect in large part the historicality of the experiences themselves. Husserl addresses this question most explicitly in his last work Die Krisis der europäischen Wissenschaften und die transzendentale Phänomenologie (1936), as well as in texts collected and published posthumously as Erfahrung und Urteil (1939) and Analysen zur passiven Synthesis (1966).

HISTORY AND ETHICS.

The Krisis emphasizes how experiences in both the natural sciences and philosophy itself are formed within the context of living traditions. In this context, Husserl identifies the important notion of the life-world. His account of the life-world is somewhat ambiguous. It means at different times: (1) an abstractly conceived world on which higher meanings of the sort belonging to science, philosophy, and culture in general are grounded; and (2) the concrete world that is already pregiven and taken for granted in our experience, a world that already includes

the sedimented deposits of the history of science, philosophy, and culture. The first sense captures Husserl's idea that different levels of experience are built on more fundamental levels, and this abstract notion of the life-world is the meaning-fundament on which higher levels of sense are built. The second sense captures the idea that experience of the world is already historically formed in secondary passivities before someone comes to think actively about that world. This world is already rich in emotional dimensions, functional and practical dimensions, theoretical dimensions, and cultural dimensions. New experiences—new ways of making sense—both depart from this world and contribute to it. Although experience has an appropriate historicality, this does not negate Husserl's view that the ideal meanings constituted in experience can, in certain cases such as logic and mathematics, be trans-temporal in character.

Another dimension in which the concrete historicality of experience plays an important role is in Husserl's ethical reflections. His move to Freiburg had occurred in a period of political turmoil that soon turned into personal tragedy and that affected his philosophy profoundly. Husserl, who lost one son and whose other son suffered serious injuries in World War I, saw both the war and its aftermath as a sign of a loss of faith in reason. Moreover, although Husserl's postretirement years were active with continued writing and speaking, he was, after the rise of the Nazis to power, no longer free to teach or lecture in Germany. What for Husserl had, early in his career, been a philosophical crisis regarding the proper grounding of knowledge now at Freiburg revealed itself as a cultural crisis, the loss of faith in reason itself. In hindsight it can be said that there was always a moral urgency at the center of Husserl's philosophy, a moral imperative to retrieve a proper sense of rationality and to develop a sense of self-responsibility in which each person seeks the truth and decides about it for himself or herself in the light of evidence.

Husserl's early ethical reflections are centered around two themes: (1) values are constituted in emotional experiences that are grounded in objectifying acts; and (2) there is a need for a formal axiology and a formal theory of practice—both analogous to formal logic—that will counter ethical empiricism, analogous to psychologism, and establish universal moral norms. These two themes are in some tension. After World War I, however, Husserl focuses on the first theme and speaks of vocations—that is, commitments to certain goods that order and give moral meaning to life—and of absolute values grounded in love. Such language makes the enunciation of universal moral principles more difficult, but Husserl never abandoned his commitment to rationality in ethics. But his notion of reason was an expanded one; it is not merely theoretical reason, but axiological reason and practical reason. Just as theoretical reason is teleologically ordered toward the fulfillment of empty cognitive intentions, both axiological reason and practical reason are teleologically ordered toward the evidential fulfillment of empty axiological and volitional intentions.

It is just this commitment to reason and to fulfilling evidences that characterize the moral urgency at the center of all of Husserl's reflections. All are born into moral communities, but all must decide for themselves about what is truly good and about what emotions and actions are appropriate for different circumstances. And if one's vocation is a theoretical or philosophical one, then the search for truth regarding the transcendental conditions for truthfully encountering a world that has intertwined cognitive, affective, axiological, practical, and cultural dimensions must be the unwavering goal of one's reflections.

HUSSERL'S SUCCESSORS

The continual publication of Husserl's unedited manuscripts not only provides a more complete view of Husserl's thought and its development, but also affects one's view of the relations between Husserl and his successors. Discussions of embodiment, intersubjectivity, passive synthesis, community, tradition, and the life-world were all present in Husserl's work before any of the major works of his successors appeared. This implies that the understanding of these differences between Husserl and his successors must be carefully nuanced. In particular, the idea of a pure consciousness or ego separate from both the empirical ego and the world must be rejected in the light of the discussions of embodiment, volition, and historical community. Nevertheless, Husserl could criticize Merleau-Ponty and Heidegger for failing properly to distinguish, respectively, psychology and transcendental phenomenology or anthropology and transcendental phenomenology. Moreover, given his views on temporality and intentionality, Husserl could criticize Sartre for an inadequate view of the ego and a too voluntaristic account of intentionality. Just as his successors' critiques of him must be nuanced by what is known of Husserl's unedited writings, so too Husserl's critiques or potential critiques must not rely on too sharp a distinction between himself and his successors. This is especially the case with those analyses undertaken by his successors that in their own way involve a transcendental reduction even as they

emphasize more than Husserl did the worldliness and existential condition of the subject.

See also Phenomenology.

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John J. Drummond (2005)

HUTCHESON, FRANCIS
(1694–1746)

Francis Hutcheson, a moral-sense theorist, was born at Drumalig in County Down, Ulster. His father and grandfather were Presbyterian ministers. In 1711 he entered the University of Glasgow, taking both the arts and theological courses and probably finishing in 1717. He was licensed as a probationer preacher by the Ulster Presbyterians in 1719. Not long after, he was invited by the Presbyterians of Dublin to found a dissenting academy for their youth, and he remained in Dublin for the next ten years as head of the academy. His stay there was a turning point in the development of his thought, for he came under the influence of admirers of the Earl of Shaftesbury's philosophy. Hutcheson's first two, and perhaps most important, books were published during this period. The University of Glasgow elected Hutcheson to its professorship of moral philosophy in 1730, a position that he held until his death. In 1746, while visiting Dublin, he contracted a fever and died.

At Glasgow, Hutcheson devoted himself to enriching the culture and softening the Calvinism of his fellow Presbyterians. The Presbytery of Glasgow tried him for teaching, in contravention to the Westminster Confession, the following "false and dangerous" doctrines: (*a*) that the standard of moral goodness is the promotion of the happiness of others and (*b*) that it is possible to have a knowledge of good and evil without, and prior to, a knowledge of God. Afterward, Hutcheson was able to speak of the matter as the "whimsical buffoonery" about his heresy, but the fact that the charges were brought is doubtless a measure of the effectiveness of his teaching. David Hume sent a draft of Part III of *The Treatise of Human Nature,* "Of Morals," to Hutcheson for his comments prior to publication. Some indication of the spirit in which Hutcheson wrote his own work can be gathered from his rebuking Hume for a lack of warmth in the cause of virtue, which "all good men would relish, and could not displease among abstract enquiries."

THE MORAL SENSE

Hutcheson's contributions to philosophy lie in aesthetics and moral philosophy. In the one he offers a theory of an internal sense by which we perceive beauty, and in the other he offers a theory of a moral sense by which we perceive and approve virtue and perceive and condemn vice. Hutcheson meant his theory of the moral sense to be a contribution to the contemporary discussion of how to analyze man's moral knowledge. There were two sides in the discussion. Samuel Clarke and his followers held that moral distinctions are made by reason on the basis of our knowledge of the unchanging and unchangeable fitness of things. The other side, owing its original allegiance to Shaftesbury, held that moral distinctions are the deliverances of a moral sense.

Both sides held two points in common. First, moral knowledge must be accounted for by showing how it can be acquired by the exercise of some human faculty. In this respect they were all Lockeans: If something is knowable, you must show how it can be perceived. Second, moral knowledge cannot be simply a revelation from God, though of course God may enter the picture indirectly by having endowed us with our moral faculty. And when it came to picking out actual instances of virtue and vice, both sides were in agreement about the value of benevolence and the wrongness of acts of violence against other persons. Their debate, then, was over the character of the moral faculty.

PERCEPTION AND APPROVAL OF VIRTUE. Hutcheson plucked from Shaftesbury's rhapsodies the notion of a moral sense and endeavored to give a systematic account of it as the moral faculty of humankind. To see what Hutcheson's claim means, we must first of all consider what led him to make it. When you see someone doing something that is helpful to another, you say that his action is a virtuous one. But why is a helpful action counted as virtuous? It might be said that a helpful action is virtuous because it exhibits benevolence. But this does not take us very far, for we may still ask why benevolence is a criterion of virtue. Hutcheson knew the answer that some moral writers had given to this question: Helpfulness or benevolence is a possible relation between two human beings, and it is a fitting one. Therefore, it is virtuous. But how do you tell what is fitting and what is not? Your reason tells you. At this point, however, Hutcheson asked whether fittingness could be discovered by reason. After all, reason can tell us only that a certain relation does or does not exist; the moral quality of the relation, if any, remains to be apprehended. But by what?

Certainly not by reason, Hutcheson argued, because the moral quality is not a relation. And if not by reason, then the only thing left is a sense: the moral sense.

Hutcheson's task was to offer an account of how the moral sense works. He located the moral sense on the map of Lockean psychology. Its deliverances are ideas of reflection that arise from our original perceptions of human actions. As he first described the moral sense, it is a determination of our minds "to receive amiable or disagreeable ideas of actions." The "amiable idea" or, as he sometimes spoke of it, "our determination to be pleased," has two jobs. It is both our perception of the virtue of an action and our approval of it. It so happens that those actions which we discern to be virtuous are always benevolent actions, and we are necessarily determined to discern their virtue as soon as we observe them. Hutcheson attributed both the connection between virtue and benevolence and our necessary perception of the virtuousness of benevolence to arrangements superintended by God. Like sight, the moral sense is universal in humankind. But just as some men are born blind, and others have defective sight, some men have no moral sense at all and others have defective moral senses.

The strength of Hutcheson's theory of the moral sense lies in his having given an account of how we know that benevolent actions are virtuous: They are virtuous because they please. He was careful to point out that they please irrespective of any advantage they may have to ourselves. He noticed that we may indeed perceive as virtuous an action that displeases us because it goes against our selfish interest, and we may desire that someone act in a certain way even though we should call it vicious. He also argued that in the first instance the moral sense works independently of education, custom, and example. These factors may strengthen the moral sense but cannot create it, for they really presuppose a moral sense. In order for a person to be given an education in morality, he must already be able to discern moral qualities. Similarly, in order for customs to be moral customs and for examples to be moral examples, morality must already have been discovered in order to give these factors a moral character.

In saying that virtue is what it is because it pleases, Hutcheson thought that he had given a completely satisfactory account of the nature of virtue. By means of the moral sense, virtue is perceived for what it is. It is an end to be sought for itself, and no further characterization of it is required. Hutcheson's critics, however, found that he had paid a disastrous price for making virtue comprehensible by the human understanding. If virtue is that which pleases, then must any action that pleases be virtuous? Why are the actions that exhibit benevolence the only ones that are counted as virtuous? These questions seem bound to be asked despite the stipulations with which Hutcheson hedged his account of our knowledge of virtue.

Both his theory and its difficulties stem from Hutcheson's tacit assumption of the Lockean guide that a piece of knowledge must be accounted for through an appeal to the faculty by which it is known. It was not open to Hutcheson to try the gambit that it would be logically odd to call an act of highway robbery, for example, virtuous. His first line of defense was to insist that the deliverances of the moral sense with respect to virtue are a distinctive kind of pleasure. But in later editions of his *Inquiry concerning Moral Good and Evil,* Hutcheson played down the perceptual function and stressed approving and disapproving. Thus, the moral sense becomes a "determination of our minds to receive the simple ideas of approbation or condemnation, from actions observed … ." To call these ideas simple is to claim that they are not subject to further analysis and, hence, to further characterization. But this new position is not without its own difficulties. Approbation and condemnation are dispositions, not sensations; and only a most slavish allegiance to John Locke's model of the mind could lead one to construe all mental acts as perceptions.

MOTIVATION TO VIRTUOUS ACTION. Hutcheson's theory of the moral sense has yet a third part. As well as using it to account for the perception and approbation of virtue, he also used it to account for a person's motivation to behave in a virtuous way. A person pursues virtue because virtuous acts are pleasing to him and avoids vicious acts because they pain him. This account of moral motivation is perhaps the most convincing part of Hutcheson's theory. It enabled him to close the gap between someone's knowing what ways of acting are virtuous and his being inclined to act virtuously. Yet even here the theory gives us less than we might hope, for someone will be motivated to act benevolently only if benevolence pleases. And if other ways of acting please, even malevolence, perhaps, what then? Once more Hutcheson entered a stipulation too pat to be absolutely convincing: God has determined most people to be benevolent. Once again we must admit that he took this position for the best of reasons, for he was opposing those who would reduce all human motives to self-interest—and the many disinterested actions that people perform show the absurdity of this contention. But what Hutcheson's account of moral motivation requires is not the sensation of being pleased

with benevolence but a disposition to be benevolent. Unfortunately, the psychological theory on which Hutcheson relied required him to reduce all mental phenomena to some sort of perception. Thus, his account of motives lacks an effective analysis of dispositions.

AESTHETICS

Hutcheson's aesthetics closely parallels his theory of the moral sense. He found that we have an internal sense of beauty, a determination to be pleased by regular, harmonious, uniform objects, by grandeur, or by novelty. These perceptions occur necessarily and independently of our wills, but there is no corresponding "pain or disgust, any farther than what arises from disappointment." This limitation seems to have the curious consequence of leaving Hutcheson no room to account for perceptions of the ugly. The task of approving of the beautiful is not assigned to our sense of beauty. Presumably Hutcheson thought indifference to beauty allowable but indifference to virtue never so.

ROLE OF PASSIONS AND REASON IN MORAL LIFE

Hutcheson's *Essay on the Nature and Conduct of the Passions and Affections* and *Illustrations upon the Moral Sense* (published jointly in London, 1728) supplement the part of the *Inquiry* devoted to morals. In the essay on the passions, Hutcheson defined *sense* as every determination of the mind either to receive ideas independently of the will or to have perceptions of pleasure or pain. This definition led to the introduction of several new senses into Hutcheson's system. For instance, there is a public sense, which is our determination to be pleased by the happiness of others and to be uneasy at their misery. There is also the sense of honor, which makes the approbation or gratitude of others for any actions we have done the necessary occasion of pleasure.

In the *Illustrations upon the Moral Sense,* Hutcheson's general aim was to characterize the role of reason in the moral life. With regard to actions, Hutcheson said that we may reason either to account for what excites someone to act as he does or to account for what justifies our approbation of an act. For example, we give the "exciting" reason when we account for a luxury-loving man's pursuit of money by pointing out that money may be used to purchase pleasures. We give the "justifying" reason when we account for our approving of a man's risking his life in war by pointing out that his conduct evidences public spirit. But it is never true that reasons are to be found independently of feelings, for "exciting" reasons presuppose instincts and affections, and "justifying" reasons presuppose the moral sense.

Supposing that we get our ideas of virtue and vice through a moral sense, Hutcheson acknowledged that there are certain truths which might be proved by reason. These are (1) what actions or affections obtain the approbation of any observer, and what actions or affections obtain condemnation; (2) what quality of actions gains approbation; (3) what actions really evidence kind affections and tend to the greatest public good; and (4) what motives excite men to publicly useful actions.

See also Aesthetics, History of; Aesthetics, Problems of; Beauty; Clarke, Samuel; Hume, David; Locke, John; Moral Epistemology; Moral Sense; Shaftesbury, Third Earl of (Anthony Ashley Cooper); Virtue and Vice.

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Hutcheson first presented his philosophy in the *Inquiry into the Original of Our Ideas of Beauty and Virtue* (London, 1725). The *Inquiry* is divided into two parts: "Concerning Beauty, Order, Harmony, Design" and "concerning Moral Good and Evil." It is a much-revised work, the most notable changes occurring in the fourth edition (Glasgow, 1738). Lewis Amherst Selby-Bigge, ed., *The British Moralists* (Oxford: Clarendon Press, 1897), Vol. I, reproduces a substantial part of the second edition of the "Inquiry concerning Moral Good and Evil," which taken by itself is an incomplete representation of Hutcheson's thought. In *A Short Introduction to Moral Philosophy* (Glasgow: R. Foulis, 1747), an English version of the *Philosophiae Moralis Institutio Compendiaria* (Glasgow, 1742), Hutcheson uses "conscience" interchangeably with "moral sense," a possible sign of Butler's influence. Hutcheson is also the author of *A System of Moral Philosophy,* published posthumously in two volumes (London: A. Millar, 1755) by his son Francis. The *System* contains a biography by William Leechman. Other works by Hutcheson are *Metaphysical Synopsis* (Glasgow, 1742) and *Logical Compendium* (Glasgow, 1756).

For Hume's letters to Hutcheson, see J. Y. T. Grieg, ed., *The Letters of David Hume* (Oxford: Clarendon Press, 1932), Vol. I.

Contemporary criticism may be found in *Letters concerning the True Foundation of Virtue or Moral Goodness, wrote in Correspondence between Mr. Gilbert Burnet and Mr. Francis Hutcheson,* edited by Hutcheson (Glasgow, 1772), first published in the *London Journal* (1728).

Biographical and analytical material is contained in W. R. Scott, *Francis Hutcheson* (Cambridge, U.K.: Cambridge University Press, 1900); Ernest Albee, *History of English Utilitarianism* (London: Swan Sonnenschein, 1902); and T. Fowler, *Shaftesbury and Hutcheson* (London: Sampson, Low, Marston, Searle & Rivington, 1882).

For critical discussions, see James Bonar, *Moral Sense* (London: Allen and Unwin, 1930), and D. D. Raphael, *The Moral Sense* (London: Oxford University Press, 1947).

Elmer Sprague (1967)

HUTCHESON, FRANCIS [ADDENDUM]

Although Francis Hutcheson's name is frequently associated with the third Earl of Shaftesbury (1671–1713), the truth is that once he rejects John Locke's (1632–1704) contention that beauty is a complex idea, his aesthetic theory is thoroughly Lockean. That beauty is a simple idea, for Hutcheson, is made clear when he postulates a sense of beauty as necessary to perceive it. And such a move is fully sanctioned by Locke himself when he writes that "I have here followed the common opinion of men's having but five senses, though, perhaps there may justly be counted more" (John Locke, *Essay concerning Human Understanding*, II, ii, 3).

Hutcheson's most succinct and influential statement of his basic position goes as follows: "[T]he word *beauty* is taken for *the idea raised in us*, and a *sense* of beauty for *our power of receiving this idea*" (*Inquiry concerning Beauty*, I, ix, p. 34).

The idea of beauty, which is a simple idea, is caused to be excited in the sense of beauty, however, by a complex idea, namely any collection of ideas that possesses what Hutcheson calls "uniformity amidst variety." The sense of beauty perceives ideas, and not the external world directly, because it is what Hutcheson calls a "reflex" or "subsequent" sense, requiring the five "external" senses to provide its objects.

Few today will find this Lockean account of beauty and its perception at all plausible. Nonetheless, it is no exaggeration that it defined and drove aesthetic speculation through the whole of the eighteenth century in Great Britain. And because it was philosophy at the cutting edge, the influence was good, even though it turned out the doctrine was not.

See also Aesthetics, History of; Beauty; Locke, John; Shaftesbury, Third Earl of (Anthony Ashley Cooper).

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Peter Kivy (2005)

HUXLEY, THOMAS HENRY
(1825–1895)

Thomas Henry Huxley, the biologist and the most versatile man of science of nineteenth-century England, was born at Ealing, near London. Like many eminent Victorians, Huxley was self-educated. While still an adolescent he read extensively in history and philosophy, learned several foreign languages, and began a medical apprenticeship. In 1842 he entered Charing Cross Hospital, where he distinguished himself by winning prizes in chemistry, anatomy, and physiology, and by publishing his first research paper. From 1846 to 1850 he was assistant surgeon on H.M.S. *Rattlesnake* while it conducted surveying operations in Australian waters. Huxley made capital out of this voyage, as Charles Darwin had done on the voyage of the *Beagle,* and sent home a number of scientific papers dealing with marine animals. These papers established his reputation as a first-rate biologist, and in 1851 he was elected a fellow of the Royal Society. After leaving the navy he settled in London, where he eventually obtained several small appointments, the chief one being that of naturalist at the Government School of Mines. Here he began his paleontological investigations, which resulted in more than twenty memoirs on the anatomy and classification of fossils. During the next four decades Huxley became one of the intellectual leaders of England. His strong, skeptical, earnest mind was enlisted on behalf of a great variety of causes. He championed Darwin's theory of evolution, disputed with churchmen about the Bible, worked for educational reforms, served on eight royal commissions, and refused a professorship at Oxford. As a public lecturer he was brilliant at clarifying abstruse subjects and developing polemical arguments. He also wrote copiously in forceful, eloquent prose. Yet he produced no really seminal ideas or magnum opus, partly because his efforts were so dispersed. In the following discussion, attention will be limited his views on the nature of science, metaphysics, ethics, and religion.

THE NATURE OF SCIENCE

For Huxley, two aspects of the sciences were of special importance. One was their historical continuity with modes of thought used by men in the ordinary commerce of life. "Science," he once said, "is nothing but trained and organized common sense, differing from the latter only as a veteran may differ from a raw recruit … . The man of science, in fact, simply uses with scrupulous exactness the methods which we all habitually use carelessly" (*Collected Essays,* Vol. III, pp. 45–46). Hence there is a unity of pro-

cedure in all the sciences. This was the other aspect of the sciences that he deemed important, because it allowed a specification to be given of the steps that must be taken if the procedure is to be properly carried out. In an essay of 1854, "On the Educational Value of the Natural History Sciences" (*Collected Essays,* Vol. III), Huxley listed the steps as: (1) observation of the facts, including those elicited by experiment; (2) comparison and classification, leading to general propositions; (3) deduction from the general propositions to the facts again; and (4) verification. Later he came to see that hypotheses are essential to the procedure of science, especially as devices for "anticipating nature." But he did not sufficiently stress the connection between a hypothesis and the scientific problem that initiates an inquiry, or the role of the hypothesis in determining what facts are to be observed.

EVOLUTION

It was the effective use of scientific method in Darwin's *Origin of Species* that helped to convert Huxley to the doctrine of evolution by natural selection. As a young man he had held antievolutionary views, not because he believed in the special creation of species, but because he failed to find a scientific explanation of how their transmutation could have been effected. Darwin's book proved to be "a flash of light which, to a man who has lost himself in a dark night, suddenly reveals a road that, whether it takes him straight home or not, certainly goes his way" (*Life and Letters of T. H. Huxley,* Vol. I, pp. 245–246). His reflection on having mastered Darwin's central thesis was, "How exceedingly stupid not to have thought of that."

Huxley espoused Darwinism not as a dogma, however, but as a "most ingenious hypothesis" that offered a rational account of how the organic world came to be what it is. The hypothesis was not contradicted by any known evidence, nor was it seriously rivaled; yet it was not established beyond a shadow of doubt. For instance, certain physiological peculiarities of organisms, such as hybrid sterility, had still to be explained in terms of natural selection. To Huxley, some of Darwin's formulations seemed quite unsatisfactory. To speak of variations "arising spontaneously" was to employ "a conveniently erroneous phrase." To commit oneself to the principle *natura non facit saltum* ("nature makes no leap") was to invite needless trouble. For in fact, Huxley declared, "Nature does make jumps now and then, and a recognition of this is of no small importance in disposing of many minor objections to the doctrine of transmutation" (*Collected Essays,* Vol. II, p. 77). But even if it remained to be shown that natural selection sufficed for the production of

species, "few can doubt that it is a very important factor in this operation." To that extent Darwinism was certainly here to stay.

Huxley was sensitive to a number of philosophical questions generated by the theory of evolution. The questions that particularly interested him arose when three considerations were taken seriously. First, like all scientific theories, Darwinism "starts with certain postulates … and the validity of these postulates is a problem of metaphysics." Second, the theory of evolution had to be extended to the cosmos as a whole, if its scope was not to be arbitrarily restricted. But at that point philosophical issues had to be faced. Did the cosmos evolve from some "epicurean chance-world," or had its order been eternally the same? Finally, the study of organisms pointed to the conclusion that they began as, and are now, physico-chemical systems. It could therefore be assumed that molecular motions are the basis of all vital processes, including so-called conscious ones. But if this was so, metaphysical materialism gained strong support.

METAPHYSICS AND EPISTEMOLOGY

The philosophical standpoint most congenial to Huxley was derived from his reading of René Descartes, George Berkeley, and David Hume. Of prime importance was the contention "that our certain knowledge does not extend beyond states of consciousness, or the phenomena of mind. … Our sensations, our pleasures, our pains, and the relations of these, make up the sum total of the elements of positive, unquestionable knowledge" (*Collected Essays,* Vol. VI, pp. 317–318). Beyond this we have only uncertain inferences or beliefs. Hence, when we talk about "matter" and "the physical world," we are interpreting some mental phenomena, just as we are interpreting other phenomena when we talk about "mind" and "the self." For matter is only a postulated cause of certain conscious states, in the same way that mind is a postulated substratum of those same states. This is all that criticism leaves of "the idols set up by the spurious metaphysics of vulgar common sense."

Huxley expressed many of his philosophical ideas in a book on Hume that he wrote for the English Men of Letters series in 1878. He agreed with Hume's account of perception as a process that yields only sense impressions, but he held that Hume had failed "to recognize the elementary character of impressions of relation" and also had failed to make clear that having a sense impression is a case of knowing. Hume had correctly represented the order of nature as an unbroken succession of causes and effects, so that there can be no uncaused volitions such as

proponents of "free will" postulate. But determinism, Huxley affirmed, is entirely compatible with ascribing responsibility to human beings for their deliberate actions. As Hume had rightly understood, "the very idea of responsibility implies the belief in the necessary connexion of certain actions with certain states of mind" (*Collected Essays,* Vol. VI, p. 222).

METAPHYSICAL PRESUPPOSITIONS OF SCIENCE. From this philosophical standpoint, Huxley dealt with questions that fall under the three considerations mentioned above. Science, he affirmed, postulates a rational order of nature, the operation of material forces, the universality of causation, and the immutable necessity of laws. All these factors need to be properly interpreted. Thus, "nature" is simply the totality of phenomena, whose regular occurrence constitutes nature's "rational order." Material forces are at best hypothetical entities which Huxley said he could not conceive clearly. As Hume had insisted, "causation" refers to the relation of invariable succession among phenomena. "Necessity" is a term that should be limited to logic and has no warranted application to the physical world. For the laws that science formulates are records of observed regularities, not agents which "force" things to happen as they do. Hence, "our highest and surest generalizations remain on the level of justifiable expectations, that is, very high probabilities." The quest for certainty in science is an irrational pursuit.

AGNOSTICISM. It is also irrational to hope that we can ever know anything about the ultimate origin or ultimate nature of the universe. Speculation about such matters is fruitless, for they lie outside the limits of philosophical inquiry. To identify his position on this issue, Huxley coined the name "agnostic" about 1869. "It came into my head," he said, "as suggestively antithetical to the "agnostic" of Church history, who professed to know so much about the very things of which I was ignorant" (*Life and Letters of T. H. Huxley,* Vol. I, p. 462). Agnosticism, however, is not another creed; it is an outlook that results from the adoption of a principle, at once intellectual and moral, which states that a man ought not to assert that he knows a proposition to be true unless he can produce adequate evidence to support it. Conversely, an agnostic repudiates as immoral "the doctrine that there are propositions which men ought to believe without logically satisfactory evidence." The justification of this principle lies in the success which follows upon its application, whether in the field of natural or of human history.

Because of an agnostic's outlook, he cannot accept the tenets of metaphysical materialism, according to which nothing exists in the world save matter, force, and necessity. For these three concepts are intelligible only insofar as they are related to the phenomena of mind. Hence, "Materialism is as utterly devoid of justification as the most baseless of theological dogmas." Yet to reject materialism is by no means to espouse idealism or spiritualism. "Spiritualism is, after all, little better than Materialism turned upside down" (*Collected Essays,* Vol. IX, p. 133). Nor does it follow that the sciences must eschew materialistic language. On the contrary, such language is often useful in investigating the order of nature, as Huxley himself showed in more than one paper. But to use materialistic language for scientific purposes is quite different from accepting a metaphysics based on materialism.

EPIPHENOMENALISM. As a biologist, Huxley took the view that the bodies of animals, including humans are best regarded as mechanical systems. Yet the mind and states of consciousness undeniably exist, and their relation to the working of the physical body has to be explained. This was the question Huxley discussed in a well-known paper of 1874, "On the Hypothesis that Animals are Automata." States of consciousness are represented as being no more than effects of bodily processes—chiefly, the molecular changes in brain substance that has attained a certain degree of organization. Furthermore, no evidence can be found for supposing "that any state of consciousness is the cause of change in the motion of the matter of the organism." Animals, then, are conscious automata. The working of their bodily mechanism is unaffected by their mental activity. "The mind stands related to the body as the bell of the clock to the works, and consciousness answers to the sound which the bell gives out when it is struck." This is Huxley's version of epiphenomenalism. The doctrine did not purport to give an ultimate explanation of the mind-body relationship. It did not even purport to explain how the passage from molecular movement to conscious states is effected. Concerning the details of this passage, he declared, "I really know nothing and never hope to know anything."

RELIGION

The greatest impact of Huxley's agnosticism was on the religious dogmas of his time. As a young man he accepted a form of theism. In a paper of 1856, "On Natural History as Knowledge, Discipline, and Power" (*Royal Institution Proceedings,* London, Vol. II, 1854–1858, pp. 187–195), he

contended that the design revealed by nature pointed to the existence of an Infinite Mind as its author. But he discarded this view when he became a Darwinian, on the ground that the argument from design had received its deathblow. Thenceforth, he attacked those who claimed to prove that a supernatural God exists, or who affirmed that biblical and Christian doctrines are rationally credible. His most dramatic clash was with Bishop Wilberforce at the Oxford meeting of the British Association in June 1860, and his most protracted controversy was with W. E Gladstone in the pages of the *Nineteenth Century,* from 1885 to 1891. Neither of these defenders of the faith was a match for Huxley.

MIRACLES. Huxley hammered away at the inconsistencies in, and the lack of evidence for, the biblical cosmology, the creation stories, and the belief in demons, spirits, and miraculous occurrences that Christianity requires. The subject of miracles was of deep interest to him; miracles could not be rejected as impossible, he thought, because they are logically conceivable. Hence Hume's a priori reasoning against them was mistaken. Yet one can say that the occurrence of an alleged miracle, being antecedently a most improbable event, needs strong supporting evidence. But in each recorded case, evidence of this kind was lacking. In several essays Huxley discussed particular biblical reports of miracles and found them unconvincing.

GOD. Although he rejected supernaturalism, Huxley was prepared to accept a Spinozistic conception of God as being identical with nature in its infinite complexity. "The God so conceived is one that only a very great fool would deny, even in his heart. Physical science is as little Atheistic as it is Materialistic" (*Collected Essays,* Vol. IX, p. 140). Once, in a letter to Charles Kingsley, he said that he believed in "the Divine Government" of the universe. The phrase expressed his conviction that the cosmic process is rational rather than random, that the reign of law is universal, and that the order of nature has existed "throughout all duration." Yet the governing principles of the universe appear to be amoral, since what happens to men is "accompanied by pleasures and pains, the incidence of which, in the majority of cases, has not the slightest reference to moral desert" (*Collected Essays,* Vol. IX, p. 202).

ETHICS

Toward the close of his life Huxley thought a good deal about the foundations of morality. He was dissatisfied with the attempts of Darwin and Herbert Spencer to harmonize man's moral sentiments and the theory of evolu-

tion. It was not that he doubted the evolutionary origin of those sentiments; what he doubted was whether Darwin or Spencer had appreciated the extent to which morality and nature are at war with each other. This was the theme with which he startled the Victorian world in his famous Romanes lecture, "Evolution and Ethics" (*Collected Essays,* Vol. IX, pp. 46–116), on May 18, 1893.

Its central contention is that "ethical nature, while born of cosmic nature, is necessarily at enmity with its parent." For a dominant feature of the natural world is "the intense and unceasing competition of the struggle for existence." Thomas Hobbes's depiction of nature as the war of all against all is correct. In this world, ruthless and predatory action is "best" for the individual. But in human society, "ape and tiger methods" are precisely what man's moral sense condemns. Hence, the practice of that which is *morally* best involves a repudiation of "the gladiatorial theory of existence" portrayed by Darwinism: "Let us understand, once for all, that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it." Accordingly, man although himself a product of evolution, has an obligation to subjugate the amoral or immoral aspects of evolution to moral ends. Yet Huxley's grounds for this conclusion are by no means clear. His only recourse was to fall back on a kind of ethical intuitionism which is hardly compatible with his other views.

The philosophical garment that Huxley wove is coarsely textured and has a number of loose ends. Thus his radical phenomenalism is not carefully interwoven with his evolutionism, and his agnosticism seems unconnected with his Spinozistic affirmations. Yet his grasp of philosophical issues was remarkable for a man who was also a leading scientist, educator, and public figure of his time.

See also Agnosticism; Animal Mind; Berkeley, George; Consciousness; Darwin, Charles Robert; Darwinism; Descartes, René; Evolution; Evolutionary Ethics; Hobbes, Thomas; Hume, David; Materialism; Miracles; Natural Law; Phenomenalism.

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HYLOZOISM

See *Panpsychism*

HYPATIA
(370/75–415 CE)

Hypatia was a philosopher, mathematician, and astronomer who, though female and pagan, achieved the honor of being named by the Christian Roman government to the position of philosopher at the museum of Alexandria. Students reading philosophy at the Alexandrian School would also study mathematics and astronomy as technical, applied disciplines of the more traditional studies of metaphysics and cosmology. Hypatia's father, Theon of Alexandria, was the museum's most famous mathematician-astronomer, and it is largely through Theon that we have a reliable source of Ptolemy's *Syntaxis Mathematica* (*Almagest*).

Hypatia likely assumed the directorship of the school of philosophy in about 400. The recently converted Christian, Synesius of Cyrene, later the bishop of Ptolemais, became her student in 393. From Synesius's works we surmise that Hypatia's early philosophical teachings concentrated on Plato's metaphysical works, especially the *Timeaus*. Her mathematical and astronomical writings can be understood primarily as applications of Neoplatonist metaphysical and cosmological theories to mathematical problems whose solution informed astronomical theories. These in turn were considered to illuminate Neoplatonist cosmological theories. Six of Hypatia's works have been tentatively identified. They include an edition of Diophantus's *Arithmetica* with new lemmas, a lost prototype based on Archimedes's *Sphere and Cylinder* surviving as John of Tynemouth's *De Curvis Superficibus*, a text on isoperimetric figures incorporated by a later author into *Introduction to the Almagest*, a commentary on Archimedes's *Dimension of the Circle*, and a commentary edition of Apollonius Pergaeus's *Conics* upon which later commentary editions were based. But her most important work appears to have been a revision of a work by her father Theon appearing in Book III of his *Commentary of Ptolemy's Syntaxis Mathematica*.

Hypatia was an eclectic philosopher with a Cynic's literary and personal style that may have had as much to do with her risky status as both woman and pagan as with her philosophical affiliation. Accounts of outrageous tactics to counter sexist male student behavior may be apocryphal (Lewis 1921, Toland 1720). Nevertheless, they provide insight into the personality of a defensive female professor in a brutally misogynist environment. A traditional middle Platonist, Hypatia was sympathetic to Porphyrian metaphysics and to Stoicism. She preferred Euclidean methodology to the Archimedean in formulat-

ing results of problems and as a pedagogical tool for teaching philosophical mathematics. In 415, she was savagely dismembered by a gang of monks. She appears to have been succeeded by Hierocles.

See also Alexandrian School; Cynics; Feminism and the History of Philosophy; Neoplatonism; Platonism and the Platonic Tradition; Porphyry; Sexism; Stoicism; Women in the History of Philosophy.

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HYPPOLITE, JEAN
(1907–1968)

Born at Jonzac, France, Jean Hyppolite had an illustrious university career: professor at Université de Strasbourg in 1945; at the Sorbonne in Paris in 1949; director of the Ecole Normale Supérieure in 1954; and finally, the chair at the Collège de France in "Histoire des systèmes" from 1963 until his death. He belonged to the post–World War II generation of French philosophers that included Maurice Merleau-Ponty, Jean-Paul Sartre, and Jacques Lacan. However, Hyppolite's most enduring legacy is his students from the Sorbonne and the Ecole Normale Supérieure: Jacques Derrida, Gilles Deleuze, and Michel Foucault.

Hyppolite became famous as the French translator of Hegel's *The Phenomenology of Spirit* in 1941. He then produced a commentary, *Genesis and Structure of Hegel's Phenomenology of Spirit*, in 1947. In many essays, Hyppolite recounts the French reception of Hegel. The French reception had first been formed by Jean Wahl, but during the 1930s especially by the humanistic reading Kojève produced. Kojève's reading had oriented the philosophies of Sartre and the early Merleau-Ponty. Hyppolite, how-

ever, tried to show that Hegel goes beyond the human, an attempt that is obvious in his *Genesis and Structure*: Its chapter on the master-slave dialectic—the foundation for Kojève's humanistic reading—is its shortest, about three pages long.

Nevertheless, *Genesis and Structure* aims to be a comprehensive reading of Hegel's *Phenomenology of Spirit*. Indeed, it is a classic reading of a philosophical text, for it not only tracks all of the dialectical movement or procedures of the *Phenomenology*, but also shows how they are connected to the history of philosophy, how they are connected to other German idealists such as Friedrich Wilhelm Joseph von Schelling, and finally how the book itself grew out of Hegel's earlier reflections—in particular, his earlier Jena Logic. But Hyppolite's text is not only a classic reading, it is a masterful philosophical text in its own right. Unlike Kojève—for whom the leading question was how man take possession of himself as the purpose of all dialectical development—Hyppolite's leading question was: "How is the *Phenomenology* connected to the later *Logic*?" In other words, even if there is an ambiguity in Hegelianism between phenomenology (as the science of the appearances of the forms of consciousness, resulting in absolute knowledge) and ontology (as the science of all being), which one is the authentic mode of procedure in Hegelianism? Is Hegel's ontologic independent of all phenomenology? All of *Genesis and Structure* is directed at responding to this question. For Hyppolite, the intersection of knowledge and being is central to Hegelianism.

The centrality of this intersection becomes most evident in Hyppolite's 1952 *Logic and Existence*, a text that makes three basic claims. First, Hyppolite tries to show that Hegel's philosophy is a logic in the literal sense of the word, a *logos*: language. If we start from language, we can see that Hegel's philosophy attempts to reconstruct the genesis from sensible (experience) to sense (or essence). But second, again if we start from language, we can see that Hegel's thought "completes immanence," as Hyppolite says. This claim means that Hegel, like Nietzsche, is an anti-Platonist; there is no second world of ideas or essences behind the first sensible one; there is only sense. In this second claim, Hyppolite is returning to *Genesis and Structure*, in which he claimed that the most difficult idea in Hegel's thought was the difference between essence and appearance—that is, the *difference* within immanence itself. For Hyppolite, following Hegel, difference must be "pushed all the way up to contradiction" (Hyppolite 1997, p. 113). In other words, if we are to remain true to the thought of immanence, we must think totality. But to think totality, we must have opposites be internal to themselves. The infinite, for example, cannot be opposed externally to the finite; if it were, then the infinite would be finite because it would have the finite as its boundary. So, the infinite must include the finite inside of itself; it must be both finite and infinite and thus contradict itself. For Hyppolite, following Hegel, there can be difference within immanence only through self-contradiction. Is self-contradiction really difference? This question is explored further below.

The difference within immanence leads to the third and final claim made by Hyppolite in *Logic and Existence*. Hegel is not a humanist because sense (which has now replaced the old metaphysical concept of essence) is indeed different from man. Hegel therefore is trying to think not man but across man, and through this *antihumanism* Hyppolite's reading no longer shares any similarity with that of Kojève.

Logic and Existence sets up the philosophies of Derrida, Deleuze, and Foucault. Indeed, in his inaugural address to the Collège de France in 1970, Foucault, who was then assuming the chair vacated by Hyppolite's death, said that "*Logic and Existence* established all the problems that are ours" (Foucault 1972, p. 236). In other words, when Hyppolite discusses the problem of difference in Hegel, he is setting up the entire philosophy of difference that will arise in France in the 1960s. Yet as seen above, for Hyppolite difference must be pushed all the way up to contradiction. This occurs by indeterminate differences being converted into oppositions; each thing that is different must find *its* other, as Hyppolite says. Then, after having pushed all the indeterminate differences up into oppositions, one can see that each position makes sense only with or through its opposition. Nature, for instance, makes sense only through *its* opposite, which is culture. Thus each position includes its opposition in itself; each position is a self-contradiction. But, the philosophy of difference that arises in France during the 1960s consists of the attempt to push difference back down from self-contradiction to indeterminate difference. We can see this project already in Deleuze's 1954 review of *Logic and Existence*. But, the project is fulfilled in at least two different ways. On the one hand, one reconceives what looks to be a position and an opposition as two positivities or two positions; this is Deleuze (and Foucault). On the other hand, one reconceives what looks to be a position and an opposition as mutual contamination; this is Derrida. These two fulfillments are the legacy of Hyppolite's thought.

See also Derrida, Jacques; Deleuze, Gilles; Foucault, Michel; Hegel, Georg Wilhelm Friedrich; Hegelianism;

Lacan, Jacques; Merleau-Ponty, Maurice; Nietzsche, Freidrich; Ontology, History of; Phenomenology; Sartre, Jean-Paul; Schelling, Friedrich Wilhelm Joseph von.

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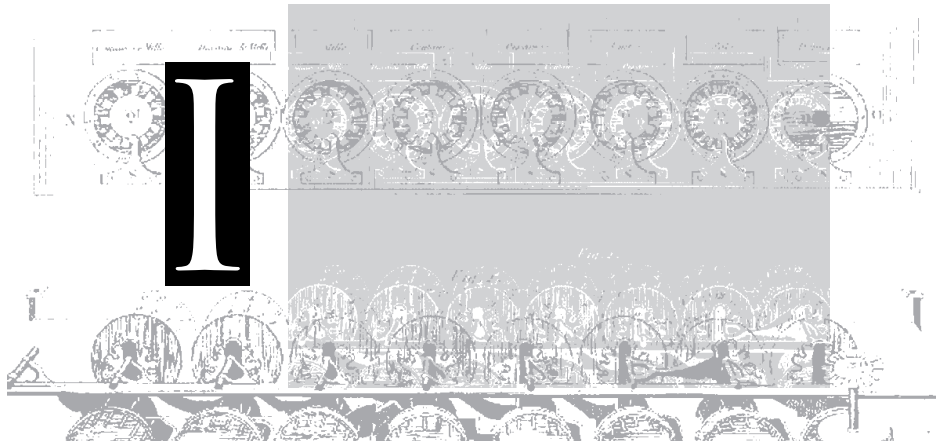
IAMBLICHUS

(c. 245–320 CE)

The sources available for our knowledge of Iamblichus's life are highly unsatisfactory, consisting as they do largely of a rather hagiographical and ill-informed *Life* by the sophist Eunapius, who was a pupil of Chrysanthius, who had been in turn a pupil of Iamblichus's pupil Aedesius, but enough evidence can be gathered to give a general view of his life-span and activities.

LIFE AND WORKS

The evidence points to a date of birth around 245 CE, in the town of Chalcis-ad-Belum (modern Qinnesrin) in Northern Syria. Iamblichus's family was prominent in the area, and the retention of an old Aramaic name (*yamliku*) in the family points to some relationship with the dynasts of Emesa in the previous centuries, one of whose names this was. This noble ancestry does seem to somewhat color Iamblichus's attitude to tradition—he likes to appeal on occasion for authority to "the most ancient of the priests" (*Iamblichus: De Anima*, §37).

As teachers, Eunapius provides (*VP* 457–8) us with two names: first, a certain Anatolius, described as second in command to the distinguished Neoplatonic philoso-

pher Porphyry, the pupil of Plotinus, and then Porphyry himself. We are left quite uncertain as to where these contacts took place, but we must presume in Rome, at some time in the 270s or 280s, when Porphyry had reconstituted Plotinus's school. If that is so—and it is plain that Iamblichus knew Porphyry's work well, even though he was far from a faithful follower—then it seems probable that he left Porphyry's circle long before the latter's death, and returned to his native Syria (probably in the 290s) to set up his own school, not to his home town, but rather to the city of Apamea, already famous in philosophical circles as the home of the Neopythagorean Numenius. There he presided over a circle of pupils, including a local grandee, Sopater, who seems to have supported him materially, and as long as Licinius ruled in the East, the school flourished. After the triumph of Constantine, however, the writing had to be on the wall for such an overtly Hellenic and theurgically-inclined group, and on Iamblichus's death in the early 320s the school broke up; his senior pupil Aedesius moved to Pergamum, where the Iamblichean tradition was carried on quietly for another generation or so.

Iamblichus was a prolific author. Unfortunately, with the exception of *Reply to the Letter of Porphyry to Anebo* (popularly known, since the Renaissance, as *On the Mys-*

teries of the Egyptians), only his more elementary works survive intact. Chief among these is a sequence of nine, or possibly ten, works in which he presented a comprehensive introduction to Pythagorean philosophy. Of these, the first four are still in existence, beginning with a *Bios Pythagorikos*. This work is not simply a *life of Pythagoras*, but rather an account of the Pythagorean way of life, with a biography of Pythagoras woven into it. It was followed by *Exhortation to Philosophy*, the treatise *On the General Science of Mathematics*, and a commentary on the *Introduction to Arithmetic*, the second-century Neopythagorean Nicomachus of Gerasa. The doxographical portion of a treatise *On the Soul*, and extracts from a series of philosophical letters also survive in the *Anthology* of John of Stobi.

Other than those, however, we have considerable evidence of commentaries on works of both Plato and Aristotle, fragments of which survive (mainly) in the later commentaries of Proclus. Most notable among these are commentaries on the *Alcibiades*, *Phaedrus*, *Timaeus*, and *Parmenides* of Plato, and the *Categories* of Aristotle (this latter preserved extensively by Simplicius). He is also on record as having composed a commentary on the *Chaldaean Oracles*, and a Platonic Theology. The *Reply to the letter of Porphyry to Anebo* mentioned above is an odd production, in that it is a response to a polemical open letter by Porphyry attacking the practice and theory of theurgy, which Iamblichus, taking on the persona of a senior Egyptian priest, Abammon, elects to defend.

PHILOSOPHY

Iamblichus's system of philosophy is essentially an elaboration of Plotinus's Platonism, though strongly influenced by Neopythagorean writings and the *Chaldaean Oracles*. He accepts the triadic system of principles, the One, Intellect and Soul, but he introduces elaborations at every turn.

First of all, in an attempt to resolve the contradiction between a One which is utterly transcendent but which also constitutes the first principle of all creation, he postulates a totally ineffable first Principle above a more positive One, which itself presides over a dyad of Limit and Unlimitedness. These in turn generate a third principle, the One-Existent (*hen on*), which constitutes a link with the next hypostasis, that of Intellect (*Nous*), whose highest element it also is. Inhering in the One-Existent, we may also discern a multiplicity of *henads*, which serve as unitary prefigurations of the system of Forms which are the contents of Intellect.

Intellect, meanwhile, also suffers elaborate subdivision in Iamblichus's system, first into a triad of three *moments* or aspects, Being, Life, and Intellect proper, and then into a series of three triads (again, of Being, Life, Intellect) arising out of each of these. He thus becomes the ancestor of the elaborate system of the later Athenian School of Syrianus and Proclus. The impulse for such elaborations seem to stem from a consciousness of the complexity of the spiritual world, and of the many levels of divinity which inhabit it.

Soul, likewise, is distinguished into Pure, or Unparticipated Soul, and Participated Soul, which is in a way the sum-total of individual souls. Some individual souls, likewise, transcend any contact with body, while others are destined to be embodied, and even these descend into body on various different terms.

Iamblichus, in his treatise *On the Soul*, sought to differentiate himself from his predecessors Plotinus and Porphyry, on the issue of the relation of the soul with what is above it, postulating a less direct contact with Intellect and the One, and a corresponding need of theurgy, or *sacramental* ritual, to secure personal salvation. He may thus be reasonably accused of making Platonism much more of a religion, a characteristic which endeared him in particular to the Emperor Julian, a generation after his death.

See also Neoplatonism; Plotinus; Porphyry; Proclus; Simplicius.

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IBN AL-ʿARABĪ
(1165–1240)

Muhyī al-Dīn Muhammad ibn ʿAlī, known as Ibn al-ʿArabī (or Ibn ʿArabī, without the definite article), was arguably the most influential philosopher of the second half of Islamic history. Born in Murcia in Muslim Spain in the year 1165, he left the west permanently in 1200, settled in Damascus in 1223, and died there in 1240. He is not normally classified as a philosopher (*faylasūf*) because he made no attempt to fall into line with the schools of thought that adopted Greek methodologies. Nonetheless, "love of wisdom" was central to his project, and he praised the high aspiration of "the divine Plato" and others who engaged in the philosophical quest. With extraordinary faithfulness to the sources of the Islamic tradition and unprecedented originality, he offered diverse interpretations of the fundamental issues of philosophical and theological thought. He was enormously prolific, yet maintained a consistently high level of discourse without repeating himself. He has typically been classified as a "Sufi" or a "mystic," but this simply means that he supplemented rational investigation with suprarational intuition, not that he avoided philosophical issues. His pervasive influence was not eclipsed until the collapse of Islamic institutions under the pressure of colonialism and modernity. Current renewed interest in his legacy throughout the Muslim world stems largely from the realization that the Enlightenment project has reached a dead end.

Henry Corbin (1969) suggests that Ibn al-ʿArabī's meeting during his teenage years with Averroes (d. 1198), the last of the great peripatetics, symbolizes the parting of the ways between Islamic and Christian civilizations. According to Ibn al-ʿArabī's account, his father had told Averroes that his son had been opened up to the invisible realms, and Averroes requested a meeting. He asked the boy if philosophical theory (*nazar*) reached the same conclusions as divine unveiling (*kashf*). Ibn al-ʿArabī replied, "Yes and no: Between the yes and the no, spirits fly from their matter and heads from their bodies" (*al-Futûhât al-makkiyya*, p. 154). In Corbin's reading, Ibn al-ʿArabī and subsequent Muslim philosophers preserved

the creative tension between the "yes," or the affirmation of the legitimacy of rational thought, and the "no," or the declaration of its inadequacy in face of the divine. In contrast, European thought, partly under the influence of Latin Averroism, lost the balance between reason and intuition and fell into deep dichotomies between philosophy and theology, science and religion, history and symbol, mind and heart.

Corbin considered Ibn al-ʿArabī's main theoretical contribution to lie in his stress on *khayâl*, "imagination" or "image," specifically the human faculty of creative imagination and the cosmic *mundus imaginalis*, the "imaginal"—not imaginary—world located between the sensible and intelligible realms. Though this world had been implicitly affirmed by Avicenna's cosmology, it was denied by Averroes. When Ibn al-ʿArabī reformulated Avicenna's thought in terms of imagination, the eventual result was a synthetic rather than analytic philosophical vision that stressed the essential unity of human beings and the cosmos.

Corbin, however, neglects a third and deeper meaning of the word *khayâl*. It also denotes the cosmos as a whole, the realm of contingency and becoming. While discussing the cosmos as image, Ibn al-ʿArabī offers unprecedented analyses of *wujûd*, "being" or "existence," the basic topic of the philosophers. He follows the Avicennan picture by classifying *wujûd* into two basic sorts—necessary (*wâjib*) and contingent (or possible, *mumkin*)—but he reminds us that the Arabic word *wujûd* also signifies consciousness, awareness, finding, ecstasy, and bliss; and he reformulates the whole discussion in terms of the Qurʾanic doctrine of divine names and attributes. The Necessary *Wujûd* is not only that which is and cannot not be, but also that which knows and cannot not know, lives and cannot not live, loves and cannot not love. To say that the cosmos is the realm of contingent *wujûd* means that it stands halfway between being and nothingness, awareness and unconsciousness, life and death, mercy and wrath. In the same way, the *mundus imaginalis* is the intermediate realm of cosmic becoming, situated between the luminosity of the angelic realm and the darkness of corporeality. As for the human self (*nafs*), it is the imagination of the microcosm, hanging between heaven and earth, spirit and body, intelligence and ignorance, virtue and vice.

In later times Ibn al-ʿArabī came to be known as the great expositor of *wahdat al-wujûd* or "the Oneness of Being," even though he and his immediate followers did not employ the expression (at least not in a technical sense). Ontology was unquestionably central to his proj-

ect, but so were epistemology, hermeneutics, theology, cosmology, spiritual psychology, ethics, and jurisprudence. He addressed all of the basic fields of human understanding, yet he was not attempting to provide an overarching system. Rather, he was adumbrating the major categories of human cognitive participation in the infinite and never-repeating disclosures of the Necessary *Wujûd*, disclosures that are none other than the imaginal realm known as the cosmos. He employs the mythic language of the Qurʾan to provide a broad framework for the stations of wisdom that designate the realms of human possibility, and he assures us that each of the 124,000 prophets sent by God embodies a distinct archetype of human perfection. His most famous book, *Fusûs al-hikam*, is arranged in terms of twenty-seven prophetic Logoi, each of which incarnates a specific divine attribute.

To provide some sense of the scope of his work, a few of the many themes that he discussed with unparalleled thoroughness and which then reverberated down through Islamic intellectual history will be outlined:

WISDOM AS REALIZATION

According to the Qurʾan, one of God's names is *haqq*, a word that designates reality, truth, appropriateness, rightness, right (as in "human rights"), and justice, along with the corresponding adjectives. From al-Kindī onwards, Muslim philosophers often defined their discipline in terms of this word. As al-Kindī put it at the beginning of his *Metaphysics*, "The philosophers' purpose in their knowledge is to hit upon the *haqq* and, in their practice, to practice according to the *haqq*" (*Rasâʾil al-Kindī al-falsafiyya*, p. 25) They took *haqq* in its purest sense as a designation for the Necessary *Wujûd* in itself, but they also recognized that it denotes the realm of contingency known as the cosmos, the truth that is to be grasped (right understanding), and the embodiment of truth in correct activity (ethics and virtue). To say that the cosmos is the realm of *haqq* means that human beings, like everything else, manifest truth, reality, and right in their essential nature.

In contrast to other things, however, human beings partake of enough freedom to affect the degree to which they understand and embody *haqq*, and it is this that necessitates praxis. The quest for wisdom is then called *tahqīq* (from the same root as *haqq*), that is, "realization"—literally "actualizing *haqq*." *Tahqīq* is contrasted with *taqlīd*, "imitation" of the beliefs and opinions of others. To be a sage demands far more than studying philosophy and memorizing the words of Aristotle and Avicenna. The real goal is to see *haqq* for oneself (*theôria* as vision) and to act in keeping with one's own impartial seeing. To the extent that people remain imitators, they are held back from their human substance. To the extent that they achieve realization, they participate in *haqq*, that is, the reality and consciousness of the Necessary *Wujûd*. The quest for wisdom remains intensely personal, for the cumulative theories of philosophers and scientists, not to speak of the conventional, imitative knowledge of society, are as nothing compared to the knowledge of self that only the self can achieve for itself.

THE COMPLEMENTARITY OF LOGIC AND MYSTICISM

Ibn al-ʿArabī's account of his encounter with Averroes highlights two terms, "theory" and "unveiling." The former designates the rational and discursive knowledge achieved by philosophers and theologians, the latter the suprarational intuition granted to mystics and visionaries. A good deal of Ibn al-ʿArabī's writing deals with the inadequacies of exclusive reliance on one or the other of these two modes of understanding. Theory he calls "the eye of reason," and unveiling "the eye of imagination." Both are located in the "heart" (*qalb*), which, in Islam as in China and other traditional contexts, is the seat of consciousness and selfhood. The quest for realization is the attempt to actualize the vision of both eyes and to achieve the harmonious marriage of logos and mythos, philosophy and poetry, science and art.

THE HARMONY OF THE ONE AND THE MANY

The eye of reason has the capacity to discern the individual reality—the essence or quiddity—of each thing. In contrast, the eye of imagination is able to perceive the actual presence of the Necessary *Wujûd* in all that exists. Reason acknowledges difference and recognizes its *haqq*—its reality, appropriateness, and rightness. It grasps that the Necessary *Wujûd* is utterly other than the cosmos and the existents (*mawjûdât*). In contrast, imagination perceives sameness and denies otherness. It finds the face of the Necessary *Wujûd* in every contingency. Theologically, this means that reason perceives God as distant and asserts his incomparability or transcendence (*tanzîh*); imagination sees God as present and asserts his similarity or immanence (*tashbîh*). Only the heart that sees simultaneously with both eyes can understand God, the universe, and the self as they truly are. The sage does not fall into the traps laid down by the principle of noncontradiction. Instead he grasps the exact manner in which all

things pertain to the imaginal realm of both/and, or neither/nor. According to Ibn al-ʿArabī's most succinct formulation of the actual state of affairs, the sage sees that everything in the cosmos is "He/not He" (*huwa lâ huwa*)—God/not God, being/nothingness, necessity/impossibility, consciousness/unawareness.

LANGUAGE AS THE DETERMINANT OF REALITY

We perceive only language, for at root nothing is accessible to us but the Logos, the self-expression of the Necessary *Wujûd* (called the "Active Intellect" by the peripatetic philosophers). According to the Qur'an, "When God desires a thing, He says to it 'Be!', and it comes to be." In Ibn al-ʿArabī's terms, what "comes to be" is the infinite words of God articulated in "the Breath of the All-Merciful" (*nafas al-rahmân*). God's mercy, his all-embracing bounty and kindness, is the Necessary *Wujûd* itself, which demands the existence of every possibility. Within the Breath, God voices all things as letters, words, and sentences, arranging them in three grand books: the cosmos, the human self, and revelation. All language, whether divine, cosmic, or human, pertains to the imaginal realm, for words are neither the speaker nor other than the speaker, neither the spoken nor other than the spoken. The key to deciphering the message inscribed in cosmos and self lies in prophetic revelation, which explicates the Logos in the language most accessible to human understanding.

THE CORRELATION BETWEEN MACROCOSM AND MICROCOSM

The Breath of the All-Merciful deploys itself as a hierarchy of being and consciousness on three basic levels: intelligence or spirit, imagination or soul, and corporeality. Each of these ontological levels is inhabited by appropriate entities (e.g., angels, jinn or psychic beings, inanimate objects). The sum total of the three levels along with the infinite proliferation of inhabitants is the cosmos. The cosmos is then called the "macrocosm" when contrasted with the human being as microcosm. What differentiates the human microcosm from all other creatures is its all-comprehensive image of the Necessary *Wujûd*. The macrocosm embraces all contingent beings in their distinctiveness, all the individual words uttered by the All-Merciful Breath. The microcosm combines all the characteristics of macrocosmic reality in a unified and focused whole that opens up inwardly in the direction of the undifferentiated Logos.

ANTHROPOCOSMIC TELEOLOGY

The cosmos can be looked upon as a static hierarchy, but Ibn al-ʿArabī more typically describes it in terms of the dynamism of its unfolding. We and all things come into existence from the One in a quasi-neoplatonic manner, but our existential concerns are determined by the path we follow in retracing our steps to the Origin. Given that consciousness and self-awareness are centralized in the human microcosm, the way back to the One—which is the Necessary *Wujûd*, the unity of Being, Consciousness, and Bliss—goes by way of the full realization of the human self as the immanent Logos. The purpose of human life is the recovery of the original unity of being and intelligence by way of self-understanding. But self-understanding cannot be achieved without understanding the cosmos and revelation, and none of these three grand books can be deciphered unless they are read with both eyes of the heart. The cosmic subjectivity of the human state is so central that it provides the raison d'être for the existence of the world. Human beings—or rather, those whom Ibn al-ʿArabī calls "perfect human beings" (*al-insân al-kâmil*)—are the final cause of the contingent realm. In them alone are realized God's words as related by Muhammad in the famous saying, "I was a Hidden Treasure and I desired to be known, so I created the creatures that I might be known."

See also al-Kindī, Abū-Yūsuf Yaʿqūb ibn Isḥāq; Aristotle; Averroes; Averroism; Corbin, Henry; Enlightenment, Islamic; Imagination; Islamic Philosophy; Macrocosm and Microcosm; Mysticism, History of; Sufism.

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IBN BĀJJA
(d. 533 AH/1138 CE)

Abū-Bakr Muḥammad ibn Yaḥyā ibn al-Sāyigh ibn Bājja, the Islamic philosopher, was known to the medieval Scholastics as Avempace. He was born in Saragossa at the end of the fifth century AH, eleventh century CE, and died in Fez, Morocco, in 533 AH/1138 CE. During his brief life he endured the tribulations occasioned by the Christian "reconquest" of Andalusia. It is known that he wrote several commentaries on Aristotle's treatises and that he was very learned in medicine, mathematics, and astronomy. He was involved in the quarrel initiated by the Peripatetics, during which al-Bītrogī, whom the Scholastics called Alpetragius, distinguished himself. Ibn Bājja opposed his own hypotheses to Ptolemy's system.

Ibn Bājja's philosophical works have remained incomplete, notably the treatise that gained him his reputation, *Tadbīr al-motawaḥḥid* (The rule of the solitary). For a considerable length of time this treatise was known only through a detailed analysis of it in Hebrew by Moses of Narbonne (fourteenth century) in his commentary on the *Ḥayy ibn Yaqẓān* of Ibn Ṭufayl, the pupil of Ibn Bājja. Salomon Munk based his account of Ibn Bājja on this analysis. The Arabic original (now in the Bodleian Library at Oxford) was rediscovered by Miguel Asin Palacios.

The work's central theme is that of an *itinerarium* leading the man-spirit to unite itself with the Active Intellect (ʿAql faʿʿal, Intellegentia agens). He who speaks of a "rule" or "discipline" assumes a mode of life regulated by actions demanding reflection, and this can be found only in the solitary man. This is why the solitary man's discipline should be the model for a member of the perfect City and the ideal State. The ideal State, it must be noted, is not the result of a priori conceptions, nor can it come into being by a political coup d'état; much more than a mere "social" reform, it is the fruit of a reform of customs that seeks to realize the fullness of human existence in each individual. For the time being, the solitary individuals live in imperfect states, with neither judge nor doctor except God. Their task is to become members of the perfect City. In order to found the regime of these individuals it is necessary at first to analyze and classify human actions, using the forms that they strive to fulfill as the point of departure.

For this reason the treatise is presented essentially as a "theory of spiritual forms," a sketch of the phenomenology of the spirit. The spirit progressively evolves from forms engaged in matter to forms that have been abstracted from it. Having then become intelligible in act, these forms thereby attain the level of intellect in act, reaching the level of pure spiritual forms, those forms that, inasmuch as they exist for the Active Intellect, have not had to pass from power to act.

Ibn Bājja imposed upon Islamic philosophy in Spain a completely different orientation than did Mohammad al-Ghazali. The motives of the solitary individual, of the stranger, and of the *allogène,* however, merge with the motives typical of the mystical gnosis in Islam. The same type of spiritual man is realized in these individuals, although their perception of the common goal differs and thereby the choice that determines their course. One of these courses in Spain was that of Ibn Masarra, which was continued by Ibn al-Arabi. Another was that of Ibn Bājja, later continued by Averroes.

See also al-Ghazālī, Muhammad; Averroes; Ibn al-ʿArabī; Ibn Ṭufayl; Islamic Philosophy; Logic, History of: Logic in the Islamic World; Peripatetics.

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Henry Corbin (1967)

IBN BĀJJA [ADDENDUM]

One of the unusual aspects of Ibn Bājja's political philosophy is the doctrine that in imperfect societies the philosopher has the status of weeds or *nawabit*. In a society governed by reason, the representatives of reason—the philosophers—find an important place. They are important people in the state because the state requires them to help it pursue the most rational course. But where the state is not governed by reason and instead by some less perfect rationale, philosophers will find themselves out of favor; they will be regarded as useless—like weeds—and possibly even dangerous to the state itself. The only happiness that philsophers will be able to establish for themselves is a private happiness because they will not be able to use publicly their knowledge of how the state ought to be run. Ibn Bājja's remarks on this topic are poignant, bringing out nicely the alienation experienced by intellectuals in a culture where their views are disregarded.

See also Islamic Philosophy.

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Oliver Leaman (2005)

IBN GABIROL, SOLOMON BEN JUDAH
(c. 1021–1058 or 1070)

Solomon ben Judah ibn Gabirol was first mentioned by Sāʿd the Qadi of Toledo (c. 1029–1070), who claimed that ibn Gabirol lived in Saragossa, was a keen student of philosophy, especially logic, and died sometime around 1058 CE, after he had passed the age of thirty. The Andalusian Jewish poet Moses ibn Ezra (c. 1060–1139) claimed that ibn Gabirol was born in Malaga and reared in Saragossa and spent a short but fruitful life in the service of philosophy and poetry. The Jewish philosopher Abraham ibn Daud (c. 1110–1180) said that ibn Gabirol died in 1070, but 1058 is more generally accepted.

The tone of some of Ibn Gabirol's secular songs, gloomy and bitter, is sometimes considered an indication of his unhappy lot—orphaned at an early age, poor, and ostracized by many of his contemporaries because of his irascible disposition and unorthodox philosophy. He did find some favor with Yequtiel ben Ishaq ibn Hasan, a veritable Maecenas, at the court in Saragossa, and later with his patron, Samuel ibn Nagrella, at the court of Zirid in Granada. Most, if not all, of this patronage seems to have resulted from his reputation as the greatest Jewish poet of his time in the West.

There are some 400 extant secular and religious poems attributed to ibn Gabirol. One, *The Kingly Crown,* has become a part of the Sephardic Jewish liturgy for the Day of Atonement. Its rhythmical, rhymed simplicity gives it a distinct biblical flavor. In this poem of forty stanzas, ibn Gabirol celebrated the divine attributes, the last of which is Will, so prominent in his philosophical work *The Fountain of Life,* and the wonders of creation, reminiscent of an Aristotelian-Ptolemaic worldview. He concluded with an Augustinian self-analysis, marked by confession, penitence, and supplication.

In addition to his work in poetry, an anthology of ethical and sapiential sayings, *Choice of Pearls,* is attributed to him, but its authenticity is doubted by some.

Ibn Gabirol's *The Improvement of the Moral Qualities* exists in one known Arabic text and four Hebrew versions, as well as in translations into other languages. The ethical aspect of Ibn Gabirol's philosophy is interesting because it appears to be an early, if not the first, attempt to systematize the basic principles of medieval Jewish ethics independently of religious dogma, ritual, or belief. The impulses of the human soul and how they can be trained to virtue or permitted to fall into vice are explained in relation to the five external senses, which are in turn explained by the four-element, or simple-body, theory of Aristotle. Stephen S. Wise claimed that "Gabirol's object is to establish a system of purely physio-psychological ethics." Certainly it is true that his interest was mainly in the animal rather than the rational soul. He emphasized the virtuous order that can be achieved in the external senses under the direction of the rational soul. In his treatment of the virtues and vices, Ibn Gabirol did refer to biblical writings, but in a superficial and summary way, as a support of his own allegorical-poetic viewpoint.

It was not until nearly the end of the first half of the nineteenth century that Salomon Munk showed conclusively that ibn Gabirol, the great Jewish poet, was the same man as Avicebron, the recognized author of *The Fountain of Life.* An examination of the abstracts translated into Hebrew from the original Arabic by Shem Tob

Falaquera in the thirteenth century and attributed to ibn Gabirol showed substantial agreement with related passages of the *Fons Vitae* attributed to Avicebron by the twelfth-century translators John of Spain (Ibn Daud, Avendehut) and Dominic Gundissalin. In the text of *The Fountain of Life* are found references to two other works by ibn Gabirol, "The Treatise on *Esse*," Book 5.8, and the book of the Will, which is titled "*Origo Largitatis et Causa Essendi*," Book 5.40. Unfortunately, these works cannot be found or identified. They may constitute, with *The Fountain*, the three parts of Wisdom: knowledge of matter and form (*The Fountain*), knowledge of Will (*The Origo*), and knowledge of the First Essence (*De Esse*). *The Fountain* is like the ethical work in its purely rational approach but differs in its complete lack of references to the Bible, the Talmud, or the Midrash. It is a treatise in the strict philosophical area of Neoplatonism as related to an eleventh-century Jewish mind. In it we find a Neoplatonic universe dependent on the Will of the First Author, supreme and holy.

The Fountain of Life, though composed in a dialogue form involving master and pupil, has none of the beauty and charm of the dramatic dialogues of Plato, the only other person mentioned by name in the work. The pupil seems to be a fictitious straight man, asking the proper questions at the proper time and giving a verbal nod of the head when appropriate. The opening section tells us that the discussion concerns the first part of Wisdom, the science of universal matter and universal form. Because of the nature of the topics involved, the work falls neatly into five parts:

(1) What we must presuppose in order to assign universal matter and form and predicate them of composite substances.

(2) The substance upholding the corporeity of the world.

(3) The acceptance of simple substances, such as the separated intelligences (i.e., angels).

(4) The science of understanding matter and form in simple substances.

(5) Universal matter and universal form in themselves.

The general method followed in this dialectical investigation is a search for the nature and existence of certain properties, which when found reveal the existence of the being that has these properties. In things we find there is something that "exists in itself," "is of one nature," is the "vehicle of diversity," and "gives everything its essence and name." These are the properties of universal matter. If one abstracts every sensible and intelligible form from things, the remainder is the common denominator called universal matter. Universal form is found "to subsist in another," "to perfect the essence of that in which it is," and "to give it being." By inspecting universal and particular sensible things, one finds four grades of matter and form: artificial-particular matter and its appropriate form, natural-particular matter (the matter of art products) and its form, natural-universal matter and its form, and celestial matter (the matter of the simple intelligences) and its form. Hence, there are common denominators for both matter and form: universal matter and universal form.

Every reality, except the First Essence, when viewed with its form is called a substance; when one conceives of something as receptive of form, then it is called matter, or hyle. Sensible forms require an extended substrate or body. The corporeal body is formed out of matter (which is itself incorporeal) and the corporeity-form, quantity. The first and simplest form and the highest matter are those that when united constitute the Intelligence. The Intelligence is the highest existence next to the First Essence. Below this are the rest of the hylomorphically composed souls—rational, sensitive, and vegetative—and then nature, the foundation of all inorganic things. Nature serves as the matter for the corporeity-form, quantity; the resulting substance is the matter of sensible qualities, like color.

One might say that Ibn Gabirol's universal hylomorphism represents an intermediate between the universal formlessness of Augustine and the later Franciscan variations. There are many differences from, as well as similarities to, scholastic thought, but the influence of Jewish religious ideas provides a basis for creation in his Neoplatonic universe. It seems that the Neoplatonic element in his thinking led ibn Gabirol to consider the origin of all things as a necessary emanation from the First Author. But the Jewish element may have rebelled against this, as a necessary emanation would be in conflict with the absolute transcendence of God. The solution results in an intuitive view of the relation of all things to the First Author. This relation is necessary because matter is an expression of the essence of God, who is himself necessary. However, the dynamism of the Will of God leads to the need for a variety of forms that are initiated by God. Hence, the relation is voluntary and therefore free. In *The Fountain of Life* we have at times a strange mixture of Jewish religious ideas, Arabian Aristotelianism, and Alexandrine Neoplatonism, though we cannot be

absolutely sure of the source of the ingredients because of the absence of definite historical information.

Solomon ibn Gabirol's direct influence in philosophy seems to have been confined to certain Franciscans of the Augustinian tradition in the thirteenth and fourteenth centuries. They thought that ibn Gabirol's universal hylomorphism supplied them with a suitable philosophical way of expressing the difference between creatures and God. The universal principle of limitation—namely, matter—becomes spiritual matter in all other creatures.

See also Aristotle; Augustine, St.; Jewish Philosophy; Matter; Neoplatonism; Plato.

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Theodore E. James (1967)
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IBN KHALDŪN
(1332–1406)

Ab-Ar-Rahman ibn Khaldūn, the Muslim statesman, historian, philosopher of history, sociologist, and political thinker of the fourteenth century, is probably the greatest creative genius produced by Muslim civilization. To Arnold Toynbee, Ibn Khaldūn's philosophy of history "is undoubtedly the greatest work of its kind that has ever yet been created by any mind in any time or place."

Ibn Khaldūn was born in Tunis into a family of southern Arabian origin that had immigrated to Andalusia in the eighth century. With the decline of Muslim rule in Spain the family immigrated to northwest Africa, establishing itself first in Morocco and then in Tunisia. Muslim emigrants from Spain constituted an aristocracy in the Maghreb, and the Khaldūn family won fame in scholarship and statesmanship.

Ibn Khaldūn surpassed the achievements of all the members of his family. Brought up in the traditional religious sciences and the philosophical-rational sciences that formed the two major streams of Islamic culture, he studied the Qur'an, Arabic, traditions, jurisprudence, logic, and philosophy under several of the best scholars of his time and studied, taught, and occupied high positions in Tunis, Algeria, Morocco, southern Spain, and Egypt.

Medieval Muslim rulers were eager to enlist scholars either for government service or for the prestige that goes with their presence in the court. Ibn Khaldūn enjoyed all the privileges of princely positions and suffered the odds of their fluctuations in medieval courts. He shared in the political maneuvers and conspiracies that accompanied the rise and fall of different rulers, and in trying periods, when he was in prison or was forced into exile, he devoted himself to the study of power and meditated on its historic laws and social dynamics.

Ibn Khaldūn's greatest work, *Al-Muqaddimah* (The prolegomena), was the first of seven volumes of his universal history of the Arabs and Berbers, *Kitab al-'Ibar.*

Although the last two volumes are of special value to historians as the best source for the history of northwest Africa, especially for the history of the Berbers, the introduction that outlines ibn Khaldūn's philosophy of history overshadowed the narrative. The philosophic originality of this introduction was so great that ibn Khaldūn became known as the author of *Al-Muqaddimah.*

Prior to ibn Khaldūn, Muslim philosophers had concerned themselves with the reconciliation of Qurʾanic truth and rational truth, but this had led to an assimilation of Greek rationalism by Muslim theology rather than to the emergence of Muslim rationalism. The concern with religion and philosophy penetrated all Muslim disciplines—law, history, and the like. By the fourteenth century this method, which had its religious origins in the Qurʾan and the traditions of the Prophet and its philosophic origins in Greek rationalism, had reached its height.

Ibn Khaldūn was an accomplished student of Muslim learning, but witnessing the decline of Muslim power and metaphysics, he decided to seek the concrete causes of this decline. History rather than metaphysics gave the answers to his questions about the changes in Islam's fortunes.

Ibn Khaldūn sought not only historic truth but history as the way to truth. The Preface of his *Muqaddimah* reveals him to be a forerunner of all modern historicists. His Muslim predecessors had narrated the train of historic events; as he said, they saw history on the surface as no more "than information about political events. … They over-looked its inner meaning," which "involves speculation and an attempt to get at the truth, subtle explanation of the causes and origins of existing things, and deep knowledge of the how and why of events." For Ibn Khaldūn history is therefore firmly rooted in philosophy and deserves to be accounted a branch of philosophy.

Traditional Muslim theologians, who were best represented by Mohammad al-Ghazālī, rejected the Aristotelian notion of natural causality. They conceived of God as the first and only cause of all that is. Ibn Khaldūn, as a Muslim believer, agreed with their ontology but introduced natural causality into history. Reason can see historic causes, not ontological causes. God in revelation is the teacher of ontological causes. Reason can grasp the limited phenomenon, but revelation introduces the limitless.

Ibn Khaldūn's concern with historic methodology led him to historicism. For historic accuracy Muslim historiography had relied on the criticism of the sources. It elaborated on the method of *hadith,* the study of the traditions and sayings of the Prophet. Ibn Khaldūn criticized this method and called for philosophical and rational methodology. The test of the accuracy of an event is not the reliability of the source but its conformity to the natural character or the natural law that the event should manifest.

To attain accuracy, the historian should therefore be a student of sociological and political causes and laws. He ought to be a philosopher of history.

> [If the historian] trusts historical information in its plain transmitted form and has no clear knowledge of the principles resulting from custom, the fundamental facts of politics, the nature of civilization, or the conditions governing social organization, and if, further-more, he does not evaluate remote or ancient material through comparison with near or contemporary material, he often cannot avoid … deviating from the high road of truth.

Ibn Khaldūn called this introductory science to the study of history the science of ʿumran, or the science of civilization, and claimed to be its originator.

Civilization is the beginning and end of social development and political organization. Man is born naturally sociable. Society rises through man's ability to cooperate with other men for the satisfaction of his natural needs. Countrymen or nomads in primitive or tribal societies seek the satisfaction of their elementary need for food; townsmen in urban and more complex societies pursue higher economic, intellectual, and spiritual needs. Political organization, or the state, arises from individual and social needs for restraint, arbitrage, defense, and prosperity.

Asabyia, or group feeling, is the way to achieve leadership, enforce authority, and expand. Political organization or statehood leads to power and prosperity. The state is the form of civilization.

Arts and sciences can prosper only within a state. Resulting luxury is conducive to social and political disintegration. Like individual human beings, all societies, states, and civilizations go through cyclical states of emergence, growth, and decay. Civilizations, however, live longer than states, for the cultural faculties acquired by individuals and societies enable civilizations to survive political disintegration. The systematic formulation of this organistic theory of civilization is full of original observations about the influence of climate on social organization, the forms of society, the economic forces, the relation between labor and value, the psychological, social, and economic foundations of power, the forms of the state, the relation of state and religion, the role of edu-

cation in society, the interdependence of prosperity and culture, and many other subjects.

Because these observations were formulated as natural laws, Ibn Khaldūn has been studied not only as a philosopher of history but also as a sociologist, political thinker, economist, educator, epistemologist, and historian of Muslim sciences. Guided by their own disciplines or convictions, different scholars have proclaimed him a forerunner of Niccolo Machiavelli, Giambattista Vico, Baron de Montesquieu, G. W. F. Hegel, Charles Darwin, Herbert Spencer, Karl Marx, Toynbee, and others. In his methodology and style Ibn Khaldūn is more a modernist than a medievalist. This partially explains his limited influence in medieval times and growing influence in modern times.

Al-Muqaddimah was written at a time when translation from Arabic into Latin had waned. Rediscovered by modern scholars and orientalists in the nineteenth century, excerpts of the book have been translated into French, German, Italian, English, and Japanese.

Ibn Khaldūn has also been rediscovered by modern Muslim and Arab authors. More books in Arabic have been written about him than about any other medieval Muslim thinker. He has influenced historic, sociological, and political writings.

See also al-Ghazālī, Muhammad; Culture and Civilization; Darwin, Charles Robert; Hegel, Georg Wilhelm Friedrich; Historicism; Islamic Philosophy; Logic, History of: Logic in the Islamic World; Machiavelli, Niccolò; Marx, Karl; Montesquieu, Baron de; Philosophy of History; Toynbee, Arnold Joseph; Vico, Giambattista.

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Most of the biographical data covering Ibn Khaldūn's long and interesting career can be found in his autobiography, *At-Tarif bi-ibn Khaldoun wa rihlatuhu gharban wa-Sharqan,* translated by Muḥammad Tawit at-Tanji as *Biography of ibn Khaldoun and Report on His Travels in the West and in the East* (Cairo, 1951).

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Hassan Saab (1967)

IBN KHALDŪN [ADDENDUM]

Although most attention has been paid to Ibn Khaldūn's writings on history and society, he made an important contribution to other aspects of Islamic thought. He played a role in the extensive debate over Sufism, and defended its position in Islamic culture, provided that it adhered to the proprieties of religious law. The idea of coming to mystical knowledge by abandoning Islamic law and practices is a constant source of attack by Ibn Khaldūn; he emphasizes the role of the *shaykh*, or spiritual guide, and the place of mysticism within an orthodox understanding of Islam. He was also rather critical of many of the ambitious claims of the philosophers who thought that they could acquire knowledge of the most important features of reality by using reason alone.

Ibn Khaldūn is certainly no enemy of reason, but he argues that it operates within limits, and that religion is required for acquiring deeper knowledge than reason can provide. Similarly, when it comes to political philosophy, he criticizes the highly theoretical approaches of the philosophers who talk about the constitution of the ideal state as though this is something that could be established by reason and nothing else. The state cannot, he argues, be divorced from its history and social structure, and religion has to play a crucial role in its organization and goals. Although his ideas are heavily influenced by the philosophical concepts and arguments current at his time, Ibn Khaldūn was consistently skeptical of the ability of philosophy to reveal much of interest in either political or religious theory.

See also Islamic Philosophy.

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IBN PAQUDA, BAḤYA BEN JOSEPH

See *Baḥya ben Joseph ibn Paquda*

IBN RUSHD

See *Averroes*

IBN SĪNĀ

See *Avicenna*

IBN ṬUFAYL
(d. 580 AH/1185 CE)

Abū Bakr Muḥammad ibn ʿAbd al-Malik ibn Ṭufayl, the Islamic philosopher, was known to medieval Scholastics as Abubacer. Few details are known about the life of Ibn Ṭufayl, who was born at Guadix in the province of Granada and died in Morocco. Like all his colleagues, he was a scholar whose knowledge was encyclopedic; he was a mathematician, astronomer, philosopher, and poet. He served as vizier for and was a friend of the Almohad sovereign Abū Yaʿqūb Yūsuf, and it was he who recommended that his friend Averroes be assigned the task of analyzing the works of Aristotle. Ibn Ṭufayl became known to medieval Scholastics (Abū Bakr having become Abubacer) through Averroes's translation of *De Anima*, which contained a brief criticism of Ibn Ṭufayl's doctrine identifying the possible (or passive) intellect with the imagination.

It was, however, because of his "philosophical novel," *Ḥayy ibn Yaqẓān,* a work that remained unknown to the Scholastics, that Ibn Ṭufayl later gained fame. It is worth noting that in the same era in the East Shihāb al-Dīn Yaḥyā Suhrawardī composed his own tales of symbolic initiations, in which he introduced, by extending the cycle of Avicennian tales, the "oriental philosophy" that Avicenna had already opposed to Peripatetic philosophy, but with only partial success. Ibn Ṭufayl referred to the Avicennian tales in the prologue to his philosophical novel, because he knew that the secret of Avicenna's "oriental philosophy" was partially contained therein.

Ibn Ṭufayl's work, however, is completely original and not in the least a mere amplification of an Avicennian tale. All it owes to Avicenna are the names of the *dramatis personae*: Ḥayy ibn Yaqẓān (*Vivens filius Vigilantis*), and Salamān and Absāl (a spelling certainly preferable to the mutilated form "Asāl," which figures in certain manuscripts).

In the works of Avicenna the name Ḥayy ibn Yaqẓān typified the Active Intellect, the central figure of Islamic Neoplatonism, simultaneously angel of knowledge and angel of revelation (the Holy Ghost and the angel Gabriel). For Ibn Ṭufayl this name is also that of the absolute hermit, mysteriously abandoned or spontaneously born on a desert island; in the absence of any human master and of all social falsification, the hermit becomes the perfect Sage. The superior pedagogy of the Active Intellect alone develops in him its natural faculties through a slow, rhythmic process evolving over the years. On a neighboring, inhabited island live two friends, Salamān, who typifies the practical and social spirit, and Absāl, contemplative and mystical, who lives like one in exile in his own country and finally decides to immigrate to the hermit's island, where he meets Ḥayy ibn Yaqẓān. In the course of their long conversations Absāl discovers that all that had been taught to him in matters of religion Ḥayy ibn Yaqẓān, the solitary, philosophical wise man, already knows, but in a purer form. Absāl discovers that religion is the *symbol* of a truth otherwise inaccessible to the common run of men. Together they attempt to deliver their spiritual message to the men on the island opposite them. Alas! in the face of the growing hostility that they encounter, they must accept an inescapable truth: The ordinary man is not able to understand.

Ibn Ṭufayl's novel is not an anticipation of Robinson Crusoe; each external episode must be understood on a spiritual level. On the other hand, in spite of its pes-

simistic ending it should not be concluded that the conflict Ibn Ṭufayl set forth (that between religion and philosophy) attained desperate proportions in the Muslim faith. In fact, another position and solution to the problem are sought in the "prophetic philosophy" of Shi'ism.

See also Aristotle; Averroes; Avicenna; Imagination; Islamic Philosophy; Logic, History of: Logic in the Islamic World; Peripatetics; Suhrawardī, Shihāb al-Dīn Yaḥyā.

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Henry Corbin (1967)

IBN ṬUFAYL [ADDENDUM]

There is indeed a rather pessimistic strand in Ibn Ṭufayl's philosophical novel. When Ḥayy travels to Absāl's island the former is an instant celebrity, but he discovers that the inhabitants are not interested in really coming close to the truth; they are only prepared to adhere to the symbols of their religion and have no interest in peering behind those symbols at the deeper truth they represent. When Ḥayy investigates the rules of religion he finds a good deal of discussion on matters for which he has no time at all, issues about money and possessions and other material topics. Ḥayy and Absāl eventually give up and return to Ḥayy's island where they can live in seclusion and avoid the infelicities of social life among a population unconcerned about spiritual truth. The implication is that religions such as Islam are built on solid principles, but most of their adherents never appreciate the nature of these principles—they remain at a more superficial level of understanding and merely carry out the rituals of the religion without investigating their roots. Ibn Ṭufayl's version of the story of Ḥayy ibn Yaqẓān is much more radical than that of his predecessor Ibn Sīnā, who hinted at the role of mystical knowledge but did not explicate its centrality in religion. Ibn Sīnā is guarded throughout his account, using allusion rather than direct argument to make his points. Ibn Ṭufayl writes with boldness and clar-

ity and does not hesitate to present his highly critical analysis of traditional religion as it is normally understood.

See also Islamic Philosophy.

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Oliver Leaman (2005)

IBN ZADDIK, JOSEPH BEN JACOB
(d. 1149)

Joseph ben Jacob ibn Zaddik, like other Jewish philosophers of a Neoplatonic cast, such as Yehuda Halevi and Abraham ibn Ezra, was a poet as well as a philosopher and legist. Very few of his poems survive, and although he was highly praised as a Talmudist and served for the last eleven years of his life (1138–1149) as judge (*dayyan*) of the Jewish community of Córdoba, he does not seem to have written any systematic legal work. His philosophic work, on which his chief reputation rests, was originally written in Arabic, but the original no longer survives; a Hebrew translation, under the title *Olam Katon* (The Microcosm), was circulated in manuscript during the Middle Ages but was not printed until the mid-nineteenth century.

The general thesis of Joseph ibn Zaddik's work is that since man's nature duplicates in reduced form the nature of the universe, knowledge of the self provides a key to all knowledge. It is unnecessary to study the special sciences. The study of man, the microcosm, will lead to the understanding of the universe, the macrocosm.

Ibn Zaddik's *Olam Katon,* in fulfillment of this program, develops in its first part a metaphysical basis for the theory of man as the microcosm. Here the author showed acquaintance with both the Platonic and the Aristotelian traditions in the form in which they were maintained by

Muslim philosophers. The second part of the work discusses both the physical and the psychological natures of man; it asserts a point-for-point correspondence between human nature and the physics of the universe. In the third part Ibn Zaddik turned to theological questions, particularly the question of divine unity. His theological discussion includes a proof of creation from the finiteness of the world: Where there is creation, there must be a Creator; hence God exists. The philosopher was aware of the difficulties presented by a naive doctrine of divine attributes and resolved these difficulties by denying to the attributes a positive character. The fourth and final division of the work, continuing the pattern established by the Muslim philosophers, is devoted to God's justice and the implications of the divine government of the universe for man's duties. Ibn Zaddik was firmly committed to a belief in human free will; he believed that a man must use his freedom to imitate the goodness of God and to seek knowledge of him. Success or failure in so doing leads to reward or punishment in the future life, but apparent rewards and punishments in this world are merely natural happenings and should not be understood as indications of divine favor or disfavor.

See also Aristotelianism; Determinism and Freedom; Halevi, Yehuda; Jewish Philosophy; Macrocosm and Microcosm; Platonism and the Platonic Tradition.

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IDEALISM

"Idealism" in its philosophical sense, is the view that mind and spiritual values are fundamental in the world as a whole. Thus, idealism is opposed to naturalism, that is, to the view that mind and spiritual values have emerged from or are reducible to material things and processes. Philosophical idealism is also opposed to realism and is thus the denial of the commonsense realist view that material things exist independently of being perceived.

Some philosophers who have held the idealist view in its antinaturalist form have not opposed commonsense realism, and thus it is possible to be a metaphysical idealist and an epistemological realist. More often, however, arguments against commonsense realism have been used in order to establish metaphysical idealism. The description "subjective idealism" is sometimes used for idealism based on antirealist epistemological arguments, and the description "objective idealism" for idealism that is antinaturalist without being antirealist.

In terms of these definitions, philosophical theism is an idealist view, for according to theism God is a perfect, uncreated spirit who has created everything else and is hence more fundamental in the world than any material things he has created. Marxist philosophers have therefore held that there are in principle only two main philosophical systems: idealism, according to which mind or spirit is primary in the universe, and materialism, according to which matter is primary in the universe. If "primary" is taken not to mean "earlier in time" but rather to mean "fundamental" or "basic," then these Marxist definitions agree with those given above. The only objection to them is that many philosophers who accept theism would be unwilling to be labeled idealists, since they would take the view that idealists belittle the material world and regard it as illusory by comparison with mind or even as less real than mind, whereas theists do not belittle matter or regard it as in any way less real than mind. Certainly this is a difference between theism and some forms of idealism, but there is force in the argument that theism and both subjective and objective idealism may be classed together as opposed to materialism. Pantheism may be regarded as a more thoroughly idealist view than theism, since pantheism is the view that nothing exists except God and his modes and attributes, so that the material world must be an aspect or appearance of God. Theism, in contrast, is the view that God has created a world beyond or outside himself so that the material world, although dependent on him, is not an aspect or appearance of him. What unites idealism both with theism and with pantheism is the rejection of materialism and the assertion of a metaphysic that is favorable to religious belief.

HISTORY AND ORIGIN OF THE TERM

The word *idealism* came to be used as a philosophical term in the eighteenth century. Gottfried Wilhelm Leibniz, in his *Réponse aux réflexions de Bayle* (written 1702; published in *Philosophischen Schriften*, edited by C. I. Gerhardt, 7 vols. Berlin, 1875–1890), criticized "those

who like Epicurus and [Thomas] Hobbes, believe that the soul is material" and held that in his own system "whatever of good there is in the hypotheses of Epicurus and of Plato, of the greatest materialists and the greatest idealists, is combined here" (Vol. IV, pp. 559–560). In this passage Leibniz clearly means by "idealists" philosophers who uphold an antimaterialist metaphysic like that of Plato and himself. When, later in the century, George Berkeley's views came to be discussed, the word *idealism* was applied, however, to the view that nothing could be known to exist or did exist except the ideas in the mind of the percipient. (Berkeley called his own view "immaterialism," not "idealism.") Thus, Christian Wolff (1679–1754), a follower of Leibniz, included idealists, along with materialists and skeptics, among "three bad sects" that he reprobated, and Denis Diderot (1713–1784) wrote in 1749: "We call *idealists* those philosophers who, knowing only their own existence and that of the sensations that follow one another within them, do not grant anything else" (*Lettre sur les aveugles*, London, 1749). The term *egoists* was also applied to holders of this view, as can be seen from the article titled "Égoistes" in the *Encyclopédie*, edited by Jean Le Rond d'Alembert and Diderot, which started publication in 1750. Today the word *solipsists* is applied to what were then called "egoists" or "idealists." In the *Critique of Pure Reason* (Riga, 1781) Immanuel Kant referred to his own view as "transcendental idealism," and in his *Prolegomena to any Future Metaphysics* (Riga, 1783) he called it "critical idealism." Thus, by this time the word *idealism* was beginning to lose the pejorative meaning that had linked it with extreme subjectivism.

The word *idealism* is derived from the Greek word *ιδέα*, which simply means something seen, or the look of something. Plato used the word as a technical term of his philosophy to mean a universal (such as whiteness) in contrast to a particular (such as something white) or to mean an ideal limit or standard (such as absolute Beauty) in contrast to the things that approximate or conform to it (such as the more or less beautiful things). According to Plato an Idea, or Form, is apprehended by the intellect, does not exist in time, and cannot come into existence or cease to exist as temporal things do and is hence more real than they are. In medieval philosophy Ideas or Forms were regarded as the patterns in accordance with which God conceived of things and created them, and hence they were thought of as existing in the mind of God. René Descartes used the word *idea* for thoughts existing in the human mind, sometimes retaining, however, the intellectual and objective character of ideas as understood in the Platonic tradition. But he also used the word *idea* for the effects in embodied minds of external objects acting on

the sense organs, and hence the word came to stand for changing sense perceptions as well as for unchanging objects of the intellect. Descartes also used the word *idea* for a shape or form stamped upon a soft material, as when he said in Section XII of his *Rules for the Direction of the Mind* (1628) that "shapes or ideas" are formed *in the brain* by things outside the body acting upon it. John Locke, in *An Essay concerning Human Understanding* (London, 1690), used the word *idea* for perceptions of "sensible qualities" conveyed into the mind by the senses and for "the perception of the operations of our own mind within us, as it is employed about the ideas it has got" (Bk. II, Ch. I, Sec. 4). The mind, he held, "stirs not one jot beyond those ideas which *sense* or *reflection* have offered for its contemplation" (ibid., Sec. 24). Berkeley adopted Locke's terminology and held that by our senses "we have the knowledge *only of our sensations*, ideas, or those things that are immediately perceived by sense" (*Principles of Human Knowledge*, Dublin, 1710, Sec. XVIII). Thus, Berkeley here repeats a view already held by Locke.

Thus, the word *idea* was used variously to mean a Form in the Platonic sense, a Form as apprehended in the mind of God or by the human mind, a shape impressed on soft, yielding material, and, apparently by analogy with this last sense, a modification produced in a mind by the influence on it of external things that affect the sense organs. Neither a Platonic Form nor a shape is a mental entity. "Operations of the mind" clearly are, and so would be the effects in minds of material objects that produce "impressions" in them. Ideas in this last sense would seem to be like mental images, but mental images produced not by imagining but by the operation of external objects. This variation in meanings can be seen in Berkeley's *A New Theory of Vision* (Dublin, 1709), where he writes (Sec. XLI): "a man born blind being made to see, would, at first, have no idea of distance by sight; the sun and stars, the remotest objects as well as the hearer, would all seem to be in his eye, or rather in his mind. The objects intromitted by sight, would seem to him (as in truth they are) no other than a new set of thoughts or sensations, each whereof is as near to him as the perceptions of pain or pleasure, or the most inward passions of his soul." It will be noticed that in his passage Berkeley comes close to assimilating "in his eye," a physical condition, to "in his mind," meant presumably to be a mental condition. Again, he puts "sensations" in apposition with "thoughts," although sensations and thoughts would seem to be as different as pains and concepts. There is also the suggestion that what is near to us is "in the mind," so that if colors and shapes are not, as they seem to be, at a distance

from us, they must be in our minds. The passage is an important one for indicating the conflicts and confusions involved in the word *idea* and carried over into some of the arguments for idealism.

IMMATERIALISM

Berkeley gave the name "immaterialism" to the central thesis of his philosophy, the thesis that there is no such thing as material substance. Immaterialism has been prominent in idealist theories just because to prove that there is no material substance would be the most effective and spectacular way of disproving materialism. If there is no material substance, then matter cannot be the basis of what is or all that there is. Immaterialism has been supported by two main lines of argument. Along one line it has been argued that it is impossible that matter could be independently real. The arguments to this effect may be called the metaphysical arguments for immaterialism. Along the other line it has been argued that the colors, shapes, and sounds that are naturally taken to belong to independently existing material objects are in fact sensible qualities that cannot exist apart from being perceived.

The arguments to establish this may be called the epistemological arguments for immaterialism. Although he did not call himself an immaterialist, Leibniz, on the evidence of the passage we have quoted, would have regarded himself as an idealist, and his arguments were metaphysical rather than epistemological. Berkeley, of course, is best known for his epistemological arguments, even though his argument that the very notion of something existing totally unperceived is self-contradictory may be classed as metaphysical. Arthur Collier, in his *Clavis Universalis* (London, 1713), used both epistemological and metaphysical arguments; the subtitle of his book, "a Demonstration of the Non-existence or Impossibility of an External World," allowed for both types of approach.

LEIBNIZ. Leibniz's metaphysical idealism consisted of two main theses: (1) that matter is necessarily composite and hence cannot be substantially or independently real, and (2) that simple (that is, noncomposite) substances must be perceiving and appetitive beings even though they are not necessarily conscious or self-conscious. He gave the name "monad" to these independently real and essentially active substances, and he argued that space and time cannot be real containers in which substances exist but must be the order in which monads are related to one another. Thus, he held that space and time are not absolute existences but relations of coexistence and suc-

cession among created monads. He did not conclude from this, however, that space and time and material objects are mere illusions or delusions; delusions and dreams, he held, are by their very nature inconsistent and unpredictable, whereas the material world in space and time is regular and in part predictable. Leibniz was not quite explicit on the matter, but he seems to have believed that space and time were a sort of mental construction or *ens rationis* and that material things are regular appearances rather than real substances. Sometimes, however, he used the expression *phenomena bene fundata* for space and time.

However this may be, Leibniz argued for an idealist system in which there is a series of realms of being with God as the supreme, uncreated spiritual substance. In the realm of created substances all the members are active and immaterial and some are self-conscious substances created in God's image. In the realm of appearances the elements are "well-founded" in the substantial realities, and in consequence they show a rational order even though, like the rainbow, they disappear when closely examined. Finally, there are isolated realms of mere illusion and delusion that, however, have their place in the total scheme of things. Leibniz believed that this metaphysical system could be proved by reason. He held, too, that sense experience is not an independent source of knowledge but is reason in a state of obscurity and indistinctness. Thus, he held that "we use the external senses as … a blind man does a stick" and that the world is revealed as it is by means of reason, not by means of the senses (*Letter to Queen Charlotte of Prussia*, 1702). Thus, he denied not only the substantial reality of matter but also the efficacy and even the possibility of mere sense experience. This is a theme that many later idealists have developed. It runs counter, however, to the empiricist immaterialism of Berkeley.

BERKELEY. Berkeley is the best-known exponent of immaterialism on epistemological grounds. His basic argument is that what we immediately perceive are sensations or ideas, that sensations or ideas are necessarily objects of perception (their *esse*, as he put it, *is percipi*, their essence is to be perceived), and that what we call physical things, such as trees and rocks and tables, are orderly groups or collections of sensations or ideas and are hence mind-dependent like the sensations or ideas that compose them. This argument proceeds on the assumption that sense experience is basic and reliable. Matter is rejected on the ground that the senses inform us of ideas but not of material substances to which these ideas belong. The very notion of a material substance dis-

tinct from sensible qualities or ideas is, according to Berkeley, unimaginable and inconceivable.

Berkeley made the surprising claim that this view is in full accordance with common sense. According to common sense, he argued, trees and rocks and tables are immediately perceived and have the characteristics they are immediately perceived to have. But according to those who believe in material substance, what is immediately perceived are the ideas produced in the mind by material substances of which we can only have mediate or indirect knowledge. Furthermore, these indirectly perceived material substances do not have the characteristics of color, hardness, etc., which common sense says they have. Hence, Berkeley thought that material substances, even if they were conceivable, would be problematic existents, so that the theory in which they figured would give rise to skepticism about the existence of familiar things like trees and rocks and tables. Immaterialism, in contrast, with its claim that such things, being ideas, are immediately perceived, does not lead to skepticism about them.

In its reliance on sense experience, then, and in its acceptance of the view that trees and rocks and tables are immediately perceived and are as they seem to be, Berkeley's immaterialism is very different from that of Leibniz. On the other hand, there is an important point of similarity between their views that is often overlooked. Leibniz held that substances, or monads, that is, the basically real things that make up the world, must be active, perceiving beings. Berkeley held this too, for he argued that sensible qualities or ideas are dependent and passive existences that depend on independent and active beings. These independent and active beings, according to Berkeley, are selves. The difference between Berkeley and Leibniz is that Berkeley held that only selves are active, whereas Leibniz held that activity is possible at a lower level than that of selves. However, this view that what is real is active is an element in a number of idealist theories.

Berkeley also supported immaterialism with the argument that it is not possible even to conceive of anything existing apart from being thought of, for it must be thought of in the very act of being conceived. This argument was not used by Leibniz, but it has played an important part in the arguments of many idealists since Berkeley.

COLLIER. Arthur Collier's *Clavis Universalis*, which appeared posthumously in 1713, was possibly written before Berkeley's *Principles of Human Knowledge* (1710), in which Berkeley's immaterialist philosophy was first published. Collier used epistemological arguments to prove immaterialism, but, unlike Berkeley, he made no attempt to reconcile immaterialism with common sense. On the contrary, he said that in denying the existence of the material world he meant that bodies are as delusory as the visions of lunatics. Collier also produced metaphysical arguments for immaterialism, maintaining, for example, that matter can be proved to be both infinite in extent and not infinite in extent, infinitely divisible and not infinitely divisible, and since nothing can in fact have contradictory characteristics, matter cannot exist.

Knowledge of immaterialism was spread in Germany by the publication of a book that contained German translations of Berkeley's *Three Dialogues between Hylas and Philonous* (London, 1713) and Collier's *Clavis Universalis* and whose title was *Sammlung der vornehmsten Schriftsteller die die Wirklichkeit ihren eigenen Körper und der ganzen Körperwelt leugnen* (Rostock, 1756). The translator and editor, Johann C. Eschenbach, set out to refute as well as to translate the two books.

TRANSCENDENTAL IDEALISM

Kant, in his *Critique of Pure Reason*, described his own view as formal, critical, or transcendental idealism. Nevertheless, a famous passage of that book (B 274) is headed "Refutation of Idealism." Kant called the types of idealism he claimed to be refuting problematic idealism and dogmatic idealism, respectively. By problematic idealism he meant the view, which he attributed to Descartes, that the existence of objects in space outside us is doubtful. By dogmatic idealism he meant the view, which he attributed to Berkeley, that "space and all the things to which it belongs as an inseparable condition" is "something impossible in itself and hence looks upon things in space as mere imaginations" (B 274). Kant's interpretation of Descartes is not quite adequate, but his interpretation of Berkeley is so completely at fault that it seems possible that he had made use of Eschenbach's book and confused Collier's arguments with those of Berkeley.

In any case, Kant's transcendental idealism is very different from the types of idealism we have so far considered. Kant held that it is not possible to gain knowledge of the world by rational thought alone, and thus he rejected all attempts such as those of Leibniz and Wolff to do so. Nonetheless, he also held that mere sense experience does not give knowledge of the world either, since in the absence of interpretation, sense experience is "blind." Thus, Kant argued that unless our perceptions were organized within what he called the pure a priori intuitions of space and time in terms of rational principles

such as the requirement that our perceptions refer to things in causal relation with one another, knowledge of an objective world would be impossible. Without the a priori intuitions of space and time and the categories of the understanding, there would be a manifold of fluctuating sensations but no knowledge of the natural world. When Kant refuted the two types of idealism mentioned above, he argued that no one could become aware of himself unless there were enduring material substances with which he could contrast his own fleeting experiences. We should not be aware of selves unless we were also aware of material things. This line of argument disposes of the view that we could be certain of our own existence but doubtful about the material world and also of the view that material things are "mere imaginations." Unless there were material things in space, we should not know of our own existence or of our own imaginations.

Kant's transcendental idealism, therefore, is his view that space and time and the categories are conditions of the possibility of experience rather than features of things as they are in themselves. Whether things-in-themselves are in space and time and whether they form a causally interacting system we do not know, but unless we were so constituted as to place everything in spatiotemporal contexts and to synthesize our sensations according to the categories of the understanding, we should not have knowledge of an objective world. Kant did not think that this synthesizing was carried out by the empirical selves we are aware of in ourselves and others. He thought, rather, that a transcendental self had to be postulated as doing this, but of this transcendental self nothing could be known, since it was a condition of knowledge and not an object of knowledge. The natural world, or the world of appearances, as he calls it, somehow depends on a transcendental self of which we can know nothing except that it is. Whereas at the empirical level selves and material things are equally real, the knowledge we have at this level presupposes the synthesizing activities of a transcendental self of which we can know nothing.

Kant was regarded in his own day as a destroyer not only because he maintained that there was no basis for the rationalist, metaphysical constructions of Leibniz and Wolff but also because he held that no single one of the traditionally accepted arguments for the existence of God was valid and that it is impossible to prove the immateriality and immortality of the soul. Idealists such as Leibniz and Berkeley and Collier had considered that they had framed philosophical arguments that favored religious belief. Berkeley, for example, emphasized that his conclusions made atheism and skepticism untenable. He also

claimed to have provided a new and cogent argument for the existence of God. According to Kant, however, sense experience cannot lead us beyond the natural world, and the categories of the understanding can be validly applied only where there are sense experiences and if applied beyond them can lead only to insoluble antinomies. For example, if the category of cause is used to transcend sense experience, then equally valid proofs can be made to show that there must be a first cause and that there cannot be a first cause. In the appendix to the *Prolegomena* Kant says that "idealism proper always has a mystical tendency" but that his form of idealism was not intended for such purposes but only as a solution of certain problems of philosophy. All this seems to place Kant outside the main idealist tradition and to indicate that he was developing a positivistic view. Nevertheless, at the end of the eighteenth century a group of philosophers who are known as Absolute idealists claimed to have been inspired by him. What, then, are the features of Kant's idealism that gave rise to views so different from his?

One is that Kant called specific attention to the elements of activity and spontaneity in knowledge. His view that knowledge of nature would be impossible apart from the activity of the understanding in synthesizing sensations in accordance with the categories led some of his successors to regard knowledge as analogous to construction or making. Another feature of Kant's philosophy that pointed in the direction of Absolute idealism was the thesis that synthesizing in terms of the categories presupposed a unitary transcendental self. It is true that Kant himself said that as a presupposition of experience the transcendental self could not be an object of knowledge, but some of his successors claimed to be rather more familiar with it.

Some of Kant's views on morality and on freedom of the will also gave scope for development in an idealist direction. Kant held that the free will problem is insoluble by metaphysical argumentation, for it can be proved both that there must be a freedom of spontaneity and that there is no freedom and everything takes place according to laws of nature. But in his ethical writings that followed the *Critique of Pure Reason*, Kant argued that our knowledge of and respect for the moral law presupposed freedom of the will. He emphasized that this was not a metaphysical or speculative proof; his point was that metaphysics could not disprove freedom of the will, so that we are justified in accepting what morality presupposes. He argued, furthermore, that the existence of God and the immortality of the soul might also be accepted as practical concomitants of morality, as long as the fundamental impossibility of their being theoretically

proved was recognized. Again, Kant introduced into his account of knowledge a faculty of reason (*Vernunft*), which, remaining dissatisfied with the understanding's confinement to the ordering of sense experiences, constantly strove for completeness and totality. Kant thought that the reason might in practice advance our knowledge by seeking for a completeness that is not in fact to be found—Kant used the expression *focus imaginarius* in this connection. Some of his successors transformed this suggestion into the claim that reason reveals a real, not an imaginary or merely methodological, totality.

ABSOLUTE IDEALISM

FICHTE. The development from Kant's idealism to Absolute idealism can be most readily seen in the writings of Johann Gottlieb Fichte (1762–1814). Like Kant, Fichte believed that strict determinism is incompatible with morality and that our knowledge of the moral law presupposes the freedom of the will. Therefore, the philosopher is faced with choosing between two systems of thought, the deterministic system that Fichte called "dogmatism," of which Benedict de Spinoza is the chief representative, and "critical idealism." Fichte recognized that the philosophy a man chooses depends on the sort of man he is, but he also thought that reasons could be given for preferring the idealist course. A reason on which Fichte placed great weight is that thought and intelligence cannot be accounted for within a system of causes and effects, for, in comprehending causal determination, they necessarily go beyond it. If, therefore, there is to be a fundamental account of things, it must start from the intellect. Fichte was here developing a suggestion by Kant in the *Groundwork of the Metaphysic of Morals* that the operations of the intellect transcend the phenomenal series of causes and effects. Thus, according to Fichte a free, intelligent ego (*Ich*) must be the starting point of philosophy, and everything else must somehow be "deduced" from this ego. Fichte, therefore, endeavored to go beyond Kant by showing that space and time and the categories are not just facts that must be accepted as they are but necessary conditions of intelligence. Even the material world is not merely matter of fact but is presented as a series of obstacles that must be overcome in the performance of our duties.

SCHELLING. Friedrich Wilhelm Joseph von Schelling (1775–1854) began his philosophical career as a supporter of Fichte—as the titles of two of his early works show: *Vom Ich als Prinzip der Philosophie* (Tübingen, 1795) and "Philosophische Briefe über Dogmatismus

und Kritizismus" (in *Philosophische Journal*, 1796). Schelling's first account of his distinctive views was titled *System des transzendentalen Idealismus* (Tübingen, 1800), but he later described his view as "absolute idealism," explaining that things are always conditioned by other things, whereas mind is undetermined and absolute. Fichte's idealism has sometimes been called a "moral idealism," since its basis is a system of active moral beings. Schelling's has sometimes been called an "aesthetic idealism," since Schelling argued that it is the artist who makes men aware of the Absolute. Although, like Fichte, he believed that free activity is basic in the world, he placed less emphasis on the distinction between individuals and came nearer to pantheism.

HEGEL. Georg Wilhelm Friedrich Hegel (1770–1831) is too individual a philosopher to be readily classifiable, but he was undoubtedly the most comprehensive and the most influential of the Absolute idealists. In his *Encyclopedia* (Sec. 95) he writes of "the ideality of the finite," which he says is "the main principle of philosophy," and says that "every genuine philosophy is on that account idealism." Like much that Hegel wrote, this is somewhat cryptic, but it appears to mean that what is finite is not real and that the true philosophy, idealism, recognizes this. The matter is more fully discussed in the *Science of Logic* (Bk. 1, Sec. 1, Ch. 2), where Hegel says that philosophical idealism is the view that "the finite is not genuinely real." Here he also contrasts his form of idealism with subjective idealism and says that in denying the reality of the finite, idealist philosophy is at one with religion, "for religion no more admits finitude to be a genuine reality, than it admits finitude to be ultimate, absolute, or as basic (*ein Nicht-Gesetztes*), uncreated, eternal."

We need not linger over Hegel's rejection of subjective idealism, except to refer to what he says about Berkeley's immaterialism in the *Lectures on the History of Philosophy*. Hegel there argues that Berkeley says very little when he says that things are ideas, for this only amounts to recommending a change of nomenclature and calling things ideas, and this throws no new light on the status of things and ideas. Hegel's arguments are metaphysical rather than epistemological. He thought that Fichte was right when he tried to deduce or give reasons for the categories, and Hegel's *Science of Logic* may be regarded as his view of how the deduction should be carried out. Insofar as such a compact work can be summarized, its argument is that we say very little about the world when we say that it is, rather more when we say that it is measurable, or that it is a series of interacting things, more again when we think of it in terms of chemical

combinations, still more when we apply the categories of life, more again when we apply the categories of theoretical reason, and most of all when we come to the categories of will and the pursuit of the good. What remains of the older metaphysical arguments is his view that the incomplete and inadequate categories lead to contradictions. These contradictions, Hegel held, are resolved as the higher categories are reached, in particular the category of the Absolute idea.

Hegel also tried to show that rudimentary mind operates in the natural world. But what most concerned him was the working of mind in human society. He set out a series of stages of human achievement proceeding from the family organization to "civil society" (what today we call the market economy), from civil society to the state, and then, at the highest levels, to art, religion, and philosophy. The idealist character of this construction may be seen from the fact that when Marx wished to set out a materialist view of society he took the economy as basic, the state as dependent on it, and regarded art, religion, and philosophy as ideologies that had no real influence.

Hegel's philosophy was elaborated after his death by a series of able successors and criticized from many points of view. It came to be known in England about the middle of the century, and Benjamin Jowett translated some passages (which he never published) for the use of his students. Absolute idealism was made known to a larger British public by James Hutchinson Stirling's *The Secret of Hegel* (2 vols., London, 1865), (Fichte's moral idealism had earlier influenced Thomas Carlyle, and Samuel Taylor Coleridge had been influenced by his reading of Schelling, although he had not accepted all of Schelling's views. William Wordsworth's definition of poetry as "emotion recollected in tranquillity" seems to be a translation of a phrase of Schelling's that Coleridge noticed and copied into his notebook).

NEO-HEGELIANISM

About the time when German Absolute idealism was becoming known in England through the writings of Coleridge and Carlyle, it was also becoming known in the United States through a group of writers (mostly Unitarians) who came to be called the transcendentalists. Later, in the 1860s, idealist philosophy received more detailed and professional attention on both sides of the Atlantic. In 1867 at St. Louis, William Torrey Harris founded the *Journal of Speculative Philosophy*, in the first issue of which he referred disparagingly to the prevailing "brittle individualism" that he considered should be replaced by a

philosophy in which the state was properly comprehended as a support for freedom. In the same period Thomas Hill Green was teaching philosophy at Oxford with the support of Jowett. The nature of Green's influence may be seen from a letter sent to Green in 1872 asking him to speak to an essay society whose members felt the need for "earnest effort to bring speculation into relation with modern life instead of making it an intellectual luxury, and to deal with various branches of science, physical, social, political, metaphysical, theological, aesthetic, as part of a whole instead of in abstract separation," and sought for "co-operation instead of the present suspicious isolation." This letter was signed by, among others, F. H. Bradley, who had recently become a fellow of Merton College (Melvin Richter, *The Politics of Conscience. T. H. Green and His Age*, London, 1964, pp. 159–160). Both Harris and his circle and Green and his were critical of social individualism as well as of positivism and materialism. They aimed to provide an alternative to utilitarianism, which they thought was based on an inadequate pluralistic metaphysics.

Green's form of idealism was rather closer to that of Kant than to that of Hegel. It was built around two main themes, that the natural world cannot be self-contained and ultimate, and that there is no merely given experience. The first theme is an extension of Kant's theory of the transcendental ego, which Green held implied that nature presupposes "a principle which is not natural," a "spiritual principle" (*Prolegomena to Ethics*, Oxford, 1883, Sec. 54). The second theme, on the other hand, goes well beyond Kant, who believed that there was a "manifold of sense" which the understanding synthesized. Green's view that there is no merely given sense experience, and that all experience implies some sort of intelligent organization, was a central theme of subsequent idealist argument. It has a certain kinship with Leibniz's theory that ideas of sense are confused ideas of reason.

Green died in 1882, and the leading English idealist philosophers after that were F. H. Bradley and Bernard Bosanquet. In Scotland, where idealism very soon prevailed in the universities, Edward Caird's *A Critical Account of the Philosophy of Kant* (Glasgow, 1877) and Andrew Seth's (later Pringle-Pattison's) *Hegelianism and Personality* (London and Edinburgh, 1887) were notable contributions. But from the 1880s to the 1920s Bradley and Bosanquet dominated the philosophical scene in Great Britain. Bradley attempted to discredit the commonsense view of the world by bringing to bear a multitude of arguments to show that it involved self-contradictions, and he argued that these contradictions could

be eliminated only if the world is shown to be a single, harmonious experience. The central theme of Bosanquet's idealism was that every finite existence necessarily transcends itself and points toward other existences and finally to the whole. Thus, he advocated a system very close to that in which Hegel had argued for the ideality of the finite. Bradley and Bosanquet influenced one another a great deal. For example, Bradley's *Ethical Studies* (London and Edinburgh, 1876) influenced Bosanquet's account of society, and Bosanquet's *Knowledge and Reality* (London, 1885) led Bradley to modify very considerably the views he had set out in his *Principles of Logic* (London, 1883).

In the United States the most impressive contribution to the philosophy of idealism is Josiah Royce's *The World and the Individual* (first series, New York, 1900; second series, New York, 1902). Royce was extremely learned in the literature of idealism, both German and British, and *The World and the Individual* was written in the light of his study of Kant, Fichte, Schelling, and Hegel and of his reading of Bradley's *Appearance and Reality* (London, 1893). Furthermore, Royce was acquainted with the empiricism and pragmatism of C. S. Peirce and William James and with Peirce's work in formal logic. Like Pringle-Pattison, Royce considered that Bradley went too far in regarding the individual mind as "fused" or "transformed" in the Absolute. The mystic who regards finite experience as mere illusion, Royce held, is an improvement on the realist who uncritically accepts it just as it is, but nevertheless the very point of idealism would be lost if the individual self is deprived of all cosmic significance. Royce believed he could show that the "world … is a realm of individuals, self-possessed, morally free, and sufficiently independent of one another to make their freedom of action possible and finally significant" (*The World and the Individual*, first series, p. 395). Like Fichte, Royce endeavored to support this view by an analysis of the moral, rational will.

By the beginning of the twentieth century idealism had become a powerful force in the universities of the English-speaking world. Empiricism and realism were held to have been finally discredited, along with the utilitarianism and individualism that had so often accompanied them. Philosophical truth was thought to be a unity, so that similar principles animated idealist works on aesthetics, ethics, religion, and politics. Such leading British statesmen as Arthur J. Balfour and Richard B. Haldane and the South African prime minister Jan C. Smuts wrote books defending the idealist point of view. When the new provincial universities were being founded in Great Britain at that time, Haldane used his influence to foster the study of philosophy in them, as a central, unifying subject.

At the same time, however, points of view opposed to idealism were being vigorously developed. An example is G. E. Moore's "The Refutation of Idealism," which appeared in *Mind* (n.s. 12 [1903]: 433–453). Another example is *The New Realism*, a collection of articles by American philosophers critical of idealism that was published in New York in 1912. Bertrand Russell urged that idealists were ignorant of new developments in logic and that this rendered their theories untenable. Ludwig Wittgenstein's *Tractatus Logico-Philosophicus* (London, 1922) was symptomatic of a new, pluralist, antispeculative approach to philosophical problems. Moore's "The Conception of Reality" (*PAS*, 1913–1914) attempted to show that one of Bradley's theses was nothing but a consequence of his not realizing that the proposition "Unicorns are thought of" is of quite a different logical form from the proposition "Lions are hunted." In the 1920s the very possibility of speculative metaphysics was denied on the basis of the allegedly empiricist principle of verifiability. Furthermore, the idealist theses about the "unreality" of finite individuals and the "reality" of society or the state were held to be evil as well as meaningless.

But during this period when the idealist movement was under increasing attack, three important treatises appeared in which comprehensive idealist theories were developed. John M. E. McTaggart's *The Nature of Existence* (Cambridge, U.K., 2 vols., 1921–1927) defended a pluralistic idealism by means of metaphysical arguments designed to show that space, time, and matter cannot possibly be real. Michael Oakeshott's *Experience and Its Modes* (Cambridge, U.K., 1933), unlike McTaggart's work, seems to have been completely unaffected by the realist and empiricist arguments so widely accepted at that time. Brand Blanshard's *The Nature of Thought* (2 vols., London, 1939), on the other hand, maintains a constant and detailed criticism of behaviorist and empiricist arguments. It is noteworthy that in none of these elegantly written idealist works is there any attempt to defend a theistic position. Indeed, *The Nature of Existence* concludes its discussion of God by saying that "there can be no being who is a God, or who is anything so resembling a God that the name would not be very deceptive" (Sec. 500).

IDEALIST SOCIAL THEORY

Most nineteenth-century and twentieth-century idealist philosophers were agreed that utilitarians and individual-

ists had a false view of what constitutes an individual person. They believed that since individuals are constituted by their relations to one another, the idea that society is an association of independently existing individuals is absurd. They thought, too, that it follows from this that freedom is something more positive than just being left alone by the government. Insofar as government is concerned with the common aims of individuals, it is not merely a constraint on them but a manifestation of their most rational purposes. Some idealist writers, therefore, saw no serious harm in Rousseau's claim that men can be forced to be free. T. H. Green was thus able to support temperance legislation on the ground that it enabled those protected by it to fulfill their abiding aims rather than their passing whims.

Even so, Green had no doubts about the ultimate reality of individual persons, whereas Bosanquet, in his *Philosophical Theory of the State* (London, 1899) argued that the state is the real individual and that individual persons are unreal by comparison with it. But Bosanquet did not think that this justified socialist control. On the contrary, he believed that if society is organic and individual, then its elements can cooperate apart from a centralized organ of control, the need for which presupposes that harmony has to be imposed upon something that is naturally unharmonious.

McTaggart was the one leading idealist who denied the relevance of metaphysics to social and political action. He was a Hegelian scholar who was in general agreement with Hegel's views, but he thought that Hegel was wrong in supposing that metaphysics could show that the state is more than a means to the good of the individuals who compose it. McTaggart concluded that "philosophy can give us very little, if any guidance in action.… Why should a Hegelian citizen be surprised that his belief as to the organic nature of the Absolute does not help him in deciding how to vote? Would a Hegelian engineer be reasonable in expecting that his belief that all matter is spirit should help him in planning a bridge?" (*Studies in Hegelian Cosmology*, Cambridge, U.K., 1901, p. 196).

SOME COMMENTS ON IDEALISM

ACT AND OBJECT. Moore, Russell, and other realist philosophers at the beginning of the twentieth century objected to idealism that its exponents failed to distinguish between the act of perception and the object of the act. It was rightly argued that the words *idea* and *sensation* were used vaguely and thus encouraged the confusion. According to the realist argument, colors and shapes are objects of the mind, whereas pains and feelings are states of mind, and what the idealists do is to say of the former that they are essentially mental, when this is true only of the latter. It may be questioned, however, whether the idealists were thus confused. Certainly Berkeley was not, since in the first of the *Three Dialogues between Hylas and Philonous* he himself made this objection only to reject it on the ground that the only acts of mind are acts of will, and in perceiving we are passive and do not exert acts of will.

In any case it is not easy to be sure that we can recognize or identify acts of perception. William James, for example, said he could distinguish no such thing (*Essays in Radical Empiricism*, New York, 1912), and Russell later took this view as well (*The Analysis of Mind*, London, 1921). Furthermore, even if the distinction is acceptable, what the object of perception is still remains to be determined. It is hard to maintain that what is immediately perceived is a physical object, since this seems to be inconsistent with the physiology of perception. If the immediate object is a sense datum, as Moore and Russell argued, then this suggests a representative theory of perception. But representative theories of perception are liable to the objection that they make our knowledge of physical objects problematical. If, on the other hand, sense data are not intended to play their part in a representative theory of perception but are meant to be all that can be perceived, then commonsense realism has been abandoned and Berkeley is vindicated. Apart from this, the very notion of a sense datum is dubious, since it is impossible to specify what a sense datum is without reference to physical objects. The distinction between act and object does not, therefore, lead to any effective arguments against idealism.

EXISTENCE APART FROM MIND. We have seen that Berkeley supported his immaterialist theory with the argument that nothing could exist apart from mind, since if we try to think of something existing unthought of we have to think of it, so that there is a contradiction in the very notion of thinking of something unthought of. Berkeley was by no means the only idealist who used this argument. It seems to have been accepted by Bradley, for example, when he wrote in Chapter 14 of *Appearance and Reality*:

> We perceive, on reflection, that to be real, or even barely to exist, must be to fall within sentience …. Find any piece of existence, take up anything that any one could possibly call a fact, or could in any sense assert to have being, and then judge if it does not consist in sentient expe-

rience. Try to discover any sense in which you can still continue to speak of it, when all perception and feeling have been removed; or point out any fragment of its matter, any aspect of its being, which is not derived from and is not still relative to this source. When the experiment is made strictly, I can myself conceive of nothing else than the experienced.

This general line of argument came under attack in *The New Realism*, where the objection to it was that it falsely concludes that whatever is must be experienced from the evident tautology that whatever is experienced is experienced. From the fact that nothing can be experienced without being experienced it does not follow that everything must be experienced. Another way of stating this objection is to distinguish (*a*) it is impossible to-think-of-something-existing-unthought-of and (*b*) it is impossible to think of something-existing-unthought-of. Berkeley and Bradley are accused of denying the possibility of (*b*) because of the obvious impossibility of (*a*) (G. Dawes Hicks, *Berkeley*, London, 1932).

IDEALIST METAPHYSICS. Idealism involves the existence of some ultimate spiritual reality beyond what appears to common sense and ordinary sense experience. If it could be proved, therefore, that it does not make sense to speak of something that transcends sense experience, then idealism, like all other metaphysical systems, would be meaningless, as is claimed by logical positivism. Logical positivism, however, has been subjected to serious criticism and is by no means the chief alternative to idealism. It is linguistic philosophy, the philosophy that seeks to solve or to dissolve philosophical problems by showing that they arise out of linguistic misunderstandings, that today is the strongest opponent of idealism.

Moore's insistence on the act-object distinction was not, as we have seen, a successful mode of attack on idealism. But when he criticized Bradley for misunderstanding the logic of propositions in which something is said to be real, he was starting a sort of philosophizing that has proved most inhospitable to idealist theories. Moore saw that when Bradley said that time is unreal he had no wish to deny such things as that people are sometimes late for their trains. Yet if there were no temporal facts, there would be no trains and no people to catch or to lose them. Moore felt that something had gone wrong with Bradley's argument, and he tried to locate the fault. He thought that Bradley believed that even though time is unreal, if it can be thought of then it must have some sort of existence. Moore thought he could show that this belief

is groundless and arises from a misunderstanding of what is being said when something is said to be real. But Moore also came to believe that we know for certain such things as that there are trains and people and that in consequence we are justified in denying out of hand those philosophical views that would require trains and people and space and time and matter to be mere appearances or not to be real at all. It was through his attempts to understand the prevailing idealist metaphysics that Moore came to adopt his philosophy of common sense. This philosophy and the linguistic philosophy that grew out of it regard our prephilosophical beliefs and concepts as in a certain sense unassailable. If this view is correct, then idealism is based on misunderstandings. If it is not correct, then the idealist criticisms of our prephilosophical beliefs have to be taken seriously.

IDEALISM AND THE NATURE OF THOUGHT. The idealist movement is important in the history of philosophy quite apart from the success or failure of idealist metaphysics. Idealists have insisted from Kant onward that thinking is an activity. This view of thinking was Kant's particular contribution to philosophy and is opposed to the Cartesian theory of knowledge. According to Descartes knowledge consists in the intuition of clear and distinct natures. What keeps us from obtaining knowledge, Descartes held, is the existence of prejudices that keep us from getting face to face with the ultimate clarities; once the prejudices are removed, the world shows itself as it really is. On this view the human mind is like a mirror that reflects what is there when it has been wiped clean. According to Kant, however, the mind approaches the world with concepts and presuppositions of its own. It does not reflect the world but tries to understand and interpret it. The activity of synthesizing is an activity of interpreting, and this can be done only by means of concepts that we already possess. According to Descartes we must wipe the mirror clean to be ready for undistorted visions; inquiry ends in revelation. According to Kant we gain knowledge as we improve and test our theories. Apart from natural science, nature is nothing but what men have to contend with in their daily concerns. This view was metaphysically elaborated by Kant's idealist successors, but they did not lose sight of an important implication of it that Kant had seen, the implication that the pursuit of knowledge was a spontaneous activity. They argued that knowledge and freedom go together and that therefore determinism and reductive materialism cannot be true. This would appear to be the essence of the idealist argument.

See also Absolute, The; Coherence Theory of Truth; Dialectical Materialism; Hegelianism; Ideas; Neo-

Kantianism; New England Transcendentalism; Panpsychism; Personalism; Realism; Relations, Internal and External; Solipsism.

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IDEAL OBSERVER THEORIES OF ETHICS

The ideal observer theory (IOT) offers an account of the truth/objectivity of moral judgments in terms of the approval or disapproval of an ideal observer. The theory receives explicit treatment by Adam Smith and Henry Sidgwick; Roderick Firth is the most well-known proponent of the theory in the twentieth century.

There are two versions of the theory. On one account the IOT is an analysis of what (some, all) moral judgments mean: A judgment that some act (or event or state of character) is good may be analyzed in terms of that act being approved of by an ideal observer (IO); some act is wrong if it would be disapproved of by an IO. Most, but not all, such accounts conceive of the IO in hypothetical terms, leaving open the question of whether there actually is an IO. The traits of the IO vary between ethical theories, but they often include impartiality, knowledge of all of what may be called nonmoral facts (facts that may be conceived of and known without ipso facto knowing the moral status of the fact), and an affective awareness of the points of view of all involved parties. The reason for employing a term such as *nonmoral facts* is to avoid an explicit circularity, for the theory must be more informative than claiming that some act is morally right if and only if it would be approved of by a being who is omniscient with respect to all moral facts.

While strong versions of the IO theory offer an analysis of what moral rightness and wrongness mean, moderate proposals hold that the IO point of view amounts to an analysis of the moral point of view; that is, the point of view from which ideal moral judgments are made. On this account, what it means for persons to carry out an inquiry into the moral status of some act is to engage in an inquiry aimed at achieving impartiality, knowledge of the relevant nonmoral facts, and an affective awareness of the points of view of all involved parties. Arguably, these conditions might be both necessary and sufficient for moral inquiry, and yet the IOT would not amount to an analysis of what it means for some act to be right.

Both versions are subject to objections. Against both accounts philosophers have questioned the feasibility and desirability of impartiality. IO accounts that appeal to the hypothetical responses of an IO face a problem in terms of moral psychology; someone making a moral judgment about some act need have no interest in the responses of some other, hypothetical observer. There is also the recurrent charge against both versions that the theory is circu-

lar. They build into the concept of an IO the notion that the observer is in fact ideal; being impartial, for example, is a positive moral ideal. If so, the theories presuppose a moral ideal and so cannot be used to analyze what it is to be morally ideal. Some argue that neither account is able to avoid conflict between IOs or those seeking the moral point of view. There is also the charge that both accounts fail because it is coherent to claim that an IO or one who achieves the ideal moral point of view may get matters wrong.

The first two objections may be played against each other. Evidence that philosophers disagree about the moral desirability of impartiality is evidence that impartiality is not an obvious moral ideal. If the case against the moral desirability of impartiality is successful, the IO theory will need amending to allow for specific, partial duties and goods. Some versions of the IO theory have been articulated that accommodate the thesis that IOs disagree (Thomas Carson 1984), while others argue that there is no reason to suppose that there would be disagreement (Charles Taliaferro 1988).

There have been several replies to the charge that IOs or those taking the ideal moral point of view may be wrong. Some link the IO theory with a divine command theory according to which moral rightness and wrongness is constitutive of an actual IO's God's approval and disapproval. The apparent coherence of there being something approved of by God that is morally wrong is accommodated the way in which some philosophers accommodate the apparent possibility that one might have water without H20.

On behalf of using the second, modest form of the IO theory, it has also been charged that the following state of affairs is incoherent. A person morally disapproves of some act but she believes that if she were an IO she would approve of the act. According to the moderate version of the theory, the person disapproves of the act but simultaneously believes that she would reverse her view if she were actually impartial, knew more of the relevant nonmoral facts, and had an affective understanding of the points of view of those affected. Arguably, when we disapprove of some act morally, we often allow the *possibility* that we may not be impartial, we may be ignorant of the nonmoral facts, and we may lack an awareness of the feelings of those involved, but it would be peculiar for a person to disapprove of an act while believing that one is *actually* mistaken about the nonmoral facts, and so on.

See also Ethical Subjectivism; Metaethics; Objectivity in Ethics; Sidgwick, Henry; Smith, Adam.

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IDEAS

The word "idea" is a transliteration of a Greek word of which the root meaning is "see." In classical Greek it never lost the possible meaning "visual aspect"; thus Plato writes of a person as being "very beautiful in idea," meaning "beautiful in visual aspect" or "good-looking" (*Protagoras* 315E). Very often visual shape is primarily involved, as when Plato refers to the "idea of the earth," meaning "the visible shape of the earth" (*Phaedo* 108D). The transferred sense of "type" or "kind" springs quite naturally from this use. Thus Thucydides writes of "many ideas [kinds] of warfare" (*Histories* I, 109).

In Plato's more technical use, the Ideas or Forms are always spoken of as (1) the objects of intelligence, in contrast with the objects of perception; (2) things that truly *are,* in contrast with changing objects of perception, which are in a state of *becoming*; (3) eternal, in contrast with the perishable world of change. But there are at least two irreconcilable strands in Plato's thought about Ideas. Sometimes he seems to have thought of Ideas much as later philosophers have thought of universals, as when he says that "we are accustomed to posit a single form for each group of many things to which we give the same name" (*Republic* 596A); consistent with this he speaks sometimes of the *presence* of the form in the particular or

of the particulars as participating in the form (*Phaedo* 100D). But sometimes Plato writes as if his Forms were, rather, perfect exemplars or paradigms of which the sensible world is an imperfect copy or imitation; thus in the *Parmenides* Socrates says that the Forms are "as it were paradigms" and that "other things are like them and are copies of them" (132D). When the Forms are thus described, we also find Plato insisting that they are "separate," a doctrine in conflict with the language of "presence" and "participation" noted above. It is plausible to suggest that there is here a tension between the theory of universals and the theory of resemblance to standard objects as explanations of common names.

But it is the theory of Ideas as separate and eternal paradigms that appears in the *Timaeus,* the dialogue that had incomparably the greatest influence on later antiquity and the Middle Ages; there the divine demiurge is depicted as forming the world on the pattern of the eternal Forms. It will therefore be the aspect of Forms as paradigms, perfect exemplars, blueprints, particularly as patterns used by a divine agent in creation, which will be important in the development of the philosophical notion of an idea.

In the *Timaeus* the Forms, or Ideas, are eternal and independent objects to which the demiurge looks as patterns. But one of the most important and early modifications of this Platonic view is the religious conception of the Ideas as the thoughts of God. This is the view of Plotinus (*Ennead* III, 9, i), of Philo (*De Opificio Mundi* 4) and of Augustine (*De Diversis Quaestionibus LXXXIII,* Question 46). Clement of Alexandria simply defines an idea as a "thought of God" (*Stromateis* V, iii, 16.3). The ideas are still perfect and eternal exemplars, but now they are in the mind of God.

It is not a very long step to extend the term *idea* to cover patterns, blueprints, or plans in anybody's mind, not only in God's. Thus we find Thomas Aquinas saying that "the word 'idea' signifies a certain form thought of by an agent in the likeness of which he intends to produce an external work" (*Quaestiones Quodlibetales* IV, I, lc); similarly Goclenius says that "in general an idea is a form or exemplar of a thing with an eye on which a workman makes what he has planned in his mind" (*Lexicon Philosophicum* 208A).

When the word *idea* was taken over into the French and English vernacular by learned men in the sixteenth century, there were thus two elements in the concept of an idea—that it was an exemplar or pattern and that it was a thought in a mind. Using the pattern element alone, François Rabelais could speak of Pantagruel as being the "idea and exemplar of every joyous perfection" (*Pantagruel,* Book III, Ch. 51); but a pattern and its copy could be easily muddled so that Rabelais also could say, "En leur mariage semble reluire quelque idée et représentation des joyes de paradis" ("In their marriage some idea and representation of the joys of paradise seems to be reflected"; *Pantagruel,* Book III, Ch. 10). When the other, mental element is introduced, the meaning of "idea" quickly becomes "mental representation"; this is a very common meaning in sixteenth-century French and English, and the phrase of Michel Eyquem de Montaigne, "Ayant par longue conversation planté vivement dans son âme unc générale idée de celle de Plutarque" ("Having by long communion vividly emplanted in his own a general idea of the mind of Plutarch"; *Essays,* II, 4), could be paralleled many times.

DESCARTES

Thus when René Descartes first began to write, the meaning "image or representation," often but not necessarily "in the mind," was already well known in the vernacular. In spite of the fact that Descartes is usually credited with the invention of the non-Platonic use of the term, we find him at first following this vernacular use. In his first Latin work, the *Regulae,* the word *idea* appears infrequently, but Descartes always uses it to mean an image or representation; when he first introduces it in the *Meditations,* he at once says, "Quelques-unes [de mes pensées] sont comme les images des choses, et c'est à celles-là seules que convient proprement le nom d'idée" ("Some [of my thoughts] are like images of things, and it is to these alone that the name 'idea' properly belongs"). It is only under the pressure of philosophical difficulties that he extends the term *idea* to cover the unimaginable, for which Thomas Hobbes duly reprimanded him: "When I think of a man I represent to myself an idea or image composed of colour and shape. … of God we have no image or idea" (*The Third Set of Objections,* Objection 5). There is therefore no need for any explanation why the word *idea* tends to mean "mental image" to seventeenth-century philosophers; this is what the word ordinarily meant in their time.

What does need explanation is why, if Descartes found the word *idea* to mean "properly" only "an image of a thing," he and other philosophers could use "having an idea" as a proper designation of all thought and could define an idea as the object of a mind when it thinks, in a liberal sense of "think" that includes sense perception. Part of the explanation is to be found in the representative theory of perception, held in some form by all the

philosophers of the period; there was no extension of meaning in using "idea" of sense perception because it was believed that what was directly perceived was not things, but images of things—the images caused by and more or less resembling the things themselves. Another part of the explanation is the "image theory" of thinking: To think of something is or includes having either a mental image of that thing or, as some believed, a physical image on that part of the brain termed the "corporeal phantasy." Such a view was in the air at the beginning of the seventeenth century and was accepted by Pierre Gassendi and Hobbes without reservation. Descartes never doubted that many of our thoughts are images of things; his extension of the term arises from his gradual realization of the inadequacy of the image theory to account for all our thought even while he persevered in the use of its terminology. His use of the term to denote any object of thought became the standard one in philosophy, via such influential writings as the *Port-Royal Logic* and John Locke's *Essay.* Only a few scholastically trained philosophers, such as Immanuel Kant, have stood out for a more Platonic usage; thus Kant in the *Critique of Pure Reason* holds to the terminology of the transcendental ideas of reason to which no corresponding object can be perceptually given, as distinct from the concepts of the understanding ("Transcendental Dialectic," I, 2).

Most of the confusions in the "way of ideas" arise at least in part from the use of the term *idea* to cover both the representative percept and the object of conceptual thought. This can be illustrated in terms of the doctrines of innate ideas, concrete and abstract ideas, and simple and complex ideas.

INNATE IDEAS

The mature Gottfried Wilhelm Leibniz always maintained, and Descartes sometimes maintained, that all our ideas are innate. Thus Leibniz said that "all the thoughts and acts of the soul come from its own depths, with no possibility of their being given to it by the senses" (*New Essays concerning Human Understanding,* Book I, Ch. i, 1). But this is a theory of *perception,* as is made clear by Descartes in his *Notes Directed against a Certain Program,* his defense of the view:

> Nothing comes from external objects to our mind through the organs of sense save certain corporeal motions … but not even these motions, and the configurations to which they give rise, are conceived by us as they occur in the sense-organs. … Whence it follows that the very ideas of motions and configurations are innate

in us. So much more must the ideas of pain, colours, sounds, and the like be innate, so that our mind can, on the occasion of certain corporeal motions, display them to itself; for they have no similarity to the corporeal motions.

There is nothing here from which Locke would dissent, except verbally; no wonder that Leibniz said, in the preface to his *New Essays,* "I am led to believe that at bottom his [Locke's] view upon this point is not different from mine." The true controversy with Locke is, rather, exhibited by Descartes's view of concepts, expressed in the same terms as and never distinguished from the perceptual theory by philosophers of the time. According to this theory, some ideas are innate—for example, those of God, mind, body; others are adventitious—one's ordinary idea of the sun; still others are made (*factae*) or factitious—the ideas of the sun astronomers construct by reasoning. It is those innate and factitious ideas—which Descartes could as little say were *occasioned* by "corporeal motions" as Locke could say they were *caused* by "corporeal motions"—which raised a still-pressing difficulty.

ABSTRACT AND CONCRETE IDEAS

The distinction between abstract and concrete ideas is virtually the distinction, misleadingly put, of concepts and percepts. The doctrine of abstract ideas was held by the Cartesians, and the best statement of it is to be found in *Port-Royal Logic,* Book I, Ch. 6. To have an abstract idea is to think of some feature or features of the perceptible without attending to other features that it has and that are as inseparable from it (except in thought) as are the length and breadth of a road. Locke took over the Port-Royal account of what abstraction was without change, even echoing its language, but tried to give a more thorough account of what it involved. He tried to give an account of abstraction in terms of a doctrine of simple and complex ideas, but by failing to distinguish thought and perception, he gives two incompatible accounts of this distinction. In Book III of the *Essay* he tells us that all ideas save those denoted by proper nouns are abstract. Of these some are indefinable; they are simple ideas. Others are definable; these are complex ideas. "The ideas first in the mind, it is evident, are those of particular things" (*Essay,* Book IV, Ch. vii, Sec. 9)—that is, we first perceive particular things; in thinking about them, we may come to form some very general ideas by omitting less interesting features and concentrating on those common to a whole group, which taken together form a complex idea; by further abstraction we can get to less and less complex ideas. It is clear that according to this view simple ideas

involve the highest degree of abstraction. But in Book II we are told that the simple ideas enter the mind in perception simple and unmixed; they are objects of perception. Thus a theoretical analysis of the construction of concepts is inextricably confused with an atomistic doctrine of perception. If simple ideas are objects of perception and complex ideas are formed from them, then all abstract ideas ought to be imaginable, and George Berkeley's famous sneers about the abstract idea of a triangle have some justification. But neither Berkeley nor David Hume could emancipate himself from the basic confusion; this is true of Hume in spite of his famous distinction between ideas and impressions.

Thus the classical theory of ideas, which had held virtually undisputed sway in the seventeenth and eighteenth centuries among rationalists and empiricists, was based on the theories of representative perception and image-thinking. To continue to use the terminology after these theories had been abandoned as inadequate could lead only to confusion and a skepticism which, consistently developed, would be even more extreme than Hume's.

Reasonably, therefore, outside the empiricist tradition the term *idea,* as employed in the seventeenth and eighteenth centuries, soon ceased to appear in philosophical writings. Kant's representations have, indeed, some resemblance to ideas of sensation, and the thing-in-itself plays a part somewhat analogous to Locke's substratum. But there are important differences, and his concepts of the understanding are very far from being copies of representations. He does, indeed, use the term *idea* technically, but with a yet further removed significance. In the *Critique of Pure Reason,* he says: "I understand by 'Idea' a necessary concept of reason to which no corresponding object can be given in sensation" ("Transcendental Dialectic," I, 2). These ideas, such as that of the absolute unity of the subject, have, Kant holds, a valid regulative employment, but if we try to apply them to experience we become involved in metaphysical paralogisms. Insofar as the term continued to be used in Continental philosophy it was used, as by G. W. F. Hegel, in senses far removed from that in pre-Kantian philosophy.

But in British philosophy the terminology did not die an easy death. The empiricists could not abandon it, especially in their philosophical psychology in which the doctrine of the association of ideas continued to play the dominant role given to it by Hume. It was largely F. H. Bradley's polemic against psychologistic logic that finally led to the abandonment of the "way of ideas." But even Bradley, in the first chapter of his *Logic,* which is a locus

classicus for the attack on psychologism, showed that he had not completely emancipated himself. He could still write that "the idea, in the sense of mental-image, is a sign of the idea in the sense of meaning," and added "without ideas no judgment," though in a note of 1922 he rejected these statements. By 1922 his own work and that of G. E. Moore had led to the elimination of the term *idea* from British philosophy, except as a part of nontechnical idiom.

In the United States, also, the term *idea* continued to have considerable currency. It was a key term in the pragmatism of Charles Sanders Peirce, William James, and John Dewey, reflecting the fact that they, too, were heirs to the empiricist tradition though not to Humean skepticism. They avoided this skepticism in part by wholly abandoning the image theory of thinking with which the terminology of ideas was traditionally linked. In Dewey's instrumentalism, ideas became tools for directing our activities, responses to sensation rather than sensations. They were tied to practical transactions. In calling the idea a law of action, Dewey reminds us rather of the definition given by Thomas Aquinas quoted earlier in this article than of the traditional empiricist position. But Peirce could still think, like Bradley, of ideas as psychological entities, as well as in terms of pragmatic epistemology; and in James also the pragmatic doctrine that our ideas of an object have to be explained in terms of the sensations we expect from it and the reactions we make toward it had still not been completely disentangled from a more traditional empiricism.

See also Augustine, St.; Berkeley, George; Bradley, Francis Herbert; Clement of Alexandria; Concepts; Descartes, René; Dewey, John; Empiricism; Gassendi, Pierre; Hegel, Georg Wilhelm Friedrich; Hobbes, Thomas; Hume, David; Innate Ideas; James, William; Kant, Immanuel; Leibniz, Gottfried Wilhelm; Locke, John; Montaigne, Michel Eyquem de; Moore, George Edward; Peirce, Charles Sanders; Philo Judaeus; Plato; Plotinus; Plutarch of Chaeronea; Psychologism; Rabelais, François; Socrates; Thinking; Thomas Aquinas, St.; Thucydides; Universals, A Historical Survey.

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IDENTITY

The word *is* is multiply ambiguous. When it can be expanded to read "is the same thing as," or "is identical with," or (in numerical contexts) "is equal to," it expresses the relation of identity. The simplest identity statements contain the "is" of identity flanked by singular terms, either names or definite descriptions: "Samuel Clemens is Mark Twain"; "The U.S. president in 1996 was Bill Clinton"; "Four is the sum of two and two." A more complex identity statement might, for example, combine the "is" of identity with quantifiers: "Every even number is the sum of two primes."

Identity, on its face, is simple and unproblematic: It is that relation that everything bears to itself and to nothing else. Yet discussions of identity in contemporary philosophical logic and metaphysics are brimming with controversy. From where does this controversy arise? Some of it is not genuine, being based on confusion; and some of it, though genuine, is not genuinely about identity. However, a residue of controversy survives, owing to the view, perpetrated by Peter Geach, that identity statements are meaningless unless relativized, that there is no absolute relation of identity.

SOURCES OF CONFUSION

One source of confusion is the ambiguity of "identical" in English. We do sometimes say that two things are identical, as when we speak of identical twins, or say that some coat is identical with some other. This is qualitative identity: Things are qualitatively identical if they resemble one another sufficiently in relevant qualitative respects. Numerical identity is different: Two things, no matter how closely they resemble one another, are never numerically identical. Numerical identity is the topic of this article.

A second source of confusion is English grammar, which allows, for example, "Clemens is identical with Twain" to be rewritten equivalently as "Clemens and Twain are identical" or as "they are identical." But then it seems that two persons (or two *somethings*) are being said to be identical, which is absurd. A general response is familiar from other cases: Surface grammar often misrepresents the underlying logic: One must beware inferring logical from grammatical form. More specifically, it can be verified that plural noun phrases in English do not, in all contexts, entail or presuppose reference to a plurality.

A third source of confusion is Gottlob Frege's puzzle of informative identity statements, sometimes introduced by the following argument. To say of something that it is identical with itself is trivial, to say of something that it is identical with something else is false; therefore, identity statements are all either trivial or false, and there can be no point in asserting them. This conclusion is manifestly incorrect: Identity statements are often both true and informative, as witness, "the capital of Honduras is Tegucigalpa." The puzzle is to say where the argument goes wrong.

One response rejects the second premise by taking identity to be a relation between names or descriptions rather than between the objects named or described: Identity is then the relation of codesignation, the relation that holds between singular terms whenever those terms designate the same object. That would indeed allow identity statements to be both true and informative. But the response is not viable, for many reasons. For one, it fails to account for uses of identity that do not involve singular terms, such as: "Everything is identical with itself." For another, it fails to allow identity statements between different singular terms to be uninformative, as they are when the singular terms are synonymous. For another, it fails to provide a unified solution to analogous puzzles of informativeness, such as how "the capital of Honduras is in Honduras" and "Tegucigalpa is in Honduras" can differ in informativeness, even though both ascribe the same property to the same thing.

A better response is due to Frege. Identity is a relation between objects; a simple identity statement is true just in case the objects referred to by the singular terms stand in that relation. But singular terms have sense in addition to reference; a true identity statement is informative just in case its singular terms differ in sense. (Just what is included in the sense of a singular term varies from theory to theory; but note that senses must be rich enough to allow codesignative proper names—such as "Mark Twain" and "Samuel Clemens"—to differ in

sense.) Now the puzzle may be solved by rejecting the argument's first premise: One can say informatively of an object that it is identical with itself by referring to the object twice over, using singular terms that differ in sense. That is how "The capital of Honduras is Tegucigalpa" manages to be both true and informative. Identity statements are useful in ordinary language because we often refer to the same object from different points of view, using terms with different senses. (Frege's statement of the puzzle, and his solution, is in Frege 1892; see also Kripke 1980, Salmon 1986.)

THE LOGIC OF IDENTITY: LEIBNIZ'S LAW

Relations may be classified according to their general, logical characteristics. The logical characteristics of the identity relation are easily enumerated. First, as already noted, identity is reflexive: Every object is identical with itself. Second, identity is symmetric: If an object x is identical with an object y, then y is identical with x. Third, identity is transitive: If an object x is identical with an object y, and y is identical with an object z, then x is identical with z. A relation that is reflexive, symmetric, and transitive is called an equivalence relation. Finally, identity is the strongest equivalence relation, entailing all other equivalence relations: If an object x is identical with an object y, then x bears R to y, for every equivalence relation R. Since being the strongest equivalence relation (or, equivalently, being the strongest reflexive relation) uniquely characterizes identity in purely logical terms, identity may properly be classified as a logical relation and the theory of identity as a branch of logic.

All of the logical characteristics of identity can be derived from a single principle, sometimes called Leibniz's law: An object x is identical with an object y if and only if every property of x is a property of y and vice versa. Leibniz's law is a biconditional and thus the conjunction of two conditionals, one giving a necessary, the other a sufficient, condition for identity to hold. Say that an object x is indiscernible from an object y just in case every property of x is a property of y and vice versa. The half of Leibniz's law that gives a necessary condition proclaims the indiscernibility of identicals: If x is identical with y, then x is indiscernible from y. This principle is useful for establishing nonidentity: To show that x is not identical with y, it suffices to find a property had by x but not by y or vice versa. Most famously, perhaps, the principle has been used to argue that persons are not identical with their bodies. The half of Leibniz's law that gives a sufficient condition proclaims the identity of indis-

cernibles: If x is indiscernible from y, then x is identical with y (more on this below).

(Note that Leibniz's law is stated within second-order logic: It involves quantification over properties. The first-order theory of identity substitutes for Leibniz's law an axiom schema containing, for each [monadic] predicate of the language, an axiom stating: If x is identical with y, then x satisfies the predicate if and only if y satisfies the predicate. This schema, together with an axiom of reflexivity, entails the entire first-order theory of identity. The first-order theory is weaker than the full second-order theory; in particular, no logically sufficient condition for identity is expressible within first-order logic.)

The indiscernibility of identicals is beyond dispute: If x and y are identical, then there is only one thing; how can that one thing both have and not have some property? Nonetheless, the principle has been disputed. Consider the following attempt at a counterexample (discussed in Quine, 1953). It is true that Giorgione was so called because of his size, let us suppose, and that Giorgione is identical with Barbarelli; yet, apparently contrary to the principle, it is not true that Barbarelli was so called because of his size. But to see this as a violation of the indiscernibility of identicals, one would have to hold that the predicate "is so called because of his size" expresses some genuine property of objects and expresses the same property when applied to "Giorgione" as when applied to "Barbarelli." On the contrary, when considered in isolation the predicate expresses no property at all but rather a relation between objects and names. When applied to "Giorgione" it expresses the property was-called-Giorgione-because-of-his-size; and that property is true of Barbarelli, in accord with the indiscernibility of identicals. Other attempts at counterexamples are more subtle than this: But all seem to involve naively reading subject–predicate sentences as simple property-to-object attributions. (For examples involving modality see Cartwright 1971, Quine 1953).

IDENTITY OF INDISCERNIBLES

The other half of Leibniz's law proclaims the identity of indiscernibles; but now one must be careful just what "indiscernible" means. If indiscernibles have *all* of their properties in common, where properties are conceived abundantly, then the identity of indiscernibles is trivially true. For, on an abundant conception of property, for any object y there is the property is-identical-with-y. Now suppose that x is indiscernible from y. Then, since y has the property is-identical-with-y, x must have this property too; that is, x is identical with y, as was to be shown.

If we interpret "indiscernible" instead in terms of properties more sparsely conceived, for example, as "indiscernible in all qualitative respects," then we arrive at a substantial metaphysical principle, the identity of qualitative indiscernibles; the trivial "proof" above is blocked because properties such as is-identical-with-*a* (where "*a*" names some object) are not (or, at any rate, are not trivially) qualitative. There are different versions of the principle, however, corresponding to different interpretations of "qualitatively indiscernible"; and for each version one might ask whether the principle is logically necessary, is contingently true, or neither. Let us consider three versions.

According to the strongest (and least plausible) version, objects that share all of their intrinsic qualitative properties—intrinsic duplicates—are identical. This principle seems to be false even at the actual world: According to current physics, distinct elementary particles of the same kind—for example, distinct electrons—have all of their intrinsic properties (charge, mass, etc.) in common.

According to the second (and most familiar) version, objects that share all of their intrinsic and extrinsic qualitative properties—absolute indiscernibles—are identical. Absolute indiscernibles must not only be intrinsic duplicates, they must be exactly similarly situated with respect to all of their surroundings. But, surely it is at least possible that there be distinct yet absolutely indiscernible objects; that is, the principle is not necessarily true. For, to take the standard counterexample (from Black 1952), it is logically possible that the world contains nothing but two perfectly round globes, exactly similar down to their smallest parts and separated, say, by one meter. The globes share all of their intrinsic qualitative properties, having the same mass, shape, and so on. And the globes share all of their extrinsic qualitative properties—for example, each is one meter from a globe of a certain mass, shape, and so on. (Note that properties that would only be expressible using names for the globes, such as is-one-meter-from-globe$_1$, are not qualitative). In short, the globes are absolutely indiscernible; yet they are two, not one.

A defender of the identity of absolute indiscernibles might simply deny that there is any such possibility; but there is a substantial cost. The claim that it is logically possible that there be nothing but two absolutely indiscernible globes can be backed up by a subsidiary argument (Adams 1979). Surely, there could be nothing but two almost indiscernible globes, differing, say, only in the placement of a single atom. To hold that that atom could

not have been shifted in a certain way (because, if it had, there would have been two absolutely indiscernible globes), but that any other atom could have been shifted in that way, would amount to an implausibly inegalitarian approach to what is and is not possible.

Perhaps an even weaker version of the principle should be considered: Objects that share all of their qualitative properties, and stand in the same qualitative relations to any given object—relative indiscernibles—are identical. (On absolute vs. relative indiscernibility, see Quine 1960.) The possibility just considered of the two globes is not a counterexample to the necessity of this version: The globes are discerned by spatial relations; each globe is one meter from the other globe but not one meter from itself. A counterexample, however, is not far to seek. Consider the possibility that there be nothing but two absolutely indiscernible globes standing in no spatial relation (or other qualitative external relation) to one another, two absolutely indiscernible "island universes." (This possibility can be motivated, too, by first considering "almost" island universes, connected, say, by a single "wormhole.") Such globes would be relatively, as well as absolutely, indiscernible; they stand in no relations that could serve to discern them. So even this weakest version of the identity of qualitative indiscernibles seems not to be a necessary truth. (Indeed, it may not be contingently true: So-called identical particles in quantum mechanics are arguably distinct but absolutely and relatively indiscernible.)

IS IDENTITY DEFINABLE?

Identity has been characterized many times over. Do any of these characterizations provide a (noncircular) definition of the identity relation? Can identity be understood in terms not involving identity? Our initial characterization—that everything is identical with itself and with nothing else—clearly will not do as a definition: To be "else" is to be other, that is, nonidentical. Moreover, the characterization of identity as the strongest equivalence relation fares no better: Identity characterized by quantifying over all relations, identity included.

Leibniz's law gives a necessary and sufficient condition for identity by quantifying instead over properties. But among the quantified properties are haecceities, properties of being identical with some given object. The question whether an object *x* shares with an object *y* the property of being identical with *y* is just the question whether *x* is identical with *y*; the purported definition takes one around in a circle. Similarly defective is the oft-heard definition "*x* is identical with *y* if and only if *x* and

y belong to the same classes." The question whether *x,* like *y,* belongs to the class whose only member is *y* is just the question whether *x* is identical with *y.*

What if some version of the identity of qualitative indiscernibles were necessarily true (contrary to what was argued above)? That would indeed provide a noncircular criterion for the identity of *objects.* But the identity or distinctness of qualitative properties (and relations) would remain undefined. Indeed, any purported definition of identity would have to quantify over some sort of entity; the definition could not be understood without a prior understanding of the identity and distinctness of the entities quantified over. We must conclude, then, that identity, at least as applied to the most basic entities, must be taken as primitive and unanalyzable; there is no fully general (noncircular) definition of identity.

Questions remain, some of which might seem to pose problems for the classical conception of identity. We shall see, however, that in each case replies exist that leave classical identity unscathed. (Each of the issues raised below is discussed in Lewis 1993.)

PARTIAL IDENTITY

Classical identity is all or nothing; it never comes in degrees. Yet, when objects overlap, we may say they are "partially identical, partially distinct": And when objects extensively overlap, we may say they are "almost identical." Do we have here a challenge to classical identity? No, we have an ambiguity: Identity, in the sense that admits of degrees, is simply overlap; identity, in the classical sense, is equivalent to the extreme case of total overlap. The two notions of identity are not in conflict; they fit together as well as you please.

VAGUE IDENTITY

Classical identity is determinate and admits of no borderline cases. That is not to say that identity statements cannot be vague or indeterminate in truth-value. If I say "that cloud in the sky is identical with *A,*" where "*A*" names some precisely specified aggregate of water molecules, what I say may be neither determinately true nor false. But such vagueness resides in the reference of singular terms—in this case, "that cloud in the sky"—not in the identity relation itself.

Some philosophers, however, hold that there is vagueness, not only in our reference to objects, but in the objects themselves; not only in our language and thought, but in the world. Let us suppose, charitably, that such a view makes sense. Might not these vague objects be

vaguely identical? That depends. If vague identity is understood so that vaguely identical objects are neither determinately identical nor determinately not identical, then the answer is no, as the following argument shows. (Versions are in Evans 1978, Salmon 1981). Suppose *a* and *b* are vaguely identical; then they differ in some property, namely, being vaguely identical with *b.* For although *a* has the property, *b* does not: Nothing is vaguely identical with itself. By the indiscernibility of identicals, then, *a* is (determinately) not identical with *b.* So, vaguely identical objects are (determinately) not identical! That sounds odd; but there is no contradiction if vague identity is understood in some way that detaches it from indeterminacy of truth-value. So understood, vague identity poses no challenge to classical identity.

TEMPORARY IDENTITY

The Greek philosopher Heraclitus argued that one cannot bathe in the same river twice, something as follows. Rivers flow. The stretch of water that comprises the river on Monday is not the same as the stretch of water that comprises the river on Tuesday. But a river is not something separate and distinct from the stretch of water that comprises it; be it on Monday or on Tuesday, the river and the stretch of water are one and the same. It follows, by a double application of the indiscernibility of identicals, that the river on Monday is not the same as the river on Tuesday. If one bathes in the river on Monday, and returns to bathe at the same place on Tuesday, one has not bathed in the same river twice.

One wants to say: On Monday, the river is identical with a certain stretch of water; on Tuesday, the same river is identical with a different stretch of water. More generally, identity can be temporary, holding at some times but not at others. Temporary identity, however, is disallowed by the above argument, not just for rivers, but for all entities whatsoever. Should we abandon the classical notion of identity that the argument presupposes?

There are at least two responses to Heraclitus's problem compatible with classical identity. According to the first response (inspired by Aristotle, when we say that a river *is* just a certain stretch of water, we are using not the "is" of identity but the "is" of constitution; and constitution is never identity (see Lowe 1989). On this view there are two fundamentally different kinds of entities that occupy space and persist through time. There are ordinary material objects, such as rivers, trees, statues, and tables; and there are portions of matter that may temporarily constitute the ordinary objects. At any time an ordinary object is constituted by some portion of matter

or other; but at no time is it identical with that portion of matter, either wholly or in part. In particular, the very same river is constituted by one stretch of water on Monday and by a different stretch of water on Tuesday. No conflict arises with the laws of classical identity, and Heraclitus's problem is solved.

This response, however, is not without problems. A dualism of ordinary objects and the portions of matter that constitute them is neither necessary nor sufficient to solve the general problem of temporary identity. It is not sufficient, because some cases of temporary identity have nothing to do with constitution. Consider a tree that, at some bleak stage of its career, consists of nothing but a trunk. Later, however, the tree sprouts new branches and leaves. Then we have another prima facie case of temporary identity: The tree is identical with the trunk at the bleak time but not identical with the trunk at the happier time. In this case, however, invoking constitution is of no avail: Neither the trunk nor the tree constitutes the other, in the relevant sense. (This example is from Hirsch 1982.)

Nor is such a dualism necessary to solve the problem of temporary identity, because another response is available, one (arguably) more economical in its ontological commitments (see Hirsch 1982, Quine 1950). On this second response objects that persist through time are composed of (more-or-less) momentary stages, of temporal parts. A persisting river is a sum of stages unified in a way appropriate for rivers; a persisting aggregate of water molecules is a sum of stages unified in a way appropriate for portions of matter. A persisting river and a persisting aggregate of water molecules may overlap by having a stage in common; in that case a stage of the river and a contemporaneous stage of the aggregate of water molecules are identical. But the persisting river is not identical with the persisting aggregate of water molecules: Later stages of the river are in about the same place as earlier stages and are no less spatially continuous; later stages of the aggregate of water molecules are downstream of earlier stages and are spatially scattered. When we say that, at any time, a river is nothing separate and distinct from the water that comprises it, this must be understood as asserting not an identity between persisting objects but an identity between stages. Identity between stages, however, is all one needs to avoid the uneconomical dualism of the constitution view. All objects that occupy space and persist through time are composed of a single kind of entity: Stages of portions of matter. (The stage view of persistence is argued for in Lewis 1986.)

Heraclitus's problem is now easily solved. One cannot bathe in the same river stage twice; but one can bathe in the same river twice by bathing successively in two river stages belonging to a single persisting river. That these two stages are not stages of a single persisting aggregate of water molecules is irrelevant. There is no conflict with classical identity.

CONTINGENT IDENTITY

A change in example, however, makes trouble for the stage view of persistence. Consider a statue called *Goliath* that consists entirely of a lump of clay called *Lumpl*; and suppose that the statue and the lump came into being, and ceased to exist, at exactly the same times. Then, on the stage view, every stage of *Goliath* is identical with a stage of *Lumpl* and vice versa; *Goliath* and *Lumpl* are the same sum of stages and so are identical. But, surely, they are not necessarily identical. *Goliath* could have been destroyed without destroying *Lumpl*—say, by being squashed—in which case *Goliath* would have lacked *Lumpl*'s final stages and would have been a distinct sum from *Lumpl*. So, *Goliath* and *Lumpl* are identical, but only contingently identical. (The example is from Gibbard 1975.)

Trouble arises because contingent identity, no less than temporary identity, is incompatible with identity, classically conceived—or so the following argument seems to show. Consider the property is-necessarily-identical-with-*y*, for some object *y*. Surely *y* has it: Everything is necessarily identical with itself. Now suppose an object *x* is identical with *y*. Then, by the indiscernibility of identicals, *x* has the property as well; that is, *x* is necessarily identical with *y*. Thus, objects are necessarily identical if identical at all; objects are never contingently identical.

Whether this argument is unassailable will depend upon one's interpretation of modal properties, of modality *de re*. If objects have their modal properties absolutely, in and of themselves, then the argument is sound. Since *Goliath* and *Lumpl* are not necessarily identical, they are not identical at all. *Goliath* and *Lumpl* are numerically distinct objects that occupy the same place at all times that they exist. *Goliath* is not identical with any sum of matter-stages, contradicting the stage view of persistence.

The stage view can be preserved, however, if one takes the view that modal predicates do not apply to objects absolutely, in and of themselves; their application is relative to how the objects are conceived, classified, or referred to. For example, could the lump of clay—that is, the statue—have survived a squashing? *Qua* lump of clay, it could; *qua* statue, it could not. There is no violation of the indiscernibility of identicals because the modal predicate "could survive a squashing" expresses no property

when considered out of context and expresses different properties when attached to "the lump of clay" (or "Lumpl") and to "the statue" (or *Goliath*). In this way the stage view can accept the contingent identity of Lumpl and *Goliath,* without forfeiting classical identity. (For versions of this strategy, see Gibbard 1975, Lewis 1971.)

RELATIVE IDENTITY

Classical identity is absolute: Whether identity holds between objects does not depend upon how those objects are conceived, classified, or referred to. In ordinary language we often say "*a* is the same *F* as *b*," for some general term "*F*"; but this is naturally analyzed as a restriction of absolute identity: *a* is *F,* and *b* is *F,* and *a* is (absolutely) identical with *b*.

Geach has argued, on the contrary, that all identity statements are relative: "*a* is the same *F* as *b*" cannot be analyzed as restricted absolute identity, because there is no absolute identity; when we say simply "*a* is the same as *b*," some general term "*F*" must be supplied by context, or what we say is meaningless (Geach 1970). To support his claim, Geach has presented examples in which we would say: *a* and *b* are the same *F*, and *a* and *b* are *G*'s, but *a* and *b* are not the same *G*. Consider the word *tot*. It contains three letter tokens, two letter types. The first letter token and the last letter token are not the same letter token, but they are the same letter type. That contradicts the claim that "the same *F*" is to be analyzed as restricted absolute identity.

The defender of classical identity has a simple and natural reply: Sometimes the relation is-the-same-*F*-as is not restricted identity but rather some weaker equivalence relation; that is, sometimes it is a species of qualitative, rather than numerical, identity (see Perry 1970). For example: If I say that you are wearing the same coat as I am, I (probably) do not mean the numerically same coat. Similarly, letter tokens of the same type are qualitatively similar—equiform—not numerically identical. To the extent that Geach's point is just that "the same *F*" cannot always be analyzed as restricted identity, it is a point no one should deny.

Any rejection of absolute identity, it seems, must be based upon arguments of a more abstract sort. Indeed. Geach explicitly rejects the standard characterization of identity through Leibniz's law on the grounds that second-order quantification over properties leads to paradox. And he rightly points out that, within first-order logic, characterizations of identity are inevitably relative to the predicates of the language. But how does this impugn the meaningfulness of absolute identity? Does Geach's argument simply amount to the demand, Define absolute identity, or count it as meaningless? That demand, certainly, is too strong. No fundamental notion of logic or metaphysics could meet it.

See also Aristotle; Frege, Gottlob; Heraclitus of Ephesus; Kripke, Saul; Leibniz, Gottfried Wilhelm; Modality, Philosophy and Metaphysics of; Personal Identity; Properties; Quine, Willard Van Orman; Vagueness.

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IDENTITY OF INDISCERNIBLES

See *Identity*

IDENTITY OF MENTAL AND BODILY STATES

See *Mind-Body Problem*

IDEOLOGY

Though often employed as a catchall term in contemporary usage, including some philosophers' usage, *ideology* has a clearly identifiable historical origin and since its invention has borne some clear though disparate meanings (as well as, to be sure, some unclear ones) in several traditions of thought, most notably in the Marxian tradition.

It was Antoine Destutt de Tracy who, toward the end of the eighteenth century, conceived the notion of developing a science of ideas that would trace them back to their supposed material elements. The group around him became known as the *Idéologues* and at first found favor with Napoleon Bonaparte, whose coup ending the period of the French Revolution and its immediate aftermath they at first applauded. But they soon became his vehement critics (concerning, for example, his policy-driven revival of religion), and Napoleon returned the compliment by denouncing them for, among other things, allegedly indulging in wild ideas rather than respecting the exigencies of the concrete political situation. Thus did "ideologists" become an epithet, an expression of contempt.

As such, the term was picked up and used by Karl Marx and Friedrich Engels some four decades later. In *Die Deutsche Ideologie* (*The German Ideology*, 1976), a lengthy work, they lampoon their neo-Hegelian near-contemporaries, notably Ludwig Feuerbach, Bruno Bauer, and Max Stirner, on the ground that the supposedly weighty disputes of the latter are pseudobattles among merely abstract, primarily theologically based ideas, lacking any influence on, or even much connection with, the actual sociohistorical world. Here, "ideology" is equated with religion, metaphysics, moral theory, and similar products of pure consciousness and is given roughly the same highly pejorative valence, though affixed to an entirely different object, as that formerly given by Napoleon to the objects of his wrath.

But, unlike some of Marx's criticisms of the idealist philosophy of G. W. F. Hegel himself, which were printed during Marx's lifetime, *The German Ideology* was not actually published, and hence its textual details were not generally known, until 1932. Marx does, however, mention it, in a brief autobiographical sketch that appeared in 1859, as having been the early outcome—one left to the "gnawing criticism of the mice" when the original arrangement to have it published fell through—of his and Engels's newly elaborated systematic opposition to the "ideological" standpoint of German philosophy. At the same time, in their widely circulated *Manifesto of the Communist Party* of 1848 they at one point allude to the anticipated defection from class solidarity of a section of the bourgeois class, notably some (though by implication just a few) of the bourgeois ideologists, by virtue of the latter's having achieved a comprehensive overview of the process of history. While this passage is revealing as a veiled self-reference, it is equally interesting for its suggestion that "ideology" can have a positive connotation, as well. Hence the later ambivalence of the term in Marxist and non-Marxist contexts alike is already to be found in the classical writings of the Marxian tradition.

CONNOTATIONS IN LATER MARXISMS

The pejorative understanding of "ideology," linked as it is to the idea that *most* philosophers and other intellectuals typically engage in mystificatory, distortive justifications, or legitimizations, of the existing social order with the effect of reinforcing the dominant insitutions of the ruling class of which they are a part, continued to predominate especially in so-called "Western Marxism." By this is meant those strands of neo-Marxist thought that preserved their independence from the Communist Party, based primarily in the Soviet Union from the time of the Russian Revolution until the final decade of the twentieth century, the successive leaders of which stipulated the terms of what they considered to be orthodox Marxist theory.

Western Marxists, accused of "revisionism" by these leaders and their followers, tended rather to consider the wooden, dogmatic style and content of "orthodox Marxist" writings to constitute a serious distortion of Marx's ideas. For example, Herbert Marcuse, a leading figure in the early Frankfurt School in Germany before migrating to the United States, retained, analyzed, and applied the pejorative sense of the term "ideology" both in his 1958 critique of the Soviet Union, *Soviet Marxism*, and in his

early 1960s indictment of Western society as tranquilized, democratic, but profoundly unfree, *One-Dimensional Man* (1966). Similarly, his erstwhile Frankfurt colleague, Theodor Adorno, another strong social critic, equated "ideology" with "false consciousness" and regarded it as being characteristic of those who are obsessed with enforcing identity and conformity and who fail to respect differences. The best-known member of the "later" Frankfurt School, Jürgen Habermas, while he has diverged from Marxism in a great many respects, has continued to equate ideology with systematically distorted communication, to be combated through what he calls emancipatory critique.

The self-styled "orthodox" Marxists, however, took their cue on the question of the meaning of ideology above all from the Russian revolutionary leader, V. I. Lenin, who in his early call to arms, *What Is to Be Done?*, insisted that a clear-cut choice had to be made between bourgeois ideology, which he contemned, and "socialist" ideology, which he espoused and thought it necessary for professional revolutionaries to inculcate in the minds of the masses. Most of the subtler thinkers within the orbit of the Communist Party, such as the Hungarian György (Georg) Lukács (1971) and the Italian Antonio Gramsci, also saw ideology as a potentially and at least partially positive phenomenon, with Lukács depicting Marxism as the ideological expression of the proletarian class. One of the most complex and idiosyncratic conceptions of ideology to be developed by someone who was at the time a Communist Party member was that of the once influential French philosopher Louis Althusser (1969): He contrasted ideology with science, of which he saw Marx's theory of history as a leading instance, but at the same time he took ideology to be a pervasive and ineliminable part of human experience, regardless of a given historical society's class configurations.

NON-MARXIST CONCEPTIONS

In *Ideology and Utopia* Karl Mannheim (1986), the German sociologist of knowledge who was himself influenced by the early Lukács, distinguished between what he called the "particular" and the "total" concepts of the term, the former being linked with suspicion concerning the motives of others as interested and biased—in other words, "ideology" as more purely pejorative—and the latter characterizing the comprehensive views of many large groups, such as classes, in the modern world. "Ideology" in the latter sense is to be seen as a pervasive historical phenomenon. Espousing a nonevaluative approach to the understanding of diverse worldviews (*Weltan-schauungen*) that he denomi-

nated "relationism," Mannheim in effect paved the way for the much broader, more all-encompassing, less critical usage of the term "ideology" that has become common.

No treatment of the meandering evolution of this term could pretend to adequacy without noting the curious recurrence of announcements that its supposed referent has, or may have, ceased to exist. Political scientists, such as Seymour Lipset, and other philosophically oriented sociologists, such as Raymond Aron, have evoked this as at least a possibility, but no doubt its most famous assertion occurred in a lengthy tome by Daniel Bell, an American sociologist strongly influenced by the Marx scholar and philosopher turned fervent anticommunist, Sidney Hook. The title of Bell's book, especially its less well-known subtitle, accurately captures its principal claim; it is *The End of Ideology: On the Exhaustion of Political Ideas in the Fifties* (1960). Understandably, but rather unfortunately, Bell's main title led to oversimplified interpretations of what he actually intended, which was *not* an umbrella thesis supposedly applicable to all future times and places.

To some (e.g., Hannah Arendt), ideology means totalitarianism, of which Communist ideology is a salient example; to others (e.g., Edward Shils attempting to define the term in the *International Encyclopedia of the Social Sciences*), it means, above all, intolerant belief systems that are by and large inimical to science. It is in any case evident that the confusion and even contradictoriness of meanings of the term that are traceable to its historical origins have continued to characterize its deployment, which remains widespread in the literatures of philosophy, political science, sociology, psychology, literary theory, and even popular journalism despite its alleged demise as a phenomenon at the end of the 1950s.

EVALUATION

Apart from those, if there are any, who still share Destutt de Tracy's youthful confidence in the possibility of generating a materialist science of ideas based on an analysis of the origins of their components, it would seem that "ideology" would indeed lose its purpose as a part of our vocabulary if all negative, critical connotations were to be excised from it. At least one important meaning of it remains, and should continue to remain, that of suspect generalized claims, often entire theories, which purport to be true but are in fact intellectual constructions designed to reinforce particular interests, especially the interests of those in power. Although many of those who believe in particular "ideologies" as so understood may do so unreflectively—in an important sense, after all, it is

the aim of skilful ideologists to maximize the number of such believers—ideologies in this sense of the word should in the last analysis be capable of being unmasked as sophistic and in bad faith.

But there are a number of philosophical problems involved in elaborating a coherent conception of ideology. The first of these concerns the question of one's basis for designating another's set of propositions or beliefs as ideological: How can one be sure that one's own supposedly critical standpoint is not itself ideological? May it not also be, in the last analysis, merely an elaborate apologia for an alternative special interest aspiring to social dominance? Marx and Engels thought to evade this difficulty by painting the proletariat as the class, the coming to power of which would usher in a classless society, without particular interests or internal relationships of dominance and subordination; hence, they believed, the class consciousness of the proletariat, history's first truly "universal class," should be regarded as radically different in kind from the bourgeois, feudal, and other ideological standpoints of the past. But may this not be just one more intellectual sleight of hand?

Another problem inherent in the conception of ideology as critical and "suspicious" is that of its explicit or implicit tendency to relegate philosophy itself, in its various branches, to the realm of ideology. At times Marx and Engels wrote as if philosophical and other ideas were in fact just epiphenomena, ghostly by-products of a real world of which the "base" consisted of the dominant forces of production; that is, the crafts, industries, and technologies of any given historical period, and the "superstructure" consisted of the political, legal, and other institutions developed in conformity with those forces. This conception, taken to its extreme, would deny that ideological phenomena have any autonomy, any force—in other words, that ideas as such can ever have real consequences. But such a claim runs counter to much of human experience. (Engels himself lived long enough to express regret over this misinterpretation of his views. He located its origin in the long past *Zeitgeist* of the era when he and Marx had begun formulating their own ideas, an era when the Hegelian and neo-Hegelian idealist philosophies, to which they were so opposed, were in the ascendancy.)

Ultimately, of course, the fundamental problem concerning ideology is the fundamental problem of virtually all of philosophy; that is, the problem of truth itself. How could we ever succeed in assuring ourselves and others, beyond all doubt, that a claim or set of claims that we assert to be an ideological distortion of the "true" state of affairs actually is such? For to do so would presuppose, contrary to *all* past experience, a complete and comprehensive grasp, on our part, of the true state of affairs.

See also Cosmopolitanism; Postcolonialism; Republicanism.

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IKHWĀN AL-ṢAFĀ'

The Ikhwān al-Ṣafā' (The Brethren of Purity or The Sincere Brethren) were the anonymous adepts of an esoteric fraternity of lettered urbanites that was principally based in the Mesopotamian cities of Basra and Baghdad in the second half of the tenth century CE. This learned brotherhood occupied a prominent station in the history of science and philosophy in Islam due to the wide intellectual reception of their famed tracts the *Rasā'il Ikhwān al-Ṣafā'* (The epistles of the brethren of purity). The exact

dating and authorship of this encyclopedic compendium remain unsettled polemical questions, and it is widely assumed that the provenance of the Ikhwān's ideas is primarily ascribable to Ismāʿīlī sources. Nonetheless, this is controversial, and it is rather more circumspect to attribute their outlook to a broadly Shīʿī lineage.

The Ikhwān's corpus displays a tolerance for multifarious pagan and monotheistic traditions. Besides their filial observance of the teachings of the Qurʾān, the Ikhwān also reverently appealed to the Torah of Judaism and to the Gospels of Christianity, primarily in their accounts of prophetology. In addition, they heeded the legacies of the Stoics and of Pythagoras, Hermes, Socrates, Plato, Aristotle, Plotinus, Euclid, Ptolemy, Porphyry, and Iamblichus. They moreover strived to establish some form of harmony between faith and reason, in a manner that is partly reminiscent of the practices of al-Fārābī (d. 950), Avicenna (Ibn Sīnā) (d. 1037) and Averroes (Ibn Rushd) (d. 1198).

Motivated by an active soteriological pursuit of happiness, the Ikhwān promoted a convivial and earnest companionship of virtue. Their eschatological views were furthermore articulated by way of an intricate cyclical view of history and an uncanny hermeneutic interpretation of the microcosm and macrocosm analogy. The multiplicity of the voices that were expressed in their tracts reflect a genuine quest for wisdom that is driven by an impetus that is not reducible to a mere eclecticism. Their ecumenical syncretism, which may have been partly influenced by the outlooks of the Sabaeans of Harran, grounded their aspiration to establish a spiritual refuge that would transcend the sectarian divisions that beset their era.

Customarily enumerated as fifty-two epistles, the Ikhwān's *Rasāʾil* offer synoptic explications of the classical sciences of the ancients and the moderns of the age. Divided into four classificatory parts, these treatises treated themes in mathematics, logic, physics, psychology, and theology. This series was also accompanied by a concise tract titled: *al-Risāla al-Jāmiʿa* (*The Comprehensive Epistle*), which acted as the summary of their corpus, and was supplemented by an abridged appendage known as *Risālat Jāmiʿat al-Jāmiʿa* (*The Condensed Comprehensive Epistle*).

The eloquent literary style of the *Rasāʾil* covers the technicalities of mathematics, logic, physics, and medicine, together with religious speculations, occultist incantations, along with the poetic elaborateness of fables, odes, and didactic parables. Although the influence of the *Rasāʾil* in Ismāʿīlī circles was prominent, and in spite of being partially manifest in various doctrinal citations in Islam, the impact that these epistles may have had on the philosophers and the dialectical theologians has been rather exaggerated. In spite of the extensive thematic scope of the *Rasāʾil*, which may have occasionally been plagued by repetitions, these epistles do not establish a convincing intellectual relationship with the achievements of the classical authorities of Arabic sciences and philosophy. Despite being usually classed as philosophers, the Ikhwān would more fairly rank as learned compilers of knowledge when compared with the philosophical luminaries of the period.

Although the Ikhwān's erudite reflections on spirituality show signs of originality, this does not make the *Rasāʾil* the principal reference for all the disciplines that they endeavored to tackle. Their investigations in geometry, arithmetic, logic, and physics remained diluted in essence, and although these inquiries were complemented by oral instructions in seminars, they nevertheless represented a minor aspect of the disciplines they addressed. Even though it is usually claimed that Avicenna may have been implicitly influenced in his intellectual formation by their teachings, his philosophical acumen remained superior to that of the Ikhwān. A similar observation may be made concerning the Ikhwān's impact on the unfolding of the Illuminationist and emanationist tenets in Islam, or the implicit influence that they may have exercised on the dialectical doctrines of the exponents of *kalām*. Moreover, although some Shīʿī illuminati and Sunnī literati may have professedly cited the tutelage of the Ikhwān, this did not entail that they were affiliates of this line in thinking. Despite some of these scholarly shortcomings, the *Rasāʾil* represent a commendable populist adaptation of science and philosophy that merits the privilege of being ranked among the high literature of Islam.

See also al-Fārābī; Aristotle; Averroes; Avicenna; Islamic Philosophy; Neoplatonism; Plato; Plotinus; Porphyry; Stoicism.

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Nader El-Bizri (2005)

IL'IN, IVAN ALEKSANDROVICH
(1883–1954)

Ivan Aleksandrovich Il'in was a Russian religious philosopher, legal and political theorist, philosopher of Russian national identity, orator, and publicist. Born in Moscow of a noble family, he studied law at Moscow University, from which he graduated in 1906. Deemed an extraordinary scholarly achievement, his dissertation on Georg Hegel (1770–1831) earned him at once master's and doctoral degrees in 1918. The two volumes of his published dissertation, *Filosofiia Gegelia kak uchenie o konkretnosti Boga i cheloveka* (The philosophy of Hegel as a doctrine of the concreteness of God and man, 1918), have been described as one of the more significant commentaries on Hegel published in the twentieth century in any language (Grier 1997). As a resolute foe of the Bolsheviks, he was exiled from Soviet Russia under threat of execution. Il'in and his wife left Russia for Germany in 1922. He was a renowned anti-Bolshevik and anticommunist, which suited the Nazis, but his critique of totalitarianism was not at all appreciated by the Nazi regime. Moreover, in 1934 he refused to accept their orders to spread Nazi propaganda in the Russian Academic Institute and was subsequently removed from his post by them and banned from all further employment. Finally, in 1938 he and his wife escaped from Nazi Germany and found refuge in Switzerland.

In his book *Religioznyi smysl filosofii* (The religious meaning of philosophy, 1925) Il'in proposed the following task to his readers: "To find authentic, spiritually objective environments." The spiritual labor of such a philosopher approximates that of the monk. They differ only in that the former occurs in the realm of cognition, while the latter seeks redemption. Both the philosopher and the monk comprehend, Il'in believed, that the world is "really a school where reasonable souls exercise themselves, a training ground where they learn to know God" (see St. Basil the Great's [c. 329–379] *Hexaëmeron* 1.6).

POLITICAL THEORY OF LEGAL CONSCIOUSNESS

Convinced that Hegel's doctrine of right and the state was ultimately a failure, Il'in began to elaborate his own theory in 1919, while still in Soviet Russia. It was published posthumously as *O sushchnosti pravosoznaniia* (On the essence of legal consciousness) in 1956. The central notion in it is *pravosoznanie*, from *pravo* (right or law) and *soznanie* (consciousness), which can perhaps best be translated as "legal consciousness." He formulated three axioms of legal consciousness—"a feeling of one's own spirit dignity; an ability to self-obligation and self-government; a mutual respect and trust of people to each other" (1956b, chapters 15, 17, 19)—and added nine axioms of authority, which included its *pravovoe polnomochie* (legal plenary powers), that the state authority must be *edina* (singular) and that it must be realized by "the best" people who meet ethical and political qualification (chapter 14). Then he joined natural law and positive law (i.e., legal norms including agreement with morality and justice, and legal norms established by legal authority and being subject to application) in an appropriate way: "A rational system of positive law would reflect the structure of natural law" (chapters 5, 6). Unfortunately, our political reality does not give a good example of even an approximate realization of such a doctrine.

ETHICS DOCTRINE

On the Essence of Legal Consciousness contains a number of uncommon but profound observations that are useful

to any national leader who wishes to have "a deeper religious and moral motivation" for ruling, for example, to follow Il'in's conception in which "the ultimate justification of state authority would be the development in the citizenry of a moral, legal and spiritual culture in which the requirements of natural rights would be so widely exemplified in human conduct as to make genuine self-government a reality" (Grier 1998, p. 693)

In 1925 Il'in published his polemical book *O sopro-tivlenii zlu siloiu* (On resistance to evil by force), concerning an important dual ethical problem: "May a human being who is trying to achieve ethical perfection *resist* evil by force, using the sword?" and "May a human being who believes in God and accepts His creation, and who knows his place in this created world *not resist* evil by force, using the sword?" (1925, chapter 19). Il'in gave a single direct answer to both: that one not only *may* but *must* also resist evil by force. He wrote:

> Physical intervention and coercion may become the direct religious and patriotic duty of a human being; and once this happens one must not evade it. To fulfill this duty is to become a participant in the great historical battle between God's servants and the forces of the underworld; and this battle will force him not only to draw his sword but to take upon himself the burden of homicide. (chapter 19)

This book evoked a strong response not only in the Russian émigré community but in the Soviet Union as well (Poltoratzky 1975, Lisitsa 1996).

Il'in lived and worked with the single-minded purpose of reconstructing Russia in an authentic way in the aftermath of the Bolshevik regime. He wrote *Osnovy gosudarstvennogo ustroistva: Proekt Osnovnogo Zakona Rossii* (The foundations of government: A proposal for the fundamental law of Russia, 1996) as a post-Bolshevik constitution. Between 1940 and 1954 he produced 215 anonymous bulletins for a restricted list of readers only, and these *Nashi zadachi: Stat'i 1948–1954* (Our tasks: Articles 1948–1954) were published in 1956 in two volumes only after his death. This two-volume work is nothing other than an "Axiomatics of Political Life," analogous to his *Aksiomy religioznogo opyta* (Axioms of religious experience, 1953); it is clearly intended to treat the disease of "political nihilism."

RELIGIOUS THOUGHTS

Between 1938 and 1945 Il'in created in German a wonderful literary triptych—*Ich schaue in Leben: Ein Buch der*

Besinnung (I am peering into life: A book of thoughts, 1938–1939), *Das verloschollene Herz: Ein Buch stiller Betrachtungen* (The singing heart: A book of quiet contemplations, 1943), and *Blick in die Ferne: Ein Buch der Einsichten und Hoffnungen* (A look in the distance: A book of reflections and hopes, 1945)—and described it as "devoted not to theology, but to a quiet, philosophical praising of God." Despite all the striving of humanity to unveil the mystery of world creation, it has been losing access to this mystery on the path that it has selected. "For the world remains as before," wrote Il'in, "i.e., a great mysterious wonder, created by a rational inner Authority, carried by a rational inner force, and moving toward a certain inner goal" (*Put' k ochevidnosti* [The path to self-evidence], 1957, chapter 18). And this "lost mystery" might be returned to humanity through a contemplative heart, but only if the heart is open, loving, and marveling.

In 1953 Il'in published in Paris *Axioms of Religious Experience*, his main work, in two volumes on which he had been working for thirty-three years. It was a profound and original investigation of the personal "religious act." One of its axioms, "The autonomy of religious experience," and the motifs connected with it, such as "loneliness" and "tragedy in the world," were received somewhat critically by the Russian theologians Archimandrite Kostantin Zaitsev and Father Vladislav Sveshnikov. And yet Il'in derived this axiom from one of the Church Fathers, Petrus Chrysologus, who described God as *solus, sed non solitarius* (God alone is, but He is not lonely).

When Il'in died on December 21, 1954, and was buried in a cemetery in the village of Zollikon, near Zürich, there appeared on his monument an epitaph composed by the philosopher himself:

Alles empfunden	(Felt it all
So viel gelitten	Suffered so much
In Liebe geschauet	Had it revealed through love
Manches verschuldet	Guilty of some things
Und wenig verstanden	Understood very little
Danke Dir, ewige Güte!	Thank you, eternal Goodness!)
	(Il'in 1993).

Il'in's legacy is enormous and well preserved. It contains more than 40 books and brochures, 600 articles, 100 lectures, a large collection of letters, humorous poems, several "naive political fairy tales," memoirs, and documents that are in several archives in various countries. Il'in's largest archive was organized in 1963 by Professor Nikolai Poltoratsky at Michigan State University

Libraries. This collection and other materials are being published as a project of the publisher Russkaia Kniga (Russian Book) in Moscow, and are expected to contain forty volumes in the series *I. A. Il'in: Sobranie sochinenii v desiati tomakh* (Il'in, I. A., Collected Works), Moscow: Russkaia Kniga, 1993–1999.

See also Authority; Consciousness; Hegel, Georg Wilhelm Friedrich; Natural Law; Philosophy of Religion, History of; Russian Philosophy.

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ILLUMINATION

The idea of a divine "illumination" in the mind occurs in both philosophical and religious contexts. Often it forms one of the links between the two types of thought, and sometimes it bears distinctly religious overtones even in its more philosophical applications. This is one of the characteristic features of the theory of illumination in the thought of Plato, where it played, for the first time in its long history, a major part. Plato, like many other thinkers, creative artists, prophets, and mystics, spoke readily of the sudden flash of understanding or insight in the mind as a flood of light (see, for example, his *Seventh Letter,* 341C, 344B). The image is, indeed, one that occurs naturally in many languages and is especially apt for the description of insight thought to have been achieved as a result of external aid of some kind, of an "inspiration." The language of inspiration is based on the entry of breath, and that of illumination on the entry of light into the mind. The Stoic tradition can be said to have developed the former analogy in its metaphysics; Plato was undoubtedly the father of the philosophical tradition to which the analogy of light is fundamental.

In his *Republic,* Plato employed the analogy of light and vision to describe the process of understanding or of knowledge in general (Books V–VIII). The mind's knowledge of the world of intelligible reality, of the forms or ideas, was held to be analogous to the awareness of material objects accessible to the eye's vision when illuminated by the light of the sun. Plato developed a detailed correspondence between physical and intellectual sight (*Republic* 507f.), according to which the mind corresponds to the eye and the form to the physical object seen; an "intellectual light" emanating from the supreme

form, the Good, and pervasive of the whole intelligible world as well as the mind, corresponds to the sun. Understanding, in terms of this analogy, depends on the intellectual illumination of the mind and its objects, just as vision depends on a physical illumination of the eye and its objects.

A theory of this type, in one or another of many variant forms, became an essential part of a vast body of thought cast in Platonic molds. During the Hellenistic and Roman periods it was widely diffused and incorporated into Jewish and Christian thought. In the Hellenized Judaic milieu of Alexandria the divine wisdom was sometimes spoken of in terms of light, for instance, by the author of the book of Wisdom, who referred to it as "an effulgence of eternal light," which he interpreted as an image of God's goodness (7, 26). Thoughts of this kind found a place in the work of Philo and in the prologue to the Fourth Gospel. Middle-Platonist thinkers, such as Albinus, took the step—perhaps already hinted at by Plato in some passages—of placing the forms within a divine mind and, in effect, identifying the "intelligible world" with the mind of God. In this way a long and rich future was prepared for the theory of illumination within the body of Christian thought.

In Christian thought it is in the work of St. Augustine of Hippo that the theory of illumination is found in its most highly developed form. Like Plato, Augustine thought of understanding as analogous to seeing. Understanding, or intellectual sight, was therefore, he held, conditional on illumination, just as physical sight was; only here the light was the intelligible light that emanated from the divine mind and in illuminating the human mind endowed it with understanding. Understanding, in the last resort, was an inward participation of the human mind in the divine. The scope of illumination was further extended, at the cost of precision, in the work of the pseudo-Dionysius. His favorite designation for God, the absolutely transcendent One, was in terms of light. God is the intelligible light beyond all light and the inexhaustibly rich source of brightness that extends to all intelligence. His illuminating activity gathers and reunites all that it touches; it perfects creatures endowed with reason and understanding by uniting them with the one all-pervading light (*De Divinus Nominibus,* IV, 6). In true Neoplatonic fashion, the pseudo-Dionysius conceived of the cosmos as a hierarchically ordered system, descending in order of reality and value from its source, the One. Illumination, in general terms, is the means by which intellectual creatures ascend and return to unity, and the "hierarchy" (understood as extending through both the cosmos and the church) is defined as the divine arrangement whereby all things, participating in their measure in the divine light, are brought back to as close a union with the source of this light as is possible for them (*De Coelestia Hierarchia,* III, 1). In a more special sense, illumination is the second of three phases—namely purification, illumination, and perfection—of man's return to the One. In this more specialized sense the church's sacramental system and the grades in the ecclesiastical hierarchy concerned with its administration are agencies of divine illumination. Illumination is the intermediate stage of approach to God, between initial purification and final perfection (*De Ecclesiastica Hierarchia,* V, 1, 3). In the most restricted sacramental contexts "illumination" thus becomes synonymous, in accordance with an old Christian usage, with "baptism." In the work of the pseudo-Dionysius the theory of illumination was merged with an inclusive conception of the spiritual life formulated in the language of light and illumination.

The reputation enjoyed by Augustine and by the writings of the pseudo-Dionysius in the Middle Ages assured their views a long future. In the thirteenth century the rise of Christian Aristotelianism provided the first serious alternative theory of knowledge. In this there was no place for the intervention of a divine illumination as an essential constituent of knowledge. Knowledge was accounted for entirely in terms of mental activity and its objects, and no reference to God was necessary to explain it. Nevertheless, the *lumen intellectuale* of the mind was held to be a participation in the *lumen divinum* of the divine mind, since God was present everywhere, in the mind no less than in other things. In this way Christian Aristotelians, such as St. Thomas Aquinas, were able to endorse some characteristically Augustinian statements in spite of the fact that their theories of knowledge were built on a radically different structure. The Augustinian version of the theory of illumination continued to have a vogue among some thinkers of the thirteenth century, such as St. Bonaventure, and even later. It found echoes in the thought of some modern philosophers, such as Nicolas Malebranche. Increasingly, however, in the later Middle Ages and after, the language of illumination, especially as elaborated by the pseudo-Dionysius, became the special property of mystical writers and writers on the spiritual life.

See also Alcinous; Augustine, St.; Bonaventure, St.; Malebranche, Nicolas; Plato; Pseudo-Dionysius; Thomas Aquinas, St.

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R. A. Markus (1967)
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ILLUMINATIONISM

Illuminationism (also, Illuminationist philosophy) is the name given to a school of philosophy founded in the twelfth century by the innovative Persian philosopher, Shihāb al-Dīn Suhrawardī (d. 1191), who is well-known by the honorific epithet, "Master of Illumination" (Shaykh al-Ishrāq).

BACKGROUND

The philosophy of Illumination is a holistically constructed system that aims to refine the period's peripatetic philosophy, which was known predominantly in the corpus of philosophical writings by the acclaimed Persian philosopher and scientist, Abū ʿAlī Sīnā, well-known in European traditions as Avicenna, the latinized version of his name. The intense Greek-inspired scientific and philosophical activity from the ninth to the eleventh centuries, centered mainly in Baghdad (the Abbasid Caliphate's political, cultural, and scientific capital), but also in the emerging centers of learning in Iran (such as the cities Rayy, Hamadan, Isfahān, and Nayshpur) as well as central Asian centers of Pesianate.

Linguistic and cultural influence produced remarkable results manifest in many texts covering the range of pure and applied sciences, including medicine, astronomy, mathematics, logic and philosophy, and so on. In this, the creative period of Islamic philosophy, two domains of intellectual endeavor, political philosophy and holistic theoretical philosophy, are defined and creatively expressed in texts that together constitute the dominant side of Islamic philosophy to this day. In practical philosophy the Persian thinker Abu Naṣr Fārābī (875–950)—Abunaser, or Alfarabius in medieval Latin texts, also called "The Second Teacher"—creates seminal works of political philosophy, such as *Opinions of the Inhabitants of the Virtuous City*, where he redefined Greek political philosophy and theorized that human beings could gain access to "prophetic" yet objective knowledge through conjunction with the Active Intellect, not restricted to Divine Will. His political order, legislated by a founding prophet-lawgiver and "scientifically" reformed by learned (ʿulamā) guardians, ensured just rule necessary for the universal pursuit of earthly and eternal happiness.

In theoretical philosophy Avicenna's texts, *Healing* (*al-Shifā*); *Directives and Remarks* (*al-Ishārāt wa al-Tanbīhāt*); and *Deliverance* (*al-Najāt*) define Islamic Peripatetic philosophy, which has had the greatest impact on all subsequent philosophical works to this day. This highly creative rationalist philosophical endeavor was, however, seriously curtailed by the antirationalist movement of Ashʾarite theology augmented by the antiphilosophical polemics of the state-sponsored theologian, Abu Ḥāmid Ghazzālī (d. 1111). This is where Illuminationism is critical, for had it not been for the definition and construction of the philosophy of Illumination by Suhrawardī the unbound and creative philosophical endeavor could have died out altogether in the history of Islam. As is, in part due to antirational polemics and fundamentalist religious zeal, much of Islam's intellectual life became confined by structures defined and dictated by Juridical creed.

The impact of such polemics is seen in the philosophical sphere where scholastic philosophical compositions after Avicenna are reduced to the production of "textbooks" (e.g., Athīr al-Dīn Abharī's Guide to Philosophy [*Ḥidāyat al-ḥikma*]) limited by theological presuppositions, whereas philosophy, if allowed, is employed solely as the handmaiden of theology. For awhile the Mongol rule of eastern Islam did allow for a properly free and creative scientific endeavor, which in the philosophical domain is exemplified by noted thinkers who, starting in the thirteenth century, wrote commentaries on Suhrawardī's texts and also composed independent works, some distinctly inspired by the Illuminationist system.

It is in this respect that one can witness an Illuminationist-inspired analytical trend that helped rescue genuine philosophy from deteriorating altogether to dogmatic theology or to ideological mysticism. In part the origins of Illuminationism may be viewed as attempts to respond to antiphilosophical polemics. The Illuminationists' daring philosophical position, however, was that peripatetic philosophy itself needs to be refined and reconstructed to remove a set of presumed logical gaps, and to provide epistemological and other theories to better explain being, knowing, and cosmology. For the most part—specifically in philosophical circles—Aristotle's authority was unquestioned, and Avicenna's work was considered the perfect and consistent Arabic and Persian expression of Aristotelian philosophy. Suhrawardī is among the first philosophers to raise well-reasoned, non-polemic, and nonideologically driven objections against Aristotelian philosophy. His aim—to refine philosophical arguments by rethinking the set of questions that constitute holistic systems—does lead to novel analysis covering the principles of knowledge, ways of examining being, and of new cosmological constructs. The Illuminationist legacy exemplifies refined rational process, and must not be confused with polemics to refute reason, nor to change reason to subjective, social, and ethical mysticism.

II. ORIGINS AND CONSTRUCTION OF ILLUMINATIONIST PHILOSOPHY

The most important and clearly stipulated aim of the philosophy of Illumination is the construction of a holistic system to define a new method of science, named "Science of Lights"(*ʿilm al-anwār*), a refinement of Aristotelian method, and capable of describing an inclusive range of phenomena where peripatetic theory has been thought to have failed. Suhrawardī's novel ideas are expressed in four major texts that together constitute the new system and form an integral and ordered syllabus on the philosophy of Illumination. They are: the first text, *the Intimations* (*al-Talwīḥāt*); and second its addendum, *the Apposites* (*al-Muqāwamāt*), composed in standard peripatetic structure and language with the aim to present a working synopsis of Avicenna's philosophical system, but also to point out the elements where the Illuminationist position differs from that of the peripatetic and to introduce arguments to prove the former. The third text is *the Paths and Havens* (*al-Mashāriʿ wa al-Muʔāraḥāt*), the longest of Suhrawardī's compositions, in which he presents detailed arguments concerning Illuminationist principles in every domain of philosophical inquiry set

against those of the peripatetics, mainly the strictly Avicennan.

The fourth text of the corpus is the text eponymous with the system itself, *the Philosophy of Illumination* (*Ḥikmat al-Ishrāq*), and is the most well-known of all of Suhrawardī's works. This text is the final expression of the new analysis and its systematic construction; it is structured differently than the standard three-part logic, physics, and metaphysics of peripatetic texts, and it employs a constructed symbolic metalanguage named the "Language of Illumination" (*lisān al-ishrāq*). All things pertaining to the domains knowing, being, and cosmology are depicted as lights, where distinction is determined by equivocation—that is, in terms of degrees of the intensity of luminosity. The One origin of the system is the most luminous, hence most self-conscious light, named the Light of Lights, and all other entities are propagated from it in accordance with the increasing sequence 2^n—where n is the rank of the propagated light starting with the First Light—and together they form the continuum luminous whole of reality.

The foundations of the new philosophy commence in logic, where Suhrawardī draws on an earlier twelfth-century Persian thinker, ʿUmar ibn Sahlān Sāvī, and his perhaps Stoic-inspired views in semantics and other parts of logic, and restructures the Peripatetic nine books of the *Organon*. The restructuring of peripatetic work becomes the most apparent distinguishing characteristic of Illuminationist texts since the twelfth century. For example, topics pertaining to semantics, and formal and material logic, plus a novel set of questions on fallacies, are placed together—this for the first time in the history of logic—and given the title "Rules of Thought." There are technical innovations in Illuminationist formal logic, such as reduction of terms; formal redefinitions of the Second and Third Figures of Syllogism as simple inferences based on the First Figure; and the critical reevaluation of negation in simple and compound propositions, where negation is defined as an independent operator that distributes.

The traditional nine books of the Arabic *Organon* are rearranged according to a more well-defined concept of logic as a whole, where expository propositions (the Stoic *logos apophantikos*) are distinguished from proof theory, and indicate a clear view of three-part logic: semantics, formal logic, and material logic. The *Philosophy of Illumination*'s restructured logic is seen as follows: Book Two of the *Organon* (the *Categories*) is removed from logic and a reformulated theory that reduces the number of Aristotelian categories to five—the Stoic four, substance, quality, quantity, relation, plus the fifth, motion, which is

the common continuous category in all existent things—is introduced in physics. Selected subjects introduced in Book One (the *Isagoge*), Book Three (*De Interpretatione*), and Book Six (the *Topics*) are brought together in Section One, titled "On Things Known and On Definitions." Other selected subjects from Book Four (*Prior Analytics*), Book Five (*Posterior Analytics*), and Book Six (the *Topics*) are brought together in the Section Two, which is titled "On Proofs and Their Principles."

Finally, selections from the remaining three Books of the *Organon* (*Sophistical Refutations*, *Rhetoric*, and *Poetics*)—but mostly from Book Seven (*Sophistical Refutations*)—are brought together in the Third Section, which is titled "On Sophistical Refutations and Disputations On the Validity of Illuminationist Principles Vs. the Peripatetic Principles," which further includes subjects traditionally treated in other Aristotelian texts (e.g., selections from *De Anima*; questions on the physics of sight and sound; a critique of the Aristotelian dyad Prime Matter-Form; discussion of Platonic Forms; plus a novel discussion of subjects best described as foundations of mathematics). The Three Sections together are placed in Part One, titled "On Rules of Thought," from the book *Philosophy of Illumination*.

THE PARAMOUNT PROBLEM IN ILLUMINATIONIST PHILOSOPHY. The most important philosophical problem in which Illuminationist philosophy diverges from the peripatetics concerns the epistemology of obtaining primary principles and the first step taken in the construction of scientific systems. The Illuminationist position argues that: (1) the first step in science cannot be demonstrated based on the construction of essentialist definitions (*al-Ḥadd al-tāmm*); (2) laws of science cannot be formulated as universal affirmative propositions (because of future contingency there may be always elements discovered that negate universality); and (3) the peripatetic conjunction with the Active Intellect is a false position or law.

Suhrawardī argues in his "destruction" (*hadam*) of the peripatetic formula that the essentialist definition is based on (1) an elaborate critique of predication aimed at rejecting it as tautological; and (2) the impossibility of counting each and every member of the constituents of the thing to be defined, a condition that must be met for the peripatetic essentialist definition to indicate the essence of the *definiendum*, which is similar the impossibility of a definition by extension. The alternative, as stipulated by Suhrawardī, is that primary principles must be known by "other" ways, which is then stipulated to be an immediate intuitive mode. Suhrawardī's Illuminationist critique of predication may be summed this way: to say "x is y" without knowing the essence of x prior to the predication does not inform of anything other than a change in terms x to y without added signification. Moreover, x includes $\{x_i\}$, then for the predicative definition to inform of the essence, y must be identical to Σx_i, which is not possible as $\{x_i\}$ may be uncountible, or unbound.

The peripatetic position, based on the Stagirites's own view stipulated in many of his texts, was that primary principles may be known through the cognitive mode named "immediate knowledge" but Suhrawardī argues that Aristotle's position on immediate knowledge had not been fully explained and was left ambiguous. This point is best exemplified in early passages of the *Posterior Analytics*, I.2: 71b.20–72a.25, which may be summed up as follows: Science rests on necessary, true, primary, and most prior premises, which are known not through syllogistic demonstration, but by an "immediate," intuitive way. The Illuminationist position, however, is that Aristotle does not systematically present what is the intuitive, immediate cognitive mode; that he does not discuss an epistemological well-structured process that could describe primary intuition; and that he leaves this question in an ambiguous state—because Aristotle refers to immediate knowledge as "opinion" (*doxa*) in his works. Suhrawardī's Illuminationist construction of a unified epistemological theory, named "Knowledge by Presence," is claimed to resolve the ambiguity in Aristotle's position, and Suhrawardī is acclaimed for having, for the first time in Islamic philosophy, described intuitive knowledge in a systematic, "scientific" way.

The Illuminationist ontological position, called "primacy of quiddity," distinguishes philosophical schools in the development of Islamic philosophy in Iran up to the present day. It is also a matter of considerable controversy. Those who believe in the primacy of being, or existence (*wujūd*), consider essence (*māhiyya*) to be a derived, mental concept (*amr iʿtibārī*, a term of secondary intention), whereas those who believe in the primacy of quiddity consider existence to be a derived, mental concept. The Illuminationist position is this: if existence is real outside the mind (*mutaḥaqqaq fī khārij al-dhihn*), then the real must consist of two things—the principle of the reality of existence, and the being of existence, which requires a referent outside the mind (*miṣdāq fī khārij al-dhihn*). And its referent outside the mind must also consist of two things, which are subdivided, and so on, ad infinitum. This is clearly absurd. Therefore existence must be considered an abstract, derived, mental concept.

III. SUMMARY OF THE MAIN TOPICS OF THE ILLUMINATIONIST HOLISTIC SYSTEM

(1) Principles of knowledge, and the first step in science, rest on the primary and immediate intuitive cognitive mode. This knowledge is of essence, is pre-propositional, and rests on the atemporal Illuminationist relation between the self-conscious knower (*mudrik*) and the essentially knowable thing—the object of knowledge—the known (*mudrak*). This "relation" between the knower and the known, or knowing and being, is an identity preserving "sameness" and replaces the peripatetic principle of "conjunction" between the elevated human intellect and the Active Intellect.

(2) Reality is a continuum of monad-like "light" entities that are distinguished only by equivocation in terms of degrees of "luminousity" (*nuriyya, istināra*). Self-consciousness is an essential specific aspect of all lights determining rank of each and every entity propagated from the One source, the Light of Lights. All entities are propagated according to the sequence 2^n, where n is the ordered rank. Consciousness and degrees of abstraction from material extension decrease as n increases, and are associated with each and every member of the Whole (*al-kull*), which is also conscious of self.

(3) There is a two-fold process, "vision-illumination" (*mushāhada-ishrāq*), that acts on all levels of reality. In the corporeal realm of sense-perception, the process acts as sight (*ibṣār*). The eye (*al-baṣar*; or the seeing subject, *al-bāṣir*), when capable of seeing, sees an object (*al-mubṣar*) when the object itself is illuminated (*mustanīr*). In the incorporeal realm every "abstract light" "sees" the "lights" that are above it in rank, whereas the higher illuminates it instantaneously, at the moment of vision. The Light of Lights (*Nur al-anwār*) illuminates everything. Knowledge is obtained through this "coupled" activity of vision-illumination, and the impetus underlying the operation of this principle is self-consciousness. Thus every being comes to know its own degree of perfection, an act of self-knowledge that induces a desire (*shawq*) to "see" the being just above it in perfection, and this act of "seeing" triggers the process of illumination. By means of the process of illumination, "light " is propagated from its highest origin to the lowest elements.

(4) The Illuminationist cosmos adds a fourth realm of being to the standard three—Intellect, Soul, and Matter—of the peripatetic named "Mundus Imaginalis" (*al-ʿālam al-khayāl*), and is a boundary between the intellect and the soul. This realm, described as the "essence of wonders" (*dhāt al-ʿajāʾib*), is the veritable wonderland of visionary experience as described in the Illuminationist allegorical recitals, where time and space are different from time as measure and euclidean space. Movement into this realm brings about qualitative change described in amazing allegorical tales.

IV. ILLUMINATIONIST PHILOSOPHY AFTER SUHRAWARDĪ

The Illuminationist system continues after Suhrawardī's execution in 1191 through the composition of scholastic commentaries on his texts, and also by the gradual creation of independent work in the Illuminationist tradition by a number of leading philosophers, and thus gains widespread acceptance in scholastic centers of learning in Iran. There are two ways in which Illuminationist philosophy continues. Firstly, the thirteenth-century Persian philosopher and historian of philosophy, Shams al-Dīn Shahrazurī in his commentaries on Suhrawardī's texts, *Commentary on the Philosophy of Illumination* (*Sharḥ Ḥikmat al-Ishrāq*); *Commentary on the Intimations* (*Sharḥ al-Talwīḥāt*); and in his independent magnum opus encyclopedic text *The Metaphysical Tree* (*al-Shajara al-Ilāhiyya*), emphasizes the symbolic, and the distinctly nonperipatetic components of Illuminationist philosophy. He also further extends and greatly embellishes the inspirational, allegorical, and fantastic side of Illuminationist texts. Secondly, later in the thirteenth century the well known Jewish philosopher and occulist of Baghdad, Saʿd ibn Manṣur Ibn Kammunam in his *Commentry on the Intimations* (*al-Tanqīḥāt fī Sharḥ al-Talwīḥāt*), and in his major independent philosophical work, *The New Philosophy* (*al-Jadīd fī al-Ḥikma*), as well as in his shorter works, such as *Treatise on the Soul* (*Risāla fi al-Nafs*) emphasizes the purely discursive and systematically philosophical side of Illuminationist Philosophy.

The most philosophically important impact of the Illuminationist system is seen in the latest, creative, and holistic work in Islamic philosophy. This is the constructed system named "Metaphysical Philosophy" (*al-Ḥikma al-Mutaʿāliya*) by the famous Persian thinker Ṣadr al-Dīn al-Shīrāzī, best known as Mullā Ṣadrā (d. 1640). The most widely studied text by Mullā Ṣadrā is his *The Four Intellectual Journeys* (*al-Asfār al-Arbaʿa al-ʿAqliyya*), where in almost the entire range of philosophical investigation the author draws heavily from the Illumina-

tionist tradition—this after the texts of Avicenna and Suhrawardī are first carefully analyzed and then problems and arguments are reconstructed usually along the systematic principles of the Illuminationist system. The most enduring impact of Illuminationist systematic philosophy is in the domain of epistemology, where Mullā Ṣadrā adopts and refines Suhrawardī's unified theory Knowledge by Presence to discuss, among other things, God's knowledge, and the "scientific" validity of inspirational knowledge as well as of revelation. Mullā Ṣadrā's discussion of the proposition "sameness of knowing and being," or "unity of the knower and the known" (*ittiḥād al-ʿāqil wa al-maʿqūl*), is distinctly Illuminationist, whereas sameness, or "unity," is nonpredicative.

See also Mullā Ṣadrā; Suhrawardī, Shihāb al-Dīn Yahyā; School of Qom.

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ILLUSIONS

Most of the major philosophical problems of perception derive from the fact of "illusions." These problems center on the question whether perception can give us true and direct knowledge of the world, and thus they are basic to epistemology. This entry will describe illusions and set forth and examine the argument from illusion that perception cannot be trusted as a source of knowledge of the external world but affords direct awareness only of appearances or sensa.

THREE KINDS OF ILLUSORY EXPERIENCE

The term *illusion* is used by philosophers to cover a range of phenomena approximately classifiable as follows.

ILLUSIONS PROPER. Illusions proper occur when the percipient is deceived or is liable to be deceived in identifying the object perceived or its properties. Psychologists have produced a number of optical illusions, such as equal lines that appear to be of unequal length; a stationary balloon that when inflated and then deflated seems to advance and then recede; and a specially constructed Distorted Room, in which a man looks smaller than a boy. Diseases or drugs, including alcohol, may produce other illusions, such as double images or the unearthly colors and multiple shapes an object may assume for one who has taken mescaline. Other examples are mirages, mirror effects, and conjurers' tricks. The perception of motion introduces many more: At the cinema a rapid succession of slightly different stills on a flat screen makes us see a scene with a three-dimensional perspective in which people move about; the wheels of a coach may seem to be

going backward when really they are moving rapidly forward (stroboscopic effect).

RELATIVITY OF PERCEPTIONS. A round plate that looks elliptical when seen from an angle and a square table that looks diamond shaped illustrate the relativity of perception. The same water may feel cool to one person and warm to another; the same wine may taste sweet or dry, depending on what one has just been eating; green hills may look blue in the distance; and as a train rushes past, the pitch of its whistle may seem to vary. Further examples are color blindness, shortsightedness, and other physical defects that alter the appearance of things. In all these cases the apparent properties of an object vary relative to the position of the percipient, the distance and media between him and the object, the lighting, the state of his health, body, or sense organs, etc. These are not strictly illusions (they usually do not deceive), and they vary around a norm in which the objects are perceived accurately.

HALLUCINATIONS. In pure hallucinations—for example, the pink elephant a drunkard sees, the apparitions of delirium, Macbeth's dagger—some physical object is "perceived" when neither it nor anything at all like it is present. In contrast are illusions where the mistake is about the properties, position, or identity of some object actually in view.

Some, perhaps even most, hallucinations are triggered by some perceived feature of a very different character; for instance, a beam of light may be taken to be a person. Many hallucinations are integrated; they fit well with the real background, cast shadows, and vary in size and perspective as they move. One may also class phantom limbs as hallucinations. Pain or other sensations are felt "in the toes," for example, of a leg that has been amputated—the victim still feels he possesses the missing limb.

ARGUMENT FROM ILLUSION

The main aim of the argument from illusion is to show by means of illusions that the senses are not to be trusted and that perception is not direct and certain awareness of the real properties of material objects but awareness of appearances only. In fact, this argument involves three subarguments.

(A) A SKEPTICAL CLAIM. However sure we are about our perceiving, it is always possible that we are being deceived by one of the many kinds of illusion or hallucination, since it is characteristic of such states that we cannot tell that we are suffering from them. This may in practice be a negligible possibility, but philosophy is concerned with the highest standard of exactitude, and from this strict position perceiving is not absolutely certain because there is always some theoretical possibility of error. Various conclusions can then be drawn. One is that for certain knowledge we must rely not on the senses but on some other faculty, such as intellectual intuition (as in René Descartes); another is that we must abandon commonsense realism.

(B) NATURE OF APPEARANCES. In all these illusions there is some thing or quality that does not coincide with the object or object-properties that are in fact present— for example, the apparitions of hallucinations, the elliptical appearance we see when we look at a round plate, the black shape the color-blind person sees when looking at a red box, the oasis of a mirage, and the second bottle in double vision. All these are merely appearances and cannot be identified with real objects or properties. What then are these appearances? In some cases, and probably in all, they must be *sensa*, private, probably mental, objects of awareness quite distinct from external material objects, although no doubt they are caused by or resemble material objects.

(C) SIGNIFICANCE OF CONTINUITY. If one were to change from seeing an appearance, a private and transitory sensum, to seeing a public, enduring physical object ("public" meaning observable by several persons at one time), one would expect a sudden change in the character of one's sensory experience. But no such jump occurs: There is normally an unbroken continuity between situations where we cannot actually be seeing the material object but are aware only of appearances and situations where we think we see the material object. As we move from where the plate looks elliptical to where it looks round, or as the drunkard looks first at the pink rat and then at the real bed on which it sits, there is a smooth transition. Consequently, even in these seemingly genuine or veridical perceptions we must also be aware of appearances or sensa and not directly of the object itself.

We may note three things concerning our subarguments: (1) Argument (*b*), unlike (*a*), does not depend on there being error; even if one is not deceived by perspectival distortion, double vision, and so on, the argument that what is really perceived must be sensa is unaffected. (2) The claim in (*b*), that the appearances are private and mental existents, depends to some extent on considerations of continuity. Almost all hallucinations, the dark

shapes a color-blind person sees or the results of diseases and drugs, are plausibly private to the percipient. But simple perspectival distortions will be private only to the viewpoint. For instance, the elliptical appearance of the plate is as public as the round one in that many may see it at once; this holds similarly for mirages and reflections. Unless causal considerations are introduced, the supposition that each person is then seeing a numerically different but qualitatively similar elliptical appearance or sensum must rely partly on similarity with cases where the content of illusion is undeniably private and partly on the assumption that if the plate is round, then the elliptical appearance must be something other than the plate; but these are hardly compelling grounds. (3) The charge may be made, How do we know that the plate is round or what its real color is? These points would normally be settled by measurement or by reference to standard lighting conditions, but the argument does not rely on this. To take the plate example, it may be put thus: The plate looks elliptical to *A* and round to *B*; it cannot be both round and elliptical, for that would be a self-contradiction; therefore, one of these appearances at least must be quite distinct from the plate—and perhaps (by continuity) both are.

CRITICISM OF THE ARGUMENT FROM ILLUSION

The argument from illusion can be countered in various ways.

CERTAINTY. The skeptical claim is often met by stressing the comparative rarity of illusion and the efficacy of the various tests that can be made to remove doubt. We can use one sense to help another. For example, wax fruit may look like real fruit, but touch and taste reveal it; sight, memory, and testimony can show that a phantom limb does not exist; measurement can settle the real shape of an object; confirmation from others can show up many hallucinations, though there are some group hallucinations; we soon learn to discount alcohol and drugs and may generally argue from known causal factors present. But although these tests reduce the possibility of error in a tested perception to extremely slight and in practice negligible proportions, the critic will still say that it is not absolutely certain and that only absolute certainty will satisfy the philosopher. To this there are two replies. (1) It is logically impossible that we suffer from hallucinations all the time; if no perception were ever certain, then there would be no way of distinguishing hallucinations and illusions from normal perception. (2) The skeptic is mis-

using the word *certain*; well-tested perceptions are just the things we refer to as certain. If we say they are only probable we destroy the normal useful distinction between *certain* and *probable*. If nothing is certain, the word has no meaning, and we shall just have to invent a new term for that ordinary distinction.

We may comment on these replies. Reply (1) is of no help in deciding whether any particular perception is certain or not—which is one of the main points—and anyhow, a merely approximate certainty would serve to distinguish perceptions from hallucinations. Reply (2) seems to depend on confusing meaning and reference. It is true that perceptions are things we refer to as certain, but that may only be due to our ignorance of the possibility of illusions. The normal meaning of "certain"—without any possibility of doubt—is correctly adopted by the skeptic; he merely argues that it may only be used of the results of intuition or of mathematical demonstration, not of perception; that is he differs only as to the referents of the word. Also, he can still distinguish between "probable" and "practically certain" in perceptual statements. However, a modified reply to the skeptic may be made (3) that he is in fact limiting the word *certain* to cases of logical necessity, to those that it is self-contradictory to deny. This limitation not only has the practical disadvantage of destroying the ordinary certainty-probability distinction but also rules out a priori the possibility of any perceptual statement's being certain; thus the lack of certainty in perception is due not to any defect in perceiving but simply to its not being something quite different from what it is, namely intuition or entailment. It would therefore be much more appropriate to use a relaxed standard in dealing with perception and to allow a perceptual statement to be regarded as certain if it has passed all conceivable or all recognized tests. At any rate, there is no reason to suppose that ordinary perceptions are uncertain in the way that the result of a horse race or the nature of next year's weather is uncertain.

HALLUCINATIONS. The argument from the significance of continuity claims (1) that hallucinations are private sensa, not public material objects, and (2) that since they are indistinguishable from the objects of perceptual consciousness, especially when integrated with them, the latter must also be groups of sensa—representations, perhaps of external objects.

(*a*) One answer, based on the usual psychological account of hallucinations, would be that they are not sensa but mental images of an unusually vivid type that are confused with normal perception. To

meet point (2), the unusual vividness and the lack of normal discrimination may be stressed and explained by the special circumstances in which almost all hallucinations occur, as when the victim is suffering from fever, drunkenness, drugs, starvation, religious ecstasy, or madness or is influenced by lesser factors, such as fear, acute anxiety, or drowsiness. (In the hallucinations of mescaline the person's mental powers are unimpaired, but he usually recognizes the hallucinations as such and is not deceived into thinking they are real.) It is questionable whether these factors, especially the lesser ones, can account for the integration and triggering of hallucinations—cases in which the continuity argument is strong and imagery would seem to merge with genuine perceptions. Also, to be complete this answer would need to offer an explanation of the nature of mental imagery and of why it resembles perceiving. Probably imagery depends on reactivation of the kinds of brain and nervous activity that occur in perception (or in action, if it is motor imagery), and the occurrence of such activity can be detected during the imagery. However, this involves the causal processes, study of which leads by a different route to the abandonment of commonsense theories.

(b) It has been pointed out, by J. L. Austin, for example, that the argument from illusion as applied to hallucinations relies on certain dubious assumptions, namely, that if two things (i.e., an object of genuine perception and an object of hallucination) are not generically the same they cannot look alike, and that they cannot be distinguishable if we in fact fail to distinguish them. The special circumstances cited in point (a) may come in here as providing reasons for the victim's failing to distinguish what are in fact distinguishable and quite different experiences. This criticism certainly undermines the argument from illusion as a demonstration; for it to be that, these assumptions would have to be accepted as universally true. But it can be replied that an explanation is still required for the general similarity between the two things (sufficiently close a similarity for people suffering only from anxiety to confuse them); also, we need some general theory of the nature of hallucinations and of their integration and triggering.

Phantom limbs are not covered by these points: One can hardly say that the pains and sensations involved are images of genuine ones—they are genuine enough—nor are the victims suffering from drugs or delirium. The usual physiological explanation is that the nerves from the toes, for example, remain in the untouched part of the limb and, being irritated at the stump, send impulses to the brain similar to those they would send if the toes were being crushed or the pain and other receptors in the toes were being otherwise stimulated. This seems to confirm that pain and somatic sensations are private sensa and accords with the general causal theory of representative realism. But it is still arguable that such sensations are very different from sight and hearing, so that nothing follows about the nature of the latter.

ILLUSIONS AND RELATIVITY. The argument from the nature of appearances relies on the odd assumption that things cannot look other than they are, that when one apparently sees as elliptical a plate that is actually round, then one cannot really be seeing the plate; one is seeing something, an appearance or sensum, which, being elliptical, cannot be the round plate. But one can simply deny the assumption and say that one is in fact seeing a round plate from such a position that it looks elliptical; its elliptical appearance is not some entity different from it. To treat appearances as entities, as though they were things, is a quite unjustified reification; when we speak of the appearance of something we speak of how it, the original object, appears, not of some other object distinct from it. One may confirm this point by noting that the elliptical shape will appear on a photograph too, so that it cannot be subjective or mental.

The same answer may be applied to the various examples of relativity and illusion. The distant green mountains are actually seen but look blue and may be so photographed; in the Doppler effect we still hear the whistle (a "public" noise), and its apparent variation in pitch may be recorded on tape. In the optical illusions we are still seeing lines on paper, balloons, or a man and a boy, and cameras will photograph them with their deceptive appearances. Again, as Austin has shown in detail, in refraction and reflection we still see the object—the face in the mirror or the stick in the water; even in a mirage we see a real oasis, though it appears many miles nearer than it actually is. It may also be claimed that the color-blind man sees the red box, even if it looks black to him, and that the man with double vision sees the one bottle, but it looks double to him. (This last point is more dubious: It may be said that looking double is not like looking blue for it involves an extra apparent object and not a dif-

fering quality of the one object. On the other hand, the percipient is not seeing two bottles in the same way normal people see one: The bottle and the background have a doubled, slightly defocused appearance that perhaps makes it reasonable to say they look double.)

For some people this general answer is immediately convincing, and it seems incredible that the argument from illusion was ever taken seriously. But others protest that it is inadequate and neglects the immediacy of perception; in the various situations mentioned they seem clearly and directly to be aware of an elliptical shape or a blue expanse of mountain, an advancing balloon, two bottles, or, if color-blind, a black box-shaped expanse. Thus to be told that they are aware only of a round plate, green mountain, stationary balloon, one bottle, and so on, is to them unconvincing and fails to do justice to the facts of experience. This feeling for the immediacy of sensory awareness, and the belief that confrontation is so direct that its apparent object must exist as perceived, is at the bottom of the sense-datum theory. The alternative is to dismiss as illusory this apparent direct and mistake-proof confrontation in perception; perceiving is variable in quality, is affected in its accuracy by position, distance, and many other factors, and may thus be inefficient. It is more plausible to suppose that position, distance, and media distort perception of a round or green object or that color blindness and shortsightedness prevent one from seeing it properly than to suppose that these factors give one excellent and perfect awareness of some elliptical or blue sensum different from the object.

But this is not a final answer, for if one then seeks to discover how these factors affect the quality of perception, one has to go into scientific details. Angle of sight varies the pattern of light striking the eye, refraction or reflection bends the light rays, dust scatters them or absorbs some frequencies rather than others, drugs affect the activity of the nervous system, lack of certain retinal pigments alters the eye's response to light, the Distorted Room and other optical illusions rely in their effects on misleading cues. In short, the effects of illusion point beyond themselves to the causal and psychological processes that underlie perception and constitute its most serious theoretical problem.

See also Perception; Realism; Sensa.

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IMAGERY, MENTAL

In many ways, mental imagery has been a fundamental issue in the history of philosophy. At least since Aristotle, philosophers have argued that knowledge is often represented in the form of mental images, taken to be inner pictures of some sort. However, questions have frequently been raised about the capacity of such images to play roles in thinking, remembering, and imagining; for instance, in George Berkeley's well-known doubts about the possibility of general or abstract images. Debates about mental imagery have been important in the history of psychology as well. Because the images in question are the bearers of conscious experience, claims about them have often been made on the basis of introspection, and the rejection of introspection in favor of behavioral studies was central to the emergence of psychology as a science. However, with the rise of cognitive science, quantified behavioral research has put mental images back on the map.

For example, Roger Shepard and his colleagues (1982) asked subjects to determine whether one geometrical figure matched another, the overall orientation of which was tilted relative to that of the original figure. Reaction times were a linear function of the angle of the tilt: The greater the displacement between the two otherwise identical figures, the longer it took subjects to respond. The implication is that reaction time depends on an operation such as rotating one of the perceived figures through space. Assuming a constant rotation rate, time to respond will depend on the distance through which the figure is rotated. One conclusion that can be drawn is that imaging is like perceiving, because matching rotating objects or figures in perception is similarly governed by a time-to-distance law.

This *perceptual similitude* thesis is an important part of pictorialist theories, according to which images are like mental pictures. It is particularly important on Stephen Kosslyn's account, the most fully developed version of pictorialism. In one well-known experiment, Kosslyn asked subjects to visualize a map they had previously studied and to focus on one of several items represented on the map (e.g. a hut, a pond, a tree). Subjects were then asked to say whether various items were located on the map. Reaction times were a linear function of the distance between the original focal point and the identified item. This suggests that they were scanning a mental map and not simply accessing a description or list. While reaction times might be due to the position of terms on a list, given the initial conditions of free study, there is no reason to think that the locations would be listed systematically by their proximity to the focal point, with the nearest first, the farthest last, and so on.

In Kosslyn's *Image and Mind* (1980), scanning and other operations, such as panning and zooming, are defined as functions that could be performed by a digital computer. This use of a computer model illustrates why theories of mental imagery do not need to treat the mind as an immaterial substance or entail a homunculus to view the inner pictures. Forming and accessing images can be explained in terms of more basic level operations, which can themselves be further decomposed into fundamental processes that a machine could perform.

The same is true for the mental sentences posited by descriptionalist theories of imagery, which constitute the opposing camp. The best-known of these has been developed by Zenon Pylyshyn in *Computation and Cognition* (1984). His argument has two parts. First, he claims that evidence shows that imaging is cognitively penetrable. It is influenced by background knowledge and belief. Therefore, he argues, there cannot be perception-like processes of the sort that pictorialism requires; that is, generic operations such as scanning or rotating at a standard rate that are part of a fixed functional architecture employed similarly across imaging tasks. Second, he maintains that what is a vice for the pictorialist is a virtue on the descriptionalist account. The data on reaction times can be explained, he argues, precisely in terms of the effects of tacit knowledge in the face of experimental task demands. This tacit knowledge is expressed in language-like representations and operates through the production of the descriptions in which imaging consists.

For instance, when four-year-old children were shown an inclined beaker containing colored liquid and then later asked to draw it, they typically drew the fluid level as perpendicular to the sides of the beaker. The implication is that the children's memory images, upon which the drawings are based, are not simply pictures that reproduce the perceived object, and the images reflect that young children do not possess an understanding of geocentric level. Extending this analysis to rotation and scanning studies, Pylyshyn argues that the results can be explained in terms of task demands: Subjects are led to

believe that, in visualizing objects, they are to replicate the process of perceiving the objects. Knowing that perceived object rotations must obey a time-to-distance law, they reproduce the relevant reaction times, although not necessarily with conscious intent.

However, a number of objections have been made to these claims. First, it is sometimes argued that Pylyshyn's descriptionalist view makes images epiphenomenal, giving them no role in causal explanations of behavior. Of course, if such images can be identified with the underlying data structures that take a descriptive form, the charge is not strictly correct. Nonetheless, such a construal will not explain the phenomenal properties of conscious imagery, which are thus excluded from scientific accounts.

Second, not all reaction time studies can be explained in terms of task demands, a point that Pylyshyn now concedes. Moreover, because imaging is affected by background knowledge, it need not be taken to undercut explanations in terms of a basic set of perceptual operations. Kosslyn agrees that imaging is cognitively penetrable. He notes, for example, that the rate of scanning may vary across individuals or tasks. However, that does not mean that scanning cannot be defined in terms of standard operations—such as shifting attention incrementally—or that the employment of those operations is not governed by law-like generalizations. Scanning might be one of a fixed set of operations available to everyone—even if it is not always used—and it can exhibit regularities, despite the effects of knowledge and belief. For example, it can be assumed to occur at a constant rate within individual subjects on a given task.

Nonetheless, a positive account must be given of the knowledge effects that imaging does display, and this requires more than an appeal to perceptual similitude. Thus Kosslyn argues that imaging occurs in a *visual buffer*, a distinctively spatial medium analogous to an internal computer monitor. Although the representations on such a screen will be composed of distinct elements—such as cells in a matrix that can be labeled—the images are said to be pictorial, in the sense that spatial properties of objects are represented by the spatial properties of the medium.

Originally posited as part of Kosslyn's computational model, this visual buffer is identified in his *Image and Brain* (1994) with topographically organized areas of visual cortex. In topographic representations, the features of an object can be distorted. Nonetheless, spatiallydefined regions of the medium will correspond systematically to spatial regions of the object. Moreover, unlike

descriptions, such images have the property that the farther apart two points appear to be on an object, the more representational elements there will be between representations of the points. Although these elements need not be closely contiguous, they cannot be just anywhere. If two points appear to be adjacent in a represented object, then the elements that represent them must be—at least in an extended sense—adjacent as well. Several types of evidence from brain research can now be cited in support of the pictorialist view; for instance, lesions to the visual system cause subjects to be unaware of one side of the visual field in imaging, just as they do in perception.

One objection often made to pictorialism is that mental pictures lack the syntactical regularities that would allow them to express thoughts precisely. Sentences can be used to single out certain types of information while ignoring others, but pictures will inevitably represent features that are irrelevant to the task at hand. Thus Daniel Dennett (1981) has argued that imagining cannot be mental picturing, because the former can be more indeterminate than the latter. On the one hand, it is possible to imagine a striped tiger without envisioning it as having a definite number of stripes. On the other hand, it is impossible to depict a striped tiger without showing the number of stripes that it has. However, this line of argument commits what Ned Block (1983) has called the "photographic fallacy." It assumes that pictures cannot employ selective devices; there are actually several ways in which pictures can omit details, Block argues (e.g., by virtue of viewpoint, occlusion, atmospheric blurriness, or schematization). Moreover, the argument from indeterminacy can be turned around. In *The Imagery Debate* (1991), Michael Tye has argued that there are certain kinds of corollary or implicit information that both pictures and images inevitably carry. For instance, any perceptual or imagistic representation of two objects, A and B, will necessarily represent an apparent direction of one to the other. Descriptions of A and B need not contain information of that sort. Thus, Tye argues, images cannot be construed as descriptions alone.

However, one way to capture picture-like properties in descriptionist terms has been proposed by Geoffrey Hinton (1979). According to him, imagery does not occur in a special medium, a visual buffer of the sort that Kosslyn describes. However, neither does it depend on the same format and processes as higher-order thought— that is, descriptions in Pylyshyn's sense. Rather, it involves a distinctive format and set of operations, albeit defined over descriptions of a more elaborate kind. Attached to object-centered descriptions of shapes are egocentric

coordinates for objects in a scene, which add spatial information and allow for operations of a special sort (e.g., a gradual alteration of the coordinates, in terms of which rotation and scanning can be described). This account explains why subjects find it hard to identify figures embedded in complex geometrical shapes (a triangle in a star of David) or to reinterpret ambiguous figures, once an original interpretation has been made (e.g., to see the rabbit in the duck-rabbit image if it was initially seen as a duck). Interpretations not included in or derivable from the original descriptions will be hard to come by, and this may be particularly so if they require a revision of the coordinate reference frame. The problem is that Kosslyn's evidence shows that subjects are able to reinterpret images even when the new interpretation is incompatible with the original reference frame. This would not be predicted on Hinton's account.

Tye has proposed a hybrid theory, according to which an image consists in an array and an interpretive description combined. The descriptive components are limited, consisting primarily of part descriptions that are produced whenever the part is scrutinized. Thus the array is not rendered irrelevant by a complex description that could simply take its place. However, it is unclear exactly how arrays and interpretations are combined on this account; that is, why certain descriptions are generated for an array on certain tasks and precisely how the properties of the array are used to perform the task. The question is why, on the one hand, basic part descriptions are not simply activated directly on a visual memory task, thus making the array unnecessary. On the other hand, if the array functions to support the discovery of previously unnoticed features, then there is no guarantee that ambiguities will not appear in descriptions of basic shapes themselves.

One promising avenue for research is suggested by Tye's argument that part descriptions are generated only as needed. That claim is consistent with Kosslyn's current view that imagery and perception are governed by a principle of *opportunistic processing*: Representational resources can be deployed in diverse and sometimes limited ways, as required by a task. In his 1994 book and subsequent research, Kosslyn argues that imaging is not a single capacity, but comprises a set of subsystems that are distributed in the brain. Although these subsystems are functionally specialized, they can interact, and they can be employed strategically in various combinations. This approach implies that the interpretation of images in the visual buffer need not always consist in inferences over language-like representations. Instead, assignment of content in an image is constrained by the particular operations and strategies in which aspects of the image are incorporated. For instance, image scanning consists in enhancing activity in various parts of the visual buffer, thus priming specific features, making them easier to encode. In that sense, scanning patterns constitute interpretations, because they bias the content that can be ascribed to the image by the visual system. This account has the potential to explain individual differences in image interpretation in terms of variations in perception-like strategies. Born out of Kosslyn's turn to neural networks and connectionist modeling, this emphasis on imaging strategies tracks the ongoing development of cognitive science and philosophy of mind.

See also Images.

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IMAGES

Aristotle's claim that "it is impossible even to think without a mental picture" (*On Memory and Recollection* 450a) has frequently been echoed by subsequent philosophers. David Hume equated thinking with having mental

images, since he appears to have considered ideas and images to be the same; for of any sense impression "there is a copy taken by the mind, which remains after the impression ceases; and this we call an idea" (*Treatise of Human Nature,* Book I, Part I, Sec. ii). The sole contents of the human mind are original impressions and these copies of them. Thomas Hobbes was stating much the same view when he said, "Imagination therefore is nothing but *decaying sense*" (*Leviathan,* Ch. 2).

Many other philosophers have also accepted the existence of such mental contents without examining their nature; they had assumed that images are things whose nature or existence is obvious to all human beings and that can most simply be described as "copies" or "pictures" of the external world. Views denying the existence of such objects have been rare; the chapter in Gilbert Ryle's *Concept of Mind* that seems to attack the commonly held view of the imagination as the power of producing mental images is felt by many to be contrary to normal experience. The images that Hobbes and Hume were talking of, and that Ryle attacks, are mental existents, depending on our prior experience of the physical world, though they may have objective counterparts in the brain. In this they differ from the Epicurean *eidola* or *simulacra,* which Lucretius defined as "images of things, a sort of outer skin perpetually peeled off the surfaces of objects and flying about this way and that through the air" (*De Rerum Natura,* Book IV, 11. 29ff.). These images Lucretius thought of as physical objects, albeit rather ethereal ones, whose function is to explain perception as well as images and dreams. When actual existence is attributed to them they are made to resemble the physicists' "real images," which are the representations of objects formed on screens or in space by lenses, or on the retina of the eye by the same mechanism. Physicists also talk of a "virtual image," a visual appearance that cannot be detected by physical means in the place in which it seems to be (for example, the appearance of objects behind the mirror's surface). This usage, which implies that there is something unreal about the image, is nearer to the normal philosophical or psychological use than is that of the term *real image.* The connection between "image" and "imaginary" is preserved in ordinary usage.

IMAGES AS THE MEANINGS OF WORDS

Undoubtedly the strongest desire to maintain the existence of mental images has come from the need to provide something to serve as the bearer of meaning for words of our language. George Berkeley's attack on John

Locke in the introduction to *The Principles of Human Knowledge* is mainly concerned with this question. Against what he took to be Locke's view of the existence of "abstract general ideas," or the meanings of general terms, Berkeley argued that images must be particular. It is, he claimed, impossible for anyone to form a general idea (by which he clearly meant "image") of a triangle, for it would have to be "neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon, but all and none of these at once." Whether Locke had meant this by his argument for abstract general ideas will not be discussed here; the important point is that Berkeley may be said to have shown that in some cases thought may proceed without images, because there could be no image or "mental picture" to correspond with some terms of our vocabulary.

Nevertheless, it may still be claimed that imagery is an important part of our mental life; this is argued by H. H. Price in his *Thinking and Experience* and elsewhere. Empirical evidence would appear to show that there is considerable divergence in the amount of mental imagery experienced by different individuals; Sir Francis Galton (in *Inquiries into Human Faculty and Its Development*) stated that imagery tended to be lacking in "scientific" minds and to be common in those of artistic bent. The Würzburg school of psychologists in the early twentieth century maintained that their experiments proved the existence of "imageless" thought. The difficulty here lies at least partially in determining what is to be called a "mental image." Although most people, as has been said, understand the instruction "Picture to yourself a familiar building" and claim to be able to do so, it is obvious that what they do in such a case is not the same thing as looking at a picture or photograph of the object, and it is not clear what connection this ability has with that of using the words of a language.

WITTGENSTEIN'S CRITICISM

Ludwig Wittgenstein argued that if some form of mental picture is needed to "give meaning" to a word, then an actual picture can be used instead; for example, asked to get a red apple, a man could use a color chart that gave a specimen of red opposite the word *red.* He could then compare apples with this sample until he found one that matched. Those who think of images as being essential to the use of language are talking as if each person carried such charts "in his head" and proceeded in the same way in the absence of an actual sample. The difficulty with this view, in Wittgenstein's opinion, is that the command "Imagine a red patch" can be given and obeyed; here it is obvious that the "mental sample" will be of no use or will

lead to an infinite regress. The image can itself be recognized as red without the use of any intermediary, so there is no reason why a specimen of red should not also be recognized. Most people do, in fact, immediately recognize specimens of the common colors, though they may need a chart for the rarer ones. Wittgenstein summarized his attack on the false picture of recognition as follows:

> It is as if I carried a picture of an object with me and used it to perform an identification of an object as the one represented by the picture. Our memory seems to us to be the agent of such a comparison, by preserving a picture of what has been seen before, or by allowing us to look into the past (as if down a spy-glass). (*Philosophical Investigations,* Sec. 604)

There are two further difficulties about this view of the image as the bearer of meaning. First, it is not clear how an actual picture functions, and second, the comparison of the image with a picture itself gives rise to difficulties.

FUNCTIONING OF ACTUAL PICTURES

Price has stated that "both words and images are used as symbols. They symbolise in quite different ways, and neither sort of symbolisation is reducible to or dependent on the other. Images symbolise by resemblance" (*Thinking and Experience,* p. 299). Price's arguments for his weakened version of the imagist theory rest, as the quotation shows, on the assumption that images, like other pictures, are related to their objects by resemblance. Such a view assumes that there is no problem in recognizing a picture of, say, a man as a man. Just as anyone who could pick out a real man could identify a mirror image of a man, so, it is thought, could he pick out a pictorial representation of a man.

But what is to count as a picture of a man here? A child's matchstick man consisting of five lines and a circle? A rough sketch? A "lifelike" portrait by a Royal Academician? A life-size photograph? As the art historian E. H. Gombrich has shown in his *Art and Illusion,* the representation and the recognition of three-dimensional objects on a two-dimensional surface is a sophisticated activity. Our children are taught something of the appropriate techniques at about the same time as they learn their native language. There is no basis for feeling that the procedure of representing objects in these ways is more "natural" than describing them by means of words. It has been said that some primitive peoples find it impossible to recognize a photograph of one of their number because they have not learned to interpret the pattern of black and white in the appropriate way. Yet it would seem that a photograph is the most "natural" representation because it is the product of a purely objective projection of the object; drawings and paintings depend on a variety of learned techniques of representation.

It is necessary to distinguish between the way in which a picture is produced and the use that is made of it. There may be a method of projection, but it is not because of that method that we accept the picture as a likeness. Furthermore, it is not clear from the picture itself, though it may be from the title, what it is meant to be the likeness of. A picture of an oak may be that of a particular historic tree (King Charles's Oak, for example), an example of an oak tree for purposes of identifying the species, an illustration for a general article on trees, a sign for a forest, or a composition to hang on the wall for its "artistic" quality. Without some rule it is impossible to tell what the picture is for and hence what its subject is; its meaning, what it symbolizes, lies in the use we make of it. In the context of a botany class it may be quite clear that the picture of an oak is being shown to enable students to identify specimens of that tree; here the rule is given by the situation in which the picture is used. Similarly, it is clear that the man who carries a photograph of his sweetheart does it to remind himself of her, uses it as a kind of substitute for her presence. Real pictures have a variety of uses.

IMAGES AS PICTURES: OBJECTIONS

A picture may be used to give information; from a picture of the Pantheon it is possible to discover the number of columns in the facade. But as Jean-Paul Sartre points out in *L'imaginaire* (p. 117), an image of the Pantheon may not be sufficiently detailed to enable this, even though before the question was asked the agent thought his image was perfectly clear. If he does not already know the number, then he cannot count the columns in his image. In this the image differs radically from the picture. Furthermore, it is usually known what the image is an image of without the need to inspect it for clues. Even when an image arises in the mind and cannot be recognized, no closer examination will provide clues to its identity; we have to wait until the name comes to us. In the extreme case of dreaming, we may "recognize" a person even though his characteristics are entirely different from those possessed in real life. A picture, on the other hand, may be identified gradually by the collection of clues. Thus, "having an image" of an object differs from contemplating either the object or a picture of it. The image

is not a picture in a special private gallery (cf. Ryle, op. cit., p. 247).

Part of the difficulty, as Ryle stresses, is due to an excessive concentration on the sense of sight; we naturally talk of "picturing" or of "visualizing," but there are also aural, tactual, and olfactory imagery. (A blind man's imagery, presumably, would be entirely of these kinds.) But in these cases there is no recognized means of representing the sound, touch, or smell—what would such a process be like?—and hence no temptation to talk of such images in terms that are drawn from the inspection of physical representations.

We do find it very natural to talk of mental images, and because external objects are normally described in visual terms, these terms are also applied to images.

Images are not always under our control; a person may find he is "haunted" by the image of a street accident or by the cries of the victim. Images do occur and must be accounted for. But to say this need not lead us to think of them as "decaying sense." Such a description would apply to afterimages, caused by staring at a bright light and then looking away. But these are actually perceived and can be physically located, on or just in front of whatever is looked at. Mental images have no location and are not related to public visual space; it is useless to ask a subject, as some psychologists have done, to project his mental image onto a screen, for it is impossible to look at the physical world and contemplate an image at the same time. But the "seeing" of a visual image or the "hearing" of an auditory one is only, in Sartre's terminology, a "quasi observation"; as Ryle puts it, "an imagined shriek is neither louder nor fainter than a heard murmur. It neither drowns it nor is drowned by it" (op. cit., p. 250; despite differences in terminology, there is a measure of agreement between Ryle and Sartre on this topic). The "quasi-observational" nature of our apprehension of images is marked by the device, naturally adopted, of putting quotation marks around "see" and "hear" in this context.

Nevertheless, the question "What is a mental image?" is wrongly posed, for it implies that there is some definite mental content to which the words can be applied. As has been shown above, the similar question "What is a picture?" equally has no definite answer. A picture may be regarded as a pattern of pigment on a piece of canvas, and much can be said about it in this respect. But such a description leaves out of account its function *as a picture,* which may be to recall the face of an absent friend. When it is being used for this purpose its characteristics as a physical object are ignored; the person is seen "through" the painted representation. It is he in whom we are inter-

ested. Similarly, when a mental image is being used it is the object that is of interest to us, not the image itself. "When we are thinking, although we must know what our images are of, it is not necessary for us to know what our images are like—even whether they are clear and distinct, or fuzzy and shifting" (D. W. Hamlyn, "The Stream of Thought," 71). Indeed, it is hard to see how it is possible to know "what they are like," for they are described only in terms of their objects. In the case of the portrait there is a public object that can be described in physical terms and serves as the "analogue" of the absent friend.

It has been suggested that there are similar analogues in the case of mental imagery—for example, movements of the eyeballs. These may well occur, but their occurrence is not part of what is meant by having an image. In the case both of the picture and of such movements it is the way in which an existing but absent object is indicated or referred to that constitutes the essence of the representation. Sartre has suggested that we can set up a series of representations, starting with a photograph, continuing with a full portrait, a drawing, a caricature (which may be a few lines on paper or a piece of behavior on the part of an actor). All these are ways of indicating a particular person. The series can be continued with a mental image, and finally with the person's name. These different ways of thinking of him depend on a relation of meaning. "For the contents (images for instance) which accompany or illustrate them are not the meaning or intending. … If God had looked into our minds He would not have been able to see there whom we were speaking of" (Wittgenstein, op. cit., p. 217). Or whom we were thinking of. So far from being the vehicles of meaning, images are dependent on a prior ability to mean or intend particular objects for their very existence. In this they are like pictures, but this fact must not lead us into talking of our apprehension of images as if it were the inspection of private pictures.

See also Aristotle; Berkeley, George; Hobbes, Thomas; Hume, David; Imagery, Mental; Imagination; Locke, John; Lucretius; Ryle, Gilbert; Sartre, Jean-Paul; Thinking; Wittgenstein, Ludwig Josef Johann.

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IMAGINATION

Imagination is generally held to be the power of forming mental images or other concepts not directly derived from sensation. In spite of the popular usage of the term, the majority of philosophers from Aristotle to Immanuel Kant considered it in relation to knowledge or opinion. They conceived it either as an element in knowledge or as an obstacle to it—as in Plato's attack on art—or as both an obstacle and an element. David Hume is a representative of the last view: "Nothing is more dangerous to reason than flights of the imagination, and nothing has been the occasion of more mistakes among philosophers." Yet in the same place he wrote of the understanding as "the general and more established properties of the imagination" (*Treatise of Human Nature,* Book I, Part IV, Sec. vii). The fancy, the power of the imagination to combine ideas in fantastical ways, is to be avoided, but nevertheless imagination is vital to knowledge.

This latter element in Hume's view had its greatest development in Kant's *Critique of Pure Reason,* where the imagination is described as a "blind but indispensable function of the soul, without which we should have no knowledge whatsoever, but of which we are scarcely ever

conscious." Kant thought that the imagination has two tasks to perform in giving rise to knowledge, though it is not always easy to separate them. First, it completes the necessarily fragmentary data of the senses: it is impossible to perceive the *whole* of an object at once, yet we are seldom aware of the partial nature of our perception. For example, we cannot see more than three sides of a cube at one time, but we think of it as having all six sides. This completion of perception is the work of the "reproductive" imagination (called reproductive because it depends on prior experience for its operation). Kant contrasted this with the "productive" imagination, which has an even more important role to play.

The two names mark different functions of the imagination, rather than imply that it is twofold. The productive imagination gives rise to the transcendental synthesis of imagination, which combines our experience into a single connected whole. Kant called this operation "transcendental" because it is prior to experience, not subsequent to it; without such a synthesis no coherent experience of a world would be possible. So central is the work of the imagination to the first *Critique* that it is sometimes hard to separate from the understanding; Kant even said in one passage: "*The unity of apperception in relation to the synthesis of the imagination* is the *understanding*; and this same unity, with reference to the *transcendental synthesis* of the imagination, the *pure understanding*" (A 119).

ARTISTIC IMAGINATION

In spite of Kant's emphasis on the productive nature of the imagination and the importance he gave to it, his view of it in the first *Critique* is still as a faculty for forming images, images that are at the service of the cognitive powers of the mind. It is our normal apprehension of the world that is mainly at issue in that work. Consequently, it is hard to see how this use of the term is related to that by which we talk of writers and artists as "imaginative." Many critics and philosophers have written as if the artist or writer were a person especially good at imagining, in the sense of visualizing, scenes or events that had not occurred, which he then transmitted to the public by means of his art. The mental operations were of the "fancy" in Hume's sense of the term, the imagination recombining materials it had previously received from the senses into new forms that were not reproductions of previous experiences. The degree to which an artist could do this was the measure of his imaginative powers, while the reader or viewer reproduced in his own mind what

the artist had had in his. Two contemporary literary critics have attacked this view:

> But much great literature does not evoke sensuous images, or, if it does, it does so only incidentally, occasionally and intermittently. In the depiction even of a fictional character the writer may not suggest visual images at all. … If we had to visualise every metaphor in poetry we would become completely bewildered and confused. (Wellek and Warren, *Theory of Literature,* pp. 26–27)

It has even been suggested that the term *imaginative* has now come to fill the place in the critical vocabulary left by the general abandonment of the term *beautiful* in aesthetics; a "work of imaginative power" would previously have been called "beautiful." Clearly it is inadequate to equate "imagination" with the power of the mind to produce images. Interestingly enough, the germ of a better theory of the imagination might be seen in Kant's discussion of teleological judgment in his *Critique of Judgment*: to think of nature *as if* it had a purpose is an imaginative activity, though there do not seem to be any actual images involved in the process.

COLERIDGE. One of the most important contributions to the theory of the imagination in the nineteenth century was that of Samuel Taylor Coleridge, put forward in *Biographia Literaria* and elsewhere. He strongly contrasted the Fancy and the Imagination; the former he defined as "no other than a mode of Memory emancipated from the order of time and place." It operates almost mechanically and is responsible for the production of verse, whereas the Imagination is the source of true poetry. This he divided into two: the Primary Imagination, which is the equivalent of Kant's productive imagination and is responsible for all human perception, and the Secondary Imagination, which is the source of art. Coleridge described the operation of the Secondary Imagination as follows: "It dissolves, diffuses, dissipates, in order to re-create … it struggles to idealise and to unify. It is essentially *vital,* even as all objects (*as* objects) are essentially fixed and dead." This vital nature of the imagination meant for Coleridge that it is a way of discovering a deeper truth about the world; he would have agreed with John Keats's "What the imagination seizes as beauty must be Truth," and thus he went beyond the Kantian original of this theory. In this he sided with the romantics, for whom art and science were alternative ways of reaching the real world; previous writers had tended to think of science and philosophy as superior to art in this respect.

RYLE ON IMAGINATION

Coleridge and those who followed him, including both Benedetto Croce and R. G. Collingwood, still thought of the Imagination as a single faculty or power of the mind. Gilbert Ryle, in his chapter on imagination in *The Concept of Mind,* stresses that there is no one thing that can be called "imagination" but rather a variety of activities that are imaginative, among which are pretending, acting, impersonating, fancying, and so-called imaging. His arguments clearly establish his central thesis, though his subsidiary denial of mental images, which is not essential to the main point, is open to doubt. A child shows his imaginative ability, Ryle maintains, not by what goes on in his head but rather by the way in which he plays—for instance, the manner in which he pretends to be a bear. An actor, again, demonstrates his ability by the way he performs on the stage, his public appearance, to which mental accompaniments are largely, if not entirely, irrelevant.

Many of the activities called "imaginative," Ryle says, are "mock-performances"; he talks of boxers sparring as "making these movements in a hypothetical and not a categorical manner" (p. 261). This is closely connected with supposal, the running over in the mind of a future possibility. Indeed, in ordinary speech the word *imagine* is often synonymous with "suppose" or "think"; the instruction "imagine what it would be like if" is equivalent to "think what it would be like if." In both cases the evidence that the instruction had been carried out would be a report in words; even the operation itself might have been purely verbal, without any "images" passing through the mind. Hence, Ryle can argue that there is no need for an artist or writer—or, indeed, for anybody at all—to have "mental imagery."

IMAGINATION AND TRUTH

Because there is such a close connection between "imagining" and "supposing" or "fancying," it is easy to see why what is imagined is often thought to be unreal or false. In fact, "I must have imagined it" is a common form for the admission of a mistake of some kind. Hence, it is natural for epistemologically minded philosophers to assume that all imaginative activity is false or unreal. Ryle, in spite of the overall excellence of his account, may be criticized on this score: Such forms of expression as "mock-performance" and the use of quotation marks stress this element. However, the falsity of the imagination may, by philosophers of other persuasions and interests, be welcomed as a sign of the mind's freedom. Jean-Paul Sartre would appear to be of this number. E. J. Furlong, in his

book *Imagination,* agrees with Sartre on this point: "to act 'with imagination' is to act with freedom, with spontaneity; it is to break with the trammels of the orthodox, of the accepted; it is to be original, constructive" (p. 25). But, as has already been mentioned, artists and writers about art often want to go further than this, to stress the "truth" of imaginative works. Collingwood, for example, in a section of *The Principles of Art* titled "Imagination and Truth," has said, "Art is not indifferent to truth; it is essentially the pursuit of truth" (p. 288). It is clear that the truth in question is one somehow connected with the imagination rather than with the ordinary cognitive powers of the mind.

The difficulty of assessing this claim is increased by the fact that the idealist theory of art, of which Collingwood and Croce are the chief representatives, places the locus of the work of art not in its physical manifestation, the painting or poem, but in the imagination of the artist and spectator. The real work of art is an experience in the mind of the artist, and the spectator is moved to re-create the experience of the artist in his own imagination when he contemplates the picture. The picture is thus connected with the work of art but is not the work itself. The main difficulty here lies in the fact that it is an imaginative experience, not a statement, which is said to be true. A subsidiary problem is that such a view leads to the undervaluing of the actual product of the artist, the picture, novel, or poem. But the stress on the part played by the imagination in appreciating art is shared by some writers not normally thought of as idealists. For instance, Sartre says, "In a word, reading is directed creation" (*Situations II,* p. 96). The writer, he argues, has only provided a series of clues that the reader has to "solve" and complete by his own activity. Sartre even goes so far as to talk of reading as a "dream under our own control" (ibid., p. 100), which assimilates the appreciation of art even more closely with activities normally thought of as imaginative—for example, daydreaming.

One aspect of the idealist account of art clearly fits in with our normal thinking on the subject, for a person said to be "imaginative" is frequently one who is capable of appreciating works of art or of fiction. A man who could not read novels because "they are not factual" would be unimaginative. But the antithesis imaginative-factual that is here employed would seem to contradict the idealist claim that art is connected with truth. In ordinary conversation a novel may be described as "true to life" or "realistic." A child pretending to be a bear may also be praised for the realism of his performance, as may a young actor playing the part of an old man. In these and similar instances no one need be deceived by the novel or the performance; the readers or spectators can be fully aware that they are not reading a factual account or seeing a genuinely old man. Indeed, if they were not so aware their reactions would be different. The spectator who responds to the stage performance as to an actual event has made a serious mistake; many events on the stage would be too painful to contemplate if they took place in real life. This kind of awareness has sometimes been described as "aesthetic distance," but it is the same feature that was above described as the "unreality" of the imagination. Sartre expresses this fact by saying that the image "contains a certain nothingness." He continues: "However lively, however affecting or strong an image may be, it is clear that its object is non-existent" (*L'imaginaire,* p. 26). For Sartre, when someone imagines the face of an absent friend he is supposing that the friend is present to him, which ex hypothesi he is not. A person who forgets that he is imagining, that his thought is supposal, not fact, has made the same mistake as the spectator who thinks a real murder has been committed on the stage. The sense in which imagination may provide, in works of fiction, for example, a "truth" that is not conformity to actual fact can thus only be that the world which is supposed is a possible one, in the sense that it is self-consistent. Those who claim that the imagination gives another "truth" must be extending the meaning of the word in a way that requires justification, or at least explanation.

What has just been said also serves to point to a solution of the difficulty of the idealist account, that of the actual mode of existence of the work of art, whether it is in the mind or is the physical object it is ordinarily taken to be. Against the idealist view it is normally asserted that what is criticized in a work of art is the work itself, not its effects on the imagination, which would be private to each person; the critic thinks he is talking about a public object. The solution lies in the ambiguous nature of the work of art, as Sartre stresses, in that a picture, for example, can be viewed either as paint on canvas or as a picture of an absent friend. The picture does not produce an image of the absent person, but, as Sartre says, we respond to the picture in some of the ways in which we would respond to the friend himself, albeit we are aware that he is not present. The ability to respond in this way is the imagination, but the response does not require a flow of imagery in the mind. To have established this is one of the merits of Ryle's account.

MIMESIS

It is now possible to see the connection between many of the various, apparently disparate uses of "imagination." The man who is thoroughly immersed in reading a story, who is almost dreaming it, is very like the child who is fully occupied with pretending to be a bear. These are in a position similar to that of the man who is taking the behavior of a young actor on the stage for that of an old man. There is a common element in the behavior of all three, which is shared by the man who is supposing that something is the case, though his activity is less full. This man, again, is not dissimilar to the person having a mental image, who is fancying or supposing that he is seeing or hearing something he is not seeing or hearing, although aware that he is not.

All of these notions are related to an earlier account of art, the Greek *mimesis,* or imitation, although it has often been thought that there was a radical difference between them. Aristotle's idea of an "instinct of imitation" in the *Poetics* (IV, 1) is not entirely unlike Ryle's account of the imagination. In both cases there is something unreal about the activity, as Sartre has tried to indicate by his talk of "nothingness" as a feature of imagination; in these areas the implications of normal life do not hold. Thus, in spite of the apparent diversity of usage, there is a "family likeness," in Ludwig Wittgenstein's phrase, between the various terms, which makes talk of "the Imagination" legitimate.

See also Aristotle; Coleridge, Samuel Taylor; Collingwood, Robin George; Croce, Benedetto; Hume, David; Imagery, Mental; Images; Kant, Immanuel; Plato; Sartre, Jean-Paul; Wittgenstein, Ludwig Josef Johann.

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IMAGINATION [ADDENDUM]

Late-twentieth-century discussions of imagination have tended to focus on three sorts of issues. Discussions in the philosophy of mind have focused on the cognitive architecture underlying imagination, and on the ways that imagination differs from and resembles belief, perception, and supposition. Discussions in modal epistemology have focused on the extent to which imaginability—and its cousin conceivability—can serve as guides to possibility. And discussions in aesthetics have focused on a cluster of issues concerning our imaginative engagement with fictional characters and events.

PHILOSOPHY OF MIND

Within the philosophy of mind, three distinct notions of imagination have been discussed: sensory imagination (quasi-perceptual experience in the absence of appropriate stimuli); recreative imagination (mental simulation); and creative imagination (combining ideas in unexpected and unconventional ways), with the great bulk of discussion devoted to the former two.

SENSORY IMAGINATION. Drawing on work by cognitive psychologists (e.g., Shepard 1982, Farah 1999), philosophers have explored the extent to which sensory imagination in general, and visual mental imagery in particular, employs the same systems as those involved in corresponding perceptual experience, and the related question of whether mental images are encoded in analogue form (as mental pictures) or propositionally (as descriptions). While the mainstream view holds that entertaining a visual mental image involves inspecting some sort of picture-like object (Kosslyn 1994), critics—most notably Zenon Pylyshyn (2003)—maintain that reasoning with mental images need not involve any sort of quasi-sensory representation. (A selection of early philosophical papers on the topic of visual imagery can be found in Block 1981; an overview of the debate is presented in Tye [1991/2000]; discussion of related issues in the phenomenological tradition can be found in Casey 2000; these themes are also examined in McGinn [2004] and Williams [1973].) Discussions of other sensory modalities have been explored less thoroughly, though some philosophical attention has been paid to the question of how motor imagery ought to be understood—whether as imagined action or imagined perception of action (Jeannerod 1997, Currie and Ravenscroft 2002); and there is a small literature on auditory imagery (primarily in the phenomenological tradition; cf. also Reisberg 1992).

A related discussion concerns the intentional status of mental images: do they derive their content through resemblance alone (an image of a maple leaf resembles and thus represents a maple leaf), or through some other mode of representation (an image of a maple leaf represents a maple leaf only as a result of being "labeled" as such)? Many analytic philosophers, following Jerry Fodor (1975) and Hilary Putnam (1981) have endorsed the latter view, though there has been some dissent.

RECREATIVE AND CREATIVE IMAGINATION. The other main area of exploration in the philosophy of mind has concerned what Gregory Currie and Ian Ravenscroft

(2003) have dubbed recreative imagination: the capacity that underpins one's ability to take perspectives other than one's own. This capacity, sometimes called off-line simulation, seems to play a central role in the understanding of other minds, in the contemplation of counterfactual scenarios, in the planning of behavior, and in engaging in explicit games of pretense. (Autistic children, for example, show marked deficits both in pretend play, and in understanding the mental states of others.) Beginning in the early 1990s—prompted in part by work of philosophers Alvin Goldman, Robert Gordon, and Jane Heal, and by empirical work by psychologists such as Simon Baron-Cohen, Paul Harris, Alan Leslie, and Uta Frith—investigation of these connections began in earnest, resulting in a number of important anthologies (Carruthers and Smith 1996, Davies and Stone 1995a, 1995b), collections (Currie 2004, Heal 2003) and book-length treatments (Currie and Ravenscroft 2003, Nichols and Stich 2003).

In a related vein, philosophers concerned with simulation and pretense have offered hypotheses concerning the cognitive architecture that supports such a capacity (Nichols and Stich 2003) and offered discussions of the features which it shares with and which distinguish it from related attitudes such as belief and supposition (Currie and Ravenscroft 2002, Velleman 2001; essays in Lopes and Kieran 2003; Nichols 2006).

Work on the creative imagination has been primarily in the context of empirical psychology (Boden 2003, Csikszentmihalyi 1996, Sternberg 1998; see also Gaut and Livingston 2003.)

MODAL EPISTEMOLOGY AND AESTHETICS

Within the context of modal epistemology, a great deal of scholarly attention has been focused on the question of whether there is some representational capacity, imagining or conceiving, that can serve as a reliable guide to possibility, and, if so, whether particular conclusions about, for example, mind-body dualism can be established by exploring what one can or cannot conceive or imagine. Advocates of conceivability-possibility theses, most notably David Chalmers, have contended that under certain conditions, conceivability is a fully reliable guide to certain sorts of possibility (Chalmers 1996); critics have maintained that the relevant notions of conceivability or possibility are of doubtful philosophical utility (Gendler and Hawthorne 2002.)

Within the general purview of aesthetics, philosophers interested in the imagination have discussed both

general questions about the nature of the imagination as well as a number of specific and general puzzles, among them the Paradox of Fictional Emotions (how and why one feels apparent emotional reactions toward characters and events that one explicitly recognizes as fictional), the Paradox of Tragedy (how and why one enjoys artworks that induce feelings such as sadness and fear) and the Puzzle of Imaginative Resistance (why one is reluctant to imagine fictional worlds that differ morally from the actual world). (Influential anthologies on these topics include Bermúdez and Gardner 2003, Hjort and Laver 1997, Lopes and Kieran 2003, Nichols 2006; collections of essays include Currie 2004, Levinson 2002; book-length treatments include Carroll 1990, Currie 1990, 1995, Feagin 1996, Robinson 2005, Scruton 1997, Walton 1990; see also Brann 1992.)

See also Aesthetics, History of; Art, Expression in.

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IMMORTALITY

The literature on the philosophical problems involved in the question of a future life begins with Plato. We cannot therefore do better than start with a quotation from *Phaedo,* the dialogue in which Plato deployed what is put forward as a demonstration of the immortality of the soul. Having heard and apparently accepted the supposed proof put into the mouth of Socrates, Crito asks:

> "But how shall we bury you?" "However you please," Socrates replied, "if you can catch me and I do not get away from you." And he laughed gently, and looking towards us, said: "I cannot persuade Crito, my friends, that the Socrates who is now conversing and arranging the details of his argument is really I: he thinks I am the one whom he will presently see as a corpse, and he asks how to bury me. And though I have been saying at great length that after I drink the poison I shall no longer be with you, but shall go away to the joys of the blessed, he seems to think that was idle talk uttered to encourage you and myself."

(115CD)

This passage can be employed to fix two fundamental points by reference to which the main problems can be mapped.

The first point is that the essence of doctrines of personal survival (or immortality)—and precisely this and this only is what gives them their great human interest—is that they should assert that after our deaths we shall continue to exist (forever). Only in this way can they provide the basis for what John Wisdom has called "these logically unique expectations"—that we shall, to put it as noncommittally as possible, have "experiences" after death, that death will be not our terminus but the beginning of a new journey. This has to be underlined both because there have been some famous philosophical doctrines of immortality which have not been of this sort and because there have been other doctrines which either were from the beginning substitutes for, or have been so hedged and interpreted that they have now ceased to be,

the genuine article, personal immortality. Thus, whatever one makes of Aristotle on the immortality of the intellect (*De Anima* 429a–431a) or of Benedict Spinoza on the eternal element in the mind (*Ethics,* V, xxiii ff.), it is certain that these views do not, nor were they intended to, provide any ground for such "logically unique expectations." Again, the man who urges that we all of us live forever because the ill (and sometimes even the good) men do lives after them indicates by the very irrelevance of his supporting reason that this sort of immortality is not the authentic personal brand.

The second basic reference point is that any doctrine of survival or immortality has one enormous and immediate obstacle to surmount before it can begin to qualify for any further consideration. This obstacle consists simply in our manifest universal human mortality. It is due to this ineluctably familiar fact that "All men are mortal" has become a trite truistic example in logic and that we so use the word *survive* that it is logically impossible for one and the same passenger to be both dead and a survivor after a crash. One can recognize and respect the longing that may lie behind the epitaph "Not dead, but sleeping," yet no one can deny that, literally interpreted, it is false. Indeed, even to consider the contrary possibility would be to enter the ghoulish world of Edgar Allan Poe. This second reference point is, of course, as obvious as the first though the inducement to disregard it is perhaps greater. And both points have to be kept constantly in view.

THREE DOCTRINES OF IMMORTALITY

There seem to be three ways of trying to circumvent the massive initial difficulty confronting any doctrine of personal immortality. If once the initial obstacle could be overcome, the remaining problems would turn out to be not philosophical but factual and practical.

IMMORTAL-SOUL DOCTRINE. The first of the three doctrines is the Platonic attempt to demonstrate two points. One point is that we are essentially composite beings. Besides the more familiar corporeal element, the body, there is also something else, different in kind—the incorporeal soul. For the duration of a life the soul is somehow attached to—incorporated into or imprisoned in—its body. Although the soul is incorporeal, it is nevertheless a substance, something that could significantly be said to exist independently of anything else. This is precisely the point of Plato's arguments to the conclusion that the soul is not a harmony, for it would not even make sense to suggest that a harmony might survive or, for that matter, precede the elements of which it is a harmony.

This is no more possible than that there could be a grin without a face to grin it (*Phaedo* 85E–86D and 91C–95A).

The other point is that the soul must be the person or, at any rate, the real, true, or essential person. This, though it is sometimes neglected, is crucial. Unless it is established that I am my soul, the demonstration of the survival of my soul will not demonstrate my survival, and the news that my soul will last forever could provide me with no more justification for harboring "these logically unique expectations" than the rather less elevated assurance that my appendix is to be preserved eternally in a bottle.

RECONSTITUTION DOCTRINE. The second doctrine is, in its purest form, extremely simple and direct. It consists in urging the resurrection of the body or, more accurately, the reconstitution of the person. Whereas the first doctrine insists that I am the sort of thing that could perfectly well escape unharmed and unnoticed at death ("if you can catch me and I do not get away"); the second recognizes that to be truly a human person, I have to have the corporeal human form. It then relies on an act of sheer omnipotence to produce the immortal me.

SHADOW-MAN DOCTRINE. Considering that the reconstitution doctrine or something approaching it has been part of traditional Christianity, it is surprising to find that Thomas Aquinas seems to be the only philosopher of the first rank to have discussed a version of it at any length. (See especially "Treatise of the Resurrection" in the supplement to Part III of the *Summa Theologiae*.) But the shadow-man doctrine seems to have received even less attention. It can perhaps best be regarded as an attempt to combine the strong points of the other two doctrines. It is the claim that a person is a kind of shadow man, sufficiently human and corporeal to overcome the problem of identification with the familiar flesh and blood person and at the same time sufficiently ethereal and elusive to have no difficulty in escaping unnoticed from the ordinary earthy body which is destined to be burned or buried. This view is found in some of the Christian Fathers (for instance, Tertullian in *De Anima*). A similar view is also held by some modern spiritualists—"the astral body" detaches itself at death to proceed on its "journey to the summerland." Perhaps the best way of conveying the idea to the modern reader unfamiliar with either patristic or spiritualist literature is to refer to the many films in which a "spirit" is shown as a tenuous shadowy replica of a man that detaches itself from him at death and is thereafter visible to the entire audience but only to favored characters in the film.

DIFFICULTIES IN THESE DOCTRINES. At first sight the third doctrine might appear to be the most promising way to avoid the initial difficulty. However, the doctrine is bold precisely where the other two are discreet. By insisting upon the essential incorporeality of the soul, the first neutralizes all the ordinary weapons of empirical inquiry; the second, by deferring the corporeal resurrection to an unspecified time and place, indefinitely postpones any occasion for their deployment. But astral bodies, detaching themselves at death from the other sort, should be empirically detectable here and now. The crucial and probably insoluble dilemma for the shadow-man doctrine is to provide a specification of the nature of an astral body in which an astral body remains sufficiently like an ordinary flesh and blood person to avoid difficulties of identification and at the same time to ensure that the claim that there are such things would be verified or, at least, not immediately falsified by the appropriate factual investigation.

In the time of Tertullian and even in the early days of modern psychical research there may have been some slight basis for believing that this might possibly be done. Tertullian himself appealed not only to purely theological considerations but also to such cases as that of the woman who claimed to have seen "a transparent and lucid figure in the perfect form of a man." The systematic investigation of such phantasms has shown, however, that though they do undoubtedly occur, they belong to the category of purely subjective and hallucinatory experience. (See, for instance, G. N. M. Tyrrell, *Apparitions,* London, 1953.) The third way must therefore be dismissed as a blind alley.

Any reconstitution doctrine confronted with the question "How is the reconstituted person on the last day to be identified as the original me, as opposed to a mere replica, an appropriately brilliant forgery?" There seems to be no satisfactory answer to this question, at least for a pure reconstitution theory. This question is, however, logically prior to all questions about the reasons, if any, that might be brought forward in support of such a doctrine.

This decisive objection seems rarely to have been raised, and when it has been, its force has not usually been felt. No doubt, the explanation lies largely in the fact that the doctrine is scarcely ever found in the pure form, unalloyed with any Platonic elements. There are two defenses that might be offered. It could be urged that God will infallibly ensure that the unending torments and the eternal ecstasies are allocated to the right people—that is, in the one case to the very same people who had incurred his disapproval and in the other case to precisely those who had won his favor. It might also be suggested that

though there might indeed be cases in which all other merely human observers must be entirely at a loss, the person himself could not fail to know whether he was the original person rather than a changeling or a replica. These are, in substance, the arguments presented by John Locke in developing and defending his own analysis of personal identity; however, that analysis itself was intended to meet difficulties about the identification of the future victims of divine judgment with people now living on Earth.

Both these arguments, though they possess a strong appeal, seem to miss the point. Notwithstanding the form of the original question, the difficulty is not one of "How do you know?" but of "What do you know?" The objection is that the reconstituted people could only be mere replicas of and surrogates for their earthly predecessors. Neither the appeal to the cognitive and executive resources of Omnipotence nor the appeal to the supposed special status of the person in question does anything at all to meet this contention.

The point can be brought out better in the case of the argument that the person cannot fail to know who he is. This argument depends on the premises that if I remember doing something, I must have done it and that normal people in normal situations are usually able to remember the most important features of their lives. Both premises are true, but it does not follow from them that if someone on the last day or any other day claims in all honesty to remember doing something, he must in fact have done it. From "He remembers doing that" it follows necessarily that "He did that," just as from "He knows that that is true" it follows necessarily that "That is true." But from "He claims to remember doing that, and he is not lying" it does not follow that "He did that," any more than from "He claims to know that that is true, and he is not lying" it follows that "That is true."

The crux in both cases is the possibility of honest error. However honest and however convinced, claims that you did something do not guarantee that you actually did it. In normal circumstances most such claims are no doubt entirely reliable, and the memories involved can properly be said to constitute knowledge. But the circumstances envisaged by the reconstitutionists are conspicuously not normal. In these circumstances the question of whether any of the ostensible memories enjoyed by the reconstituted people can properly be counted as memories at all must wait on the resolution of the logically prior issue of whether they have any past to remember, of whether, in particular, they are indeed the people they apparently think they are.

Thomas Aquinas seems to have appreciated that the immediate objection to any pure reconstitutionist view is decisive. This insight is no doubt one of the reasons that his own view incorporated important Platonic elements. In answer to the objection "that it will not be identically the same man that shall rise again. … After the change wrought by death the selfsame man cannot be repeated," Thomas replied:

> The form of other things subject to generation and corruption is not subsistent of itself, so as to be able to remain after the corruption of the composite, as it is with the rational soul. For the soul, even after separation from the body, retains the being which accrues to it when in the body. … Consequently there has been no interruption in the substantial being of a man, as would make it impossible for the selfsame man to return on account of an interruption in his being. (Op. cit., IIIa, Supp. 79, 2, *ad* 1)

IMMORTAL-SOUL DOCTRINE

It thus seems that if any headway is to be made toward overcoming the first gigantic obstacle in the way of doctrines of survival or immortality, it will have to be, at least in its first stages, Platonic in an extremely broad sense. In this sense René Descartes's views on the nature of the soul and its relations to the bodily machine can be characterized as Platonic (see, for instance, *The Passions of the Soul* I, xxx ff.), and even Thomas must count as at least Platonizing. For everyone who maintains that the mind or the soul is a substance, in the sense that it could significantly be said to exist alone and disembodied, is thereby Platonizing, and everyone who identifies this putative substantial mind or soul as the real or true person is adopting a fully Platonic position.

Platonizing concerning the nature of the soul seems to be the essential condition of the possibility of any defensible doctrine of personal immortality or even survival. Philosophy that is Platonizing or Platonic in this sense constitutes an enormous field, so this article will concentrate on the views of Plato, Aristotle, and Descartes, making their positions serve as focuses. All three are well suited to serve in this way both because their work has been and is enormously influential and because they can each be seen as representative of a different approach to the problem. Since all three believed in some sort of immortality and since it is scarcely possible to treat their arguments about the nature of the soul without touching on their ideas of immortality, it will be convenient to consider the two together.

DIFFICULTIES IN THE NOTION OF THE SOUL. One great and rather peculiar difficulty of our present subject is that it is very hard and, hence, very uncommon for anyone really to begin from the beginning. The key terms such as *body, mind,* and *soul* and their equivalents or near equivalents in other languages are all in a way familiar to all those acquainted with the languages concerned. Though there may be much unclarity about their meanings and perhaps even a certain indeterminacy in their usage, they are not the recognizably fresh coinages that both demand definitions and enable meanings to be prescribed with some confidence that the appropriate usage can be followed consistently by the prescriber and by others. (The point here is simply that speech habits, like other habits, can be very hard to break.)

Again, in the air there always are and always have been vulgar or not so vulgar theories about bodies, minds, and souls and their several natures, destinies, and relations, with no guarantee that these theories can be harmonized with the meanings of such terms as *mind* or *soul* as actually determined by whatever is the accepted correct usage of the culture concerned. For instance, correct usage—and this surely is and must be the only possible standard of meaning—may very well determine that the soul, in the relevant sense of *soul,* is not a substance, even though the people concerned entertain fantasies which presuppose that it is. This thesis has been fully developed in this connection by Gilbert Ryle, chiefly in *The Concept of Mind.* The consequence of this is that the issues tend to be presented not as a matter of first giving some suitable sense to the word *soul* or *mind* and then asking whether in that sense the term would in fact have any application but, rather, as an inquiry which presupposing that we have or are souls or minds, asks what is the nature of the soul or the mind. Such a presentation is bound to constitute a temptation to prejudge the question whether, in the sense eventually chosen, we have or are such things. By itself this might give rise to no more and no less trouble than the insistence of the modern analytic philosopher that he is not concerned with the reality of matter, time, or whatever but is merely searching for an adequate analysis of the notions of matter, time, and so on. In the present case, however, there are also the various theories in the background, and these theories happen to be of very different sorts and suited to answering very different questions.

The fundamental distinction needed is that between theories that might serve as answers to philosophical questions about the meanings of the terms *mind, soul,* and the like and theories that offer some sort of explana-tion of why the creatures that are said to have minds, souls, and the like behave and suffer as they do. Thus, for instance, in reading Aristotle's criticisms of his predecessors (*De Anima* I), we must distinguish—even if they, or he, did not—between those thinkers who said that the soul was a vapor, blood, or something of that order and must to that extent be interpreted as embryonic scientists and those thinkers who urged that the essence of the soul is motion, sensation, or some combination of the two and are therefore to be counted as philosophers.

Another crucial distinction must be made between explanatory and descriptive concepts. Suppose that for some person the meaning of the words *mind* and *soul* is to be given entirely in terms of certain capacities or incapacities and that in his use having a first-class mind is just being able to compass certain sorts of achievement. In his sense of *mind,* then, it can be no explanation to say that someone can do these things because he is endowed with a first-class mind, for to say this is, for him, only to redescribe the phenomenon. If his concept of mind is to be explanatory, he must give the word *mind* a meaning such that minds would be, in the terminology already explained, substances.

PLATO. There seems to be only one, very brief passage in Plato (*Alcibiades* I 129B–130C) where the argument is explicitly directed toward the justification of the Platonic presupposition that the soul is the person. Even in this passage the first presupposition, that we are composite beings, is very much taken for granted.

Soul as the person. Socrates is talking with Alcibiades, and the question is raised, "What are we, and what is talking with what?" The conclusion is that we are our souls. The argument runs in this way. In speaking, we use words. The user and the thing used are always different. We use our hands, our eyes, our whole bodies. Thus, I cannot be my body. Yet it is agreed that I must be my soul, my body, or a combination of both. However, because the user and the thing used are always different and because I use my body, I cannot be either my body or my body and soul combined. Thus, I must be my soul.

Considering how vital the conclusion is, Plato's argument may seem inadequate. But if, sympathetically, we call in the rest of Plato's writings to provide supplementary evidence, it becomes clear that it has to be taken as the epitome of many arguments. For Plato constantly talked of the phenomenon of self-control and the lack of it and of all those times when we are inclined to speak of being let down or dragged down by the weaknesses or by the excessive strength of the body or some part of it. Few

concepts are, in the ordinary narrow sense, more typically Platonic.

In all the innumerable cases of bodily control or lack of it, it is possible to produce arguments of basically the same form, and it is not at all necessary to appeal to the assumption, which may not seem as obvious to everyone today as it did to Plato's Alcibiades, that I must be my soul, my body, or both. Thus, starting from the known fact that our eyes sometimes play tricks on us, we may go on to argue that this shows that we see not with, but through, them, that they are, as it were, built-in optical instruments (compare *Theaetetus* 184C ff.). Or, again, noting how natural and entirely proper it is to describe someone on some desperate occasion as "flogging on his protesting body," we may infer that we drive our bodies as we drive our cars. In every case the Platonic conclusion, expressed in a more modern idiom, would be that the personal pronouns, personal names, and all other person words, words which clearly must refer to something and which, it seems, equally clearly cannot refer to bodies, the only available corporeal objects, must therefore refer to some incorporeal objects, the conclusion is that these are the objects to which we apply the term *souls.*

This conclusion is wrong, however, and all arguments of this kind are misguided. It is not true that person words are words for any sort of incorporeal objects. People are what you meet. We do not meet only the sinewy containers in which other people are kept, and they do not encounter only the fleshy houses that we ourselves inhabit. It is therefore wrong to suggest that the word *person* is equivalent to the word *soul* in this sense of *soul* and, hence, to imply that it is contradictory to deny that people are incorporeal objects and that it is absurd to say that you can see a person. This basic fact about the meanings of person words is central and fundamental to the entire problem.

To deal in detail here with all the variations on the present argument would be impossible. The mistake involved in all such arguments seems to be that of insisting that because expressions such as "that person" are, for one reason or another, not synonymous with "that human body" and because we use all sorts of idioms in which I and my body are spoken of as if they were two substances, there must therefore be a special class of incorporeal objects for person words to refer to. This false conclusion seems to be one more product of the perennially disastrous *unum nomen, unum nominatum* theory of meaning—the misconception that every different class of word must refer to a different class of object. The truth seems to be that in this area we have a vastly rich and idiomatic vocabulary that provides us with all manner of subtle linguistic instruments, all of which we employ to say things about one sort of inordinately complicated but essentially corporeal creature, ourselves.

Argument from reminiscence. Plato's second argument to the conclusion that we are incorporeal souls was his doctrine of reminiscence. This has two forms, each proceeding to the same conclusion from rather different premises. In one form the premise is that we can all be shown to possess some knowledge, which we have not acquired in this life, of a priori truths (*Meno* 81B–86B). In the other it is that we all have certain ideal concepts, such as the ideal of perfect equality, which we cannot have acquired in our lives because they are never fully instantiated in this world (*Phaedo* 73A–77A). In both forms the conclusion is that these facts can be accounted for only in terms of memory. We, or "our souls," must have acquired our knowledge of the conclusion of the theorem of Pythagoras or have been acquainted with the Platonic Idea of equality before this life began.

This argument has never been very popular, partly because of a well-grounded mistrust of both premises and partly because of the fact that the notion of preexistence involved in the conclusion does not square with the demands of Western orthodoxy. For its force the argument depends on the existence of an important logical link between (true) memory and personal identity. If I really do remember certain truths or being acquainted with certain objects, then it follows that at some time in the past I must have learned them or made that acquaintance. Plato's argument is sound, but he draws the wrong conclusion. The correct conclusion is not that we must be remembering from a former existence but that memory cannot be involved. It cannot be memory for the simple and basic reason that we were not available to acquire knowledge or anything else before we existed, because we are not, what this argument in fact assumes that we are, the sort of incorporeal things which could preexist our conception and growth.

It is worth remarking that although to products of Western cultural conditioning preexistence appears much less credible than immortality, Plato, in insisting on both, was adopting a much less arbitrary position than that of those who assert immortality alone. It was not without reason that in the ancient world Lucretius and other spokesmen for human mortality made much of the comparison between our nothingness before birth and our annihilation in death (see, for instance, Lucretius, *De Rerum Natura* III. 11. 830–842 and 973–977). As George

Santayana once remarked, "The fact of being born is a poor augur of immortality."

Argument from rationality. Another argument was developed from distinctions embedded in Plato's account of Socrates' intellectual history (*Phaedo* 96A ff.). The Platonic Socrates here tells of his dissatisfaction with Anaxagoras, who apparently wanted to explain how the universe works rather than justify why everything is for the best. Socrates then goes on to contrast the physiological conditions of human behavior with the reasons the agent has for acting as he does. These categorial distinctions could serve as the foundations of an argument to the conclusion that since there are no necessary connections between the concepts of physiology, on the one hand, and the concepts that are peculiar to the distinctively human business of giving reasons for actions, on the other, it must therefore follow that rational agents are of their very nature incorporeal.

It would probably be going too far to attribute the argument in this form to Plato, although the conclusion and all the ideas involved are thoroughly Platonic. It is nevertheless one that needs to be noted here. C. S. Lewis and other contemporary apologists have tried to use these ideas to show that rationality is somehow essentially supernatural and that the bodily occurrences involved in rational behavior cannot be completely compassed in any scientific explanation.

There are two crucial points to be made in reply to this argument. The first is that precisely because the justification and appraisal of actions is so totally different from the causal explanation of physiological events, questions and answers belonging to the one universe of discourse cannot rival those belonging to the other. It is thus entirely possible to be confronted by a series of corporeal events—those, for instance, involved in what would normally be described as the oral development of an argument—and to ask and to answer both logical questions about the rationality of the whole performance considered as an argument and physiological questions about the causes of all the various glottal, oral, and nervous happenings considered as subject matter for the physiologist.

The second point is that to show that the concepts involved in the rational assessment of conduct are not logically reducible to purely physiological terms is not the same as to establish that agents must be essentially incorporeal. It would be equally impossible by purely logical analysis to translate the statement "Italy declared war" into a series of assertions about individual Italians, but this is no reason for thinking that "Italy" is the word for

some incorporeal substance. Nor is the impossibility of a logical reduction any reason for thinking that it could even make sense to talk of incorporeal rational agents' or of Italy's taking part in international affairs if there were no individual Italians.

Life as a substantial soul. The Platonic approaches thus far considered have all involved thinking of the soul as the person; at the same time the person was wrongly thought of as an incorporeal substance. Another approach starts from the notion of a soul as a principle of life. It helps to note some peculiarities of the Greek language. The word ψυχὴ, translated "soul," is etymologically related to such words as ἔμψυχος, meaning "alive" (literally, "ensouled"), and λιποψυχία, meaning "swooning" or "death" (literally, "abandonment" by the soul). A popular idea to which Plato makes gently contemptuous reference was that death was a matter of the soul's permanently leaving its body; the soul was thought of as a puff of air, an invisible vapor, that would be dispersed in the breeze (see *Phaedo* 77D; compare, for instance, Euripides, *Supplices* 553–554). In this connection we might therefore distinguish two senses of "soul." In the first "to have a soul" means merely "to be alive"; in the second "soul" is the word for a class of supposititious entities, corporeal but elusive.

In the first sense one might speak, rather pretentiously, of the soul as the principle of life. In this sense we do have souls, for to say that a creature possesses a soul in this sense is just a misleadingly substantival way of describing it as alive. At this point Plato took another step, apparently without recognizing that any step was involved and, therefore, without providing the slightest warrant for taking it. He simply assumed what is manifestly false—that the word *soul* in this sense is equivalent to the term *soul* construed as a synonym for *person* (albeit for persons recognized to be incorporeal objects). He unjustifiably equated this "soul as the principle of life" with what the older commentators call "the soul as the bearer of moral values" (see, for instance, *Republic* 353D, a passage that is no less revealing for being found in an argument a little removed from our present concern).

Incompatibility of life and death. The false equation of two senses of "soul" is crucial in the most considerable of Plato's arguments for immortality (*Phaedo* 100B–107A). Of his other arguments the only one that retains more than antiquarian interest is the contention that the soul is something that moves itself and that whatever moves itself must be ingenerable and incorruptible (*Phaedrus* 245C–246A). And the interest of this argument lies mainly in its later theological development. It was the

germ of some of the theology of Plato's *Laws.* This theology led to Aristotle's notions of God as the Unmoved Mover. And Thomas later quarried Aristotelian materials for the first of his five ways—the argument to the First Mover.

This most interesting of the Platonic arguments presupposes Plato's general theory of Ideas, or Forms, especially as expounded in *Phaedo,* in the *Republic,* and elsewhere; in fact, Plato's other arguments derive what plausibility they may have from the theory of Ideas as a background assumption. Plato believed that for every significant word, such as *justice* or *equality,* there is a corresponding abstract Idea, or Form. These Ideas are eternal and incorporeal substances, intelligible to the intellect as material things are sensible to the senses. All the many particular instances of some general class of things "participate" in the appropriate unique Idea, and this Idea serves as an ideal standard, itself apparently preeminently possessing the characteristic concerned. These Ideas are thought of as providing answers both to questions about criteria—What makes an *X* count as an *X*?—and to questions of a more causal character—What is ultimately responsible for the existence of *X*'s?

The argument to show that life is incompatible with death starts from the notion of the soul as the principle of life, and this is equated, in terms of the theory of Ideas, with the Form of Life. Now, life in the abstract is as incompatible with death as equality is with inequality. Life can never be overcome by Death. Thus, the conclusion is that the soul as the very Idea of Life is essentially deathless and eternal and, hence, "the immortal part" of us is not destroyed by death, for "our souls will exist somewhere in another world" (*Phaedo* 106E and 107A).

The answer to this argument is that since Life and Soul are convertible terms in this context, there is as much or as little reason for saying that the Idea of Soul is eternal as there is for maintaining the eternal reality of any other Form. But, as Plato himself always insisted, the abstract Form is entirely different from the particular individual, whereas the nerve of the entire argument lies precisely in the equation of the Form of Soul with the particular soul. This identification is impossible not merely because, as we have seen, there is no reason to equate souls in the present sense with the souls that are people but, more fundamentally, because in the present sense no meaning has been given to the expression "an individual soul." This vital fact is one of the many that are obscured by the confusion of explanatory and descriptive concepts and by the failure to separate philosophical questions about criteria from factual questions about

causes. Once these distinctions are made, it becomes clear that to say that someone has a soul (is alive) is not to say that he is alive only thanks to the presence of some mysterious extra substance, whether corporeal or incorporeal.

ARISTOTLE. Aristotle's *De Anima* is perhaps best approached as a philosophical treatise on life. *Anima* is Latin for "soul" and is the word from which our *animate* and *inanimate* are ultimately derived; the declared aim of *De Anima* is "to ascertain the nature and essence of soul" as "the principle of life" (402a–403b). The fundamental thesis is that life or the soul is "the form of the particular living body." The Aristotelian notion of form is complex and is to be distinguished from the Platonic. R. D. Hicks, the editor of the classic English language edition, stated that by the thesis that the soul is the form of the body Aristotle "so far from favouring materialism, secures once and for all the soul's absolute immateriality" (R. D. Hicks, ed., *Aristotle: De Anima,* Cambridge, U.K., 1907, p. xliii). Aristotle does dispose of all ideas that the soul is a lump of stuff. However, Aristotle's basic thesis is quite un-Platonic and leaves no room at all for any doctrine of immortality. An Aristotelian form is no more a corporeal thing than a Platonic Form would be, but it is not an incorporeal one either. In our sense it is not a substance at all. The soul as the form stands to the stuff of the particular body—and the examples are all Aristotle's—as the configuration of the statue to the materials of which it is made, as vision to the eye capable of seeing, as cutting power to the serviceable ax. Whatever else may be obscure, here it is obvious, as Aristotle himself said, that in this view the soul is not separable from the body (413a) and, furthermore, that this inseparability is a matter not of physical but of logical impossibility.

Had this been all that Aristotle said, Aristotle's views could not have been used in support of immortality. He also maintained, however, certain Platonic views that have given rise to much discussion and development, particularly among the Scholastics and others committed to a belief in personal immortality. These views concern the intellectual aspects of man and the corresponding intellectual (functions of the) soul. Despite the enormous labors of the commentators, precisely what Aristotle thought on these points is far from clear, possibly because Aristotle was not very clear in his own mind. There are nevertheless some relevant points that may usefully be made.

Immortal Abstract Intellect. The tradition descending from Alexander of Aphrodisias through Averroes

attributes to Aristotle a belief in some sort of Eternal Intellect. This is, however, a doctrine of personal immortality offering "prospect of rewards and punishments," a point emphasized by St. Thomas (*De Unitate Intellectus Contra Averroistes*). Furthermore, since the Abstract Intellect as opposed to the intellects of particular men is necessarily unique, it is not at all the right material to serve Thomas's own vital theoretical need for bridges between us and our successors in the next life.

Two senses of "eternal." The one kind of reason that might be proffered for saying that the Abstract Intellect (or any other putative Abstract Reality) is essentially eternal is really no reason for saying that anything at all actually goes on forever. In a way it is correct to say that such things as necessary truths and the logical relations between abstract mathematical concepts are somehow timeless and eternal. Yet this is not a matter of the existence of anything imperishable but, rather, of its not making sense to ask temporal questions about the periods during which any of these truths and these relations obtain. From *eternity* in this sense we can have nothing either to hope or to fear.

This distinction between two senses of *eternity* is fundamental in discussing personal immortality. We are concerned only with a life that would live on forever; the eternity of mere abstractions is not to the point. In the light of this distinction we can better appreciate the significance and the error of Plato's contention that the soul belongs to the same category as the abstract Ideas and, hence, that it is the sort of thing that may be presumed immortal (*Phaedo* 78B–80B).

The presumption that an incorporeal substance would be naturally incorruptible has always been the philosophers' favorite argument for the immortality of the soul. Thomas appealed to it, for instance, although he, of course, would not have included Platonic abstract Ideas in this category and although he was also careful to insist that souls, like everything else, are sustained by God and would be at once annihilated if he chose to withdraw his support (*Summa Theologiae* Ia, 75, 6; *ad* 2). It was perhaps with the same idea in mind that in the *Republic* Plato offered, as if it were a proof, the following unconvincing argument: Because every sort of thing has its one congenital evil, because nothing can be destroyed by anything but its own congenital evil, because the congenital evil of the soul is wickedness, and because wickedness as such is never directly lethal to the wicked man, our souls must be immortal (*Republic* 608E–611A).

Reason not localized. Assuming that Aristotle had really wanted to suggest that it could make sense to talk of an individual intellect's existing separately, then, presumably, a large part of his reason would have lain in his belief that ratiocination, unlike sight or hearing, is not localized in any organ (*De Anima* 402a, 408a, 429a). This belief has, of course, turned out to be erroneous. But even if it had not, the absence of any special corporeal organ provides no justification for assuming that our intellectual attributes must, or even might, be those of special incorporeal substances. The lack of special organs of melancholy or of volition is surely not to be construed as grounds for seeking invisible subjects to which to attribute Eric's feeling glum or Katrina's wanting to go to sleep. These are simply and obviously attributes of the people concerned.

Aristotle himself never employed any argument of this sort. On the contrary, he urged that the intellect, "since it thinks all things must needs, in the words of Anaxagoras, be unmixed with any, if it is to rule, that is, to know" (429a). This dark saying has been construed as an expression of a belief that our intellects are both incorporeal and substances, a belief that might seem to mesh well with the conviction, which Aristotle undoubtedly did have, that pure intellectual activity, abstract cognition, is something rather grand, almost divine, an occupation only for the highest sort of person (see, for instance, *Nicomachean Ethics* 1177a–1179b). Aristotle immediately went on to insist, however, that this pure intellect "has no other nature than this, that it is a capacity," and a capacity is not at all the sort of thing that can significantly be said to exist separately. Again, he seems elsewhere to have dismissed the idea of individual immortality with contempt (ibid., 1111b). And in the whole range of his works there is neither a positive treatment of the subject of a future life nor any promise of such treatment. The most plausible interpretation of Aristotle's view is surely that defended by Pietro Pomponazzi in Chapter 9 of his great polemic *De Immortalite Animae.* He concluded that the soul, including the intellect, "is in no way truly itself an individual. And so it is truly a form beginning with, and ceasing to be with, the body; nor can it in any way operate or exist without the body."

THOMAS AQUINAS. Thomas, as was mentioned, had urgent theoretical reasons for wanting to show that the soul is a substance, that it is, as he put it, "something subsistent." He was therefore inclined as far as possible to read Aristotle as holding the same view. In his *Commentary on Aristotle's De Anima* he explained the passage considered above (429a) in this way:

> But our intellect … must itself lack all those things which of its nature it understands. Since then it naturally understands all sensible and

bodily things, it must be lacking in every bodily nature; just as the sense of sight, being able to know colour, lacks all colour. If sight itself had any particular colour, this colour would prevent it from seeing other colours, just as the tongue of a feverish man, being coated with a bitter moisture, cannot taste anything sweet.

If this were indeed what Aristotle meant, he really was confused. For if intellect is, reasonably enough, to be compared with the sense of sight, it is because they are both (cognitive) capacities. But we need no particular argument to show why a capacity, as opposed to the subject that may possess that capacity, cannot itself have any material characteristics. The reason that the sense of sight is not yellow is not that being yellow must render it or its possessor incapable of seeing yellow things but that, generally, it is nonsense to attribute sensible characteristics to a capacity. (It is hard not to regard all this as the product, at least in part, of the bad habit of making nouns out of verbs and then succumbing to the temptation to presume that a substantive must be a word for a substance.)

It might seem that it is upon precisely this argument that Thomas himself relied in the *Summa Theologiae* to establish "that the principle of intellectual operation which we call the soul is … both incorporeal and subsistent." He even employed the same example of "a sick man's tongue being vitiated by a feverish and bitter humour," but here he was comparing the soul as "the principle of intellectual operation" with the organ, not the sense, of sight. Having thus supposedly established that "it is impossible for the intellectual principle to be a body," he proceeded:

> It is likewise impossible for it to understand by means of a bodily organ; since the particular nature of the organ would prevent its knowing all bodies; compare the way in which liquid put into a glass vase seems to be of the same colour, not only when some particular colour is in the pupil of the eye but even when it is in the vase. (Ia, 75, 2)

In this version the argument escapes the previous criticism. But it escapes only at the price of removing what was in the commentary on *De Anima* offered as the proof of its major premise, here formulated as the proposition that "whatever knows certain things cannot have any of them in its own nature; because that which is in it naturally would impede the knowledge of anything else." The question arises, "How is this premise known?" The answer seems to be that it is not known, perhaps even that it is known to be false. Take Thomas's own example

of the eye as the organ of sight. The eyes are admittedly material, yet that does not prevent us from using them for seeing material things, including other people's eyes and even—in mirrors—our own. Furthermore, even if the Thomist proposition did fit all the facts about our present sense organs, this would at most suggest that it was a contingent truth about them. But to serve Thomas's purpose, it must be known to be, if not actually necessary, at least sufficiently universal to apply not only to sense organs but also to "that principle of intellectual operation which we call the soul"—something which he himself is here trying to show to be radically different from anything corporeal.

DESCARTES. Plato and Aristotle can be regarded as the archetypical protagonists of two opposing views of man. Plato is the original spokesman for a dualistic view, and it seems that it is upon dualism that a doctrine of personal immortality must be grounded if it is to possess any initial plausibility. As a defender of a monistic view, Aristotle was neither so consistent nor so wholehearted. Yet it is still fair to see him at his most characteristic as the philosophical founding father of the view that the person is the living human organism, a view that apparently leaves no room whatsoever for belief in personal immortality. Thomas, who generally followed Aristotle on this point, characteristically attempted a synthesis that would have opened, had it been successful, the doors to heaven and to hell. In the present perspective Descartes must be placed squarely in the Platonic tradition. Thus, in the final paragraph of Part V of the *Discourse on Method,* after remarking that "next to the error of those who deny God … there is none which is more effectual in leading feeble spirits from the straight path of virtue, than to imagine that … after this life we have nothing to fear or to hope for, any more than the flies or the ants," Descartes concluded that "our soul is in its nature entirely independent of the body, and in consequence that it is not liable to die with it. And then, inasmuch as we observe no other causes capable of destroying it, we are naturally inclined to judge that it is immortal."

Soul as a thinking substance. Although his conclusions were thoroughly traditional, Descartes was nevertheless a revolutionary thinker. Unlike Plato, his chief intellectual interests were science, in particular physiology. Like Thomas Hobbes, the other great metaphysician of his period, Descartes quickly grasped the wider significance of the work of William Harvey and Galileo Galilei. Harvey's discovery of the circulation of the blood suggested to Descartes that both animals and human bodies might be regarded as machines. Descartes then asked

himself how the creatures that we know might be distinguished from living machines. His answer was that with respect to animals there simply was no distinction in principle but that an automaton in human shape, however brilliantly constructed, could always be distinguished from a true human being in two ways. There were two sorts of test which were bound to reveal the absence of the vital rational soul: without a rational soul such an automaton would not be able "to reply appropriately to everything … said in its presence, as even the lowest type of man can do," and their lack of versatility would always reveal that the automata "did not act from knowledge, but only from the disposition of their organs" (*Discourse on Method,* Part V).

One fundamental distinction, often overlooked in discussing these questions, is that between logical and technical impossibility. In Part V of the *Discourse,* his first published treatment, Descartes seems to have been making a purely factual claim "that it is morally impossible that there should be sufficient diversity in any machine to allow it to act in all the events of life in the same way as our reason causes us to act." To make any such would-be factual claim must be both rashly premature and scientifically defeatist. Elsewhere and later, it becomes clear that what Descartes, like so many successors, really wanted to say is that it is inconceivable that any material mechanism could be responsible for certain sorts of things. Thus, in the *Passions of the Soul* he laid down the principle "that all that which is in us and which we cannot in any way conceive as possibly pertaining to a body, must be attributed to our soul" (I, iv). And in his view what has to be thus attributed is thought, in his own rather broad sense of "thought," which seems to include all actions and passions considered to involve consciousness (ibid., I, xvii ff.). "By the word thought I understand all that of which we are conscious as operating in us. And that is why not only understanding, willing, imaging, but feeling also here count as thought" (*Principles of Philosophy,* I, ix).

Descartes was thus insisting that it is inconceivable that matter, however disposed, could in this sense think. This is a notion of the same sort as the idea that purposive and rational beings could not, without benefit of control by some Higher Purpose, have evolved first from creatures of a lower order and, ultimately, from inanimate matter, an idea found in both some objections to evolutionary theory and some versions of the Argument to Design. Presumably, Descartes would have accepted both contentions and many others like them because they fall under the generic principle, which he formulated as the fourth of his "axioms or common notions"; "All the real-

ity of perfection which is in a thing is found formally or eminently in its first and total cause" (Addendum to the Replies to the Second Set of Objections to the *Meditations*).

It has since Immanuel Kant become the custom to dignify such principles with the title "synthetic a priori propositions." But the one with which we are here concerned, though certainly synthetic, can be described as a priori only in the quite artificial sense that it is wholly arbitrary and unwarranted. Descartes's more specific idea had been forcibly challenged long before by the Epicureans (see, for instance, Lucretius, *De Rerum Natura* II. 865–870 and 875–882). The challenge was later repeated by both Spinoza and Locke even before David Hume launched his decisive onslaught on the generic notion that it is possible to know a priori that some thing or sort of thing must be or cannot be the cause of some other thing or sort of thing. The points made, in their different ways, by both Spinoza and Locke were that there is no contradiction in the idea of something material being endowed with thought and that we are in no position to deny dogmatically that there are material creatures so endowed.

Subjectivism. Thus far, Descartes's originality, as against the Platonic tradition, has chiefly been in his positive scientific interests and in his mechanistic ideas about the body. His achievement was to form a new framework of discussion and to provide a metaphysical foundation for the further development of physiology. He was also revolutionary on a second count, for it was he who developed with compelling dramatic power a new approach to questions of mind and matter. For three full centuries this remained part of the accepted philosophical orthodoxy, an orthodoxy that even Hume seems never to have thought to question. This approach can be characterized, though with no intended moral overtones, as self-centered.

Whereas Plato generally—and Descartes, too, when he suggested tests of humanity—approached people from our common public world, Descartes at his most characteristic tried to approach the world from inside the closed circle of his logically private consciousness. Thus, in Part IV of the *Discourse,* having reached his rock-bottom certainty in the proposition *cogito ergo sum,* he asked what he was. "I saw that I could conceive that I had no body, and that there was no world nor place where I might be; but yet that I could not for all that conceive that I was not." He concluded that he "was a substance the whole essence or nature of which is to think, and that for its existence there is no need of any place, nor does it depend

on any material thing; so that this 'me,' that is to say, the soul by which I am what I am, is entirely distinct from body, … and even if the body were not, the soul would not cease to be what it is" (compare, especially, *Meditations,* II).

Much of the power of the Cartesian argument lies in the use of the first-person personal pronoun and in the idiosyncratic choice of tenses and moods. For there is surely no difficulty at all, even for Descartes, in supposing that Descartes may one day be annihilated or that Descartes might never have been born. The most fundamental objections are founded upon a rejection of his unstated general assumption that (his) words obtain their meaning by reference to (his) logically private experiences. In particular, Descartes mistakenly assumed that all the words for all the things that he comprehended under the term *thinking* are words for such private experiences. Only on this assumption is it possible to assert that there could be—much less that we are—essentially incorporeal beings and, as such, fully capable of every sort of thinking. To insist that this assumption is wrong is not necessarily to adopt either a complete logical behaviorism—saying that all terms of this type refer only to public performances—or Ludwig Wittgenstein's extreme later position—apparently denying the very possibility of a language's containing words defined in terms of one man's logically private experience. It is sufficient to commit oneself only to the more modest claim that most thinking words refer wholly or partly to various actual or possible proceedings that are necessarily corporeal. To recognize that this is true and could scarcely be otherwise, it is sufficient to reflect for a moment upon the whole context in which we learn to use these terms; consider how we should teach the meaning of "He argued with her" or "She drew her own conclusions." In this perspective it becomes no wonder that, as Wittgenstein said, "The human face is the best picture of the human soul."

Personal identity and parapsychology. The appeal of the Cartesian approach and its influence can be appreciated by considering two examples, both relevant to the question of immortality—first, the discussion of personal identity initiated by Locke and continued by Joseph Butler, Hume, and Thomas Reid and, second, the investigation of the question of human survival by modern parapsychologists through the study of the possible relevance of the evidence furnished by all types of mediumistic performances.

Both investigations have started from the self-centered Cartesian standpoint and have taken for granted that, essentially, people are bodiless. Thus, the problem of

personal identity was generally taken to be one of the identity of an incorporeal thinking thing. Locke tried to provide an analysis of personal identity, so construed, in terms of consciousness (memory). The decisive objection to any such analysis was sharply put by Butler: "And one should really think it self-evident that consciousness of personal identity presupposes, and therefore cannot constitute, personal identity" (Dissertation I, "Personal Identity," appended to the *Analogy of Religion*).

But most of Locke's critics, Butler included, seem to have failed to appreciate just how difficult—even, perhaps, impossible—the problems of the nature of the identity and of the principle of the individuation of such putative incorporeal beings must be. If people are thought of as incorporeal substances having sorts of thinking, in the wide Cartesian sense, as their qualities (the substance, or "pure ego," theory of the self), then the question is how such substances are to be identified, what sense can be given to the expression "pure ego." If, with Hume, one is unable to provide any satisfactory answer to this question, the only alternative seems to be thinking of people as collections of experiences (the serial, or "bundle," theory of the self). Theories of this sort face two difficulties. First, it does not seem to make sense to speak of thoughts or experiences as "loose and separate" without anyone's having them, and, second, there seems to be no string capable of tying the bundles of experiences together while keeping one bundle distinct from another. The first difficulty may or may not be merely grammatical. The second, once the impossibility of using memory as the string is fully realized, appears very formidable. It was the second difficulty in a slightly different form that Hume had to confess to be "too hard for my understanding" (Appendix to *Treatise of Human Nature*).

In parapsychology it seems to have been almost universally assumed that mediumistic material, insofar as it cannot be either satisfactorily explained away in terms of fraud and delusion or conveniently redescribed in terms of telepathic and clairvoyant transactions among the living, can and must be interpreted as evidence for human survival. Yet to interpret such material in this way is not to provide support for, but rather to presuppose, a Platonic-Cartesian view of man. For it is only insofar as a person is essentially incorporeal that it can even make sense to suggest that someone years ago dead, buried, and dissolved is even now communicating with us through a medium.

OTHER ARGUMENTS CONCERNING IMMORTALITY

This article has thus far concentrated on philosophers who have adopted, more or less consciously, a Platonic or Platonizing view of man and who, if they have argued philosophically for any sort of immortality, have urged that the nature of the soul is such that it must be or must be presumed to be imperishable. None of these arguments requires any reference to a deity, and none appeals to any moral premises. This may perhaps be surprising, for most people—at least those in the European cultural tradition—are likely to think that beliefs in God and in immortality must go together. They are inclined to take it for granted that the main if not the only point of immortality—and sometimes perhaps of God, too—is to provide inordinate rewards and punishments. Yet there is no obvious inconsistency in believing in a Creator while denying that he has established a new world in a future life to redress the moral unbalances of the old. Nor does it appear that to assert our immortality is logically either to presuppose or to imply the existence of any sort of god. It may seem odd, but it is not manifestly inconsistent, for such avowedly atheist philosophers as J. M. E. McTaggart and C. J. Ducasse to affirm immortality, McTaggart offering exclusively metaphysical reasons and Ducasse appealing mainly to the evidence of parapsychology.

MORAL ARGUMENTS. The most considerable philosopher to rest his case for immortality on morality was Kant. Unfortunately, this is one of the many cases in which it is difficult to give an account of Kant's position and reasons that is clear, consistent, persuasive, precise, and acceptable to Kant scholars. Kant himself may be at fault here not merely, as usual, because he obscured his thought with cumbrous and idiosyncratic expression but also because he presented imprecise and uncompelling arguments.

But with these warnings it can be said that in the *Critique of Practical Reason* and in the *Critique of Judgment* Kant offered freedom, immortality, and God as the three postulates of practical reason. Practical reason is for Kant the source of the universal imperatives of morality. A "postulate of pure practical reason" is defined in the *Critique of Practical Reason* as "a theoretical proposition which is not as such demonstrable, but which is an inseparable corollary of an a priori unconditionally valid moral law" (translated by L. W. Beck, Chicago, 1949, pp. 225–228). The form of the argument, in the cases of immortality and God, appears to be that something is said to be commanded by the moral law but could be obeyed only on a certain condition; therefore, the conclusion is drawn not that that condition must obtain but that it must be a postulate of practical reason. The first difficulty is to see how Kant, who in and after the *Critique of Pure Reason* regularly denied the possibility of proofs of immortality or of the existence of God, proposed to reconcile this denial with insistence on the validity of the present deductions. The most promising response to this is to suggest that they cannot be rated as proofs of the doctrines that Kant maintained to be unprovable because it has not been and cannot be shown that the moral ideas are indeed soundly based but that they do prove that to act in accordance with moral ideas is to act as if, or to act on the assumption that, these doctrines are true.

The second difficulty lies in the supposed derivations themselves. In the case of the postulate of immortality the conclusion is to be drawn from the premise that the moral law commands us to achieve a perfect correspondence between our will and that law. This is taken to be out of the question in this life. Thus, what the law really requires is an endless progress toward the ideal, which is possible "only under the presupposition of an infinitely enduring existence and personality of the same rational being." If this is what Kant meant—as it certainly is what he said—then the moral law includes one very strange command. For to reach the proposed conclusion, we have to construe that law not as stating that we should approach as near to perfection as is humanly possible, or, as Kant seemed at first inclined to say, that we must actually achieve perfection, but, rather, that we must forever approach asymptotically this eternally unattainable ideal.

In the case of the third postulate of God the moral premise is that the law requires us to promote the highest good, which involves a perfect correspondence between the morality and the happiness of every individual. But the only guarantee of the possibility of this correspondence would be the existence of God, presumably because God alone would possess the power necessary to achieve it. Consequently, practical reason demands this postulate.

There seems to be a crucial disharmony between the premises of the second and the third arguments. Only at first in the second but throughout the third, Kant apparently wanted to insist that the ideals prescribed by practical reason must be practically and not just theoretically possible. Surely, it is merely the contingent weakness of the flesh that makes holiness something "of which no rational being in the world of sense is at any time capable," whereas if the theoretical possibility of achieving the necessary correspondence was all that was at stake, there would be no call "to assume the actual existence of God."

Yet Kant had urged in the second argument that the true imperative is to press ever closer to an ideal which is, it seems, not even theoretically attainable. This is fatal. If it is once allowed that an imperative can be to get as near as is humanly possible to an ideal that may be practically—even theoretically—unattainable, then the whole foundation of both arguments collapses. For such more modest demands could be satisfied in an earthly lifetime and without benefit of God.

Three general points about the Kantian arguments should be particularly noted. First, that the cases for the second and for the third postulate are separate. Second, Kant scrupulously avoided any suggestion that the authority of the moral law is at all dependent on the availability, here or hereafter, of rewards and punishments. Third, Kant was careful not to make the mistake of trying to deduce what is the case from premises affirming only what ought to be. It is not often that any of these things can be said for some more popular arguments for immortality.

For instance, it is often urged—most commonly, perhaps, in Roman Catholic textbook apologetic but elsewhere, too—that the lack of appropriate rewards and punishments would make nonsense of the claims of morality. Thus, the Jesuit M. Maher wrote:

> But in the judgement that conduct entailing a sacrifice *ought* to be pursued, there is implied a further judgement that it cannot be ultimately *worse for the agent himself* to do that which is right. … The supposition that virtue can finally result in … misery for the agent; or that wickedness may effect an increase in the total quantity of his personal happiness is seen to be in conflict with reason, and to be destructive of all morality. (*Rational Psychology,* London, 1940, p. 530)

Maher proceeded to argue that God could not permit this and, therefore, that there must be immortality, with penalties and compensations. He himself believed that the existence of God is independently established by natural theology (p. 533), but "some of the proofs of Immortality are amongst the most forcible arguments for the existence of a Deity" (ibid., pp. 525–526). It is interesting to compare the distress of Henry Sidgwick, who saw the moral situation similarly but was unable to share the supposedly saving religious convictions (*Methods of Ethics,* London, 1874, especially Part IV, Ch. 7).

Even if it were to be allowed that some such view is correct, it certainly does not warrant the suggested conclusions. Suppose we allow that rewards and penalties are indeed morally necessary; at most, this could support a demand not for immortality but for a temporary survival. Nothing has been said in the premises to explain why these necessary rewards and penalties have to be eternal. Indeed, to the secular moralist, to whom no revelation has been vouchsafed, it might seem that to provide eternal penalties for temporal offenses would be to make the universe infinitely worse. More generally, it is essential to insist that no argument from purely gerundive premises—stating only what ought to be or what is in some other way desirable—can by itself either establish or make probable any conclusion about what is actually the case. (Compare J. S. Mill, *Three Essays on Religion,* London, 1874, especially the essay "Theism.")

In any case it is certainly no part of the meaning of moral obligation that the obligation must always accord with the eventual self-interest or the person obliged. The sense in which categorical imperatives can be characterized as essentially rational refers to their universality and impartiality rather than to any implication that obedience must always be ultimately the best-paying policy. If anything, surely, it is part of the very idea of morality that sacrifices are sometimes required.

ARGUMENT FROM DESIRE. Many other arguments have been and are put forward. It is urged, for instance, that the allegedly almost universal belief in survival is somehow evidence of its own truth, a contention rejected by J. S. Mill for the decisive reason that to urge this is not to offer a good ground but, rather, if anything, to concede tacitly that there is none. Again, attempts have been made (by Dugald Stewart, for instance) to make something of the allegedly almost universal desire for immortality or of the existence of human potentialities that cannot be realized in a mere three score years and ten. If the existence of a desire really were a reason for affirming not merely, as perhaps it is, that this desire has some describable object but also, as it manifestly is not, that this object must actually be realized, then the argument could still be refuted by the consideration—pressed by Hume in his essay "Immortality"—that the certainly no less nearly universal fear of annihilation equally demands its real object. Of course, the existence of a desire for immortality, where it is found, does call for—and can easily be given—a naturalistic explanation. Such a desire, however, begins to be useful to the advocate of immortality only insofar as it can be used in conjunction with some idea of a God who may be relied on to arrange for the ultimate fulfillment of (some of?) the desires and (some more of?) the potentialities that he has arranged for us to have. (The qualification "some of" has, presumably, to be put in to allow for

the existence of ambivalent and evil desires; the "some more of" is needed if we are to have an argument that even appears to hold.)

To consider the possibility of establishing the existence of such a God is beyond the scope of this article. Yet it is perhaps worth suggesting that the existence of these ostensibly frustrated wholesome desires and these apparently unfulfilled splendid potentialities must, by itself, count as evidence against, rather than for, the existence of this kind of God. It is, as Hume insisted both in his *Dialogues* and in the first *Enquiry,* very odd—notwithstanding that it is very common—to argue from what in themselves would have to be rated as defects of the familiar world to the conclusion that this world is the work of a being without defect, who will in the future make good all present deficiencies.

ARGUMENTS AGAINST IMMORTALITY

Philosophers opposed to the belief in immortality have generally confined their case to attacking weaknesses in the arguments thought up by immortalists. But some have also advanced arguments intended to show that human beings do not survive the death of their bodies. Thus, in the essay mentioned above Hume was not satisfied with pointing out the flaws in the metaphysical and the moral arguments for immortality but urged a number of considerations "from the analogy of nature" in favor of "the mortality of the soul." Similarly, many other writers who are not materialists and who are not committed to the view about the meaning of person words presented in this article maintain that there are powerful empirical grounds supporting a negative position on immortality. The most popular and impressive of these is what may be called the "body-mind dependence argument," an argument that, according to its more recent exponents, has received powerful confirmation from modern brain research. Bertrand Russell wrote,

> We know that the brain is not immortal, and that the organized energy of a living body becomes, as it were, demobilized at death and therefore not available for collective action. All the evidence goes to show that what we regard as our mental life is bound up with brain structure and organized bodily energy. Therefore it is rational to suppose that mental life ceases when bodily life ceases. The argument is only one of probability, but it is as strong as those upon which most scientific conclusions are based. (*Why I Am Not a Christian,* New York, 1957, p. 51)

Philosophers in the Hume-Russell tradition have also generally insisted that in the case of immortality the onus of proof must lie entirely with the believers. In their view it is quite wrong that we start with an open question. As this article urged at the beginning, the familiar facts of life and death establish an overwhelming presumption of mortality. Given these facts and the fact that person words mean what they do mean, there are massive philosophical obstacles to be overcome before the question of a future life can be shown to be sufficiently open to leave any room at all for appeals to evidence or even to faith.

Of course, there is nothing to stop anyone from giving what sense he likes to the expression "disembodied person." The difficulty is to attach enough sense to the expression so that some discovery about disembodied people could provide us with grounds for believing that we survive death. In their present senses person words have logical liaisons of the very greatest human importance. Personal identity in the present sense is the necessary condition of both accountability and expectation. This is only to say that it is unjust to reward or punish someone for something unless, as a minimum condition, he is the same person who did the deed and that it is absurd to expect things to happen to me in 2014 unless, as a minimum condition, there is going to be a person in existence in 2014 who will be the same person as I. The difficulty is to change the use of person words so radically that it becomes significant to talk of people's surviving dissolution without changing it in such a way that these crucial logical liaisons must be broken.

If this difficulty cannot be overcome—and there seems little reason to think that it can—then the apocalyptic words of the early Wittgenstein are to the point: "Our life is endless as the visual field is without limit. Death is not an event in life. Death is not lived through" (*Tractatus Logico-philosophicus,* London and New York, 1922, Secs. 6.431 and 6.1411).

See also Aristotle; Butler, Joseph; Death; Descartes, René; Ducasse, Curt John; Eternity; Galileo Galilei; Harvey, William; Hobbes, Thomas; Hume, David; Kant, Immanuel; Lewis, C. S. (Clive Staples); Locke, John; McTaggart, John McTaggart Ellis; Mill, John Stuart; Mind-Body Problem; Moral Arguments for the Existence of God; Parapsychology; Personal Identity; Plato; Pomponazzi, Pietro; Punishment; Reid, Thomas; Russell, Bertrand Arthur William; Ryle, Gilbert; Santayana, George; Socrates; Spinoza, Benedict (Baruch) de; Tertullian, Quintus Septimius Florens; Thomas Aquinas, St.; Wisdom, (Arthur) John Terence Dibben.

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The source of the discussion of personal identity is Locke's *Essay concerning Human Understanding,* edited by A. C. Frazer, 2 vols. (Oxford: Clarendon Press, 1894), Vol. II, Ch. 27. For the contributions of Butler, Hume, and Reid and for later works on this topic, see the bibliography of the Personal Identity entry.

The classic parapsychological study of immortality is F. W. H. Myers, *Human Personality and Its Survival of Bodily Death* (London and New York: Longmans, Green, 1903). See also Ducasse, op. cit.; C. D. Broad, op. cit., *Religion, Philosophy, and Psychical Research* (London: Routledge, 1953), and *Lectures on Psychical Research* (London: Routledge, 1962); Antony Flew, *A New Approach to Psychical Research* (London: Watts, 1953); and the bibliography of the Parapsychology entry. For the investigations of psychical researchers into the nature of the experiences of spirits, see, for instance, G. N. M. Tyrrell, *Apparitions* (London: Society for Psychical Research by G. Duckworth, 1953). J. R. Hick, "Theology and Verification IV," in *Theology Today,* 17 (April 1960), reprinted in *The Existence of God,* edited by J. R. Hick (New York: Macmillan, 1964), presents a view opposite to the thesis of this article on the difficulty of identifying the reconstituted person with the original person.

F. C. Copleston, *Aquinas* (Harmondsworth, U.K.: Penguin, 1955), gives a sympathetic and illuminating account of Thomas's views on immortality.

For the most important recent criticism of the Cartesian doctrine of the soul, see Gilbert Ryle, *The Concept of Mind* (London and New York: Hutchinson, 1949). For a Wittgensteinian criticism see P. T. Geach, *Mental Acts* (London: Routledge & Paul; New York: Humanities, 1957).

For the view that the bodily occurrences involved in rational behavior can be completely explained only supernaturally, see, for example, C. S. Lewis, *Miracles* (London and New York, 1957), especially Ch. 2. For a fuller development of the view that such occurrences can be the subject matter of the physiologist while logical questions as to the rationality of the performance considered as an argument can be raised and answered, see Antony Flew, *Hume's Philosophy of Belief* (New York: Humanities Press, 1961), Ch. 5.

Antony Flew (1967)

IMMORTALITY [ADDENDUM]

The arguments against immortality on offer at the beginning of the twenty-first century are essentially those dis-

cussed by Professor Flew in the first edition of this reference work and will only be summarized here, following which we will consider non-traditional conceptions of immortality, and arguments in support of immortality. Four principal arguments have been presented against immortality: (1) The notion of a disembodied person is incoherent: to be a person just is to be embodied. (2) Advances in neuroscience have led to increased understanding of the brain and support physicalist theories in philosophy of mind. Physicalism (and *a fortiori* philosophical naturalism) denies the existence of an immaterial soul. The dependence of the mind on the functioning brain then grounds a formidable argument against the possibility of surviving the dissolution of the brain. (3) Determining identity conditions that would enable us meaningfully to assert that a particular disembodied soul was identical to a particular deceased person is a problem with no clear answers. Plausibly, souls would be individuated by mental contents. But it is logically possible for two minds to have identical contents, and in the absence of some bodily criterion of identity, it is not possible to tell which one has the genuine contents. Hence even if Smith somehow survived death, there would be no way to know that a particular soul was Smith. (4) The theory of evolution challenges the belief that there is anything special about humans in virtue of which we, and not other living things, would have immortal immaterial souls. But the conclusion that all living things are immortal—bacteria to baboons, barnacles to bananas—is absurd.

NONTRADITIONAL CONCEPTIONS OF IMMORTALITY

The difficulties inherent in the traditional concept of immortality, coupled with a pervasive human fear of death, have led to nontraditional conceptions that affirm immortality even while denying the survival of the person after death.

(1) CURING DEATH. Advances in biomedical technologies suggest that death is a disease to be cured. Immortality thus is conceived as prolongation of human life. Whereas it may be theoretically possible to postpone death indefinitely (through technologies such as cryogenics or genetic engineering), the desirability of prolonging life indefinitely is a significant ethical question that raises troubling questions about human nature and the purpose of life. Leon R. Kass (2001) argues that deferring death would radically change social institutions and undercut the universal human drive to procreation and protection of offspring, even to sacrifice on their behalf. Kass urges

us to "resist the siren song of the conquest of aging and death" (p. 24). Regardless of the merits of Kass's argument, it is doubtful that many of us would embrace immortality if it were just "more of the same." Would this not be what Bernard Williams called "the tedium of immortality"?

(2) CYBERNETIC IMMORALITY. Assuming that the mind—thoughts, memories, feelings, dispositions—is not an immaterial substance but is reducible to patterns of neural activity, advances in computer science (nanotechnology, quantum computing) offer the prospect of transferring the entire contents of one's brain to a computer chip—far less likely to wear out than an organic body, and easily transferred again if chip failure becomes imminent. In *The Age of Spiritual Machines* (1999), Ray Kurzweil predicts such immortality will be achieved by uploading the contents of our brains into ever-better computers. Frank J. Tipler (1994) proposes a similar cybernetic immortality.

Granting for sake of argument that a computer program could instantiate Jones's mind, would the software offer immortality to Jones? Not only do familiar problems of personal identity plague this scenario, but it seems that (at least normally) humans are relational creatures who interact with their environment and with other persons by means of their bodies. In what sense then would the silicone-chip Jones be human? And if not human, how could it be Jones?

(3) ANTIREALISM. An antirealist view of immortality sees "eternal life" as a matter of quality, not quantity, of life. There seems to be a rather widespread sense that death is somehow transcended through one's projects or progeny. But this surely is not immortality traditionally conceived. Nor is the antirealist theological view of D. Z. Phillips (1970), according to which eternal life is participation in the life of God—that is, personal transformation in this temporal life.

(4) REINCARNATION. John Hick melds Christian and Eastern ideas to reinterpret immortality, resurrection, and reincarnation as "the divine creation in another space of an exact psycho-physical 'replica' of the deceased person" (1976, p. 279). Hick sees such divine recreations as occurring multiple times and in different "spaces" within a multiverse. Critics of Hick's view grant that God would have the power to create an exact replica, but deny that the replica would in fact be the person who died. The right sorts of connections that would preserve identity through recreation do not obtain. Further, the possibility

of multiple replicas raises both metaphysical and episte-mological reasons to deny that the replica is identical to the original in any interesting sense.

DEFENSES OF IMMORTALITY

Clearly, if God exists, the prospects for an afterlife increase dramatically. A remarkable development in ana-lytical philosophy in the last four decades has been the resurgence of philosophy of religion and natural theolog-ical arguments for God's existence. Indeed, Professor Flew (2004) himself, while still denying the possibility of immortality, recently acknowledged a significant change in his beliefs prompted by the Argument from Design. It is no surprise then that arguments for immortality, gen-erally in the form of bodily resurrection, have also seen a renewal. Defenses of the immortality of the disembodied soul have been largely absent from recent literature.

CHRISTIAN VIEWS. Christian analytic philosophers have offered a variety of philosophical arguments defend-ing the possibility of immortality through resurrection. There are two views on the nature of such immortality. Dualists affirm that the mind/soul is an immaterial sub-stance distinct from the body, whereas monists adopt a physicalist philosophy of mind that denies the existence of an immaterial soul.

Christian dualists generally reject a strong Cartesian form of dualism. John W. Cooper (2000) argues that "holistic dualism" is the proper Christian view. Richard Swinburne (1997) offers a modal argument in defense of substance dualism, and William Hasker (1999) presents an argument from the unity of consciousness in defense of his emergent substance dualism.

J. P. Moreland and Scott B. Rae (2000) argue that free will and agency entail an immaterial mind. Moreland, with Gary R. Habermas (1992), also considers the empir-ical support offered by near-death experiences. A signifi-cant body of recent literature, beginning with Raymond A. Moody's *Life After Life* (1975), documents perimortem experiences. Habermas and Moreland point to features such as perceptions of physical facts that the clinically dead patient would have been physically unable to per-ceive which, if veridical, strongly support the possibility of conscious existence apart from the body.

Stephen T. Davis (1989) defends the traditional Christian understanding of the soul existing temporarily in a disembodied state, followed by the reunion of the soul with a resurrected body. Because personal identity is grounded in the soul rather than in the physical body, whether any or all of the atoms constituting the body of a person at death are incorporated in the resurrected body is not a significant issue. Davis further argues that the problems concerning individuating disembodied souls confuse criteria of identity with evidence for identity; epistemological uncertainty about identity does not undercut the possibility of genuine metaphysical individ-uation.

Christian monists reject the possibility of disembod-ied existence, yet hold to immortality gained through a resurrected body. Because the resurrection is eschatolog-ical, monists generally hold that personal identity is com-patible with a temporal gap. Peter van Inwagen (1978) suggests that at death God miraculously preserves the essential core physical component(s) of the body, from which God reconstructs the resurrection body, thus pre-serving personal identity by means of the right sort of causal connections. Nancey Murphy (2002) accepts a physicalist anthropology, and contends that all the per-sonal attributes that constitute personal identity super-vene on the body, so if God creates a perfect replica of the body, that body will subserve all the necessary attributes constituting identity.

JEWISH VIEWS. Two poles of Jewish thought are seen as early as the Middle Ages. Maimonides (1135–1204) believed that the soul is immortal only because God sus-tains it. Although he wrote his *Essay on the Resurrection* to silence critics' claims that he denied the doctrine, he believed that the resurrected dead will eventually die again. Nachmanides (1194–1270) defended resurrection as the teaching of the Torah, while speculating on the ethereal nature of the resurrection body.

The tension in Jewish philosophy between immortal-ity and resurrection may be traced into the present. Moses Mendelssohn (1729–1786), the first modern Jew-ish philosopher, was also the last to argue that the exis-tence of the afterlife was rationally demonstrable (because the soul is by nature indestructible). The exis-tentialist thinkers Martin Buber (1878–1965) and Franz Rosenzweig (1886–1929) tended to place discussion of the afterlife in a mythical category. Neil Gillman (1997) moves from the theological argument that God is more powerful than death, to philosophical arguments that a person is both body and soul, a psychophysical unity, and concludes that body and soul will be resurrected. In gen-eral, contemporary Reformed and Conservative Jewish thinkers reject bodily resurrection in favor of spiritual immortality, whereas Orthodox Jews retain belief in res-urrection.

MUSLIM VIEWS. The nature of the soul occupies a prominent place in classical Islamic philosophy. Both the Neoplatonist Al-Kindī (d. 870) and the great Aristotelian Avicenna (Ibn Sīnā, 980–1037) asserted that the rational soul, being simple, is naturally indestructible. Al-Fārābī (875–950) held that only the rational soul that has knowledge of universals—eternal aspects of the universe—is indestructible. Averroes (Ibn Rushd, 1126–1198), departing from Aristotle, argued that the acquired intellect was indestructible because it was one with the divine mind; for this he was condemned by fellow Muslims as well as Christians and Jews.

Contemporary Islamic philosophers familiar in Europe and North America tend to focus on politico-ethical thinking (e.g., Rachid Ghannoushi, Mohamed Arkoun) rather than metaphysics or philosophy of religion. However, belief in immortality, and more particularly in resurrection, the Day of Judgment, and heaven and hell (the specific characters of which vary widely among different Islamic sects), is deeply embedded in all branches of Islam.

See also al-Fārābī; al-Kindī Abū-Yūsuf Yaʿqūb ibn Isḥāq; Aristotle; Averroes; Avicenna; Buber, Martin; Cartesianism; Cybernetics; Dualism in the Philosophy of Mind; Islamic Philosophy; Jewish Philosophy; Maimonides; Mendelssohn, Moses; Philosophy of Mind; Physicalism; Reincarnation; Rosenzweig, Franz.

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Garrett J. DeWeese (2005)

IMPARTIALITY

Impartiality is a more complex concept than is generally recognized. Judging a person to be impartial is not as straightforward as judging a person to have some moral virtue such as kindness or trustworthiness. People do not even understand what it means to claim that one is impartial unless they know both the group toward which that person is impartial and the respect in which one is impartial with regard to that group. The impartiality required by morality also requires a specification of the group toward which morality requires impartiality and the respect in which it requires impartiality with regard to that group.

The most common characterization of general impartiality is that it requires that like cases be treated alike. Almost all philosophers take this characterization as trivially true, but it is mistaken. Consider a baseball umpire who is upset because he believes that umpires are not appreciated. While staying within the accepted interpretations of the rule, he changes the strike zone every three innings; he starts with a widest zone, goes to the narrowest one, and then returns to a widest one. If he changes without regard to which team benefits or is harmed by this change, then he is impartial with regard to the two teams in calling balls and strikes. Because he does not treat like cases alike—that is, he calls balls and strikes differently in the first and fifth innings—he is a bad umpire, but he is still completely impartial with regard to the two teams with respect to calling balls and strikes. He is inconsistent, but inconsistency should not be confused with impartiality. A good umpire must be consistent as well as impartial. An inconsistent umpire will be sus-

pected of not being impartial, but when the disgruntled umpire is not influenced at all by who is benefited or harmed, he remains impartial with respect to calling balls and strikes with regard to the two teams.

A person is impartial with regard to a group in a specified respect insofar as that person acts impartially in that respect with regard to that group. The basic concept of impartiality is defined as follows:

A is impartial in respect R with regard to group G if and only if A's actions in respect R are not influenced at all by which member(s) of G are benefited or harmed by these actions.

A teacher can be impartial with regard to a group G—for example, the students in her class in respect R; or, for example, grading their exams—but not impartial in a different respect, such as calling on them in class, for she may favor boys over girls in this respect. Two umpires, both consistent and impartial with regard to two teams, need not be impartial with regard to pitchers and batters. If one prefers a higher scoring game and the other a lower scoring one, they may, within the accepted interpretations, call some pitches differently. Both show partiality toward pitchers or toward batters, but both are still impartial with regard to the two teams.

Some contemporary consequentialists claim that morality requires impartiality whenever any sentient being's interests are involved. However, not only is there disagreement about whether all sentient beings are included in the group toward which morality requires impartiality, it is generally recognized that even with agreement about the group, morality does not require impartiality with respect to all actions affecting people's interests. It is generally agreed that morality does not even require impartiality when following moral ideals—for example, relieving or preventing pain, or helping the needy. Unless one does not act on these ideals at all, it is impossible to act on them impartially even with regard to all moral agents; no one can relieve or prevent pain impartially with regard to all moral agents. The only respect in which morality requires impartiality is with respect to violating moral rules—for example, those rules prohibiting killing, causing pain, deceiving, and breaking promises. It is only with regard to these kinds of moral rules—those that can be formulated as prohibitions—that it is humanly possible to act impartially with regard to a group large enough to be an appropriate group.

The examples of the teacher and umpire show that the group with regard toward which impartiality is usually required is often small and usually does not include the agent. The impartiality required by morality differs from this kind of impartiality in that it requires impartiality with respect to violating a moral rule toward a group composed of at least all moral agents, including the person violating the rule. Morality requires impartiality with regard to those moral agents affected by a violation of a moral rule—for example, being partial toward friends is not morally allowed. It also requires impartiality with respect to whether one can violate a moral rule; that is, it is not morally allowed to violate a rule in circumstances if it would be irrational to be willing for everyone to know that they are allowed to violate the rule in those same circumstances.

Sometimes all impartial rational persons favor violating a moral rule—for example, deceiving a hired killer in order to save an innocent person's life. Because morality always requires impartiality with respect to violating moral rules, it must be possible to violate a moral rule and still be acting impartially in this respect. This kind of impartiality can be achieved by violating a moral rule only when one would be willing for everyone to know that they are allowed to break the rule in the same circumstances. This achieves Kant's point about morality not allowing a person to make special exceptions for herself without creating the kinds of problems caused by the claim that morality requires acting on the categorical imperative.

Kant claims that morality requires that the group with regard to which one must be impartial with respect to violating a moral rule include only moral agents, that is, those persons who are required to act morally. Jeremy Bentham claims that the group includes all sentient beings. Most people, including most philosophers, do not agree with either Kant or Bentham; almost all want to include infants and children in the group toward which morality requires impartiality, but there is considerable disagreement about whether morality requires impartiality with regard to fetuses or to nonhuman animals. However, many who think that morality does not require impartiality with regard to nonhuman animals hold that morality does provide some protection to sentient nonhuman animals.

Because the concept of impartiality presupposes that there be some group with regard to which one is impartial, it does not make sense to claim that there is an impartial method for picking the group with regard to which morality requires impartiality. Recognizing that rational persons can differ about the composition of the group with regard to which morality requires them to be impartial helps explain the moral disputes concerning abortion and the treatment of animals. Morality limits the freedom of moral agents, so that the larger the group

with regard toward which morality requires impartiality with respect to violating a moral rule, the greater the limitation on the freedom of moral agents. A rational person can rank this freedom of moral agents higher than the welfare of nonmoral agents or vice versa. The former is more likely to hold that morality does not require impartiality with regard to nonmoral agents, whereas the latter may hold that it does.

Even when there is agreement about the composition of the group with regard to which morality requires impartiality with respect to violating a moral rule, rational persons who are impartial with regard to all members of this group can still disagree. Because rational persons can rank the various evils—for example, death, pain, and disability—differently, one impartial rational person can favor everyone knowing that they are allowed to break a rule in circumstances in which another impartial rational person would not favor this. Impartiality does not require unanimity, as some philosophers such as Kant and Rawls seem to claim. If it did, then assuming that all Supreme Court justices know all of the relevant information, and do not suffer from any other mental dysfunction, one would be forced to hold that whenever the United States Supreme Court issues a split decision, at least one justice is not impartial.

See also Bentham, Jeremy; Kant, Immanuel.

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Bernard Gert (1996, 2005)

IMPETUS

Aristotle distinguished between two sorts of motion: natural and unnatural. Natural motions were those induced by the elemental constituents of things to seek their natural places—the earth at the center of the cosmos, fire under the periphery, water and air in their intermediate locations. Anything not in its natural place (i.e., not at that point in the stratification of things appropriate to its elemental composition) has an internal inclination to reach its natural place that will be exercised so long as nothing impedes it. Moreover, the speed of any body in natural motion (i.e., approaching its natural place) is a function of its heaviness in the case of downward motion, lightness in the case of upward, and an inverse function of the resistance of the medium through which it moves.

Not all motions, however, are natural; heavy objects can be hurled upwards, buoyant ones forcibly submerged. These unnatural motions are the result of force, yet Aristotle also notoriously held that in any change (including change of position) there must be a continuously acting agent of change; in the case of projectile motion, he supposed that the original action of the thrower endowed successive enveloping portions of the medium (air or water) with the ability both to receive and to transmit motive force; and so the projectile continues to move after it leaves the thrower's arm as a result of the continuing—albeit diminishing—power successively induced in the surrounding elastic medium. This explanation was often felt to be less than adequate; John Philoponus explicitly rejected it, supposing rather that the thrower imparted a certain quantum of force into the projectile, which it gradually exhausted in the course of its flight until it fell to earth.

Thus Philoponus crucially rejects the Aristotelian assumption that there must be continuous contact between a thing in motion and some external mover of it, speaking of an "induced power" (*endotheisa dunamis*) possessed—albeit temporarily and in this sense nonnaturally—by the moving body. This was to become the *vis impressa* of medieval theorists such as Jean Buridan, who attacked the reemerging Aristotelian orthodoxy with vigor (although perhaps without fully understanding it).

Impetus theory (the term is owed to Pierre Maruice Marie Duhem) thus maintains that all motion relies ultimately on the transmission of force from a mover, although not necessarily simultaneously with that motion, as Aristotle required. The theory also maintained that force gradually diminishes, although different versions of the impetus theory disagreed as to whether it

does so simply because all movement requires force, and that force is like a fuel to be consumed, or (as some writers in the Arabic tradition such as Avicenna apparently held), only as a result of contact with a retarding medium (and hence that in a vacuum the impetus would continue for ever). Whereas both versions retain the ancient commitment to the view that all action requires a continuous active cause, the latter was a step in the direction of the inertial notions that would revolutionize physics. Galileo Galilei, in his early *De Motu* (1590) is still an impetus theorist, and gratefully acknowledges Philoponus and other predecessors for showing the way beyond Aristotle. By the time of the mature physics of the *Discorsi* (1638), impetus theory itself has been left decisively behind.

See also Aristotle; Buridan, Jean; Galileo Galilei; Philoponus, John.

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R. J. Hankinson (2005)

INDETERMINISM

See *Chance; Determinism, A Historical Survey; Determinism and Freedom; Determinism and Indeterminism*

INDEXICALS

Suppose that Natasha says "I am right and you are wrong" to Joey. Natasha's utterance of "I" designates Natasha and her utterance of "you" designates Joey. The truth-conditions of her statement are that Natasha is right and Joey is wrong.

Now suppose that Joey responds by uttering the exact same words back to Natasha: "I am right and you are wrong." He has said the same words, with the same meaning, but he has not said the same thing. Joey's utterance of "I" designates Joey and his utterance of "you" designates Natasha. The truth-conditions of his statement are that Joey is right and Natasha is wrong. Joey has directly disagreed with Natasha.

In this article, "meaning" refers to the rules or conventions that are associated by a language with the expressions in it, the rules that one learns when one learns the language. Given this, the meanings of Natasha's words and of Joey's are the same. What differs is the

objects the particular expressions designate and the truth conditions of the statements. This aspect of utterances will be called "content."

The crucial differences between the first and second utterances were the speakers and the addressees. Such facts about an utterance can be called its "context." Differences in the contexts of the utterances account for the differences in their contents.

(The role of context in this case differs from that in a case of homonymity or ambiguity. With homonymity the context helps us determine which word is being used; with ambiguity, which meaning of a word or phrase is being used. But in this case context still has a role to play after questions of words and meanings have been settled. The meanings of "I" and "you" direct us to features of the context, to determine who is designated.)

The content of an utterance using "I" or "you" is determined by contextual facts about the utterance in accord with their meaning. Such expressions we call "indexicals."

In addition to "I" and "you," the standard list of indexicals includes the personal pronouns "my," "he," "his," "she," "it," the demonstrative pronouns "that" and "this," the adverbs "here," "now," "today," "yesterday," and "tomorrow," and the adjectives "actual" and "present" (Kaplan 1989). The words and aspects of words that indicate tense are also indexicals. And many other words—for instance, "local"—seem to have an indexical element.

According to David Kaplan's account, each indexical, and each sentence containing an indexical, has a meaning or character that is a function from contexts to content. The character of "I" is a function whose value, for each context, is the speaker or agent of that context. The character of "now" is a function whose value, for each context, is the time of that context. The character of "you" is a function whose value, for each context, is the person addressed by the speaker in that context. The character of the sentence spoken by Natasha and Joey is a function whose value, for a context with a speaker x and an addressee y, is the proposition that x is right and y is wrong. Natasha and Joey's words have the same characters, but their utterances have different contents.

In the formal development of his theory, Kaplan equates content with the intensions of intensional semantics. He criticizes earlier attempts to provide a formal theory within this framework for treating contexts on a par with "circumstances of evaluation" (Kaplan 1989, pp. 507ff.). The context determines which proposition is expressed by Joey's utterance of "I am right and you are

wrong"; the circumstance of evaluation determines whether or not the proposition is true. The necessity for such a distinction was seen by Hans Kamp (1971).

(Kaplan notes that at the level of character it makes sense to talk about the logic of indexicals. "I am here now" is a truth in the logic of indexicals, because, given its character, this sentence will have a true content at each context. The content will be contingent and can be expressed by a sentence that is not a logical truth.)

Kaplan's concept of content corresponds to "what is said" by an utterance (let us call this "official" content). This is what someone who knows the meaning and the context grasps. Other philosophers have thought it important also to bring in the concept of token-reflexive or diagonal content. This is what someone who knows the meaning but does not know the context grasps (Burks 1949, Perry 1993, Stalnaker 1981).

Consider an utterance *u* of "Je ne comprends pas l'anglais" made by Erin during a cocktail party. Suppose that Natasha hears the words and understands French but does not see who said them. Joey hears the words, understands French, and also sees that Erin said them. Based on her knowledge of French, Natasha can assign utterance-reflexive truth conditions to *u:* Natasha knows that *u* is true iff (if and only if) (1) the speaker of *u* does not understand English. Joey, since he knows who is talking, can assign nonreflexive truth conditions to *u:* Joey knows that *u* is true iff (2) Erin does not understand English. Natasha knows what the world has to be like for *u* to be true, given the meaning of the words in *u.* Joey knows what the world has to be like, given the meaning of the words in *u* and the relevant facts about context. What Joey knows, (2), is the official content of Erin's remark. It is what we would ordinarily say Erin said. Erin did not say (1): She did not make a remark about her own utterance. Nevertheless, (1) corresponds to an important level of understanding that we must take account of to explain the cognitive significance of sentences containing indexicals. (When Erin said what she did, she probably wanted her listeners to grasp that the person in front of them, at whom they were looking and with whom perhaps trying to converse in English, did not understand that language. This would be an easy inference from the proposition expressed by (1)—that the person who was producing the utterance they were hearing did not understand English. To understand Erin's plan, we seem to need the reflexive content of Erin's remark, and not only its official content.)

See also Kaplan, David; Philosophy of Language.

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John Perry (1996)

INDIAN PHILOSOPHY

The "India" in question is the Indian subcontinent—the land constituting present-day India, Pakistan, Bangladesh, and surrounding countries such as Srī Lanka to the south and Bhutan, Sikkim, Afghanistan, and Nepal to the north. And although *philosophy* in the sense in question covers much of what is covered by the term *philosophy* in its contemporary usage in English-speaking countries, it also has a specific use in the Indian context, in which it refers to the thoughts expressed in the literature relating to liberation (*mokṣa; nirvāṇa*). In this usage, philosophy, and the philosophical literature of India, is contrasted in Indian thinking with the literature pertaining to other matters, notably the literature concerned with political and social concerns (*arthaśāstra*), with interpersonal relations such as the sexual and aesthetic dimensions of love (*kāmaśāstra*), and with morals (*dharmaśāstra*), each of which has a pertinent literature of its own. The "philosophical" literature of India, then, relates to ultimate concerns, especially how to achieve liberation from rebirths and the nature of a universe in which liberation is possible and available. It is a literature that does not primarily include such Western fields of philosophy as political and social philosophy (for that is *artha*), aesthetics (for that is *kāma*) and ethics (for that is *dharma*). It also does not include the literature concerning the natural and social sciences (although it is arguable that parts

of Indian philosophy are offshoots of aspects of early Indian protoscience) or the applied sciences (agriculture, astronomy, and so on); nor does it include the domain of poetry and prose literature.

Whether Indian philosophy overlaps religion or not is a matter of how one thinks of "religion." The majority of the early Indian philosophical systems (*darśana*) do not acknowledge, and in some cases explicitly deny, the existence of a supreme being or lord (*īśvara*). All classical Indian thinking accepts gods (*deva*). They are viewed as unliberated, like humans; they are beings who inhabit other realms and occasionally visit ours. They eventually live out their lengthy period as gods and are reborn into lower realms as humans or even animals. This process is part of the Indian theory of karma—accepted until modern times—according to which selves are beginningless and are caused by their past actions to inhabit a series of bodies ranging from insects (or even plants) up to gods, depending on the particular portion of the stored-up results of past actions (*karman*) that becomes activated (*prārabdha*) as one enters the next birth.

In what has been dubbed the "*bhakti* period"—the period beginning around the turn of the second millennium CE, many philosophical viewpoints became inspired by and wedded into one or another religious movement. These movements typically recognize and worship one or more of the Hindu deities such as Śiva or Viṣṇu, and their literature is a mixture of devotional and philosophical concerns. However, the systems that originated in the previous centuries—Sāṃkhya and Yoga, Nyāya and Vaiśeṣika, Pūrvamīmāṃsā and Advaita Vedānta, Buddhism and Jainism—have persisted up to the present. Their literature continues to expand, and for most of them (except Buddhist systems) there are still *maṭha*s and *āśrama*s in India where followers devote their lives to the study of one of these systems.

In the "modern" period—from the nineteenth century to the present—the application of the term "Indian philosophy" has become more complex because the British-founded system of higher education has bred a group of philosophers (in the Western sense) who are native South Asians. Because of the broad Western connotation of the terms *philosophy* and *philosophers*, among modern Indian philosophers one finds not only academic philosophers but also profound and influential political and social thinkers such as Ramakrishna, Vivekananda, Aurobindo, and even Gandhi.

THE INDIAN PHILOSOPHICAL LITERATURE

This article covers, under a variety of topical headings, the philosophical views (*darśana*) discussed in the classical literature. The writers focus chiefly on the path that can lead to liberation from karmic bondage. These writers also defend the very possibility of gaining liberation against doubts. In mounting this defense, they explore the nature of the kind of universe that would allow for the working out of karma. They examine the very possibility of liberation and what it takes to confront and overcome the causes of bondage. These writings have yielded a rich variety of profound metaphysical, logical, and epistemic theories.

The language of this Indian philosophical literature is mainly Sanskritic. The broad designation "Sanskritic" includes not only Sanskrit itself but also vernaculars such as Pāli (the language of early Buddhist philosophical treatises) and Prakrit, the language of some early Jain works. In the case of a few of the "*bhakti*-period" movements, some of the philosophical literature comes to us in Tamil and occasionally other modern Indian languages. But for the most part, classical Sanskrit is the language of Indian philosophy.

Great foundational works of Sanskrit literature are frequently included within the literature of Indian philosophy, specifically works such as the Vedas, the Upaniṣads, the epics, the *Bhagavadgītā*, the Pāli canon, the canonical Jain works, and the *Bhāgavatapurāṇa*. These works certainly include matters that pertain to "Indian philosophy" as characterized above, but it is commentaries on these foundational works that are the locus of a significant portion of India's philosophical literature.

Of the many philosophical systems that have grown up in India, there is one basic text that has come to be viewed as the basic scripture for each system. Sometimes such works have a title that ends in "-*sūtra*s." Thus the *Nyāyasūtras, Vaiśeṣikasūtras, Mīmāṃsāsūtras*, and *Brahmasūtra*s play this basic role, respectively, for the Nyāya, Vaiśeṣika, Pūrva-mīmāṃsā, and Vedāntic schools of thought. For other systems a basic text (if there is one) has a different kind of title. From these basic texts—whether called "*sūtra*" or not—an interpretive literature grew up over the centuries that is a significant part of the Indian philosophical corpus. For example, in the case of Nyāya, there is a series of commentaries upon commentaries stemming from the basic *Nyāyasūtra*s. The number of commentaries and subcommentaries on the *Brahmasūtra*s is vast, because there are many Vedānta systems,

and each has its own interpretive literature based on that text.

THE SYSTEMS OF INDIAN PHILOSOPHY

Indian scholars traditionally speak of "six systems of Indian philosophy." But there are many more than six. A "system" or "school" (*darśana*, literally a "view") in this context constitutes a set of theories about liberation and the means to it based on a certain ontology, logic, and epistemology. This definition has to be understood in a loose way. The system known as Cārvāka has a theory about liberation—it denies that it is possible to be liberated—so its position is largely an extended polemic against the rest of the systems, whose theories are adopted specifically to account for and illuminate the possibility of liberation. Some of the Vedāntic systems place limitations on who is and who is not capable of liberation, and some of them elevate devotion to God to a position that equals or even surpasses liberation itself. The later Buddhist notion of the Bodhisattva who declines his own liberation until all beings have been liberated implies another exception to the general view that it is one's own liberation from karmic bondage that is the defining concern of Indian philosophy.

It is, indeed, impossible to give a finite list of Indian systems of philosophy. For one thing, new schools are being founded even now; their durability might be far from certain, but some recent ones have their adherents. For another thing, it is not always clear how to differentiate one system from another—it is not obvious, for example, whether those called "Buddhist logicians" are to be counted as a separate school of Buddhist thought or not; and there are clearly several disparate branches of Mīmāṃsā; there are an indefinite number of schools that call themselves "Vedānta."

ASSUMPTIONS COMMON TO ALL SYSTEMS (EXCEPT CĀRVĀKA)

As noted earlier, the Cārvākas do not accept liberation as a feasible goal. Their outlook has been culled from references in polemical passages by others attempting to refute their views and a limited number of literary works such as Jayarāśi's *Tattvopaplavasiṁha* and Kṛṣṇa Miśra's *Prabodhacandrodaya*.

All the other systems in this survey accept at least two relevant theses: The first is that there was no absolute beginning of things, that the series of lives each of us has lived is without beginning. This doctrine of beginning-lessness (*anāditva*) entails, of course, that there can be no God who created us *ab initio* or who functions as the first cause of the universe. As we shall see, this does not necessarily stop Indian philosophers talking about God (*īśvara*); various roles are assigned to Him aside from that of ultimate creator.

The other thesis generally accepted by all systems except Cārvāka is what is often referred to as the "karma theory" or the "law of karma." Although many details about how karma works can be gleaned from the pages of the Indian philosophical literature, karma remains an assumption underlying all philosophical theories rather than a theory itself. It is infrequently defended, merely assumed.

What is this "karma theory"? First, given the assumption of the beginninglessness of selves, each person has always existed; each is always performing actions ("action" being the basic meaning of *karman*), at least some of which lay down "karmic traces" (*saṃskāra; vāsanā*) that are stored up in the agent until each is eventually "worked off" through performance of another action at some later date. These traces, which constitute each self's "karmic baggage," are carried through life and over into the next birth, where a certain portion of that baggage is identified or "ticketed" as requiring working off during that coming lifetime. In working off the ticketed portion, one performs more actions that in turn breed more traces, so that one must be born again and again in order to work off both stored-up karma from previous lives and un-worked-off karma from one's present life.

A commonly cited passage in the *Yogasūtra*s specifies three aspects of one's life that are determined by the traces stored up from previous lives. One is the kind of life one gets at each birth. Some part of one's karmic store, perhaps the traces of the latest or perhaps of the most virtuous or vicious actions, results in the coming birth's occurring at an appropriate place in the great chain of being—perhaps as an animal if the aspects are vicious, perhaps as a god if they are virtuous. A second aspect of one's life said to be governed by one's activated karma is the length of the life one is about to lead. And a third is the kind of experiences one is likely to have as one goes through this coming lifetime—relatively pleasant if good karma predominates, relatively unpleasant if bad karma predominates.

The philosophical literature often denies that karma implies fatalism. Although karmic traces are powerful, they are not indestructible. It is possible, although not easy, to resist the force of one's karma. That is why phi-

losophy has an important role to play in indicating the modes of thought and action that can avoid laying down new traces and thereby destroy the power of one's ticketed karma. Traveling the path to liberation usually requires the personal attention and advice of a teacher (*guru*) who can give advice about how to meditate and behave so as to bring the powers of past actions to heel.

EIGHT TYPES OF PHILOSOPHICAL SYSTEMS

Indian philosophical systems are divided into eight groups (nine if one includes the Cārvākas). It is traditional to distinguish a basic three systems: Jain, Buddhist, and Hindu. The Hindu systems are here distinguished into six groups: (1) Sāṃkhya and Yoga, which share a common metaphysics; (2) Nyāya and Vaiśeṣika, which share an ontology; (3) "Mīmāṃsā," more properly "Pūrvamīmāṃsā," whose members share a common approach to the interpretation of the authority of the Vedas, which they view mainly as a source of prescriptions about behavior; (4) "Vedānta," which treats the "closing sections of the Vedas" (*vedānta*)—the Upaniṣads—as authoritative; (5) a group of philosophical systems whose common ground is that their proponents are worshipers of Śiva; and (6) the Grammarians (*vaiyākaraṇa*), who view the study of language as providing the key to liberation. Many of these approaches claim ancient authority for their standpoints.

SĀṂKHYA AND YOGA

The characteristic terminology of these two systems, featuring terms such as *prakṛti* and *puruṣa*, is found in the earliest Indian literature, the Vedas, which date roughly from the end of the second millennium BCE. Sāṃkhya terms are also prominent in the great Indian epics, especially the *Mahābhārata*, for example in the portion that constitutes the *Bhagavadgītā*. There is reason to believe that several Sāṃkhya authors lived prior to the fourth century CE, at which time the basic Sāṃkhya text, the *Sāṃkhyakārikās*, ascribed to one Īśvarakṛṣṇa, appears to have been composed. This work plays the role of the system's basic *sūtra*s. A much later work by Kapila (1375) is named the *Sāṃkhyasūtra*s, but its claims to antiquity are usually disputed (though the name "Kapila" is ascribed to one of the otherwise unknown earlier sages cited in the later literature). One or two commentaries on the *Sāṃkhyakārikās* are regularly studied to elucidate that text. The most frequently cited is by Vācaspati Miśra (940), the *Tattvakaumudī*, but there are numerous others. And a few independent works on Sāṃkhya were written

over the centuries: the *Yuktidīpikā*, of unknown authorship and date; and several works by a relatively late writer, Vijñānabhikṣu (1575), an interpreter.

The fundamental text of Yoga philosophy is the very popular, widely studied and quoted *Yogasūtra*s of Patañjali (300). An ancient (475) commentary, the *Yogabhāṣya*, is ascribed to someone named Vyāsa, and Vācaspati Miśra (940) has written a commentary on that named *Tattvavaiśāradī*. The term *yoga* is of course now standard throughout the world and no longer merely a Sanskrit term. In general usage it connotes techniques of breath control, bodily postures, and meditation, among the topics addressed in the texts just cited. The underlying metaphysics of Yoga, however, is the same as that of the Sāṃkhya ontology; in effect, Yoga provides the account of how to go about achieving liberation through meditation, whereas Sāṃkhya lays out the account of the ontological, logical, epistemogical, and psychological truths that form the basis of what is to be meditated upon.

Sāṃkhya (and thus Yoga as well) postulates two fundamental kinds of real entities: *puruṣa*s and *prakṛti*. Each self in the universe is termed a *puruṣa* in this system, and there are as many *puruṣa*s in the world as there are embodied minds, perhaps even more if bugs and plants are included. However, a peculiarity of the system is that a self has only one function: to be a seat of consciousness. All other features ascribed to humans belong to *prakṛti*.

One might think that *prakṛti* thus corresponds to the "body" side of the mind/body dichotomy. But this is not true for Sāṃkhya. The consciousness that is *puruṣa* is merely "pure" consciousness, not any particular awareness or mental state. Particular modes of awarenesses, such as sensations, emotions, and mental events of all sorts, along with particular physical features such as the particular bodies, sense-organs, and activities of what is ordinarily called a "self," are features of a being's *prakṛti*. (Remember that selves are not limited to human beings—each center of consciousness from gods down to insects and perhaps plants are selves.)

Karmic bondage pertains only to one's *prakṛti*, since it is that being's *prakṛti* alone that changes from time to time, birth to birth. The true self, *puruṣa*, remains unaffected in reality; it appears to be affected only by karma. To use an analogy that is constantly appealed to, a *puruṣa* is like a lamp that lights up things that are themselves inert; some of those things—thoughts and modes of awareness, for example—may seem to us to be conscious, others in turn to be objects of those modes of awareness, but for Sāṃkhya fundamentally all *prakṛti*—whether psy-

chological activity or physical objects—is unconscious, inactive.

One must not, however, misunderstand Sāṁkhya as contending that all *prakṛti* is unreal. Unmanifest (*avyakta*) *prakṛti* is real, permanent, and is the real cause of real effects. Appealing to language of great antiquity we are told that *prakṛti* is made up of three *guṇa*s, called *sattva, rajas* and *tamas*. Every actual element in manifest *prakṛti*, that is, in the world that we experience, is different from every other, and the difference is due to which *guṇa*s are dominant in each thing and to what extent.

So for Sāṁkhya both causes and effects are real. Unmanifest *prakṛti*, made up of the three *guṇa*s, actually causes real effects (the term used is *pariṇāma*, usually translated as "evolves" or "transforms"), just as milk really produces real curds. And so there is no question about the reality of bondage either, since a state of bondage is the real product of causal forces that are themselves constituted by the balance of the three *guṇa*s that constitute that state.

For this system bondage is due to a failure to discriminate between what is permanent—the pure self and unmanifest *prakṛti*—and what is temporary—all the evolutionary states of *prakṛti* that we normally construe as our nature and the nature of the world and the universe. To learn to discriminate the permanent from the temporary is the purpose of meditation, of yoga. When properly discriminated, the self will no longer be subject to the limitations of *prakṛti* and will have achieved liberation.

NYĀYA AND VAIŚEṢIKA

These two systems merged by the end of the first millennium CE. At the start, though, there were two distinct sets of *sūtra*s, the *Vaiśeṣikasūtra*s ascribed to Kaṇāda (whose date is unknown but who lived probably during the first couple of centuries CE) and the *Nyāyasūtra*s ascribed to some Gautama (not the Buddha), who most likely flourished in the second century CE.

The *Vaiśeṣikasūtra*s lay out six categories of actual entities that the aspirant needs to thoroughly understand and that are intended to cover all the things that exist in the world. These six are substances (*dravya*), qualities (*guṇa*), motions (*kriyā*), univeral properties (*sāmānya*), individuators (*viśeṣa*), and inherence (*samavāya*). The *Vaiśeṣikasūtra*s, like most *sūtra*s, are extremely laconic and require a commentary to be understood. The earliest extant commentary is by Praśtapāda (530) entitled *Padārthadharmasaṁgraha*. Commentaries on Praśastapāda's work by Vyomaśiva (950), Śrīdhara (991),

and Udayana (1054) develop accounts of the six categories and add a seventh, the category of negative entities or "absences" (*abhāva*). Most commentaries on the *Vaiśeṣikasūtra*s prior to the fifteenth century are known only from references by others, but there is a full commentary by Śaṁkara Miśra (1440).

The author of the *Nyāyasūtra*s works from a broad conceptual base that suggests its origins in a worldview with an approach broadly similar to that of Kaṇāda. Gautama starts from a list of sixteen topics, some epistemic, some ontological, but most of them harking back to the ancient practice of holding debates. The metaphysics, though not identical with Vaiśeṣika's categories, clearly presupposes them. The epistemology proposes four ways of gaining knowledge: through perception (*pratyakṣa*), inference (*anumāna*), comparison (*upamāna*), and authoritative language (*śabda*). The sixteen categories are as follows: instruments of knowledge, objects of knowledge, doubt, purpose, example, tenets, members of an inference, reductio ad absurdum, ascertainment, discussion, sophistry, cavil, fallacies, quibble, futile rejoinder, and ways of losing a debate. The last two "debate categories" by themselves take up the the entire fifth and last book of the *Nyāyasūtra*s.

A series of commentaries on commentaries is developed through the ages stemming from these *Nyāyasūtra*s, each commentary explaining the previous one in the list. This list comprises the *Bhāṣya* by Vātsyāyana (450), the *Vārttika* by Uddyotakara (610), the *Tātparyaṭīkā* of Vācaspati Miśra (960), and the *Pariśuddhi* by Udayana (1054). Important independent expositions of the Nyāya system are found in the *Nyāyamañjarī* by Jayanta Bhaṭṭa (870) and in several works by Udayana (1054).

Udayana is likewise the author of a widely studied book that has become the standard work concerning arguments for the existence of God: *Nyāyakusumāñjali*. In Nyāya-Vaiśeṣika God is another self, though one unlike us in never having been involved in the round of transmigration and rebirth. At the beginning of each era (*kalpa*) His function, according to Nyāya, is to cause the atoms, which were unmoving during the period (*pralaya*) between creations, to come into contact, thus starting the production of physical bodies that the selves (who have persisted throughout *pralaya*) inhabit through their karma. Since the *Vaiśeṣikasūtra*s themselves make no mention of God, and the *Nyāyasūtra*s mention Him only in reporting the opinion of an objector, it appears that the development of the role of God in Nyāya-Vaiśeṣika may have been influenced by the growing tendency toward

devotionalism in India toward the close of the first millennium CE.

The method of gaining liberation as described by Nyāya-Vaiśeṣika appears to be mainly intellectual, requiring study of the tenets of the system, which eventually removes the ignorance (*avidyā*) that occasions defects (*doṣa*) defects that occasion the desires and other mental attitudes that conduce to bondage.

With Gaṅgeśa (1320) an important new phase of Nyāya-Vaiśeṣika begins, known appropriately enough as *Navyanyāya*, "new Nyāya." Gaṅgeśa's sole work was the seminal *Tattvacintāmaṇi*, which takes up the four ways of gaining knowledge in a fresh way and employs a style of explanation that involves a host of new technical terms to indicate the various relations among the things contained in the Nyāya categories. These new relations make it possible for Navyanyāya to develop an "artificial" or "ideal" language in a way that resembles the methods of the logical positivists in modern analytic philosophy in the West. It also, not surprisingly, makes reading Navyanyāya texts especially difficult for the reader uninitiated into the technical terminology.

Gaṅgeśa's text is the basis for a flowering of hundreds of commentaries composed over the following centuries down to the present. The best known of these is the *Dīdhiti* by Raghunātha Śiromaṇi (1510), the subject, in turn, of myriads of commentaries, the most influential of which are those by Jagadīśa Tarkālaṁkāra (1620), Mathurānātha Tarkavāgīśa (1650), and Gadādhara (1660). Also during this post-Gaṅgeśa period two works were composed that introduce the student to the terminology, categories, and logic of Nyāya-Vaiśeṣika: the widely studied introductory work by Annambhaṭṭa (1500) (*Tarkasaṁgraha)* and that by Viśvanātha Nyāyācārya Bhaṭṭācārya (1640) (*Bhāṣāparicccheda*, with its autocommentary *Siddhāntamuktāvalī*).

PŪRVAMĪMĀṀSĀ

The term *mīmāṁsā* connotes a method of textual interpretation, especially of the Vedas. Rules determining the proper way to read and interpret the passages of the Vedic corpus developed early. The earlier portions of the Vedas did not speak of liberation; the subject discussed was taken to be *dharma*, featuring prescriptions on sacrifice, how to live, and what actions to perform and not to perform.

These Mīmāṁsakas viewed the Vedas as without any author—not even the gods were the authors of scripture. The authority of the Vedas is based on their being begin-

ningless and thus authorless and so not subject to the foils of any human or even divine creator. However, because the Upaniṣads, the later part of Vedic scripture, allude to liberation, later Mīmāṁsā philosophers beginning with Kumārila and Prabhākara recognized the possibility of attaining liberation.

While the Vedas themselves constitute the basic literature of Mīmāṁsā, a particular set of aphorisms—the *Mīmāṁsāsūtra*s ascribed to Jaimini (25 CE?)—is regularly cited as Mīmāṁsā's basic text, with the commentary (*Bhāṣya*) by Śabara (400) on it appealed to for explanations. These two works are largely devoted to matters that concern the proper interpretation of Vedic maxims about how to sacrifice and act in appropriate ways. But the literature of the Mīmāṁsā philosophical systems about to be discussed include interpretive and other works that, although largely concerned with Vedic interpretation, develop categorial frameworks that are comparable to those found in the other systems of Indian thought, and attempt to controvert the views of those other schools.

The Bhāṭṭa school of Mīmāṁsā looks to the interpretation of Kumārila (660) as found in that writer's commentary on Śabara's *Bhāṣya*, particularly in that portion of it titled *Ślokavārttika*, in which Kumārila makes a trenchant attack on other views known to him and provides reasons for preferring his own interpretation. The Bhāṭṭa literature develops through the works of Maṇḍana Miśra (690) (*Brahmaviveka, Vidhiviveka*), Pārthasārathi Miśra (1075) (*Nyāyaratnamālā, Śāstradīpikā, Nyāyaratnākara*), Āpadeva (1610) (*Mīmāṁsānyāyaprakāśa*), Laugākṣi Bhāskara (1660) (*Arthasaṁgraha*), and Kṛṣṇa Yajvan (1750) (*Mīmāṁsāparibhāṣā*).

The Prābhākara school is named after Prabhākara (700), author of the commentary *Bṛhati* on Śabara's *Mīmāṁsābhāṣya*. Among later Prābhākara Mīmāṁsakas, far fewer in number to the Bhāṭṭas, one may note Śālikānātha Miśra (825), author of the *Prakaraṇapañcikā*.

There is also said to be a third Mīmāṁsaka school known as the "Miśras" after Murāri Miśra, reputed author of several works most of that are now lost.

ADVAITA VEDĀNTA

The term *vedānta* literally means "the end or final portions of the Vedas." Those final portions are the Upaniṣads. The various systems that are called "Vedānta" take at least the older Upaniṣads as authoritative, bolstered by the *Bhagavadgītā* and the *Brahmasūtra*s. Vedānta commentaries and independent works expressing the views of these schools claim to represent the cor-

rect interpretations of these scriptural materials. But the philosophical positions they take vary widely.

The best-known Vedānta system is Advaita, "nondualism." It takes the position that there is only one real entity: the Brahman identified in the Upaniṣads as the true Self (*ātman*). Perhaps the oldest completely extant text expounding Advaita views is a commentary on the Māṇḍūkya Upaniṣad by Gauḍapāda (600). But the writer acknowledged as the authoritative source of Advaita is Śaṁkarācārya (710), who wrote a number of works and who is assumed to be the author of many others of later origin. The most important of Śaṁkara's works is his commentary (*Bhāṣya*) on Bādarāyaṇa's (50 CE) *Brahmasūtra*s. Śaṁkara is also probably the author of commentaries on several of the oldest Upaniṣads and on the *Bhagavadgītā*, and of at least part of an independent work titled *Upadeśasāhasrī*.

Śaṁkara refers to at least two other Vedānta systems. One is regularly termed "Bhedābhedavāda." In contrast to Śaṁkara's austere nondualistic position that there is only one real entity, Brahman, and that all difference and thus all plurality is illusory, the Bhedābheda view is that Brahman is both different (*bhedā*) and nondifferent (*abheda*) from the world. Śaṁkara also clearly has in mind for refutation a contemporary named Maṇḍana Miśra, who, in a work entitled *Brahmasiddhi*, defends an interpretation of Advaita according to which one does not (contrary to Śaṁkara's interpretation) achieve complete liberation prior to death. Maṇḍana holds that an enlightened person must still continue to practice meditation after achieving emancipation.

Śaṁkara's own position is that the Upaniṣadic texts are of one or the other of two types, in effect comprising two distinct portions of scripture referred to as the *karmakāṇḍa* and the *jñānakāṇḍa*. The *karmakāṇḍa*, as its name implies, consists of those portions of scripture that are governed by injunctions about how one should act. Because it prescribes actions, proper attention to it should lead one to perform appropriate kinds of action, as the Pūrvamīmāṁsakas correctly suppose. The viewpoint required by one who appeals to the *karmakāṇḍa* for advice is a view that assumes differences (*bheda*) between things. One could hardly act if one did not assume differences—between what is and what should be, between what is done and what ought to be done, between action and agent, between you and me.

In contrast, Śaṁkara claims that the other part of the Upaniṣadic texts, the *jñānakāṇḍa*, deals not with what is to be done but with what one should know. Instead of injunctions to act, the contents of this part refer solely to

what is actually the case. Instead of enjoining us to act, this part provides us with knowledge; instead of dealing with differences among the many things and beings of the world, including ourselves, the *jñānakāṇḍa* speaks merely to the one Reality in which no distinctions or differences can ACTUALLY abide. That Reality is called Brahman, and the "great sentences" (*mahāvākya*) of the Upaniṣads—sentences such as "that art thou" (*tattvamasi*)—can provide us with enlightenment concerning the ultimate unity of Brahman and one's true Self if and when we are ready to appreciate it.

Once realization has dawned, one is completely liberated from bondage to actions, for that bondage requires recognition of differences and the liberated person no longer recognizes any differences as real. True, one remains alive and appears to act because of the *prārabdhakarman* that constituted the rationale for his present life, but there will be no future lives for such a one, no rebirth. The contrary view of the Bhedābhedavādins and of Maṇḍana Miśra, that one must still meditate even after liberation, is claimed by Śaṁkara to be incorrect, for meditation is an act, and the liberated self is incapable of performing any action because that would require recognition of that reality of differences among things and people that, in his liberated state, he no longer recognizes.

Important Advaita treatises are ascribed to Śaṁkara's pupils Padmapāda (740) (*Pañcapādikā*) and Sureśvara (740) (*Naiṣkarmyasiddhi* and commentaries on at least two of Śaṁkara's commentaries on the Upaniṣads). The standard account of post-Śaṁkara Advaita, which has been subjected to serious dispute, distinguishes two or three schools of Advaita, one stemming from Padmapāda, though named after a commentary on that work, the *Vivaraṇa* by Prakāśātman (975); another from Vācaspati Miśra's (940) commentary *Bhāmatī* on Śaṁkara's *Brahmasūtrabhāṣya*; and (sometimes) a third, unnamed, school stemming from Sureśvara. The vast majority of interpretations of Advaita defend the Vivaraṇa position. Among the writers who represent this school are Jñānaghana (975), author of *Tattvaśuddhi*, Vimuktātman (975) (*Iṣṭasiddhi*), Sarvajñātman (1027) (*Saṁkṣepaśārīraka*), Citsukha (1200) (*Citsukhī*), Vidyāraṇya or Mādhava (1350) (*Pañcadaśī*), Sadānanda (1500) (*Vedāntasāra*), Prakāśānanda (1505) (*Vedāntasiddhāntamuktāvalī*), Madhusūdana Sarasvatī (1570) (*Advaitasiddhi*), and Dharmarājadhvarīndra (1615) (*Vedāntaparibhāṣā*). The *Khaṇḍanakhaṇḍakhādya* of Śrīharṣa (1180) is a polemical treatise attacking the Nyāya-Vaiśeṣikas on behalf of Advaita. The far less numerous Bhāmatī-school authors include Amalānanda (1255)

(*Vedāntakalpataru*) and Akhaṇḍānanda Sarasvatī (1670) (*Ṛjuprakāśikā*).

VIŚIṢṬĀDVAITA VEDĀNTA

In contrast to Advaita's monistic interpretation of the relation of Brahman to the world, which says that only Brahman is real and that the world is illusory, the system of Viśiṣṭādvaita views Brahman and the world as real and takes Brahman and the world to be the same thing. The earliest author of this persuasion whose works are available is Yāmuna (1010), the author of *Āgamaprāmāṇya, Bhagavadgītārthasaṁgraha* and *Siddhitraya*. The real founder of Viśiṣṭādvaita is, however, Rāmānuja (1120), the author of a *Bhagavadgītābhāṣya*, the *Śrībhāṣya* on the *Brahmasūtra*s, and several independent works (*Vedāntadīpa, Vedāntasāra,*and *Vedārthasaṁgraha*). The most important writers in the ensuing centuries include Lokācārya Pillai (1300), who wrote in Tamil; Vedānta Deśika (1330), who is believed to have written more than thirty Sanskrit works; and Śrīnivāsa (1625), whose *Yatīndramatadīpikā* provides a useful summary of the major tenets of the school.

Viśiṣṭādvaita, frequently rendered as "qualified nondualism," is a kind of pantheism in which the unity of Brahman is gained not (as in Advaita) by denying Brahman's relation to anything else but rather by construing Brahman's unity as an "organic" unity of everything. Rāmānuja postulates three distinct real types of entities—selves, matter, and God—and construes "Brahman" as referring to the organic whole that they constitute. That is, Brahman for Viśiṣṭādvaita is *saguṇa*—it really has qualities—whereas for Śaṁkara it is *nirguṇa*, without any qualities whatsoever.

DVAITA PHILOSOPHY

Taking a straightforwardly pluralistic attitude toward the relations between Brahman, God, humans, and the things in the world was Madhva or Ānandatīrtha (1250), who wrote commentaries on the usual body of Vedānta texts (the *Brahmasūtra*s, *Bhagavadgītā*, and Upaniṣads) along with a number (usually reckoned as ten) of independent treatises. His system is known as Dvaita or "dualistic," or, in this case, more aptly, "pluralistic." Jayatīrtha (1370) comments on most of Madhva's works. The *Nyāyāmṛta* of Vyāsatīrtha (or Vyāsarāya) is a polemical treatise in which the author uses Navyanyāya methods to defend Dvaita and to criticize the views of others. Where Rāmānuja divided reality into three aspects of the organic unity of Brahman, Madhva's position features a basic distinction between Brahman, the Lord, who is deemed independ-

ently Real (*svatantra*), and the other Reals (including selves and things in the world), which are classed as real but dependent (*paratantra*) on God—dependent not for their being, which is beginningless, but for their being allowed to live, act, and gain release.

OTHER VEDĀNTIC SYSTEMS

The Bhedābhedavāda position, mentioned previously, which Śaṁkara criticizes, was apparently propounded in works, now lost, by writers who preceded Śaṁkara, notably Bhartṛprapañca (550). Later, Bhāskara (750) wrote a *Brahmasūtrabhāṣya* defending the position. A similar standpoint, called "Dvaitādvaita," is defended by Nimbārka (1250) in his commentary on the *Brahmasūtra*s, *Vedāntaparijātasaurabha*, and in other works.

A position known as Acintyabhedābheda has achieved some importance outside of India through the influence of the Hare Krishna movement. The founder of this school is Caitanya (1520), who wrote no works but whose views are capably expounded and defended by Sanātana Gosvāmin, Rūpa Gosvāmin, and Jīva Gosvāmin, all of whom seem to have lived in the sixteenth century. The writings of these and other exponents of this religious philosophy construe liberation as devotion to God culminating, according to A. C. Bhaktivedanta Swami (*The Nectar of Devotion*, p. 38), in "five liberated stages, which are 1) to be one with Me, 2) to achieve residence on My planet, 3) to have My opulences, 4) to possess bodily features similar to Me, and 5) to gain personal association with Me."

The Śuddhādvaita Vedānta school's literature starts with the numerous works of Vallabha (1525), which include an *Anubhāṣya* on the *Brahmasūtra*s and a commentary on the *Bhagavata Purāṇa*, along with more than thirty independent treatises. A series of commentators during the sixteenth and seventeenth centuries is capped by the prolific Puruṣottama Pītamabara Sarasvatī, who is credited with more than eighty works. The term *Śuddhādvaita*, "pure monism," is based on this school's theory that Brahman (called the highest Self [*puruṣottama*] or Śrī Kṛṣṇa) by nature emanates existence, intelligence, and joy like sparks from a fire. A spark where the joy portion becomes concealed by the existence portion constitutes an individual self. When, through devotion generated by God's grace (*puṣṭibhakti*), the lost joy is regained, one rejects liberation and chooses eternal service of Lord Kṛṣṇa, enjoying the boundless joy experienced in eternal play.

ŚAIVA SYSTEMS

Of the philosophical systems devoted to Śiva, perhaps the oldest literature is that of Kashmir Śaivism. Vasugupta (840) is the reputed author of *Śivasūtra*s and the *Spandakārikās*, and Somānanda (850) of *Śivadṛṣṭi*. Utpala's (925) *Īśvarapratyabhijñā* is another important work. Abhinavagupta (1014) contributes copiously and significantly to this tradition in a variety of works of which the *Tantrāloka* is the most enterprising. Kṣemarāja (1040) is the author of a popular exposition of the system in his *Pratyabhijñāhṛdaya*.

Kashmir Śaiva philosophy is also called the Pratyabhijñā system because it considers the ultimate aim to be self-realization (*pratyabhijñā*). Ontologically it teaches that the world is made to appear by Śiva's power (*śakti*) of consciousness. An individual self (*paśu*) is a center of consciousness, which is different from Śiva's in that a self's consciousness is limited by impurities (*mala*). Through following the spiritual path, one removes the impurities and gains realization. Three basic kinds of means (*upāya*) constituting the spiritual path are distinguished: external (*āṇava*), consisting of yogic postures, control of breathing, and so on; mental (*śākta*), voluntary meditation involving conceptual construction (*vikalpa*); and spontaneously viewing the entire world including oneself as a reflection of Śiva, a view that is effortless or construction-free (*nirvikalpaka*). In this final state the mind is dissolved into consciousness because of the removal of obstructions.

Śaiva Siddhānta has its home in the South of India. Its literature was written entirely in Tamil. Among the important authors and works in this tradition are those by Sadyojyoti (890), Meykanta Tevar (1221) (*Śivajñānabodha*), Aruṇanti Śivacariyār (1253) (*Śivajñānasiddhiyār*), Umāpati Śivacariyār (1310) (*Tiruvaruṭpayan*), and Śivāgra Yogi (1600) (*Śaivaparibhāṣā*).

Other Śaiva systems that have a literature in Sanskrit include those of Vīraśaiva and Śivādvaita. The most widely known work of the latter system is Śrīkaṇṭha's (1400) *Śrīkāra-bhāṣya* on the *Brahmasūtra*s, along with Appayya Dīkṣita's (1585) *Śivakaraṇidīpikā.* Appayya Dīkṣita has also written two independent treatises on this system.

GRAMMARIAN PHILOSOPHY

One of the remarkable achievements of early Indian science was in linguistics or grammar. Pāṇini (perhaps fifth century BCE) anticipates the linguistic analysts of the twentieth century in having managed, in his *Aṣṭādhyāyī*, to have shown how to generate the entire Sanskrit language from a series of rules, including rules about how to apply the rules. Grammar (*vyākaraṇa*), which formed a distinct science with a sizable literature, also caught the attention of philosophers of several of the systems discussed previously. But Grammarian philosophy is largely a product of Bhartṛhari (450) who, in his work *Vākyapadīya*, wedded grammar, epistemology, and ontology into a full-fledged philosophical system.

Bhartṛhari's innovations pertain to the proper account of language, of epistemology and ontology. The characteristic and unique idea of Bhartṛhari's view of language is the notion of the *sphoṭa*, which is conceived to be a unitary and permanent entity underlying the significance found in syllables, words, and sentences. A cognition is likewise construed as a unitary mental event that appears as having distinctions of subject and object, of time and space. But ultimately such distinctions are transcended: only language itself existse—even physical objects are no longer discriminated.

Maṇḍana Miśra (see above) has contributed an important work on Grammarian philosophy, the *Sphoṭasiddhi*. Several of the best grammatical works contain considerable philosophical material: for example, Kauṇḍa Bhaṭṭa's (1650) *Vaiyākaraṇa-bhūṣaṇa* and several works by Nāgeśa (or Nāgojī) Bhaṭṭa (1700).

Jain Philosophy. Jainism and Buddhism (along with Cārvāka) are sometimes referred to as "heterodox" schools in that they, unlike the systems listed above, do not view the Vedas as authoritative. (In fact, among the foregoing schools Nyāya-Vaiśeṣika and Sāṃkhya-Yoga do not cite the Vedas as authority either, although some texts of those schools very occasionally appeal to Vedic passages when suitably supportive.)

The Jain *sūtra*s represent early (the precise dating is unclear) representations of a variety of concerns only occasionally philosophical. They are written in Prakrit, a Sanskritic vernacular. Some of the Jain interpretive literature is also in Prakrit, though for the most part it exists in Sanskrit.

Perhaps the most notable feature of Jain thought is its refusal to accept a single account of reality. This is reflected in the Jain theory of *anekāntavāda*, that there are several equally true aspects of any given thing or topic. This is spelled out in their theories of *syādvāda* and *saptabhaṅgī*, which emphasize that everything we cognize can be viewed in several different ways each of which is acceptable given its particular orientation. The earliest writers of texts on Jain philosophy appear to have been

Kundakunda (200?) (*Pañcāstikāyasāra, Pravacanasāra, Samayasāra*) and Umāsvāti (200?) (*Tattvārthasūtra*). The interpretive literature on the latter work is voluminous, starting with Pujyapāda (500) (*Sarvārthasiddhi*), who also wrote the *Samādhitantra*. Bhadrabāhu (550) is the author of authoritative commentaries on the Jain *sūtra*s. Bhaṭṭa Akalaṅka (680) contributed a number of important works to the extensive literature on logic, along with Vidyānanda (850). A Siddhasena Divākara, whose date is not entirely certain, is the author of a small work, *Nyāyā-vatāra*, which is perhaps the usual beginning point for students beginning the study of Jain philosophy. Other important contributors to the Jain philosophical litera-ture are Haribhadra Sūri (750) (at least twenty-five works), Maṇikyanandin (950) (*Parīkṣāmukha*), Nem-icandra Siddhāntacakravartin (1080) (*Gomatasāra, Dravyaviveka*), Vādideva or Devasūri (1143) (*Pra-māṇanayatattvāloka*), Hemacandra (1150) (*Pramāṇa-mīmāṁsā, Anuyogavyavacchedadvātriṁśikā*) and Yaśovijaya (1680), to whom over thirty works are attributed.

BUDDHIST PHILOSOPHY

Although the number of Buddhist philosophical schools is still unsettled six distinct positions will here be distin-guished. The standard division into Hīnayāna and Mahāyāna is not really relevant to these distinctions, although Theravāda, Sarvāstivāda and Sautrāntika are usually classed as Abhidharma (an expression we prefer instead of the pejorative "Hīnayāna"), the other three dis-cussed here as Mahāyāna. Since Buddhism is discussed extensively elsewhere the most important authors and Indian texts on Buddhist philosophy are here merely listed.

Both the Theravāda and Sarvāstivāda acknowledge a list of seven Abhidharma texts, but a different seven for each of the two. The chronology of this literature is unclear, although we may conjecture that the seven texts in both lists existed prior to the beginning of the Christian era. The seven Sarvāstivāda or "northern" Abhidharma texts are *Dharmaskandha, Saṅgītiparyāya, Prajñaptibhāṣya, Dhātukāya, Vijñānakāya, Prakaraṇapāda* and *Jñānaprasthāna*, ascribed to various authors. The Sar-vāstivāda reached its maturity, however, in the (*Mahā*)*Vibhāṣā*, compiled by committee in the first half of the second century CE, in which are recorded the opin-ions of many Abhidharma teachers concerning the proper understanding of Sarvāstivāda tenets. The names of a large number of Buddhist schools are also given in this and in various later works; the relations of some of these schools to the ones discussed in our brief overview are still being determined. In any case, the term "Vaib-hāṣika" is used synonymously with "Sarvāstivāda" in recognition of the importance of the *Vibhāṣā*.

The fourth-century (?) author Vasubandhu (the dat-ing is still controversial) is the author of the best-known exposition of Vaibhāṣika theses, entitled *Abhidharmakoṣa*, together with his own commentary (*Bhāṣya*) in which Vasubandhu criticizes those very Vaibhāṣika views from the standpoint of the interpretation labelled "Sautrān-tika" (derived from "*sūtra*"). The Sautrāntikas urged going back to the Buddha's own words as found in the Buddhist canon. Vasubandhu provides us with a detailed acount of the Sautrāntika's opinions, and perhaps goes on to criticize both Vaibhāṣika and Sautrāntika from a Yogācāra (see below) perspective. This defection from Vaibhāṣika tenets produced a violent reaction by Vasubandhu's contemporary Saṁghabhadra in his *Nyāyānusāra*.

Turning to the Theravāda, their list of seven Abhid-harma works comprises the *Dhammasaṅgaṇī, Vibhaṅga, Dhātukathā, Puggalapaññatti, Kathāvatthu, Yamaka* and *Paṭṭhāna*. The place of the *Kathāvatthu* is somewhat sim-ilar to that of the *Vibhāṣā* in the Sarvāstivāda tradition, in that it records many different opinions about a variety of Buddhist concerns, some doctrinal, others practical, which appear to have caught the notice of the author, who wrote in about the third century BCE A noncanoni-cal work that appears to date from the pre-Christian era as well is the popular *Milindapañha*, a literary treatise presenting itself as recording a discussion between King Milinda (Menander?) and the monk Nāgasena.

Buddhism appears to have moved to what is now Śrī Laṅka several centuries after the Buddha, although the earliest literary remnants of Buddhism there are now lost. Around 425 two Indians, BuddhagHosa and Buddha-datta, appear to have visited Śrī Laṅka—there is a tradi-tion about their meeting on the seas between island and mainland—and each wrote works in Pāli (a vernacular of Sanskrit) recording the philosophical position of the Theravādins. Buddhadatta's work, titled *Abhidham-māvatāra*, is not studied frequently nowadays, but the works of Buddhaghosa (who remained in Lanka), espe-cially the mammoth *Visuddhimagga*, are seminal to the philosophical theses of the Buddhism that has flourished since, initially in Ceylon and eventually throughout Southeast Asia. Buddhaghosa is said to have also written commentaries on all seven of the works of the Theravāda or "Pāli canon" Abhidharma.

Beginning at least by the first century CE a type of lit-erary production began to appear, the importance of

which for understanding the subsequent development of Buddhism both in India as well as throughout Asia is very apparent from the vast interpretive literature that has grown up around it. The texts in question are often referred to as "Mahāyāna *sūtra*s." While the exact connection between these works and the coming of Mahāyāna Buddhism (not to mention the use of the self-laudatory word "Mahāyāna") is not well understood, some of these works are among those most familiar and dear to the heart of millions of Buddhists throughout the world under names such as the "Lotus Sutra," "Heart Sutra," "Diamond Sutra," etc.

It is still being argued by scholars what is the correct account of the rise of what has come to be called "Mahāyāna." Some accounts connect it with Nāgārjuna (150 CE), author of a number of philosophical works such as the *(Mūla)Madhyamaka-kārikās* and *Vigrahavyāvartanī*. The connection between that Nāgārjuna and Mahāyāna is not at all clear, however. It is other Nāgārjunas, the apparent authors of works of probably later vintage, that show affinities with what are taken to be particularly Mahāyānic topics and theories.

In any case, the Madhyamaka tradition persists in India, and eventually in Tibet and East Asia, in a literature of which we mention here only the Indian portion. The works attributed to the second-century Nāgārjuna show their author to be a masterly critic of all philosophical positions, so much so as to have earned him the charge of being merely a skeptic or—worse still—a nihilist. A vast secondary as well as a lively interpretive literature concerns itself with the proper interpretation of his position. Although it is still somewhat controversial to say so, the major lines of interpretation seem to be two, terms for which have been borrowed from subsequent Tibetan commentators. One line insists that when Nāgārjuna says that everything is "empty" or "void" (*śūnya*) he means what he says, i.e., that (as he himself says) he has no thesis whatsoever, that he uses language solely to refute those who do take positions. This interpretation is known as "Prāsaṅgika," and its earliest Indian protagonists are Buddhapālita (480) and Candrakīrti (600). An alternative, "Svātantrika" line of thinking is particularly defended by Bhavya (or Bhāvaviveka) (550), who wishes to allow for the positive use of inferential arguments to establish the interdependence of all things, termed "emptiness" in Madhyamaka. All these writers composed commentaries on Nāgārjuna's *Mādhyamikasūtra*s.

Madhyamaka is one of the philosophical positions regularly identified as Mahāyāna. The other is known as Yogācāra or Vijñānavāda Buddhism. Whereas Madhya-

maka's position (if it has one) is that nothing is real (not even emptiness), the Yogācāras exempt consciousness itself from this denial. What exist are many streams of consciousness (or perhaps only one stream); what appears as an independent world is merely a construction based on our karma. The earliest proponents of this position are regularly held to be the brothers Asaṅga and Vasubandhu (fourth century), although scholars are fairly certain that these two did not found the system, that it was already in place and expounded in works slightly earlier, e.g., in the *Saṃdhinirmocanasūtra* and *Laṅkāvatārasūtra* (both about 325 CE). Furthermore, there is some reason to believe that at least parts of the works ascribed to Asaṅga are of an earlier vintage and that the Vasubandhu who wrote the influential Yogācāra works titled *Triṃśikā* and *Viṃśkā* as well as the *Karmasiddhiprakaraṇa* was not the same person as the one who wrote the *Abhidharmakośa*. In any case, a healthy literature soon grew up around these works, eventually leading to attempts to find *rapprochement* between Yogācāra and Madhyamaka, as in Śāntarakṣita (750) (*Tattvasaṃgraha*) and his commentator Kamalaśīla (770), and perhaps to the development of the Buddhist Logic tradition (see below) which is itself viewed by East Asian interpreters as merely a branch of Yogācāra. Eventually Yogācāra becomes very important in Tibet, expounded there by the influential monk Atīśa (or Dīpaṃkara Śrījñāna, 1035) and others.

Attention is given to the theory of inference or logic by Vasubandhu and others prior to Dignāga (510) (*Pramāṇasa-muccaya*), but it has become customary (influenced by Th. Stcherbatsky's book *Buddhist Logic*, available in a popular publication in English early in the twentieth century) to refer to Dignāga's philosophical position as that of the "Buddhist Logicians." The works by Dignāga and others that constitute the literature of this school concentrate on the methodology of inferential reasoning, but also speculate on many of the same metaphysical and epistemological questions that other Buddhist systems were addressing, for example, whether consciousness alone is real or whether nothing at all is real, and whether it is even possible to speak or think truly. Dignāga is ambiguous on those questions, but nevertheless he develops an identifiable position stemming from an epistemic distinction between "perception"—which grasps what Westerners might call "sense-data," which are taken to be actual entities—and inference which, since it deals with universal properties, is deemed unreal since it can only concern conceptual constructions. Dignāga's approach is taken up and critically clarified with zeal in subsequent periods, notably by Dharmakīrti (610), Dhar-

mottara (770), Jitāri (990), Jñānaśrīmitra (1015), Ratnakīrti (1070), and eventually elegantly summarized by Mokṣākara Gupta (1100) in his *Tarkabhāṣā.*

See also Atomic Theory in Indian Philosophy; Brahman; Buddhism; Causation in Indian Philosophy; Karma; Knowledge in Indian Philosophy; Logic, History of: Logic and Inference in Indian Philosophy; Meditation in Indian Philosophy; Mind and Mental States in Buddhist Philosophy; Negation in Indian Philosophy; Philosophy of Language in India; Self in Indian Philosophy; Truth and Falsity in Indian Philosophy; Universal Properties in Indian Philosophical Traditions.

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Karl Potter (2005)

INDIRECT REALISM

See *Realism*

INDISCERNIBLES, IDENTITY OF

See *Identity*

INDIVIDUALISM

See *Holism and Individualism in History and Social Science*

INDUCTION

The name "induction," derived from the Latin translation of Aristotle's *epagoge*, will be used here to cover all cases of nondemonstrative argument, in which the truth of the premises, while not entailing the truth of the conclusion, purports to be a good reason for belief in it. Such arguments may also be called "ampliative," as C. S. Peirce called them, because the conclusion may presuppose the existence of individuals whose existence is not presupposed by the premises.

Thus, the conclusion "All *A* are *B*" of an induction by simple enumeration may apply to *A*'s not already mentioned in the finite number of premises having the form "*A_i* is *B*." Similarly, in eduction (or arguments from particulars to particulars) the conclusion "Any *A* is *B*" is intended to apply to any *A* not yet observed as being a *B*.

It would be convenient to have some such term as *adduction* to refer to the sense of induction here adopted, which is broader than the classical conception of induction as generalization from particular instances. Most philosophical issues concerning induction in the classical sense arise in connection with the more general case of nondemonstrative argument.

In what follows it will be convenient to use Jean Nicod's expression "primary inductions" to refer to those nondemonstrative arguments "whose premises do not derive their certainty or probability from any induction." Problems of philosophical justification are most acute in connection with such primary inductions.

It may be added that "mathematical induction" is a misnomer because the useful types of reasoning so labeled are rigorously demonstrative. Given that the first integer has a certain property and also that if any integer *n* has that property then so does *n* + 1, the next, it follows demonstratively that all the integers have the property in question. Inductive arguments, as here conceived, do not constitute mathematical or logical proofs; by definition induction is not a species of deduction.

TYPES OF INDUCTIVE ARGUMENTS

In addition to the types of arguments already mentioned, the following are most frequently discussed:

(1) Elaborated induction (as it might be called) consists of more or less sophisticated variations of induction by simple enumeration, typically including supplementary information concerning the mode of selection of the individuals named in the premises and perhaps including reference to negative instances.

(2) Proportional induction is inference from the frequency of occurrence of some character in a sample to the frequency of occurrence of the same character in the parent population—that is, from "m_1/n_1 *A*'s selected by a stated procedure *P* are *B*" to "m_2/n_2 *A*'s are *B*." Here the ratio stated in the conclusion may be other than the one stated in the premise; it is often advantageous to locate the final ratio within a certain designated interval.

(3) Proportional eduction is argument from sample to sample. From the same premises as in proportional induction a conclusion is drawn concerning approximate frequency of occurrence in a further sample obtained by the same procedure or by another one.

(4) Proportional deduction (commonly called "statistical syllogism") is inference from "*m/n C*'s are *B*" (where *m/n* is greater than 1/2) and "*A* is a *C*" to "*A* is a *B*."

In all the above cases modern writers usually insist upon inserting some more or less precise indication of probability or likelihood, either within the conclusion itself or as an index of reliability attached to the mark of inference ("therefore," "hence," or the like). Careful attention to the probability or likelihood attributed to a given inductive conclusion is a distinct merit of modern treatments of the subject.

The foregoing list cannot claim to be exhaustive, nor are its items to be regarded as mutually irreducible. There is no general agreement concerning the basic forms of inductive argument, although many writers regard simple enumeration as in some sense the most fundamental.

HISTORY OF INDUCTIVE METHODS

Interest in the philosophy and methodology of induction was excited by the extraordinary successes of natural science, which tended to discredit the rationalistic conception of knowledge about matters of fact. The classical writers on the subject, from Francis Bacon on, have lamented the powerlessness of deduction to do more than render explicit the logical consequences of generalizations derived from some external source. If recourse to intellectual intuition or to self-evidence is repudiated as a source of factual knowledge, nothing better seems to remain than reliance upon the empiricist principle that all knowledge concerning matters of fact ultimately derives from experience. However, experience, whether conceived as sporadic and undirected observation or as the systematic search for specific answers extorted by planned experiment, seems to supply knowledge only of particular truths. Empiricists are therefore faced with the problem of accounting for the crucial step from knowledge of experiential particulars to reasoned acceptance of empirical generalizations sufficiently powerful to serve as the major premises of subsequent logical and mathematical deduction.

The aspiration of early writers was, characteristically, to demonstrate the conclusions of acceptable inductive arguments as true; not until the end of the nineteenth century did a more modest conception of inductive argument and scientific method, directed toward acquiring probability rather than certainty, begin to prevail.

PROBLEM OF INDUCTION

The celebrated problem of induction, which still lacks any generally accepted solution, includes under a single heading a variety of distinct, if related, problems. It is useful to distinguish the following:

(1) The general problem of justification: Why, if at all, is it reasonable to accept the conclusions of certain inductive arguments as true—or at least probably true? Why, if at all, is it reasonable to employ certain rules of inductive inference?

(2) The comparative problem: Why is one inductive conclusion preferable to another as better supported? Why is one rule of inductive inference preferable to another as more reliable or more deserving of rational trust?

(3) The analytical problem: What is it that renders some inductive arguments rationally acceptable? What are the criteria for deciding that one rule of inductive inference is superior to another?

These problems may be briefly labeled "justification," "differential appraisal," and "analysis." Many writers on induction have also occupied themselves with the task of codification, the formulation of a coherent, consistent, and comprehensive set of canons for the proper conduct of inductive inference. Important as it is, this task is not distinctively philosophical, except insofar as it requires in advance answers to the questions listed above.

In practice the three problems here distinguished cannot be pursued separately; a comprehensive general defense of inductive procedures involves specification, inter alia, of legitimate forms of inductive argument, and selection between alternative inductive rules or methods must rely, explicitly or not, upon determination of what, if anything, makes an inductive argument "sound." The *why* of inductive argument cannot profitably be isolated from the *how*.

It is characteristic of much recent investigation of the subject to concentrate on the last two of the problems listed, often in the hope of formulating precise canons of inductive inference (an inductive logic). These comparative and analytical versions of the problem of induction are thought worth pursuing even by writers who reject the general problem of justification as insoluble.

HUME'S VIEW OF CAUSATION. For better or worse, all modern discussion of the philosophy of induction takes off from David Hume's celebrated analysis of causation, whose connection with the philosophical problems of induction (a word that Hume never used) arises from his view that all reasoning concerning matters of fact is founded on the relation between cause and effect. Although Hume may be held to have given undue prominence to causation (his skeptical conclusions do, in fact, challenge every kind of nondemonstrative argument, whether or not grounded in causal imputation), it is easy to overlook and to be misled by the special form in which he conceived the problem of justification.

Hume, unlike such later writers as J. S. Mill, was not satisfied to analyze the notion of cause and effect into the notions of spatial contiguity, temporal succession, and joint occurrence; he fatefully added to these the criterion of "necessary connexion." That objects of certain kinds have been conjoined or associated in past experience might be no more than an extended coincidence. Something more is needed before one event can properly be recognized as the cause of the other; we must be able to pass from *post hoc* to *propter hoc*. In predicting a putative effect of a given event we can ensure contiguity and succession by choosing to look only for a spatiotemporally

proximate event, and memory (if that can be relied on) will furnish knowledge of constant conjunction in the past. Whether we are truly justified in predicting the occurrence of the putative effect will therefore turn entirely upon whether there is good reason to assert that it is necessarily connected with its neighbor. Hume, in effect, challenged his reader to find anything in the observation of a single case of supposed causal action (for instance, in the favorite example of a collision between two billiard balls) that answers to the required "necessary connexion" between two events. No observation, however attentive, will discover more than contiguity and an internal habit of expecting association. Nor will examination of a series of cases, all exactly alike, help at all: A sum of zeroes is still zero.

But what did Hume mean by "necessary connexion"? Although he did not tell us in so many words, his main proof that we can "never demonstrate the necessity of a cause" rests simply upon the conceivability, and hence the logical possibility, of an event's being bereft of its putative cause. He seems, therefore, to have implied that our notion of a cause and its effect requires the existence of the one to be entailed by the existence of the other. If so, it does not need much argument to show that we can have no impression (direct sensory experience) of such entailment. Hume concluded that necessity cannot reside in the external world but must arise, as an idea, from an internal impression of the mind, a "determination to carry our thoughts from one object to another."

Repeated observation of the association of events leads us to the habit of expecting the association to continue "by means of an operation of the soul … as unavoidable as to feel the passion of love, when we receive the benefits" (*Enquiry concerning the Human Understanding*, Sec. 5, Part 1). Our idea of necessary connection is nothing more than an internal response to the habit of expecting effects: "Upon the whole, necessity is something in the mind, not in objects." At this point skepticism is just around the corner; we are on the verge of such famous conclusions as that "all probable reasoning is nothing but a species of sensation" (*Treatise*, Book I, Part 3, Sec. 8).

The reference to habit or custom explains nothing, of course, and is at best only a concise reference to the truism, which according to Hume's view simply has to be accepted, that men do in fact expect events to be accompanied by effects. Without such habits of causal expectation men could hardly have survived—but this reflection, itself based on induction, cannot be a reason for belief in causation. For a philosopher so critical of such allegedly occult entities as power and energy, Hume was strangely carefree in his reliance upon habit or custom as a *vera causa*. In keeping with his own principles he ought to have turned as skeptical an eye on habit as on cause and ought to have concluded that our idea of habit is derived from nothing more than a habit of expecting that a man who acts in a certain way will continue to do so. But now the account looks circular. Have we any better reason to believe in the existence of habits—even if construed, in as reductionist a fashion as possible, as mere constant conjunctions—than we have to believe in causes? And would not everything that tended to show we have no sufficient basis in external experience for belief in the objective reality of causal connection also tend to show, by parity of reasoning, that we have no basis for believing in the existence of those habits that are invoked at least to explain, if not to justify, our ordinary causal beliefs?

It has seemed to nearly all of Hume's readers that his method must lead to a skepticism more sweeping than he himself was perhaps willing to recognize or to accept. If Hume had been correct about the origin of the idea of necessity, he would have been committed to a totally skeptical answer to the general problem of justification. Whether or not we can escape from the bondage of causal expectation, we are at any rate free to see that such a habit can provide no reason, in Hume's sense, for the belief in causal connection. And once we see this, wholesale skepticism concerning inductive inference seems inescapable.

Hume's skeptical conclusions cannot be dismissed on the ground that they originated in an oversimplified psychology of ideas and impressions, for his argument can, with little difficulty, be made independent of any psychological assumptions. Cause and effect are logically independent, not because repeated search fails to find any logical connection, as Hume's own account misleadingly suggests, but because it is a part of what we mean by cause and effect that the two shall be logically separable. It is tempting to say, then, that there is no reason why the separable consequent should follow its antecedent in any particular instance. We can very well imagine or conceive the cause's occurring without its usual consequent, and, in Hume's words, "nothing of which we can form a clear and distinct idea is absurd or impossible" (*A Treatise of Human Nature*, Book I, Part 1, Sec. 7).

NEO-HUMEAN ARGUMENTS. Even if Hume was wrong in including logical necessity in the idea of causal connection, a neo-Humean can correct his argument without weakening its skeptical force. It is reasonable to say that what distinguishes a causal connection from a

merely accidental association is that empirical rather than logical necessity obtains between the two events. This, in turn, may be rephrased by saying that the observed conjunction is a case of lawful and not merely accidental association. But then Hume's challenge to discover such lawfulness in experience remains as formidable as ever; no matter how many instances of joint occurrence we encounter, we will never observe more than the de facto association and will never have ultimate, noninductive grounds for believing in a de jure connection.

Thus, Hume's problem can be put into modern dress, without restriction to causal inference, as follows: An inductive inference from an observed association of attributes (A_n—B_n) can justify inference to another case (A_{n+1}—B_{n+1}) or inference to the corresponding generalization ("All A are B") only if the association is somehow known to be lawlike, not merely accidental. Yet how can this be known in primary inductions that do not themselves rest upon the assumed truth of other laws? Certainly not by immediate experience, nor a priori, nor, without begging the question, by appeal to induction.

The sharpest form of this version of the problem (called by its author the "new riddle of induction") is that of Nelson Goodman. Suppose all emeralds examined before a certain time t have been green; use the label "grue" for the property of being green up to the time t and being blue thereafter. Then all the evidence supports equally well the competing laws "All emeralds are green" and "All emeralds are grue." Here an instance of the comparative problem is raised in a particularly pointed and instructive way.

Goodman's challenge awaits an answer. Some writers have hoped to defend the received or standard modes of inductive argument by invoking criteria of relative simplicity. But apart from the yet unsolved problem of clarifying what simplicity is to mean in this connection, there seems no good reason why nature should obligingly make correct inference simple; often enough the best-confirmed law is less simple than others that would accord with the given evidence. Goodman's own suggestion to restrict defensible inductions to "entrenched" predicates (roughly speaking, those that have been frequently employed in previous inductive judgments) seems less than satisfying.

From the standpoint of the philosophy of induction the chief significance of Hume's memorable discussion (apart from its tonic effect in disturbing "dogmatic slumber") is that it brought into full daylight the problem of distinguishing between a merely accidental series of associations and the genuine laws that we seek by means of inductions.

DEDUCTIVE STANDARD OF JUSTIFICATION. A demand that induction be justified arises, of course, from some supposed deficiency or imperfection. If all were obviously well with inductive argument, there would be no point in asking for any defense or justification. It is therefore of the first importance to be clear about the alleged weakness or precariousness of induction and the corresponding standard of justification to which appeal is covertly made. We need to know what is supposed to be the trouble with induction, for only when the disease is understood will the search for a remedy have much prospect of success.

The root of the trouble is plain enough in the writings of a hundred writers who have trodden in Hume's footsteps. All have been haunted by the supposedly superior certainty of demonstrative reasoning. If valid deduction from premises known to be true transmits certainty to the conclusion, even the best induction will seem inferior by comparison. (John Locke said that induction from experience "may provide us convenience, not science"— *Essay concerning Human Understanding*, Book IV, Ch. 12, Sec. 10.) The nagging conviction that induction somehow falls short of the ideals of rationality perfectly exemplified in valid deductive argument has made the problem of induction needlessly intractable.

If Hume, for instance, did not require that induction be shown as somehow satisfying the criteria of valid deduction, an answer to his question about how "children and peasants" learn from experience would be easy. The method employed, as he himself stated, is that of arguing from similarity of causes to similarity of effects. However, such an answer would obviously not have satisfied him, because this method will not guarantee the truth of the conclusion drawn; that is, it is not the kind of method that would be acceptable as justifying a valid deduction. Hume would have liked an inductive conclusion to follow from (be entailed by) premises known to be true, for anything less would not have seemed genuinely reasonable. Having shown, in effect, that no reason of this kind can be produced for primary inductions, he was forced to regard the question of justification as demonstrably insoluble. This conclusion has the notable inconvenience of leaving the comparative problem also insoluble (while the analytical task vanishes for lack of an object).

Hume's conclusion must be granted if his is the only sense of "reason" in point. If we never have a reason for an inductive conclusion unless we know the conclusion to

follow strictly from premises known to be true, then we can have no reason for believing in primary inductive conclusions; it is as reasonable to expect that thistles will bear figs, or something equally absurd, as it is to expect anything else extending beyond past experience. (Whether we can in fact bring ourselves to believe anything so absurd is beside the point.) Only in recent times have serious efforts been made to escape from the spell of the deductive model, used by Hume and his innumerable followers, by inquiring whether there may not be other proper and relevant senses of "reasonable." It will be argued later that belief in induction is reasonable in principle and that belief in one kind of inductive conclusion is more reasonable than belief in another.

The lasting attraction of the deductive model is not hard to understand. The raison d'être of deductive argument seems enticingly plain: Valid deductions are truth-transmitting and truth-preserving—which, given an interest in obtaining novel truth, seems enough to show the point of deductive reasoning. (That this cannot be the whole story is obvious from the uses of deductive reasoning in exhibiting the consequences of propositions hypothetically entertained—not to mention *reductio* arguments and other uses.) By contrast the raison d'être of induction seems unclear and mysterious. It would be easy, although unsatisfying to the genuinely perplexed, to say that sound inductive arguments are "likelihood-transmitting," for likelihood is as unclear a concept as inductive correctness. Thus, it is natural to ask for and to expect a detailed answer to the question "Why should a reasonable man rely upon likelihood in default of truth?" Even if the power of sound induction to confer likelihood upon conclusions is regarded as sufficient to make inductive argument reasonable beyond further cavil, the question how such likelihood is conferred will remain. Attention thus shifts to the analytical task.

It may be added that an enduring source of disquiet concerning inductive argument is its disorderliness and formlessness by contrast with deductive argument. In deductive argument we flatter ourselves upon readily perceiving the underlying principles and their necessary connection with logical form. By contrast with such classic simplicity, and order the realm of inductive argument seems disconcertingly complex, confused, and debatable: An inductive argument accepted by one judge may be rejected, on good grounds, by another, equally competent judge; supposedly sound arguments from different sets of true premises may yield opposed conclusions; the very soundness of induction seems not to be clear-cut but to admit of gradations of relative strength and reliability.

Given all this, it is not surprising that although many students have labored to introduce order into the field, others, abandoning any hope of so doing, have turned away from induction as a tissue of confusions.

TYPES OF SOLUTION

The answers given in the literature to Hume's problem can be briefly summarized as follows:

(1) Hume's challenge cannot be met; consequently, induction is indefensible and ought to be expunged from any reasoning purporting to be rational.

(2) In the light of Hume's criticisms, inductive arguments as normally presented need improvement, either (*a*) by adding further premises or (*b*) by changing the conclusions into statements of probability. In either case a conclusion's validity is expected to follow demonstratively from the premises, and inductive logic will be reconstructed as a branch of applied deductive logic.

(3) Although inductive argument cannot be justified as satisfying deductive standards of correctness, it may be proved that inductive policies (rather than rules or principles) are, in a novel sense to be explained later, reasonable. Induction can be vindicated if not validated.

(4) Hume's problem is generated by conceptual and linguistic confusions; it must therefore be dissolved, rather than solved, by exposing these confusions and their roots.

These approaches are not all mutually exclusive. Thus (3), the pragmatic approach, is usually combined with (1), repudiation of induction as an acceptable mode of reasoning. Apart from (4) all the approaches accept or make substantial concessions to Hume's major assumption—namely, that the only wholly acceptable mode of reasoning is deductive. This is true even of those who hold (3), the "practicalists," who might be supposed, at first glance, to be relaxing the criteria of rationality.

REJECTION OF INDUCTION. The rejection of induction as a proper mode of scientific reasoning is sometimes found in the guise of advocacy of the so-called hypothetico-deductive method. According to such a view, the essence of genuinely scientific reasoning about matters of fact is the framing of hypotheses not established by given empirical data but merely suggested by them. Inference enters only in the control of hypotheses by the verification of their observable consequences: Negative

instances strictly falsify a hypothesis, whereas positive instances permit its use, pending further experimental tests, as a plausible, if unproved, conjecture. Science, as well as all reasoning about matters of fact aspiring to the reliability of scientific method, needs only the kind of reasoning to be found in deductive logic and in mathematics. Some such position was already adumbrated in the writings of William Whewell. It has at least the merit of drawing attention to the role of hypotheses in scientific method, a welcome corrective to the excessive claims of early partisans of inductive logic.

The most influential, and possibly the most extreme, of contemporary writers following this line is Karl Popper, who often maintained that what is called induction is a myth, inasmuch as what passes under that title "is always invalid and therefore clearly not justifiable." In his own conception of scientific method such repudiation of induction is linked with the thesis that the purpose of scientific theorizing is falsification (demonstration of error) rather than verification or confirmation (provisional support of an approximation to the truth). Those who agree would rewrite putatively inductive inferences to make them appear explicitly as hypothetical explanations of given facts. (Thus, instead of inferring "All A are B" from premises of the form "A_n is B," the first statement is offered as a more or less plausible explanation of why all the A_n should have been found to be B.)

In spite of its enthusiastic advocacy, it is hard to see where this proposal accomplishes more than a superficial change in the form in which inductive arguments are written and a corresponding alteration in the metalanguage in which they are appraised. Any hypothetical explanation of given empirical data is intended to reach beyond them by having empirical consequences amenable to subsequent tests. If all explanations consonant with the known facts (always an infinite set) were treated as equally unjustified by the evidence, Hume's problem would certainly be set aside, but only at the cost of ignoring what provoked it—namely, the apparent existence of rationally acceptable nondemonstrative arguments. It can hardly be denied that there are nondemonstrative arguments lending reasonable support to their conclusions; otherwise it would be as reasonable to expect manna from heaven as rain from a cloud. Anti-inductivists have seldom been hardy enough to brand all inductive arguments as equally invalid, but as soon as they discriminate between alternative hypotheses as more or less corroborated, more or less in accord with available facts, they are faced, in a new terminology, with substan-tially the original problems of justification and differential appraisal.

INDUCTIVE SUPPORT FOR INDUCTION. To the layperson the most natural way of defending belief in induction is that it has worked in the past. Concealed in this reply, of course, is the assumption that what has already worked will continue to do so, an assumption that has seemed objectionably circular to nearly all philosophers of induction. A stubborn minority (including R. B. Braithwaite and Max Black), however, insists that the appearance of circularity arises only from overhasty application of criteria applicable to deduction. Even in the limiting case, where the rule governing the supporting argument from previous efficacy is the very rule that is to be defended, it can be plausibly argued that no formal circularity is present. Nor is there the more subtle circularity that would obtain if knowledge of the conclusion's truth were needed to justify use of the self-supporting argument. In spite of spirited objections, this line of reasoning has not yet, in the writer's opinion, been shown to be mistaken.

The point that inductive support of induction is not necessarily circular has some importance as illustrating the interesting self-applying and self-correcting features of inductive rules; in virtue of these features, scrutiny of the consequences of the adoption of such rules can, in favorable cases, be used to refine the proper scope of inductive rules and the appropriate judgments of their strength.

A more serious weakness of this kind of defense, if it deserves to be called that, is lack of clarity about what counts as success in using the rule, which is connected in turn with the insufficiently discussed question of the raison d'être of induction considered as an autonomous mode of reasoning.

But even if this controversial type of inductive support of inductive rules ultimately survives criticism, it will not dispose of the metaphysical problems of induction. Those satisfied with Hume's conception of the problem are at bottom objecting to any use of inductive concepts and of the language in which they are expressed unless there is deductive justification for such use. They will therefore reject any reliance upon induction by way of defense, however free from formal defect, as essentially irrelevant to the primary task of philosophical justification. It must be admitted that inductive support of induction, however congenial to the layman, does not go to the roots of the philosophical perplexity.

A PRIORI DEFENSES. A few twentieth-century writers (notably D. C. Williams and R. F. Harrod) maintained that certain inductive arguments, unimproved by the addition of supplementary premises or by modification of the form of the conclusion, can be proved to be valid. Williams argued, with surprising plausibility, that the probable truth of the conclusion of a statistical syllogism can be shown to be necessitated by the truth of the premises, solely by reference to accredited principles of the mathematical theory of chances. While admiring the ingenuity displayed in this approach, critics have generally agreed in finding it fallacious. That some modes of inductive argument are certified as sound or acceptable on broadly a priori (perhaps ultimately linguistic) grounds is, however, a contention of some versions of the linguistic approach.

DEDUCTIVE RECONSTRUCTION. The effort to provide justification for induction through a reconstruction of inductive arguments so as to make them deductively valid has chiefly taken two forms.

Search for supreme inductive principles. If a given nondemonstrative argument, say from the amalgamated premise *P* to a conclusion *K* (where *K*, for the present, is regarded as a categorical statement of fact containing no reference to probability), is looked at through deductive spectacles, it is bound to seem invalid and so to be regarded as at best an enthymeme, needing extra premises to become respectable. It is easy, of course, to render the original argument deductively valid by supplying the additional premise "If *P* then *K*" (this premise will be called *Q*). In order for induction to be defended in the classical way, however, the premises have to be true and known to be true. Since *P* was supposed not to entail *K*, the new premise, *Q*, will be a contingent statement of fact, knowledge of whose truth is presumably to be derived either by deduction from more general principles or by induction from empirical data. In either case, if the deductive standard of justification is to be respected, the process must continue until we obtain general factual principles, neither capable of further empirical support nor needing such support.

The line of thought is the following: Since *K* does not follow strictly from *P*, the fact that the truth of propositions resembling *P* in assignable ways is regularly associated with the truth of propositions resembling *K* is a contingent fact about the actual universe. Looked at in another way, if events occurred purely at random, it would be impossible to make successful inductions; conversely, if inductions of a certain sort do systematically produce true conclusions, there must be a contingent regularity in the universe that should be capable of expression in the form of supreme principles or postulates of induction. Only if such postulates are true can inductions be sound; they must therefore be the assumed but unexpressed premises of all sound inductive arguments.

Favored candidates for the role of such enabling postulates have been the principle that the future resembles the past (Hume), a general principle of causation to the effect that every event has a sufficient cause (Mill), a principle of spatiotemporal homogeneity, which makes locations and dates causally irrelevant (Mill again), and a principle of limited independent variety ensuring that the attributes of individuals cluster together in a finite number of groups (J. M. Keynes, C. D. Broad; Keynes's principle, however, was intended to ensure only the probability of inductive conclusions). Any of these, if true, records the presence in the universe of a certain global regularity or order that permits inductive procedures to produce the desired true conclusions. For example, if we somehow knew in advance that a given attribute *C* of an observed event must have some other attribute invariably associated with it, and if we further knew that the associated attribute must be included in a finite list of known attributes, say E_1, E_2, …, E_n, then there would be a good prospect that repeated observations of similar events would eliminate all but one of the possible associations, E_1—E_i. Refinements aside, this is how Mill, for instance, conceived of inductive method; his celebrated "methods" (which have received attention out of all proportion to their merits) reduce, in the end, to deductive procedures for eliminating unfit candidates for the title of necessary or sufficient conditions. (Later attempts to develop eliminative induction follow substantially the same path.)

It is clear that the whole interest of this program rests upon the considerations that can be advanced in favor of the supreme premises. If the supreme premises can be known to be true, the remaining processes of inference become trivial (so that there is no need for an autonomous logic of induction); if not, the entire project floats in the void.

The task of formulating plausible principles of the sort envisaged by this program has proved harder than Mill supposed. However, it may be argued that the search for them is pointless and misguided. For one thing, they would accomplish too much: If known to be true, they would allow the conclusions of selected primary inductions to be demonstrated as true, which is too much to expect. It is generally agreed (and rightly so) that the conclusion of even the best inductive argument may without

contradiction turn out to be false—if only through bad luck.

Still more serious is the problem of how, from the standpoint of this program, the desired supreme premises could ever be known to be true. Since appeal to induction is excluded at this point on the score of circularity, and since the principles themselves cannot be analytic if they are to serve their desired purpose, there seems no recourse at all. At this point those who search for supreme inductive principles find themselves with empty hands. Mill, for instance, was compelled to let his whole program rest upon the supposed reliability of simple enumeration (the method he regarded as the weakest), in whose defense he had nothing better to say than that it is "universally applicable" (which, on his principles, delightfully begs the question); Keynes, forsaking his empiricist principles for a half-hearted flirtation with Immanuel Kant, could do no better than to suggest that the ultimate principles rest upon "some direct synthetic knowledge" of the general regularity of the universe. Induction may indeed beg to be spared such defenders as these; better the robust skepticism of Hume or Popper than the lame evasions of Mill or Keynes. The conclusion seems inescapable that any attempt to show (as Bacon and many others have hoped) that there are general ontological guarantees for induction is doomed to failure from the outset.

Recourse to probability. A more promising way, at least at first sight, of hewing to the deductive line is to modify the conclusion of an inductive argument by including some explicit reference to probability. This approach, influential since Keynes's spirited exposition of it, still has many adherents. If there is no prospect of plugging the deductive gap between P and K by adding further premises known to be true, then perhaps the same end can be achieved by weakening the conclusion. If K does not follow from P, why not be satisfied with a more modest conclusion of the form "Probably, K" or perhaps "K has such and such a probability relative to P"?

The most impressive projects of this sort so far available have encountered severe technical difficulties. It is essential to Keynes's program, for instance, that the probability of a generalization relative to an unbroken series of confirmatory instances steadily approach unity. The conditions necessary for this to be possible in his program are at least that the generalization have an initial nonzero probability and that infinitely many of the confirmatory instances be independent, in the sense of having less than maximal probability of occurrence given the already accumulated evidence. The supreme ontological principles to which Keynes was ultimately driven to appeal (see the preceding section) hardly suffice to satisfy these conditions; subsequent criticism—for example, by Nicod and G. H. von Wright—has shown that even more rigorous conditions are needed. (Von Wright has argued that the desired asymptotic convergence will result only if in the long run every instance of the generalization is scrutinized—which would certainly render the theory somewhat less than useful in practical applications.) For all his importance as a founder of confirmation theory, the theory advocated by Keynes must be judged a failure.

Carnap's construction. The merits of Rudolf Carnap's impressively sustained construction of inductive logic, following in the tradition of Laplace and Keynes but surpassing the work of both in elaboration and sophistication, are still in dispute. Taking probability to express a logical relation between propositions, Carnap has shown how, in certain simplified languages, it is possible to define the breadth or logical width of a given proposition. (Roughly speaking, the degree of confirmation given by a proposition x to a proposition y is the ratio of the width of $x \cdot y$ to the width of x.) The definition of logical width depends on the class of possible universes expressible in the language in question. In order to assign a definite measure of logical width it is necessary to adopt some method of weighting the various possible universes ("state descriptions," in Carnap's terminology) compatible with a given proposition.

One of the merits of Carnap's analysis is to have shown that there is an entire continuum of alternative weighting procedures and associated inductive methods, each of which is internally coherent. The arbitrariness thereby recognized in inductive procedure has worried even the most sympathetic of Carnap's readers; still more disturbing is the emergence of what might be called the paradox of the unconfirmable generalization—the impossibility of ensuring, by Carnap's principles, that an unbroken series of positive instances will raise the probability of a generalization above zero. (Carnap retorts that an instance confirmation—that is, the conclusion of an eduction—does acquire progressively increasing probability, but this is insufficient to satisfy those critics who still hope to find a place for authentic generalization within inductive method.) It is too soon to decide whether such problems as these are more than the teething pains of a new subject. The ingenious modifications of Carnap's program suggested by, among others, J. G. Kemeny and Jaakko Hintikka offer some hope for their elimination.

More serious is the fundamental difficulty that flows from Carnap's conception of confirmation statements as

analytic. If it is a truth of logic (broadly speaking) that given the selected definition of confirmation, presented evidence confirms a given hypothesis to such-and-such a degree, then how could such an a priori truth justify any rational belief in the hypothesis? Or, again, if someone were to adopt a different definition of confirmation and thereby be led to a contrary belief, then how could he be shown to be in error?

Carnap's answer is based on the notion that the bridge between confirmation, as defined by him, and rational belief is to be found in some principle for the maximization of expected utility (due allowance being made, however—in his sophisticated rendering of that principle—for subjective estimates of probabilities and utilities). Yet it seems that because considerations of probability also enter into the calculation of probabilities and expected utilities, a logical circle is involved here. Since Carnap's discussions of this fundamental point are still comparatively rough and provisional, it would be premature to reach any final judgment on the success that he and those who agree with him are likely to achieve in coping with this basic difficulty. (It might be said that difficulty with the connection between probability judgments and practice is not peculiar to Carnap's work, since it arises in one form or another for all theorists of induction who take the trouble to work out in detail the consequences of their principles and assumptions.) It may be held, however, that Carnap's relatively cursory judgments about the justification of induction belong to the least satisfactory parts of his work on inductive logic.

How much the recourse to probability will accomplish depends, of course, upon how the reference to probability is construed. With empirical interpretations of probability, such as those favored by "frequentists," the probability conclusion still extends beyond the premises by covert reference to finite or infinite sets of events not covered by the given premises. The inductive leap remaining in the reconstructed argument will thus still leave the problem of induction unsolved. If, however, probability is construed in some logical way (as by Keynes or Carnap), the amended conclusion will say less than the premises and will therefore be untouched by subsequent empirical test; the deductive validity of the reconstructed argument will be saved only at the cost of rendering problematic its relevance to prediction and empirical control. In converting a purportedly inductive argument into a valid deductive one, the very point of the original argument—that is, to risk a prediction concerning the yet unknown—seems to be destroyed.

PRAGMATIC DEFENSES. Answers of the pragmatic type, originally offered by Peirce but independently elaborated with great resourcefulness by Hans Reichenbach, are among the most original modern contributions to the subject. To many they still offer the best hope of avoiding what seems to be the inevitable failure of the attempts so far discussed. The germ of the pragmatic strategy is the reflection that in ordinary life, situations sometimes arise where, in default of reliable knowledge of consequences, problematic choices can still be justified by a "nothing to lose" argument. Faced with a choice between an operation for cancer and a sure death, a patient may choose surgery, not because of any assurance of cure but on the rational ground that nothing is lost by taking the chance.

Reichenbach's "vindication." According to Reichenbach, the case is similar in what he takes to be the paradigmatic inductive situation. Given an antecedent interest in determining the probability of occurrence of a designated character (construed, by him, as the limit, in an infinitely long run of events, of the relative frequency of occurrence of that character), Reichenbach argues that the only rationally defensible policy is to use the already ascertained relative frequency of occurrence as a provisional estimate of the ultimate limiting value. A man who proceeds in this way can have no guarantee or assurance that his estimates, constantly revised as information about the series gradually accumulates, will bring him into the neighborhood of a limiting value of the frequency, for the provisional values of the relative frequencies may, in fact, diverge. In that case no predictive policy at all will work, and successful induction is impossible.

However, if this should not be the case and the series really does have a limiting value for the relative frequency in question, we can know in advance, and with certainty, that the policy is bound eventually to lead the reasoner to estimates that will remain as close to the limit as desired. There is therefore nothing to lose by adopting the inductive policy: If the series of events under scrutiny is sufficiently regular to make induction possible, the recommended policy is bound to yield the desired result ultimately (and we know before we start that it will do so), whereas if the series is irregular enough to defeat the standard inductive policy, nothing will avail, and we are no worse off than if a contrary decision had been made.

This type of justification is often called "vindication," as Herbert Feigl termed it. It is claimed that in a sense the type of vindication sketched above resolves Hume's problem by bypassing it. We know for certain that what Hume desired—namely, certification of the soundness of inductive argument by the standard of demonstrative reason-

ing—cannot be supplied. But it would be fainthearted to leave the matter there. By conceiving the practice of induction as the adoption of certain policies, applied in stoic-acceptance of the impossibility of assured success in obtaining reliable knowledge concerning matters of fact, we are able to see that such policies are, in a clear sense, preferable to any of their competitors. Standard induction is preferable to soothsaying because we know that it will work (will approach limiting values in the long run) if anything will.

To these plausible claims it has been objected that the analogy with genuinely practical decisions to act upon insufficient evidence is misconceived, for in the state of perfect ignorance postulated by defenders of the pragmatic approach no method at all can be regarded as superior to any other. Vindicationists have been relatively undisturbed by such general criticism; they have, however, felt obliged to seek remedies for a grave technical flaw that threatens to wreck their entire program. Given the assumption that the best to be achieved by an inductive policy is asymptotic convergence to a limiting relative frequency, it is obvious that no policy for inductive estimation in the short run is excluded as unreasonable. Thus, from the standpoint of pragmatic vindication an unbroken run of *A*'s found to be *B* would not make it unreasonable to predict the subsequent occurrence *in the short run* of *A*'s that are not *B*, provided only that the adopted estimates are chosen so as to converge eventually to the limit (if it exists). But since the long run is in fact never attained, even by immortal beings, it follows that the pragmatic defense yields no criteria for inductive decisions in short-run cases, to which inductive prediction is confined, and offers no differential reasons for preferring one inductive policy to another.

In spite of strenuous attempts (notably by Wesley Salmon) to improve Reichenbach's original conception by providing supplementary reasons for rejecting unwanted nonstandard policies, the prospects for vindicationism remain dubious. Even if some plausible way could be found of assigning, on vindicationist principles, a special status to the standard policy of induction, the approach would be vulnerable to the objection that it conceives inductive method in an eccentrically restricted fashion. The determination of limiting values of relative frequencies is at best a special problem of inductive method and by no means the most fundamental.

Peirce's views. Peirce, whose views on induction have exerted a lasting influence on the subject since the posthumous appearance of his *Collected Papers*, had a more complex conception of scientific method than latter-day vindicationists. Induction, conceived by him as a process of testing statistical hypotheses by examining random samples, has to be understood in its relations to two other procedures, statistical deduction and abduction.

Statistical deduction consists of inference from the frequency of occurrence of an attribute in a population to the probable and approximate occurrence of that attribute in a sample randomly drawn from it. Given Peirce's definition of probability as limiting frequency and his conception of randomness, it follows demonstratively that most of the samples drawn will have nearly the same composition as the parent population; statistical deduction is thus "valid" in the sense that it generates conclusions that are true most of the time.

Abduction, the creative formulation of statistical hypotheses and the only mode of scientific inference introducing new ideas, is a kind of inversion of statistical deduction. It has almost no probative force, its value being rather that it provides new generalizations needing independent verification and having "some chance of being true."

When the three procedures are used in combination, induction is seen to be a self-correcting method that if indefinitely followed must in the long run lead the scientific community, although not the individual reasoner, indefinitely close to the truth. In such asymptotic convergence to the truth lies the peculiar validity of induction.

Peirce cannot be held to have succeeded in his effort to defend the rationality of inductive policies in terms of long-range efficacy in generating conclusions approximately and for the most part true. Since the intended justification of induction depends essentially upon the randomness of the samples used, it must be objected that there is normally no way of guaranteeing in advance the presence of such randomness. (To this objection Peirce had only the lame and unsupported rejoinder that inductive inference retains some probative force even in the absence of the desired randomness.) The following are among the most obvious weaknesses of Peirce's views about induction.

The self-corrective tendency of induction, which Peirce, in his last writings on the subject, came to view as the heart and essence of inductive method, remains obscure, in spite of his eulogies. That inductive estimates will need, on Peirce's principles, repeated adjustments as further evidence accumulates is clear enough, but that this process will show any convergence toward a limiting value cannot be guaranteed a priori. If the samples to be

examined were random in Peirce's severe sense of that term, we could at least count upon an overall predominance of approximately correct estimates, but even then we should have no reason, in the absence of additional guarantees, to expect the better estimates to come near the end of the testing process. In any case, supposing realistic conditions for the testing of hypotheses (such as our necessary reliance on cases that we are in a position to examine), it seems clear that the conditions for the kind of sampling demanded by Peirce cannot be fulfilled.

Peirce's references to the long run seem on the whole incoherent. Much of the time he seems to have been thinking of what would prove to be the case in an actual but infinitely extended series of trials. Toward the end of his life, however, he appears to have recognized that his definitions of probability and of the validity of induction needed to be construed more broadly, by reference to the "would be" of events, conceived as real general characters or habits. How such general features of events can in fact be disclosed, even by very lengthy series of trials, Peirce never made plain. Yet the need for clarification is great for anybody attracted by his approach. The infinitely long run is a chimera, and to be told that a certain method, if consistently pursued, would in such a long run eventually lead as close as we pleased to the truth is to be told nothing that can be useful for the actual process of verification. All verification is necessarily performed in the finite run, however extended in length, and what would happen if *per impossibile* the "run" were infinite is not relevant to the relative appraisal of given hypotheses. We need a method for adjudicating between rival hypotheses, if not now then in the foreseeable future, and this Peirce's conception cannot provide. Because of his reliance upon the infinitely long run Peirce's pragmaticism, which initially seems so hardheaded in its emphasis upon success and practical consequences, ends by being as utopian as any of the metaphysical conceptions that he derided.

JUSTIFICATION AS A PSEUDO PROBLEM. In view of the quandaries that beset all known attempts to answer Hume's challenge, it is reasonable to consider whether the problem itself may not have been misconceived. Indeed, it appears upon examination that the task of logical justification of induction, as classically conceived, is framed so as to be a priori impossible of solution. If induction is by definition nondeductive and if the demand for justification is, at bottom, that induction be shown to satisfy conditions of correctness appropriate only to deduction, then the task is certainly hopeless. But to conclude, for this reason, that induction is basically invalid or that a belief based upon inductive grounds can never be rea-

sonable is to transfer, in a manner all too enticing, criteria of evaluation from one domain to another domain, in which they are inappropriate. Sound inductive conclusions do not follow (in the deductive sense of "follow") from even the best and strongest set of premises (in the inductive sense of "strongest"); there is no good reason why they should. Those who still seek a classical defense of induction may be challenged to show why deductive standards of justification should be appropriate. Perhaps the retort will be that there is no clear sense in which assertion of a conclusion is justified except the sense in which it is known to follow strictly from premises known to be true, so the burden of argument rests upon anybody who claims the existence of some other sense.

Linguistic approach to the problem. The challenge to the claim that inductive arguments cannot be said to be justified might be met in the following way: Suppose a man has learned, partly from his own experience and partly from the testimony of others, that in a vast variety of circumstances, when stones are released they fall toward the ground. Let him consider the proposition *K*, that any stone chosen at random and released will do likewise. This is, in the writer's opinion, a paradigm case for saying that the man in question (any of us) has a good reason for asserting *K* and is therefore justified in asserting *K* rather than not-*K*. Similarly, this is a paradigm case for saying that the man in question is reasonable in asserting *K* and would be unreasonable in asserting not-*K*, on the evidence at hand. Anybody who claimed otherwise would not be extraordinarily and admirably scrupulous but would be abusing language by violating some of the implicit criteria for the uses of "good reason," "justified," and "reasonable," to which he, like the interlocutor with whom he succeeds in communicating, is in fact committed.

Any man—say, one from Mars—who used these words according to criteria that would really make it improper for him to apply them in the kind of situation envisaged would not, in the end, be understood by us. Worse still, he would be trying, if he were consistent, to change our actual concepts of reason and reasonableness so that it would be logically impossible to have reasons for assertions concerning the unknown or to be reasonable in expecting one matter of fact rather than another on the basis of empirical evidence. (He would be behaving like a man who insisted that only stallions deserved to be called horses.) Nor would such distortion achieve anything significant, for the man who proposed to make "empirical reason" as impossible of application as "being in two places at once" would find himself forced to rein-

troduce essentially the same concept under some such label as "generally accepted as a reason" or "what commonly passes for a reason." The distinction between what ordinary men and what scientists call "good reasons" and "bad reasons" is made for a good purpose, has practical consequences, and is indispensable in practice. Thus, the dispute between the advocate of the linguistic approach and his opponent seems to reduce to a verbal one, ripe for oblivion.

Given the intertwined complexity of the concepts entering into alternative formulations of the problem of induction and the seductive plausibility of the distortions to which such concepts are subject, no brief reply such as the above can be expected to clarify and to expose the conceptual confusions upon which traditional formulations of the problem rest. A full discussion would at least also have to consider the relevant senses of "knowledge" and "possibility" and related epistemological notions. The outline of the strategy is perhaps sufficiently plain; the line to be taken is that close and detailed examination of how the key words in the statement of the problem occur will show that criteria for the correct uses of such terms are violated in subtle and plausible ways. If this can be established, the celebrated problem of justifying induction will dissolve, and the confused supposition that induction needs philosophical justification or remains precarious in its absence will disappear.

The comparative problem and the analytical problem do not dissolve under this attack. Advocates of the linguistic approach can be fairly reproached for having been too often content to show to their own satisfaction that the general problem of justification is rooted in confusion, while neglecting the constructive tasks of rendering clearer the criteria for preferential appraisal of inductive arguments.

To those unsympathetic with the linguistic approach such an attack upon the traditional problem has sometimes seemed to be operating with dubious and insufficiently elaborated theories of meaning or use and to be altogether too glib in its attribution of semantic confusions. Moreover, a number of critics have thought that an appeal to ordinary language cannot be ultimately decisive from a philosophical standpoint. Even if it were established that it is a violation of ordinary language to describe the conclusion of some inductive arguments as supported by less than good reasons, the critics ask, what is there in the nature of things that requires us to continue talking in the ordinary way or to be bound by the encapsulated metaphysical prejudices of those originally responsible for establishing the rules of use to which

appeal is now made? The linguistic philosopher necessarily uses such key words as *reasonable* in his polemic against the traditional approaches to the problem. But to use the crucial terms in a discussion of the nature of the inductive problem, it might be urged, is to beg the very question at issue. A lunatic or an eccentric philosopher might well use the expression "good reason" in a way that would be blatantly improper, yet he might be able to prove, by appeal to his own criteria, that he had "good reasons" to use the phrase in the way he did. But are we ourselves in any better position? Are we not obligated to break through the linguistic barrier and at least to show why the alleged criteria for good reasons to which appeal is made should continue to receive our allegiance?

There is no short way of dealing with this type of objection. It may be helpful, however, to sketch the general view upon which the present writer, as a defender of the linguistic approach, would rely.

Defense of the linguistic approach. All normal adult human beings follow the same broad and systematic patterns for drawing inferences concerning the unobserved and apply the same general principles for appraising such nondemonstrative inferences. For instance, all normal persons expect observed cases of association of attributes to be confirmed in further experience unless there are countervailing factors (the principle of simple enumeration), all count increase in the number of independent confirmatory instances of a law as strengthening (or at least not weakening) the probability of the law's truth, and all alike share the inductive beliefs that underpin causal notions. It is, therefore, not fanciful to conceive of all sane adult human beings as participating in a complex system of ways of learning from experience that might be called the inductive institution. Like other institutions (warfare, the law, and so on), it has a relatively fixed, though not immutable, structure, transmitted from one generation to the next and crystallized in the form of prohibitions and licenses, maxims of conduct, and informal precepts of performance. Like other institutions, the inductive institution requires that its participants have mastered a system of distinctive concepts (among them the concepts of good reason, sound argument, and relative likelihood) having both descriptive and normative aspects.

Such mastery is shown in capacity to use the corresponding language correctly—which, in turn, implies recognition of, though not invariable obedience to, associated rules for assertion, for evaluation, and for the appraisal of actions. Understanding what people mean by reasons for empirical conclusions requires acceptance of

certain types of situations as paradigmatic of empirical evidence; to call given facts sound reasons for some conclusion is to imply the acceptability of certain criteria for judging one reason to be better than another; asserting that some belief about the hitherto unobserved is reasonable commits the speaker to holding that other things being equal, action based on such belief should be approved.

The philosophical problem of justifying induction can arise only for somebody who is a member of the inductive institution and is therefore already bound by its constitutive rules. A spectator can understand bridge without being a player, but all of us are necessarily players of the "inductive game" before we achieve the reflective self-consciousness characteristic of philosophical criticism.

The constitutive rules of the inductive institution (whose precise delineation remains a still unfinished task for philosophers of induction) are highly abstract, schematic, and limited in their practical usefulness. Indeed, the general principles of inductive inference are about as relevant to practice as the abstract principles of justice are to decisions on concrete legal issues. In particular situations concerning the soundness of empirical hypotheses the reasoner is compelled to fall back upon his specific knowledge of relevant facts and theories. In this way the conduct of concrete inductive inference resembles the exercise of a craft or skill more than it does the automatic application of a decision procedure. Yet the constitutive rules provide important general constraints that cannot be violated without generating nonsense. To be in command of inductive language, whether as a master of advanced techniques of statistical inference or as a layperson constantly and more or less skillfully anticipating future experience, is necessarily to be subject to the implicit norms of belief and conduct imposed by the institution.

The inductive concepts that we acquire by example and formal education and modify through our own experiences are not exempt even from drastic revision. The norms may be usefully thought of as formal crystallizations into linguistic rules of general modes of response to the universe that our ancestors have, on the whole, found advantageous to survival, but the earlier experience of the race never has absolute authority. Piecemeal reform of the inductive institution can be observed in the history of modern science.

What is clearly impossible, however, is the sort of wholesale revolution that would be involved in wiping the inductive slate clean and trying to revert to the condition of some hypothetical Adam setting out to learn from experience without previous indoctrination in relevant rules of inductive procedure. This would be tantamount to attempting to destroy the language we now use to talk about the world and about ourselves and thereby to destroy the concepts embodied in that language. The idea of ceasing to be an inductive reasoner is a monstrosity. The task is not impossibly difficult; rather, its very formulation fails to make sense. Yet it remains important to insist that the inductive institution, precisely because its raison d'être is learning from experience, is intrinsically self-critical. Induction, like the Sabbath, was made for humankind, not vice versa. Thus, constantly renewed experience of the successes and failures of the specific inductive procedures permitted within the general framework of the inductive institution provides a sound basis for gradual reform of the institution itself, without objectionable circularity.

Yet even if no feature of the institution is exempt, in principle, from criticism and reconstruction, the entire institution cannot be called into question all at once without destroying the very meaning of the words in which the philosophical problems of induction are stated. Wholesale philosophical skepticism about matters of fact is senseless and must be shown to be so. If this is the "linguocentric predicament," we must make the best of it.

The view here outlined must be carefully distinguished from what is commonly called conventionalism. The argument is not that the constitutive inductive rules hold by convention but rather that the sweeping question "Why should we accept *any* inductive rules?" can be shown to make no sense.

Our sketch may be usefully compared with Hume's view of induction as a habit or custom. Both views agree in regarding inductive practices as being, on the whole, social and contingent facts obtaining at given periods in human history. It is, after all, a contingent fact that there have existed animals sufficiently rational to be able to speak and hence to have inductive concepts. The present conception differs significantly from Hume's, however, in regarding the inductive institution as partly constituted by normative inductive rules to which the philosopher, like every reasoning individual, finds himself already committed. Thus, the encompassing social fact of the existence of the inductive institution includes within itself the means for appraisal and criticism of inductive procedures; we cannot regard inductive inference as something merely "given," as a natural fact, like the Milky Way, that it would be absurd to criticize. To understand induction is necessarily to accept its authority. However

(to repeat), questions about the general or ultimate justification of induction *as such*, questions of the form "Why should any induction be trusted?" must be recognized as senseless. If we persist in trying to raise them, we come, as Wittgenstein expressed it, to the "limits of language," and we can see that we have done so by perceiving that what we had hoped were important and fundamental questions are no better than nonsense masquerading as sense. The foregoing will undoubtedly strike critics of the linguistic approach as too facile, for the tangle of philosophical problems that have been dubbed "the problem of induction" constitute, in their depth, their importance, their elusiveness, and their capacity to bewilder and confuse, a very paradigm of philosophical perplexity.

The preceding survey indicates that no wholly satisfactory philosophy of induction is yet available. The work still to be done may be summarized as follows: For those who recognize the crucial role of probability in inductive inference, to develop a consistent, systematic, and relevant reconstruction of the concept of probability; for those who reject induction as an outmoded myth, to elaborate a detailed and comprehensive account of scientific practice that will be reasonably close to the best actual procedures used in reasoning about matters of fact; for those who pin their hopes on the construction of an inductive logic, to remove the constraints imposed by the study of artificially simplified languages and to show in detail how analytical statements of probability can be relevant to the practice of inductive prediction; for vindicationists, to solve the comparative problem of selecting competing hypotheses and to show how eventual convergence in the long run can bear upon short-run judgment; for those who regard induction as a pseudo problem, to articulate the theory of language presupposed and to demonstrate in convincing detail the origins and the character of the stubborn confusions that have infested the subject.

See also Laws of Nature; Probability and Chance.

Bibliography

COMPREHENSIVE STUDIES

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TERMINOLOGY

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The Philosophy of Rudolf Carnap, edited by P. A. Schilpp (La Salle, IL: Open Court, 1963), is now indispensable to the serious student because of its important essays by Carnap's defenders and critics and the detailed comments and replies by Carnap. John G. Kemeny, "Carnap's Theory of Probability and Induction," pp. 711–738, is an outstandingly successful effort to convey the gist of Carnap's position sympathetically; Ernest Nagel, "Carnap's Theory of Induction," pp. 785–825 (vigorously attacked in Carnap's rejoinder, pp. 989–995), expresses at length the misgivings of those who see in Carnap's view a retreat from empiricism; Hilary Putnam, "'Degree of Confirmation' and Inductive Logic," pp. 761–783, is a highly ingenious attempt to demonstrate that a logic based on confirmation must violate accepted canons of scientific method.

Carnap's "The Aim of Inductive Logic," pp. 303–318 in *Logic, Methodology, and Philosophy of Science*, edited by Ernest Nagel, Patrick Suppes, and Alfred Tarski (Stanford, CA: Stanford University Press, 1962), is an important pioneering discussion of the application of inductive logic. Carnap concludes, "Induction, if properly reformulated, can be shown to be valid by rational criteria."

PROBLEM OF JUSTIFICATION

There is no substitute for reading Hume. His own summary, *An Abstract of a Treatise of Human Nature* (London, 1740; reprinted, with introduction by J. M. Keynes and Piero Sraffa, Cambridge, U.K.: Cambridge University Press, 1938), should not be overlooked. Pp. 11–20 express the essence of Hume's position. The serious student must, of course, read *A Treatise of Human Nature*, edited by L. A. Selby-Bigge (Oxford: Clarendon Press, 1896). See especially Book I, Part 3. Sec. 6 contains the famous skeptical attack on the objectivity of causal connection.

See also Hume's *Enquiry Concerning the Human Understanding*, edited by L. A. Selby-Bigge, 2nd ed. (Oxford: Clarendon Press, 1902), especially Sec. 4, "Sceptical Doubts concerning the Operations of the Understanding."

Bertrand Russell, "On Induction," Ch. 6 of *The Problems of Philosophy* (London: Williams and Norgate, 1912), is a lucid and concise version of what is basically Hume's skeptical position.

The best statement of the "new riddle of induction" is in Nelson Goodman, *Fact, Fiction and Forecast* (Cambridge, MA: Harvard University Press, 1955), Chs. 3 and 4. Goodman's position, with some unpublished improvements, is sympathetically discussed in Israel Scheffler, *The Anatomy of Inquiry* (New York: Knopf, 1963), pp. 291–326. The same book is valuable for its lucid appraisal of various theories of inductive confirmation.

REJECTION OF INDUCTION

See Karl Popper, *The Logic of Scientific Discovery* (London: Hutchinson, 1959), especially Ch. 1. John Oulton Wisdom, *Foundations of Inference in Natural Science* (London: Methuen, 1952), is written from a Popperian standpoint; Parts II–IV, pp. 85–232, deal with induction. For criticism of Popper's general position, see John Arthur Passmore, "Popper's Account of Scientific Method," in *Philosophy* 35 (1960): 326–331.

A PRIORI DEFENSES

Donald C. Williams, *The Ground of Induction* (Cambridge, MA: Harvard University Press, 1947), claims to have answered Hume on a priori grounds. For a dissenting verdict, see the extended review by Max Black in *Journal of Symbolic Logic* 12 (1947): 141–144.

Roy F. Harrod, *Foundations of Inductive Logic* (London: Macmillan, 1956), is still another ingenious attempt to show that induction must be successful. For criticism, see Popper's review in *British Journal for the Philosophy of Science* 9 (1958–1959): 221–224; Harrod's reply appears in 10 (1959–1960): 309–312.

INDUCTIVE SUPPORT FOR INDUCTION

Consult Richard B. Braithwaite, *Scientific Explanation* (Cambridge, U.K.: Cambridge University Press, 1953), Ch. 8, "The Justification of Induction," pp. 255–292.

Abner Shimony's severely critical "Braithwaite on Scientific Method," in *Review of Metaphysics* 7 (1953–1954): 644–660, has not been rebutted. On this topic see also H. E. Kyburg Jr., "R. B. Braithwaite on Probability and Induction," in *British Journal for the Philosophy of Science* 9 (1958–1959): 203–220.

A defense of the soundness of self-supporting inductions can be found in Max Black, "Inductive Support of Inductive Rules," pp. 191–208 in *Problems of Analysis* (Ithaca, NY: Cornell University Press, 1954), and "Self-Supporting Inductive Arguments," pp. 209–218 in *Models and Metaphors* (Ithaca, NY: Cornell University Press, 1962). For criticism of Black's views, see Peter Achinstein, "The Circularity of a Self-Supporting Argument," in *Analysis* 22 (1961–1962): 138–141. See also Black's reply in the same journal, 23 (1962–1963): 43–44, and Achinstein's rejoinder, ibid., 123–127.

DEDUCTIVE RECONSTRUCTION

See Bertrand Russell, *Human Knowledge: Its Scope and Limits* (New York: Simon and Schuster, 1948). Russell states and defends postulates of scientific inference in the concluding part, pp. 421–507. Arthur W. Burks, "On the Presuppositions of Induction," in *Review of Metaphysics* 8 (1955): 574–611, is a persuasive exposition by the ablest contemporary defender of deductive reconstruction. See also Burks's article in *The Philosophy of Rudolf Carnap*,

edited by Schilpp (above), and his *Chance, Cause, Reason: An Inquiry into the Nature of Scientific Evidence* (Chicago: University of Chicago Press, 1977). Deductive reconstruction is criticized in most of the articles listed below in the section on induction as pseudo problem.

C. D. Broad, "On the Relation between Induction and Probability," in *Mind* 27 (1918): 389–404, and 29 (1920): 11–45, is an early and unjustly neglected discussion whose second part is a suggestive development of Keynes's ideas.

PRAGMATIC DEFENSES

Herbert Feigl's views are contained in two of his articles, "De Principiis Non Est Disputandum …?," in *Philosophical Analysis*, edited by Max Black (Ithaca, NY: Cornell University Press, 1950), and "Validation and Vindication," in *Readings in Ethical Theory*, edited by Wilfrid Sellars and John Hospers (New York: Appleton-Century-Crofts, 1952), pp. 667–680. The first paper argues the case for vindication as a special mode of justification, and the second enlarges upon the idea.

Hans Reichenbach, *The Theory of Probability* (Berkeley: University of California Press, 1949), is the locus classicus of recent pragmatic defenses; see especially "The Justification of Induction," pp. 469–482. The same author's *Experience and Prediction* (Chicago, 1938) contains a more popular presentation.

Isabel P. Creed, "The Justification of the Habit of Induction," in *Journal of Philosophy* 37 (1940): 85–97, and Everett J. Nelson, "Professor Reichenbach on Induction," in *Journal of Philosophy* 33 (1936): 577–580, are two thorough appraisals and criticisms of Reichenbach's position.

Max Black, "'Pragmatic' Justifications of Induction," in his *Problems of Analysis* (Ithaca, NY: Cornell University Press, 1954), pp. 157–190, is a full-scale attack upon "pragmatic vindication."

Wesley C. Salmon, "The Short Run," in *Philosophy of Science* 22 (1955): 214–221, is an admirable, if ultimately unsuccessful, attempt to avoid reliance upon the infinitely long run. In "Should We Attempt to Justify Induction?," *Philosophical Studies* 8 (1957): 33–48, Salmon elaborately defends the pragmatic approach; Black's "Can Induction Be Vindicated?," in his *Models and Metaphors* (Ithaca, NY: Cornell University Press, 1962), pp. 194–208, is a detailed reply to Salmon.

Salmon's "Vindication of Induction," in *Current Issues in the Philosophy of Science*, edited by H. Feigl and G. E. Maxwell (New York: Holt, Rinehart and Winston, 1961), pp. 245–256, is the latest version of Reichenbach's approach by its ablest contemporary advocate. See also Salmon's contributions to Nagel and Kyburg, eds., *Induction*, above.

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For an introduction to the growing number of studies written from this standpoint, see Alice Ambrose, "The Problem of Justifying Inductive Inference," in *Journal of Philosophy* 44 (1947): 253–272; Max Black, "The Justification of Induction," in his *Language and Philosophy* (Ithaca, NY: Cornell University Press, 1949), pp. 59–88; Frederick L. Will, "Will the Future Be Like the Past?," in *Mind* 56 (1947): 332–347; and Paul Edwards, "Russell's Doubts about Induction," in *Mind* 58 (1949): 141–163. Perhaps the most accessible brief account is Peter F. Strawson, "The

'Justification' of Induction," in *Introduction to Logical Theory* (London: Methuen, 1952), pp. 248–263. Brief criticism of the "linguistic approach is to be found in many of the works listed above. No satisfactorily broad statement of the position of the "linguists" or their critics is yet available.

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INDUCTION, CANONS OF

See *Mill's Methods of Induction*

INEQUALITY

See *Equality, Moral and Social*

INERTIA

See *Mass*

INFERENCE TO THE BEST EXPLANATION

In an inductive inference, we acquire a belief on the basis of evidence that is less than conclusive. The new belief is compatible with the evidence, but so are (possibly many) competing hypotheses that we are unwilling to infer. Such is the situation for a great number of the inferences we make, and this raises a question of description and a question of justification. What principles lead us to infer one hypothesis rather than another? And do we have any reason to believe that these principles are good ones, leading us to accept hypotheses that are true and to reject those that are false? Inference to the Best Explanation offers partial answers to both questions.

According to this model, explanatory considerations are a guide to inductive inference. We decide which of the competing hypotheses the evidence best supports by determining how well each of the competitors would explain that evidence. Many inferences are naturally described in this way. Seeing the ball next to the broken vase, I infer that my children have been playing catch in the house because this is the best explanation of what I see. Charles Darwin inferred the hypothesis of natural selection because, although it was not entailed by his diverse biological evidence, natural selection would provide the best explanation of it. When astronomers infer that a galaxy is receding from the Earth with a specified velocity, they do this because the supposition of such a recession would provide the best explanation of the observed red-shift of the galaxy's characteristic spectrum. When the detectives infer that it was Moriarty who committed the crime, they does so because this hypothesis would best explain the fingerprints, blood stains, and other forensic evidence. Sherlock Holmes to the contrary, this is not a matter of *de*duction. The evidence will not *entail* that Moriarty is to blame, since

it always remains possible that someone else was the perpetrator. Nevertheless, Holmes is right to make his inference, since the supposition of Moriarty's guilt provides a better explanation of the evidence than does the supposition of anyone else's guilt.

Inference to the Best Explanation can be seen as an extension of the idea of "self-evidencing" explanations, where the phenomenon that is explained in turn provides an essential part of the reason for believing the explanation is correct. In the example above, the speed of recession explains the red-shift, but the observed red-shift may at the same time be an essential part of the reason astronomers have for believing that the galaxy is receding at that speed. Self-evidencing explanations exhibit a curious circularity, but this circularity is apparently benign. The recession is used to explain the red-shift and the red-shift is used to determine the recession, yet the recession hypothesis may be both explanatory and well supported. According to Inference to the Best Explanation, this is a common situation: Hypotheses are supported by the very observations they are supposed to explain. Moreover, on this model, the observations support the hypothesis precisely because it would explain them.

Inference to the Best Explanation thus partially inverts an otherwise natural view of the relationship between inference and explanation. According to that natural view, inference is prior to explanation. First we must decide which hypotheses to accept; then, when called upon to explain some observation, we will draw from our pool of accepted hypotheses. According to Inference to the Best Explanation, by contrast, it is only by asking how well various hypotheses would explain the available evidence that we can determine which hypotheses merit acceptance. In this sense, Inference to the Best Explanation has it that explanation is prior to inference.

Although it gives a natural account of many inferences in both science and ordinary life, the model needs further development. What, for example, do we mean by "best?" It is sometimes taken to mean "likeliest" or "most plausible," but Inference to the Likeliest Explanation would be a disappointingly uninformative model, since the main point of an account of inference is to say what leads one hypothesis to be judged likelier than another, that is, to give the symptoms of likeliness. A more promising approach construes *best* as "loveliest." In this view, we infer the hypothesis that would, if correct, provide the greatest understanding.

The model should thus be construed as "Inference to the Loveliest Explanation." Its central claim is that loveliness is a guide to likeliness, that the explanation that

would, if correct, provide the most understanding, is the explanation that is judged likeliest to be correct. This at least is not a trivial claim, but it faces at least three challenges. The first is to identify the explanatory virtues, the features of explanations that contribute to the degree of understanding they provide. There are a number of plausible candidates for these virtues, including scope, precision, mechanism, unification, and simplicity. Better explanations explain more types of phenomena, explain them with greater precision, provide more information about underlying mechanisms, unify apparently disparate phenomena, or simplify our overall picture of the world. But analyzing these and other explanatory virtues is not easy, and it also leaves the other two challenges. One of these is to show that these aspects of loveliness do indeed match judgments of likeliness, that the loveliest explanations tend also to be those that are judged likeliest to be correct. The remaining challenge is to show that, granting the match between loveliness and judgments of likeliness, the former is in fact our guide to the latter.

In addition to offering a description of our inductive practices, Inference to the Best Explanation has been used to justify them, to show that those hypotheses we judge likely to be correct really are so. For example, it has been argued that we have good reason to believe that our best scientific theories are true, since the truth of those theories is the best explanation of their wide-ranging predictive success. Indeed, it has been claimed that the successes of a theory would be inexplicable unless it were at least approximately true. This argument has considerable plausibility, but it faces serious objections. If scientific theories are themselves accepted on the basis of Inferences to the Best Explanation, then to appeal to an argument of the same form to show that those inferences lead to the truth seems to beg the question. Moreover, it is not clear that the truth of a theory really is the best explanation of its predictive success. For one thing, it seems no better an explanation than would be the truth of any other competing theory that happens to share those particular predictions. For another, to explain why our current theories have so far been successful may not require an appeal to truth if scientists have a policy of weeding out unsuccessful theories.

See also Epistemology; Naturalized Epistemology; Realism.

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INFINITESIMALS

The ubiquitous use of infinitely small quantities in mathematics dates back at least to the seventeenth century. Despite continuing qualms as to their legitimacy and their supposed elimination as a result of the thoroughgoing reform movement of the nineteenth century, "infinitesimals" have continued to be used, especially in applied mathematics. The logician Adolf Fraenkel gave what was no doubt the widely accepted view when he stated, "The infinitely small is only to be understood as a manner of speaking based on the limit concept, hence a *potential* infinite; it is a matter of variable … [positive] numbers or quantities that can ultimately decrease below any arbitrarily small positive value. A fixed [positive] number different from zero that can serve as a lower bound to all finite positive values is not possible" (1928, p. 114, my translation, emphasis in original). In 1960 Fraenkel's one-time student Abraham Robinson showed how to obtain just such a "fixed number" and thereby vindicated the discredited infinitesimal methods.

The benefits of the free use of infinitesimal methods were amply demonstrated by the success of Gottfried Wilhelm Leibniz's version of the differential and integral calculus and the continued use of these methods by the Bernoulis and especially by Leonhard Euler. Working mathematicians had no difficulty in knowing just which properties of ordinary numbers infinitesimals could be assumed to possess and just when it was legitimate to equate such quantities to zero. But the lack of any clear justification for these methods provided an opening for scathing attacks such as that of George Berkeley. The need for rigorous methods was felt by mathematicians them-

selves and eventually supplied (Edwards 1979, Robinson 1974).

Robinson's key insight was that the methods of model theory could be used to construct a powerful rigorous theory of infinitesimals. Thus, for example, we may consider a first-order language in which a constant symbol is provided as a "name" for each real number, a function symbol is provided as a "name" for each real-valued function defined on the real numbers, and the only relation symbols are = and <. Let T be the set of all true sentences of this language when each symbol is understood to have its intended interpretation. Let δ be a new constant symbol, and let W consist of the sentences of T together with the infinite set of sentences:

$$\delta > 0$$

$$\delta < 1, \delta < \tfrac{1}{2}, \delta < \tfrac{1}{3}, \delta < \tfrac{1}{4},\ldots$$

Since any finite subset of W can be satisfied in the ordinary real numbers by interpreting δ as a sufficiently small positive number, the compactness theorem for first-order logic guarantees that W has a model. But in that model, the element serving to interpret δ must be positive and less than every positive real number (i.e., infinitesimal). The structure with which we began of real numbers and real-valued functions can readily be embedded in the new model. Thus if r is a real number and c_r is the constant of the language that names r, we may regard the element of the new model that serves to interpret c_r as simply r itself. Functions can be embedded in the same way. One speaks of the new model as an enlargement.

Moreover, because $T \subseteq W$, all true statements about the real numbers that can be expressed in our language are also true in this enlargement. A false statement about the real numbers is likewise false in the enlargement: If the statement S is false, then $\neg S$ is a true statement about the reals and hence is also true in the enlargement. It is this transfer principle, the fact that statements are true about the real numbers if and only if they are true in the new enlarged structure, that makes precise just when an assertion about ordinary numbers can be extended to apply to infinitesimals as well.

The enlargement will contain infinitely large as well as infinitesimal elements. This is readily seen by applying the transfer principle to the statement that every nonzero real number has a reciprocal. One may even speak of infinite integers; their existence follows on applying the transfer principle to the statement that for any given real number there is a positive integer that exceeds it.

The basic facts of real analysis can be established on this basis using modes of argument that would earlier have been quite correctly regarded as illegitimate. For example, the basic theorem that a continuous function on a closed interval assumes a maximum value can be proved by dividing the interval into infinitely many subintervals, each of infinitesimal length, and selecting an endpoint of such a subinterval at which the function's value is greatest (Davis 1977, Robinson 1974). By beginning with a more extensive language, it is possible to apply infinitesimal methods to branches of mathematics requiring a more substantial set-theoretic basis (e.g., topology, functional analysis, probability theory). It has even proved possible to use these "nonstandard" methods to settle certain open questions in mathematics.

For those with qualms concerning nonconstructive methods in mathematics, these infinitesimal methods are bound to seem unsatisfactory. Because the underlying language is built on an uncountable "alphabet," the use of the compactness theorem hides an application of some form of the axiom of choice. This in turn is reflected in a basic indeterminacy; we can establish the existence of enlargements but cannot specify any particular enlargement. Robinson himself has emphasized that although nonstandard analysis "appears to affirm the existence of all sorts of infinitary entities," one always has the option of taking the "formalist point of view" from which "we may consider that what we have done is to introduce *new deductive procedures* rather than new mathematical entities" (1974, p. 282, emphasis in original).

See also Berkeley, George; Leibniz, Gottfried Wilhelm; Logic, History of; Model Theory; Number.

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INFINITY, AXIOM OF

INFINITY IN MATHEMATICS AND LOGIC

The notion of infinity, and the problems, both philosophical and mathematical, that arise from it have been a central concern for over two millennia. Any serious thought about the nature of space, time, God (or gods), mathematics, and motion quickly leads to more general concerns regarding the notion, or notions, of infinity intimately tied up with such issues. As a result, it is unsurprising that philosophers throughout history have thought deeply about what infinity is, whether the notion is coherent, whether there are infinite entities (or infinitely many entities), and how we can know about such entities if they exist.

This entry focuses on two aspects of the infinite. The first is infinite divisibility, the idea that an object can, in some sense (and perhaps only ideally), be divided into an infinite collection of smaller and smaller parts. The puzzles that arise from such division are central both to philosophical thinking about notions such as part and whole and to the mathematical analysis of lines, surfaces, and other continuous objects. The second aspect to be addressed is already implicit in the first—the idea that there can be infinitely large collections at all. Much of the history of mathematics and philosophy can be seen as an (often indirect) inquiry into the coherence of such collections and how they differ from finite collections.

As a result, this entry will for the most part ignore other interesting, but less central, issues within the literature on infinity, including infinitesimals, mereological theories containing gunk, unrestrictedly general quantification, nonstandard set theories, and nonmathematical uses of the term "infinite" (e.g., theological understandings of the infinite). The discussion below, then, is not meant to be a comprehensive survey of all aspects of infinity (or even all aspects of this notion as it appears within mathematics, logic, and metaphysics), but is instead intended to provide a basic understanding of two important themes underlying hundreds of years of thought on the topic.

INFINITE DIVISIBILITY: ARISTOTLE AND ZENO

Given the long pedigree of thought regarding infinity, it seems apropos to begin at (or near) the beginning, with the ancient Greeks. While mathematics in general, and geometry in particular, was central to Plato's philosophy,

he has little to say regarding the nature of the infinite. His few comments on the topic occur in the *Philebus*, where he equates the infinite with the unlimited, unbounded, excessive, and indefinite.

Identifying the infinite with such notions is, in hindsight, less helpful than one might hope: The surface of a sphere, which in a certain sense has no boundaries or limits, nevertheless has finite area. Extremely large collections can be thought of as excessive yet finite. Indefiniteness has, recently, been associated more with vague phenomenon (such as the boundary between colors) than with the infinite. Thus, Plato's discussion, while interesting, fails to provide clear criteria for distinguishing between finite and infinite collections, relying rather on the idea that we can tell the difference when we see it.

Plato's star pupil, Aristotle, follows his teacher in neglecting to provide a clear definition of the infinite (and in equating it with suspect notions such as unboundedness). Even so, he made an influential contribution by distinguishing between two different types of infinity, or two different ways of conceiving infinite collections. This contribution was due to Aristotle's need to respond to Zeno of Elea's paradoxes.

Zeno presented four paradoxes that, through clever uses of infinity, demonstrated (so it was claimed) that motion was impossible. Here we consider only two: the paradox of Achilles and the paradox of the runner (an adequate response to either can likely be generalized to the others).

The paradox of Achilles is perhaps the best known of Zeno's puzzles. Swift Achilles is to run a race against a tortoise, and the tortoise is given a head start. Zeno argues that, no matter how fast Achilles runs, he can never overtake the tortoise. First Achilles must reach the point at which the tortoise started, call it P_1. By the time he does so, however, the tortoise will have traveled some short distance further, to a point we can call P_2. So Achilles's next task is to run from P_1 to P_2. By the time he achieves this, the tortoise will have traveled a bit further, to P_3. So Achilles's next task is to run to P_3. But by then the tortoise will have reached P_4, and so on.

Thus, according to Zeno, Achilles can never pass the tortoise and win the race, because, no matter how fast he runs, each time he reaches a point where the tortoise was, the tortoise will have moved a bit farther on. Stating the conclusion more carefully, Zeno's argument does not (and was most likely not intended to) show that Achilles cannot overtake the tortoise; rather, it demonstrates that there is a conceptual puzzle regarding how he does so.

Zeno's paradox of the runner is similar, slightly less well known, but mathematically a bit more elegant. Imagine a runner who must run from point 0 to point 1. Before reaching 1, he must reach the midpoint between 0 and 1 (i.e., point 1/2). Once he has reached 1/2, however he must, before he can reach 1, run to the midpoint between 1/2 and 1, (i.e., 3/4). Then he must run to the midpoint between 3/4 and 1 (i.e., 7/8), and then run to 15/16, and 31/32, and so on.

| 0 | 1/2 | 3/4 | 7/8 ... | 1 |

Zeno concluded that, in traveling from 0 to 1, the runner traverses an infinite number of distinct distances.

It is worth noting that this paradox depends on a by now well-known mathematical fact: Some infinitely long lists of numbers (or *infinite series*) have a finite sum. In particular, the construction of the paradox demonstrates an at least implicit awareness that:

$$1 = 1/2 + 1/4 + 1/8 + 1/16 + 1/32 + \dots$$

or, in more modern notation:

$$\sum_{i=1}^{\infty} 1/2^n = 1$$

We can provide an intuitively compelling (although not mathematically rigorous) argument demonstrating this as follows. Set the infinite sum equal to x:

$$x = 1/2 + 1/4 + 1/8 + 1/16 + 1/32 + \dots$$

Multiply both sides by 2:

$$2x = 1 + 1/2 + 1/4 + 1/8 + 1/16 + 1/32 + \dots$$

Subtract the first line from the second, and we obtain the desired result:

$$x = 1$$

As Aristotle realized, there are two puzzles lurking within Zeno's paradoxes, and only one of them is difficult. First, the worry might be that Zeno's arguments suggest that we can accomplish infinitely many tasks in a finite amount of time (for example, traveling through the infinite sequence of distances 0 to 1/2, 1/2 to 1/4, 1/4 to 1/8 … or inhabiting the infinite sequence of points 1/2, 1/4, 1/8 …). This, however, as Aristotle noted, is a misleading way of characterizing the situation, because if we can divide distances in the way envisioned by Zeno, then we can divide time in the same way (so our minute of time can be divided into the first half of a minute, then the next quarter of a minute, then the next eighth of a

minute, …). Rather, according to Aristotle, the puzzle concerns the idea that we can ever complete infinitely many tasks (no matter how they are described). In other words, is the infinite division of either space or time that Zeno envisioned legitimate?

The answer for Aristotle had to be "no," because, as already noted, he equated the infinite with the unbounded or unlimited. As a result it should be impossible to complete infinitely many tasks, because it is impossible to reach the bound or limit of something that, by its nature, is unlimited. Aristotle had little choice but to conclude that there is a mistake lurking within Zeno's argument, and it is in his explanation of this mistake that his potentially/actually infinite distinction makes its appearance.

Zeno's paradoxes result from the fact that line segments are (or at least seem to be) infinitely divisible. Consider an arbitrary (finite) line segment. We can easily divide the line into two halves, producing two parts. Additional divisions, of course, are also possible. The crucial question now arises: How many distinct parts does the line segment contain? In some sense, at least, the correct answer is infinitely many, since for any part we can further subdivide it into two halves, obtaining two more parts. Thus, for any finite number of parts we divide the line into, we can further subdivide those segments to obtain more parts.

Aristotle distinguished this sort of unboundedness—the potentially infinite—from actually infinite collections. On the one hand, a collection is potentially infinite if we can continue to add to it without limit. On the other hand, the actual infinite is, for Aristotle, a completed totality, that is, an unbounded collection that is nevertheless present all at once. In considering the division of a line segment Aristotle writes that "It is always possible to think of a larger number: for the number of times a magnitude can be bisected is infinite. Hence the infinite is potential, never actual; the number of parts that can be taken always surpasses any assigned number" (Physics 207b8).

In understanding Aristotle's potential/actual distinction it is useful to distinguish between three distinct theses:

(1) Any part of a line can be divided into distinct subparts.

(2) A line contains infinitely many distinct parts.

(3) A line contains infinitely small parts.

The first claim, according to Aristotle (and most thinkers since) is undeniable. The third, which asserts the existence of so-called infinitesimals, would be of great importance in the development of the calculus during the seventeenth century. The second claim is, for our purposes, the crucial one. According to Aristotle, claim (2) is ambiguous, having both a true and a false reading.

Aristotle understood the first of these three claims as something such as: given a time t_1, any part of a line that exists at t_1 can be divided into distinct subparts at some future time t_2. Once we recognize the temporal ingredient of claim (1), two distinct readings of (2) are then apparent:

(2a) For any number n, there is a time t such that a line has been (or can be) divided into (at least) n parts at t.

(2b) There is a time t such that a line has infinitely many parts at time t.

Although (2b) implies (2a), Aristotle argued, in effect, that (2a) does not imply (2b): Imagine that we have a line segment in front of us, and each hour we divide up each of its parts into two subparts. Then (2a) is true (assuming we live forever and never forget to carry out the divisions) yet (2b) fails, because there is never a particular time at which we have finished dividing. The collection of parts of a line segment is potentially infinite if (2a) is true, and is actually infinite if (2b) holds.

It is important to note that Aristotle's distinction contains both a constructive aspect and a temporal aspect. First, lines (and other objects) are not presented to us already divided into their parts, rather, the division of an object into its components is somehow a construction that we perform on it. Second, these constructions cannot be carried out all at once, but must be carried out one by one in time. This aspect of Aristotle's view is what prevents the potential infinite from collapsing into the actual infinite, because it allows us to distinguish between a series of ever increasing finite collections spread out through time and an infinite collection existing at a particular time.

Aristotle applied the potential versus actual distinction, not just to parts of line segments, but to the natural (counting) numbers 0, 1, 2, 3, … as well (we include 0 and 1 here because they are now considered to be the first two natural numbers, although Aristotle would not have recognized 0, and perhaps not even 1, as a number at all). The natural numbers, for Aristotle, are potentially infinite, because for any number we have counted to, we can always count one (or ten, or one hundred) numbers fur-

ther. Nevertheless, we will never reach a time when we will have counted out all the numbers.

Aristotle's final contribution lies in his insistence that not only some but all infinities are potential, not actual. Thus, there are no infinitely long line segments, only a potential series of ever longer finite line segments, and no infinitely large collections, only series of larger and larger finite ones.

The denial of absolute infinity provided Aristotle with a solution to Zeno's puzzles: If space and time are only potentially infinite, then the sort of division of space and time necessary for Zeno's construction is illicit. In the paradox of the runner, the runner does not pass through infinitely many different distances (nor does he occupy infinitely many different points, because Aristotle thought that points only exist if a line has in fact been divided into two parts that meet at that point). Rather, given any particular time, there are only finitely many parts into which the distance between 0 and 1 will have been divided into. Of course, at a later time we might further subdivide the distance into a larger (but still finite) collection of parts. It does not follow, however, that we have therefore traveled over infinitely many distances, because the parts of the path from 0 to 1 are merely potentially infinite.

For approximately two thousand years Aristotle's view remained unchallenged—philosophers and mathematicians both (for the most part) denied the existence of actual, completed infinities, arguing that the notion of potential infinity could, within both philosophy and mathematics, fulfill any role that the infinite might need to play.

RIGOR AT LAST: DEDEKIND INFINITY

During the development and rigorization of the calculus (a long, torturous period stretching from the beginning of the seventeenth century to the end of the nineteenth century) it became evident that the further development of classical mathematics required actual infinities. (The details need not detain us here. Suffice it to say at least some infinite collections needed to be viewed as complete, because it became necessary to study arbitrary subcollections of these infinite structures). If Aristotle and his followers were correct, however, and the only viable understanding of the infinite was the potential one, then classical mathematics was facing a crisis.

Fortunately, a number of philosophers and mathematicians stepped into the breach. They were faced with two main mathematical tasks and one philosophical one:

first, to provide a rigorous definition of "infinite"; second, to provide a mathematical theory of the infinite that clarified how the behavior of infinite collections differed from the well-known behavior of finite collections; and third, and perhaps most importantly, to provide a philosophical account of the actual infinite that defended its intelligibility. The first two tasks were successfully carried out during the nineteenth century, by Richard Dedekind (1901) and Georg Cantor (1955) respectively.

Before considering definitions of infinity, it is useful to introduce some terminology. The existence of an actually infinite collection involves the idea that such a collection can be presented all at once, as a completed totality—that is, in some sense, as a single thing. Such totalities, considered as single objects, are called *sets*. The central idea behind *set theory* is that, given any collection of objects (or almost any, see the discussion of *Russell's paradox* below), there exists another object—the set containing exactly the original objects. Thus, if we start out with three distinct persons, Alan, Bob, and Carl, we obtain the following sets:

{Alan}, {Bob}, {Carl}, {Alan, Bob}, {Alan, Carl}, {Bob, Carl}, {Alan, Bob, Carl}

Note that the one-membered set {Alan}, called the *singleton* of Alan, is not the same thing as Alan himself, because {Alan} is a set, yet Alan, who is a person, is not. At this point it should be noted, as well, that the collection containing no objects, the so-called *empty set* { } or ∅, although somewhat puzzling (how can there exist a collection formed out of nothing?) is nevertheless accepted as a set, and thus an object, in most accounts of set theory.

Sets are objects, so there is nothing to prevent us from forming collections of these (i.e., sets of sets), obtaining, for example:

{∅, {Alan}, {Bob}, {Alan, Bob}}

This expression names a single object, a set collecting together four other sets.

There are two important relations that can hold between sets and other objects: *membership* and *subsethood*. The members of a set are those objects that were collected together to form the set. Using "$x \in y$" to express the claim that x is a member of y (and "$\notin$" for nonmembership), we have:

Alan ∈ {Alan}

{Alan}∈ {∅, {Alan}, {Bob}, {Alan, Bob}}

and:

{Alan} ∉ {Alan}

Alan ∉ {∅, {Alan}, {Bob}, {Alan, Bob}}

Our second notion, subsethood, can be defined in terms of membership. Given two sets A and B, A is a subset of B if and only if every member of A is a member of B. This implies that every set is a subset of itself, and, using "$x \subseteq y$" to express the claim that x is a subset of y, we have:

{Alan, Bob} ⊆ {Alan, Bob, Carl}

{Alan, Bob} ⊄ {∅, {Alan}, {Bob}, {Alan, Bob}}

Finally, a *function f* from a set A to a set B, symbolized by:

$f: A \rightarrow B$

is a mapping that assigns to each member of A exactly one member of B. For example, there is a function:

f_1: {Alan, Bob} → {Alan, Bob, Carl}

which maps Alan to Bob and Bob to Carl (f_1 does not map anyone to Alan). We can express this symbolically as:

$f_1(\text{Alan}) = \text{Bob}$

$f_1(\text{Bob}) = \text{Carl}$

Another example is:

f_2: {Alan, Bob, Carl} → {Alan, Bob}

mapping Alan to Bob, Bob to Alan, and Carl to Bob:

f_2 (Alan)   = Bob

f_2 (Bob)   = Alan

f_2 (Carl)   = Bob

There are two conditions on functions that will be crucial in what follows. First, a function is from A to B is *injective* (or *one-to-one*) if and only if no two distinct members of A get mapped onto the same member of B. In the examples above, f_1 is injective, but f_2 is not, because both Alan and Carl both get mapped onto Bob. Second, a function from A to B is *surjective* (or *onto*) if and only if every member of B gets mapped onto by some member of A. f_2 above is surjective, whereas f_1 is not, because neither of Alan or Bob gets mapped onto Alan. A function that is both one-to-one and onto is *bijective*.

We can now consider possible definitions of infinite. One obvious approach suggests itself: To define finite in terms of counting, that is, a set is finite if and only if we can assign 0 the first member of the set, 1 to the second, 2 to the third, … and at some point we reach the last member of the set, to which we assign some natural number. Using the terminology introduced above:

A set A is finite if, and only if, there is a natural number n and a bijective function:

$$f: A \rightarrow \{0, 1, 2, \ldots, n-1\}$$

Thus, on this definition a set is finite if there is a number n and a bijective function from A to the set of natural numbers less than n. A set is infinite if there is no such function.

For example, the set {Alan, Bob, Carl} is finite because:

$$f_3: \{\text{Alan, Bob, Carl}\} \rightarrow \{0, 1, 2\}$$

$$f_3 \,(\text{Alan}) \quad = 0$$

$$f_3 \,(\text{Bob}) \quad = 1$$

$$f_3 \,(\text{Carl}) \quad = 2$$

is bijective, whereas the set of natural numbers {0, 1, 2, 3, …} is, on this definition, infinite.

While this definition provides the desired results, there is a problem. The definition works by determining whether a set is finite or infinite in terms of whether it can be mapped bijectively onto the natural numbers less than n, for some n. The reason this works is that we know, for any number n, that the set of numbers less than n is finite. What could be more obvious? The problem, however, is that the definition lacks the sort of generality required in both mathematics and philosophy. What we want is a criterion that tells us which sets are infinite and which sets are finite. What we have is a criterion that tells us this, assuming that we already know that certain sets of natural numbers are finite.

An appropriately general definition of infinite set was produced by Richard Dedekind in 1888. The definition is based on an insight into infinite collections that traces back to Galileo Galilei (and probably to the ancient Greeks). Galileo noticed that there is a bijective mapping between the natural numbers and the even natural numbers:

$$f_4: \{0, 1, 2, 3, \ldots\} \rightarrow \{0, 2, 4, 6, \ldots\}$$

provided by mapping each number onto its double:

$$f_4(0) = 0$$

$$f_4(1) = 2$$

$$f_4(2) = 4$$

$$f_4(3) = 6$$

etc.

Galileo argued that this provided further evidence against the notion of actual infinity, because if both the natural numbers and the even numbers were completed infinities, then the latter would be a part of the former. The existence of the bijective mapping, however, seemed to imply that there was just as much "stuff" in each infinite collection, violating the (at the time sacrosanct) dictum that the part must be less than the whole.

Dedekind, however, embraced the puzzling nature of this discovery, and proposed an alternative definition that does not rely on prior knowledge that certain sets of natural numbers are finite. Instead, a set is infinite, according to Dedekind, if it can be mapped bijectively onto a proper subset of itself (a subset of a set A is *proper* if it is not identical to A itself):

A set A is *Dedekind infinite* if, and only if, there is a function:

$$f: A \rightarrow A$$

(i.e., a function from a set A to itself) that is injective but not surjective.

A set is (*Dedekind-*) *finite* if there is no such mapping. With this definition in place, actual, completed infinities are at least partially vindicated, insofar as mathematicians and philosophers now have a general, formal criterion for distinguishing between finite and infinite sets.

At roughly the same time Bernard Bolzano (2004) produced a competing definition of infinite set: A set A is infinite if there is a nonterminating series of sets B_1, B_2, B_3, … such that each set in the series is a subset of A, each set in the series is a subset of all sets that follow it in the series, and no set in the series is a subset of any set in the series that precedes it. In other words, a set is infinite if it contains a series of subsets that get "bigger" and "bigger" without end. While Bolzano's definition is especially interesting in light of its obvious connection to Aristotle's ideas regarding the infinite, there are legitimate worries regarding whether the definition is of any help, since "nonterminating series" seems synonymous with "infinite series." Thus, this definition, like the one we began with (but unlike Dedekind's), assumes an understanding of the concept that we are trying to define.

With a rigorous definition of infinite set in hand, the next step in securing the notion of actually infinite from Aristotelian worries would be a well worked out theory of the existence and "behavior" of infinite sets. Much of this theory was worked out by Cantor, and will be the subject of the next section. Before examining Cantor's work, however, it should be noted that, even after the work of

Dedekind and Cantor, not everyone accepted that infinite totalities existed. A number of influential thinkers denied that Dedekind's definition, interesting or not, applied to any complete collections, returning to Aristotle's distinction between potential and actual infinity (although most took Aristotle's idea of the potentially infinite as being potentially extendable in time to be little more than a metaphor). Post-Dedekind/Cantor views of this sort include Kronecker's finitism, Brouwer's intuitionism, Weyl's constructivism, and the later Wittgenstein.

SIZES OF INFINITY: CANTOR'S INFINITE NUMBERS

Georg Cantor began with the idea that infinite sets, like finite sets, have a corresponding number. Such numbers, which measure how many things are contained in a set, are called *cardinal numbers* (or *cardinalities*). We represent the cardinal number of a set A as Card(A).

The idea that infinite collections have cardinal numbers, or, equivalently, that there are "infinite" numbers coming after the natural numbers 0, 1, 2, 3 … , was rejected prior to the nineteenth century on the grounds that infinite numbers required actual infinite totalities, and this in turn (so the story went) implied a contradiction. For example, the great seventeenth-century philosopher, logician, and mathematician Gottfried Leibniz wrote that "I proved beyond any doubt that the number or multitude of all numbers implies a contradiction, if taken as a unitary whole. I think that the same is true of the largest number" (1849, p. 535). One notable aspect of this line of thought is the assumption that the existence of infinite numbers implies the existence of a largest infinite number, or a number of all numbers.

This assumption traces to a rather basic intuition: won't any two "unbounded" or "unlimited" collections, whether complete or potential, contain the same number of elements (or members), because both just keep going and going? Cantor's great contribution to both mathematics and philosophy was his discovery that the answer to this question is "no."

Cantor begins, not by asking which number should be attached to a particular set, but by asking what criteria can be given for deciding when two sets have the same number (independently of which particular number or numbers are involved). To illustrate the difference between the two approaches, consider the following situation: you have two baskets of fruit, one containing apples, the other containing oranges, and you need to determine whether the number of apples in the first bas-

ket is the same as the number of oranges in the second basket.

There are two strategies. First, you could count the apples, count the oranges, and then determine if the two numbers are the same. This strategy corresponds to the first approach, where we first assign particular numbers to sets and then compare them. On the second approach, you repeatedly remove one apple from the first basket and one orange from the second, until you run out of either apples or oranges. When you reach a stage where you cannot remove a pair consisting of one apple and one orange, there are three options: Either there are apples left in the first basket, in which case there are more apples than oranges; or there are oranges left in the second basket, in which case there are more oranges than apples; or both baskets are empty, in which case the number of apples is the same as the number of oranges. (The second strategy, while perhaps more efficient, is less informative, because you do not, in the end, know how many apples or oranges were in the baskets, but only whether or not there was more of one than the other. A similar difficulty arises with regard to the *continuum hypothesis*, which will be discussed below.) The second "pairing" strategy amounts to nothing more or less than attempting to construct a bijective mapping between the set of apples and the set of oranges.

Cantor's insight was in noticing that, although extending the first strategy (counting and comparing numbers obtained) to infinite sets is not viable until we have a well-worked-out theory of infinite cardinal number (which was exactly what he was attempting to formulate), the second strategy can be applied to infinite sets (almost) as easily as to finite ones.

The following principle, a version of what has come to be called *Hume's Principle* and which we can call *Hume's Principle for Sets*, sums up Cantor's approach:

HPS: For any sets A and B:

Card(A) = Card(B)

if, and only if, there is a bijective function $f: A \rightarrow B$.

We supplement this with the following definition of "less than" for cardinal numbers:

Def$_<$: For any sets A and B:

Card(A) < Card(B)

if, and only if, there is an injective function $f: A \rightarrow B$ but no surjective function $g: A \rightarrow B$.

This definition agrees with the intuitive one for finite sets. For example, we can verify that Card({Alan, Bob}) <

Card({Alan, Bob, Carl}) (i.e., two is less than three) by noting that there is an injective mapping from the first to the second (f_1 above provides one of the six possible injective mappings) but there is no surjective mapping, because one of the three members of the latter set will always be "missed."

Consider Galileo's puzzle again. Galileo showed that there was a bijective mapping between the set of natural numbers {0, 1, 2, 3 …} and the set of even natural numbers {0, 2, 4, 6 …}. Thus, Card({0, 1, 2, 3 …}) = Card({0, 2, 4, 6 …}). More surprisingly, Cantor also proved that the set of rational numbers (i.e., all numbers that can be written as a fraction a/b where a and b are both natural numbers) has the same cardinal number as the set of natural numbers. Cantor called this number $\aleph_0$, and a set is *countable* if, and only if, it is either finite or its cardinal number is $\aleph_0$ (reflecting the fact that such sets are the same size as some set of natural, or "counting" numbers). Dedekind's definition of infinite set implies that $\aleph_0$ is the smallest infinite cardinal number; in other words, there is no infinite set that cannot be mapped surjectively onto the natural numbers.

Cantor used $\aleph_1$, $\aleph_2$, $\aleph_3$ … as names for the second, third, fourth … infinite numbers, and sets with these cardinal numbers are called *uncountable*. Providing names for infinite cardinal numbers is one thing, however; showing that there are sets that have those numbers is something else. Thus, Cantor's next task was to demonstrate that there were infinite sets that do not receive $\aleph_0$ as their number, that is, that there are infinite sets "bigger than" the set of natural numbers. He did this in two ways.

The first strategy depends on a second species of number, the *ordinal numbers*. Whereas cardinal numbers measure how many members a set has, ordinal numbers are a measure of particular orderings on that set (compare one, two, three … with first, second, third …). In other words, ordinal numbers attach, not to sets by themselves, but to a set plus an ordering on that set, and the same (infinite) set can correspond to different ordinal numbers if we consider different orderings on it.

More carefully, an ordinal number attaches to a pair consisting of a set A and an ordering ≤ on A. If a set/ordering pair ⟨A, ≤⟩ is to receive an ordinal number, then the relation ≤ must be a well-ordering (we call such pairs well-ordered sets, and represent the ordinal number of a well-ordered set ⟨A, ≤⟩ as Ord(A, ≤)).

We begin with the notion of a *totally ordered set*. An ordering ≤ is a total ordering on A (i.e., ⟨A, ≤⟩ is a totally ordered set) if, and only if, it satisfies the following three conditions (here and below I assume familiarity with the notation of first-order logic):

Antisymmetry: $(\forall x)(\forall y)((x \leq y \wedge y \leq x) \rightarrow x = y)$

Transitivity: $(\forall x)(\forall y)(\forall z)((x \leq y \wedge y \leq z) \rightarrow x \leq z)$

Comparability: $(\forall x)(\forall y)(x \leq y \vee y \leq x)$

More intuitively, a relation on a set A is a total ordering if, and only if: (i) given two distinct objects in A, it cannot be the case that the first is less than or equal to the second and the second is less than or equal to the first (if so, then they would be the same object); (ii) for any three objects in A, if the first is less than or equal to the second, and the second is less than or equal to the third, then the first is less than or equal to the third; and (iii) given any two objects in A, either the first is less than or equal to the second, or the second is less than or equal to the first (this implies that any object in the ordering is less than or equal to itself). Two examples of total orderings are the natural numbers {0, 1, 2, 3 …} on their standard ordering (i.e., $0 \leq 1 \leq 2 \leq 3 \leq …$), and the integers {… −3, −2, −1, 0, 1, 2, 3 …} on their standard ordering (i.e., $… \leq −3 \leq −2 \leq −1 \leq 0 \leq 1 \leq 2 \leq 3 \leq …$).

A totally ordered set ⟨A, ≤⟩ is a *well-ordered set* if and only if the following additional condition holds:

Well-foundedness: $(\forall B \subseteq A)(\exists x \in B)(\forall y \in B)$
$(x \leq y)$

Loosely put, if ≤ is a well ordering on a set A, then there is no "infinitely descending chain" in ⟨A, ≤⟩, that is, there is no infinite sequence $x_1 \geq x_2 \geq x_3 \geq x_4 \geq …$ (although there can be infinitely ascending chains $x_1 \leq x_2 \leq x_3 \leq x_4 \leq …$). The standard ordering on the natural numbers is a well ordering, whereas the standard ordering on the integers is not, because the negative integers form an infinitely descending chain.

Finally, we need the notion of an *order-preserving* function from one ordered set to another:

Given two ordered sets ⟨A, $\leq_1$⟩ and ⟨B, $\leq_2$⟩, and a function *f*: A → B, *f* is *order preserving* if and only if, for any two members *x* and *y* of A, $x \leq_1 y$ if, and only if $f(x) \leq_2 f(y)$.

In other words, if we take two members of A, where the first is, according to the ordering on A, less than or equal to the second, then an order preserving function will map the first object onto a member of B that is, according to the ordering on B, less than or equal to the member of B onto which the second object is mapped.

We can now provide an analogue of *Hume's Principle* for ordinals, which we can call the *Order Type Principle For Sets* (OTP):

OTP: For any well-ordered sets $\langle A, \leq_1 \rangle$ and $\langle B, \leq_2 \rangle$:

$$\mathrm{Ord}(A, \leq_1) = \mathrm{Ord}(B, \leq_2)$$

if, and only if, there is an order preserving bijective function f: A → B.

and provide an analogous definition of *less than* for ordinal numbers:

Def: For any well-ordered sets $\langle A, \leq_1 \rangle$ and $\langle B, \leq_2 \rangle$:

$$\mathrm{Ord}(A, \leq_1) < \mathrm{Ord}(B, \leq_2)$$

if, and only if, there is an order preserving injective function *f*: A → B, but no order preserving surjective function *f*: A → B.

Given this definition, Cantor was able to prove that the ordinal numbers, ordered by < as defined above, are themselves well-ordered.

Cantor also proved that the ordinal number of the natural numbers on their standard ordering is the smallest infinite ordinal number, which he called ω (An ordinal is infinite if it is the ordinal of some well-ordered set $\langle A, \leq \rangle$ where A is infinite, an ordinal is countable if it is the ordinal of some well-ordered set $\langle A, \leq \rangle$ where A is countable, and so on).

The standard ordering on the natural numbers, however, is not the only way to order them. Instead, we might move zero from the beginning to the end, so that (on this ordering) 1 is the least natural number, and zero is greater than any other natural number (i.e., 1, 2, 3, 4, 5 … 0). The ordinal corresponding to this ordering is greater than ω, and there is no ordinal less than this one but greater than ω. Thus, this ordinal, called ω + 1 (because it consists of a "copy" of ω followed by a single element) is the second infinite ordinal. Continuing in this way, we can then move 1 from the beginning to the end (i.e., 2, 3, 4, 5 … 0, 1) obtaining ω + 2, and then ω + 3, ω + 4, … We can then consider the ordering consisting of all of the even natural numbers followed by all of the odd natural numbers (i.e., 0, 2, 4, 6, … 1, 3, 5, 7 …), whose ordinal number is ω + ω, and so on.

Because there are many different ways of well-ordering the natural numbers, resulting in different countable ordinals, a natural question to ask is how many different countable ordinals there are (or, equivalently, how many different types of well-ordering can be constructed from the natural numbers). Cantor proved that

the cardinal number of the set of natural numbers (what Cantor called the *first number class*) is less than the cardinal number of the set of countable ordinals (the *second number class*), and that there is no set whose cardinal number is greater than the former and less than the latter. In other words, $\aleph_1$, the second infinite cardinal number, is the cardinal number of the set of countable ordinals.

We can then go on to ask about the cardinal number of the set of ordinals of well-ordered sets of size $\aleph_1$ (i.e., how many different types of well-ordering are there on a set of objects of size $\aleph_1$?). The answer is $\aleph_2$. How many ordinals of size $\aleph_2$? Surprise, its $\aleph_3$! And so on. In this way, Cantor managed to use ordinal numbers to prove the existence of a series of sets of cardinality $\aleph_1$, $\aleph_2$, $\aleph_3$, and even $\aleph_\omega$ (the first infinite cardinal number that is larger than infinitely many other infinite cardinal numbers). In fact, for any ordinal number α, there is a set whose cardinal number is $\aleph_\alpha$.

Cantor had a second means by which to prove that there are uncountably infinite sets, a method that relies on the notion of *powerset*. The powerset of a set A (or $\wp(A)$) is the set that contains exactly the subsets of A. For example:

$\wp(\{\text{Alan, Bob}\}) = \{\emptyset, \{\text{Alan}\}, \{\text{Bob}\}, \{\text{Alan, Bob}\}\}.$

Notice that whereas {Alan, Bob} has two members, its powerset has $2^2 = 4$ members. This holds more generally: if κ is the cardinal number of a set A, then 2^κ is the cardinal number of $\wp(A)$ (even for infinite sets).

Cantor proved that, for any set A, Card(A) < Card($\wp(A)$). The method of proof is known as the method of *diagonalization*, and generalizations of it have become immensely important in mathematics. For more technically interested readers, a proof follows (readers not interested in purely mathematical matters may skip the next paragraph).

We can provide an injective function from A to $\wp(A)$ by mapping each member of A onto its singleton (because, for each member of A, its singleton is a subset of A and thus a member of $\wp(A)$). No mapping from A to $\wp(A)$ can be surjective, however. Let f: A → $\wp(A)$ be an arbitrary function from A to its powerset. Define the set B as follows: for any object *x*, $x \in B$ if, and only if, $x \in A$ and $x \notin f(x)$. Assume, for *reductio*, that there is $c \in A$ such that $f(c) = B$. By the definition of B, we have $c \in B$ if, and only if, $c \in A$ and $c \notin f(c)$, which implies that $c \in B$ if, and only if, $c \notin B$. Contradiction, so *f* cannot be surjective.

Thus, the cardinality of any set is less than the cardinality of its powerset, and, as a result, for any cardinal number $\aleph_\kappa$, $\aleph_\kappa < 2^{\aleph_\kappa}$. We might wonder why anyone would make all this fuss over powersets, however. Haven't we already seen that we can construct larger and larger sets, and thus obtain larger and larger cardinal numbers, using the ordinal numbers?

There are two aspects of Cantor's diagonalization result that are noteworthy. The first concerns the import of cardinality results for ordinary mathematics. We might wonder why everyday mathematicians (and ordinary nonmathematicians) should worry about different "sizes" of infinity, because neither ordinary folk nor most professional mathematicians run across infinite sets of ordinal numbers in their everyday business. Cantor's result, however, connects the theory of cardinal numbers to more intuitive, everyday mathematical concerns, because the cardinal number of the set of real numbers (i.e., the cardinal number of the set containing all the numbers on the continuous number line) is $2^{\aleph_0}$. As a result, there are more points on a continuous line than there are natural numbers! Because real numbers and lines are commonly used within basic mathematics, this result provides a direct connection between Cantor's theory and the practice of everyday measurement and mathematics.

The second reason that Cantor's result regarding powersets is interesting is that it introduced one of the great unsolved problems of mathematics. One might wonder, because we have the notation $\aleph_0$, $\aleph_1$, $\aleph_2$, … $\aleph_\omega$ … for the series of cardinal numbers, why we use a different notation ($2^{\aleph_0}$) for the cardinal number of the powerset of the natural numbers. The reason is simple: Although we know that $2^{\aleph_0}$ is larger than $\aleph_0$, we do not know how much larger. In particular, we do not know whether Cantor's *continuum hypothesis*:

$$2^{\aleph_0} = \aleph_1$$

is true or false. The truth of the continuum hypothesis amounts to the claim that there are no sets that are strictly larger than the set of natural numbers yet smaller than the set of real numbers. (Our account of cardinal numbers failed to settle this problem because our bijection strategy tells us whether one number is larger without necessarily telling us how much larger.)

More generally, for any ordinal number α, we can ask whether:

$$2^{\aleph_\alpha} = \aleph_{\alpha+1}$$

is true. The claim that the above is true for all ordinals α is know as the *generalized continuum hypothesis*.

Despite great effort, Cantor (and others that followed him) failed to settle the issue one way or another. In retrospect, this is not surprising. During the 1940s Kurt Gödel (1986, 1989) proved that if the standard principles of set theory are consistent, then they do not allow one to refute the continuum hypothesis, in other words, adding the continuum hypothesis to standard set theory does not lead to inconsistency. Roughly two decades later Paul Cohen (1963, 1964) proved that the same basic axioms fail to prove the continuum hypothesis as well (again, assuming that standard set theory is consistent). As a result, we can add either the continuum hypothesis or its negation to standard set theory, and either way no contradiction results.

THE INFINITELY LARGE TODAY: ZERMELO FRAENKEL SET THEORY

Of course, the Gödel/Cohen result is not all that interesting until one knows what the standard axioms of set theory are. The theory in question is called *Zermelo Fraenkel set theory* (or ZFC) and consists of the following axioms and axioms schemes (assume here that the quantifiers range only over sets).

First, we have the *axiom of extensionality*:
Extensionality: $(\forall x)(\forall y)(x = y \leftrightarrow (\forall z)(z \in x \leftrightarrow z \in y))$

which says that there cannot be two distinct sets with exactly the same members (i.e., sets are individuated by their members). Next, we have two purely existential axioms, that is, axioms that assert outright the existence of objects. The *empty set axiom*:
Empty Set: $(\exists x)(\forall y)(\neg\, y \in x)$

states that there is a set that contains no members (i.e., $\emptyset$). The *axiom of (Zermelo) infinity*:
Infinity: $(\exists x)(\emptyset \in x \wedge (\forall y)(y \in x \to \{y\} \in x))$

states that there is a set that contains the empty set and the singleton of every set which it contains (i.e., the set contains $\emptyset$, $\{\emptyset\}$, $\{\{\emptyset\}\}$, $\{\{\{\emptyset\}\}\}$ …).

Following these we have what we can call conditional existence axioms, which tell us which sets can be "built up" from previously existing objects. The first of these is the *pairing axiom*:
Pairing: $(\forall x)(\forall y)(\exists z)(\forall w)(w \in z \leftrightarrow (w = x \vee w = y))$

The pairing axiom asserts that, given any two objects, there is a set that contains exactly those two objects and nothing else. The pairing axiom guarantees that the sin-

gleton of any object exists (because we can just take the pair of an object and itself). Next we have the *union axiom*:

Union: $(\forall x)(\exists y)(\forall z)(z \in y \leftrightarrow (\exists w)(w \in x \wedge z \in w))$

which states that, given any set, there is second set that contains exactly the members of the members of the first. Unsurprisingly, we also have an axiom asserting the existence of the powerset of any set:

Powerset: $(\forall x)(\exists y)(\forall z)(z \in y \leftrightarrow (\forall w)(w \in z \rightarrow w \in y))$

Our next principle, the *axiom of choice*, states that, given any set of nonempty pairwise disjoint sets, there exists a second set that contains exactly one member from each of the sets contained in the original set. The axiom of choice is often replaced with a more easily understood, but provably equivalent, principle called the *well-ordering principle*:

Well-Order: $(\forall x)(\exists R)(<x, R> \text{ is a well-ordering})$

The well-ordering principle guarantees that for any set, no matter how large, there is a relation that well-orders its members. During the first half of the twentieth century the status of the axiom of choice was highly controversial; since then it has become a standard part of the everyday mathematician's toolkit.

Our final two conditional existential principles take the form, not of single axioms, but axiom schemes, which have infinitely many instances. The first is the *axiom(s) of separation*. Given any condition Φ expressible in the language of set theory:

Separation: $(\forall x)(\exists y)(\forall z)(z \in y \leftrightarrow (z \in x \wedge \Phi z))$

This axiom states that, given any set and any condition on objects, there exists a set that contains exactly the members of the original set that satisfy the condition in question. The second schematic principle is the *axiom(s) of replacement*, which consists of all instances of:

Replacement: $(\forall x)(\exists y)(\forall z)(z \in y \leftrightarrow (\exists w)(w \in x \wedge f(w) = z))$

where *f* is any function definable in the language of set theory. Put loosely, given any set and any function, replacement insures that there is a set containing exactly the objects obtained by applying the function to the members of the original set.

The final axiom of *Zermelo Fraenkel set theory* does not assert the existence of any sets, but instead imposes a restriction on what sorts of sets exist. The *axiom of foundation*:

Foundation: $(\forall x)((\exists y)(y \in x) \rightarrow (\exists z)(z \in x \leftrightarrow \neg (\exists w)(w \in x \leftrightarrow w \in z)))$

asserts that any nonempty set (i.e., any set other than $\emptyset$) contains as a member some second set that has no members in common with the original set. Although it is difficult to sum up the consequences of this axiom in simple terms, its main purpose it to rule out the existence of sets that contain themselves, such as the (potential) set that has itself as its only member, that is, $\Omega = \{\Omega\}$.

When confronted with such a list, a number of questions naturally arise, including: (1) Might there be a simpler set of principles that does the same job?; (2) Why have we chosen these principles?; (3) Might there be additional principles that we have overlooked? Complete answers to all of these questions are beyond the scope of the present article, but partial answers can at least be given.

Regarding the first question, we can rule out one initially promising simplified theory, *Naive Set Theory*, which has one axiom schema. The principle in question is the *naive comprehension principle*:

Naive Comp: $(\exists y)(\forall z)(z \in y \leftrightarrow \Phi(z))$

which states that, for any condition whatsoever (as long as we can express it in our set theoretic language), there is a set containing exactly the objects that satisfy that condition (note the similarity to separation above). The naive comprehension principle entails all of the axioms given above. Unfortunately, however, it also entails a contradiction, as was famously proved by Bertrand Russell (1996).

The reasoning, which has come to be known as Russell's paradox, proceeds as follows. Given naive comprehension, some sets will be members of themselves (such as the set of all sets) and some will not (such as the empty set). Because a set's not being a member of itself is a condition expressible in the language of set theory (i.e., $x \notin x$), if the following instance of naive comprehension:

$$(\exists y)(\forall z)(z \in y \leftrightarrow x \notin x)$$

were true then there would be a set that contains exactly those sets that are not members of themselves. Call this (supposed) set the *Russell Class*, or R (collections too ill-behaved to form a set are called *proper classes*, although this terminology obscures the fact that such "classes" cannot be objects at all). To obtain the contradiction, we need only ask whether R is a member of itself. By the criteria just stated, we can conclude that R is a member of itself if, and only if, it is not a member of itself. The contradiction is evident. (Similar arguments demonstrate

that there cannot be a set of all ordinals, a set of all cardinals, or a set of all sets.)

Thus, we must reject naive comprehension, and with it any conception of set that allows for the existence of the Russell Class. ZFC provides us with one means to achieve this. The next question, however, is why we have chosen these axioms, because presumably there are other collections of principles that would do the same job. The answer is that the axioms were not chosen at random, nor was their selection based merely on their individual plausibility. Instead, these axioms were selected because they correspond to natural thoughts regarding how one should separate the legitimate sets from those "collections," such as the Russell Class, that are not well-behaved enough to correspond to sets.

There are, roughly speaking, two intuitive pictures of the universe of sets that have motivated the formulation of ZFC. The first, and more influential, is founded on the idea that each set is built up from other sets or objects that are simpler, or at least prior to, the set in question. This notion of set is known as the *iterative conception of set*, and is summarized by George Boolos:

> According to the iterative, or cumulative, conception of sets, sets are formed at stages; indeed, every set is formed at some stage of the following "process": at stage 0 all possible collections of individuals are formed … The sets formed at stage 1 are all possible collections of sets formed at stage 0, … The sets formed at stage 2 are all possible collections of sets formed at stages 0 and 1. The sets formed at stage 3 are all possible collections of sets formed at stages 0, 1, and 2 … The sets formed at stage 4 … In general, for any natural number n, the sets formed at stage n are all possible collections of sets formed at stages earlier than n, i.e. stages $0, 1, … , n-1$. Immediately after all stages 0, 1, 2, … there is a stage, stage ω. The sets formed at stage ω are, similarly, all possible collections of collections of sets formed at stages earlier ω, i.e., stages $0, 1, 2, …$ After stage ω comes stage $\omega+1$: at which … In general, for each α, the sets formed at stage α are all possible collections of sets formed at stages earlier than α. There is no last stage: each stage is immediately followed by another. Thus there are stages $\omega+2, \omega+3, …$ and so it goes. (1989, p. 88)

Another notion that has been used to justify the particular choice of axioms constituting ZFC (and which is closer to what Cantor originally had in mind) is the *limitation of size conception of set*. The underlying thought is

that problematic collections, such as the Russell Class, are not sets because they are, in some sense, too big. Boolos sums up the limitation of size conception as the view that "objects form a set if and only if they are not in one-one correspondence with all the objects there are" (1989, p. 90), in other words, a collection forms a set if, and only if, it is smaller than the universe of all sets or all objects.

The exact role that such conceptions of set can, and should, play within the philosophy and practice of set theory is something of an open question. One particular worry surrounding such intuitive pictures is that the axioms of *ZFC* do not all seem to follow from a single conception. For example, the powerset axiom seems basic on the iterative conception of set but less obvious on a limitation of size understanding, whereas the axiom of replacement seems straightforward on the latter approach but somewhat questionable on the iterative conception. Nevertheless, we can at least recognize that these conceptions played a significant role in the actual choice of axioms included within ZFC.

The final question to ask is whether there might be additional axioms that can be added to the basic theory. The answer, of course, is "yes." We have already seen one such principle, the continuum hypothesis. As we noted, we can add either the continuum hypothesis or its negation to ZFC, and in either case we obtain a consistent theory. If one thinks there is a unique universe of sets (and debate rages over this question) then at most one of these theories can be correct. Even so, the Gödel/Cohen results are enough to guarantee that ZFC alone leaves at least some set theoretic questions unanswered.

There is another type of question to which ZFC provides only a partial answer, namely determining how many sets there are. The axioms of ZFC imply that the universe of sets is larger than any particular set, otherwise the axiom(s) of replacement would provide us with a set of all sets that, using the axiom(s) of separation, would provide us with the Russell Class and a contradiction. Thus, we can ask: How big must the universe be in order to satisfy the axioms of ZFC?

Before providing the answer, we need a few more definitions. First, the *supremum* of a set of cardinal numbers A (i.e., sup(A)) is the smallest cardinal greater than or equal to each of the cardinal numbers in the set. Second, a cardinal number κ is *regular* if and only if, given any set of cardinals A, if card(A) $< \kappa$ and, for every cardinal $\gamma \in$ A, $\gamma < \kappa$, then sup(A) $< \kappa$ (intuitively, a cardinal κ is regular if we cannot reach it by summing up smaller cardinals unless we add up at least κ-many smaller cardinals). Finally, a cardinal κ is *strongly inaccessible* if and

only if it is uncountable, it is regular and, for each cardinal γ less than κ, 2^{γ} is also less than κ.

We can now answer the question just raised: any collection of objects that satisfies the axioms of ZFC has a cardinal number at least as big as the first strongly inaccessible cardinal number. (We are fudging here a bit, because we have assumed that only sets have cardinal numbers. One should consult a good textbook to see the formal details.)

If there must be (according to the axioms of set theory) at least strongly inaccessibly many objects, our next question might be: Why should there not be a set that is that big? The answer, according to set theorists, is that there is (or at least, it is worth exploring the assumption that there is). Thus, one of the most common axioms added to ZFC is the *strong inaccessible cardinal axiom*, which is equivalent to the claim that there is a set whose cardinal number is strongly inaccessible.

We need not stop here. Once we have determined how big the universe needs to be in order to satisfy all of the axioms of ZFC plus the strong inaccessible cardinal axiom, we can add axioms that assert the existence of even larger sets (and thus larger cardinal numbers). This process can continue indefinitely.

Thus, recognition of the fact that there is no set of all sets and no largest set leads us to posit the existence of larger and larger sets, resulting in stronger and stronger theories. Principles that assert the existence of extremely large sets are called *large cardinal axioms* (technically, a *large cardinal* is any cardinal number whose existence cannot be proved from the axioms of ZFC alone). Surprisingly, large cardinal axioms often have consequences for less esoteric areas of mathematics, such as the theory of the real numbers, although for the most part they fail to impact the status of the continuum hypothesis. In addition, adopting stronger theories including large cardinal axioms allows us to prove the consistency of weaker theories. As a result, the study of large cardinal axioms is one of the most fruitful areas of research within set theory.

The introduction of large cardinal axioms is one instance of a more general method for generating new set theoretic principles. The method, known as *reflection*, assumes that, for any sentence true of the entire set theoretic universe, there will be a set such that the sentence will also be true when restricted to that set. Thus, letting *SI* be the claim that the universe contains strongly inaccessibly many sets, reflection tells us that, because *SI* is true, *SI* must be true when restricted to some set (i.e.,

there is a set that contains inaccessible many other sets as members, or, equivalently, there is a set whose cardinal number is a strong inaccessible cardinal).

Interestingly, reflection principles imply (and in some cases are equivalent to) strong versions of the axiom of choice. For example, let Φ be the claim that there is no well-ordering on the entire universe of sets. Reflection implies that if Φ is true, then there is some set whose contents cannot be well ordered. The axiom of choice is equivalent to the claim that every set can be well-ordered, however, so, if we accept both the axiom of choice and reflection, then Φ must be false; in other words, there must be a relation that well-orders the entire universe of sets. This thesis, known as *global choice*, is stronger than the axiom of choice.

We can now observe the great irony of the theory of the infinite. The revolution in the mathematics and philosophy of the infinite occurred in late nineteenth century when mathematicians such as Cantor and Dedekind abandoned the Aristotelian view that infinite collections could not, and should not, be thought of as completed totalities (i.e., sets). Their account of infinite totalities, however, and subsequent work on large cardinals, suggests a universe of sets that in some sense is ever expanding, with no upper limit to the size or variety of sets themselves. As a result, Aristotle was at least partially right, because there are collections (such as the collection of all objects, or all sets) that cannot, and should not, be thought of as completed, definite totalities.

Instead, the universe of sets, considered as a whole, is what has come to be called *indefinitely extensible*. Russell, reflecting on the paradoxes that arise when some intuitive "collections" are treated as sets (such as the paradox that bears his name) described the situation as follows:

> A concept is indefinitely extensible if, for any definite characterization of it, there is a natural extension of this characterization, which yields a more inclusive concept; this extension will be made according to some general principle for generating such extensions, and, typically, the extended characterization will be formulated by reference to the previous, unextended characterization. (1963, pp. 195–196)

Understanding Russell's "definite characterization" as the contents of a set, any time we think we have collected together all the objects, or all of the sets, together into a single set, there will turn out to be more objects, or sets, which we somehow missed. To put the point loosely, Cantor's embrace of the actually infinite has led us, in the

end, to the recognition that the set theoretic hierarchy itself is (or is something very much like) potentially infinite.

ACTUAL INFINITY AND INFINITE DIVISIBILITY

As we saw at the beginning of this entry, Aristotle's solution to Zeno's paradoxes relied on the fact that we do not accomplish infinitely many things when we run from point 0 to point 1, because it is never the case that all of the parts of this journey (including the infinite sequence of distances 0 to 1/2, 1/2 to 1/4, 1/4 to 1/8, …) are present at one time. This solution relied, in turn, on the distinction between potential and actual infinity and on Aristotle's insistence that the actual infinite is illusory. If, however, our post-Cantorian mathematical view allows, and even embraces, actually infinite collections, then we are left with the possibility that the problematic parts of the runner's path from 0 to 1 are actually present as a completed totality. If so, then, assuming that motion is possible, it follows that we can accomplish infinitely many tasks (and we do so every time we wiggle our little finger!)

The most tempting response to this line of thought is "So what?" We might be surprised to learn that any action (no matter how slight) involves infinitely many tasks, but this astonishing fact is little more than the result of a clever (and perhaps misleading) description of the event. The movement from 0 to 1 might be, on one description, composed of infinitely many smaller motions, but it can also be viewed as a single continuous action, that of moving from 0 to 1. It is this latter fact that explains how we can accomplish the movement, and furthermore do so in a finite amount of time.

A task that consists of infinitely many subtasks carried out in a finite amount of time (such as Zeno's description of the runner traveling from 0 to 1) is called a *supertask*. Once we admit that Zeno was right, and we can sometimes carry out supertasks, problems emerge. There are other easily describable supertasks that seem to lead to paradoxes. Two of the most famous are *Thompson's Lamp* and *Bernardete's Paradox*.

Imagine an ideal lamp (indestructible, and able to be switched on or off instantaneously) that, at exactly 12:00, is turned on. 1/2 minute later, it is switched off, then 1/4 minute later it is switched back on, then 1/8 minute later it is switched off, and then 1/16th minute later it is switched on, … The infinite series of switchings will be completed at exactly 12:01. The puzzling question that arises is: Will the lamp be on or off once the supertask is completed? There seems to be no good reason to answer one way rather than another. Nevertheless, a lamp, even an ideal one, must be either on or off.

Thompson's Lamp is similar to Zeno's paradox of the runner in that it divides a unit of time into the first half, the first half of the second half, the first half of the last fourth, the first half of the last eighth, … Bernardete's paradox, however, forces us to bizarre (if not outright contradictory) conclusions using the mirror image of this division, namely dividing a unit of time into the last half, the last half of the first half, the last half of the first fourth, the last half of the first eighth, … (more intuitively, we can see it as having the structure … $+ 1/32 + 1/16 + 1/8 + 1/4 + 1/2$ instead of $1/2 + 1/4 + 1/8 + 1/16 + 1/32 + …$).

José Bernardete constructs a number of different versions of his paradox, here we will consider a particularly striking formulation. Imagine an object that exists up until 12:00, when an infinite series of gods take notice of it. The gods are omnipotent and, additionally, they always carry out the actions they decide upon. The first god decides that if the object still exists at 1/2 minute after 12:00 then he will annihilate it (he will do nothing otherwise). The second god decides to annihilate the object if it still exists at 1/4 minute past 12:00 (and again, do nothing otherwise). The third god decides to annihilate the object at 1/8 minute after 12:00 if it still exists, and so on. There is no threat to the existence of the object other than the intentions of each of the infinite series of gods. We can conclude that the object will suddenly cease to exist at exactly 12:00, yet nothing (and in particular, no god) will have caused its destruction.

First of all, assume that the object exists past 12:00. The there must be some fraction of a minute $1/x$ such that the object existed for (at least) that long after 12:00. If so, however, then one of the gods failed to live up to his intentions, because there will be some god in the list who decided to destroy the object if it still existed at $1/y$ minutes past 12:00 where $1/y$ is less than $1/x$ (because the series 1/2, 1/4, 1/8 1/16… tends to zero). But this contradicts the fact that the gods always carry out their intentions. Thus, the object will cease to exist at 12:00.

The natural assumption to make is that one or more of the gods must have destroyed it, but we can see this is incorrect as well. Each of the gods decided to destroy the object at a time after 12:00 (and to do nothing otherwise). Because the object did not survive past 12:00, the gods did nothing. Thus, the object blinks out of existence at exactly 12:00 yet nothing acted in such a way as to cause its disappearance. Even if not exactly paradoxical, Bernardete's paradox is deeply puzzling.

Of course, unlike Zeno's runner, both of these puzzles begin with an absurd situation. On the one hand we have a lamp that can be turned on and off arbitrarily fast and infinitely many times without malfunction, on the other we have an infinite collection of gods (most of us nowadays still puzzle over whether or not there is even one god!). It is tempting to conclude that the proper reaction to these puzzles should be mere amusement but not worry, because they concern situations that are at such a distance from our everyday experience of the world.

This would be a mistake. Both Thomson's Lamp and Bernardete's paradox are intended to challenge our understanding of the infinite and infinite divisibility. To dodge such challenges by noting that they require physically impossible situations or events is to miss the point. Surely neither an indestructible lamp nor an infinite pantheon of gods is logically impossible, and if they are logically possible then their behavior is relevant to our understanding of the infinite (which is, after all, a logical, or at least mathematical, concept). Thus, these puzzles, and others like them, are not mere curiosities but instead represent important unsolved problems confronting the coherence of, and our understanding of, the notion of infinity at the heart of mathematics and philosophy.

This entry ends in roughly the same way in which it began, with a discussion of infinite divisibility. This is the topic Aristotle focused on, and where his notion of the potentially infinite gained its greatest (albeit temporary) success. Even as we abandoned Aristotle's proscription on the actually infinite and embraced modern set theory, puzzles such as Russell's paradox and the nonexistence of a set of all sets prevented us from rejecting the potentially but not actually infinite altogether. Finally, given our acceptance of at least some actually infinite collections, paradoxes similar in structure to those that Aristotle first considered continue to plague our understanding of collections that keep going and going and going and going …

See also Aristotle; Bolzano, Bernard; Brouwer, Luitzen Egbertus Jan; Cantor, Georg; Constructivism and Conventionalism; Continuity; Galileo Galilei; Gödel, Kurt; Intuitionism; Leibniz, Gottfried Wilhelm; Plato; Russell, Bertrand Arthur William; Set Theory; Weyl, (Claus Hugo) Hermann; Wittgenstein, Ludwig Josef Johann; Zeno of Elea.

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Roy T. Cook (2005)

INFINITY IN THEOLOGY AND METAPHYSICS

It would be profitless (even if it were possible) to catalog every nuance that the word *infinity* possesses in minor, as well as major, thinkers. Fortunately, the dominant strands are clear. Among these the theistic one is the most important both historically and in terms of contemporary debate.

GREEK PHILOSOPHY

ANAXIMANDER. The first Western philosopher to speculate on infinity was the pre-Socratic Anaximander. By the infinite (*to apeiron*) he meant a limitless substance from which the limited things that constitute the world have come. This substance is limitless in three respects: It is eternal, not having a beginning or an end; it is inexhaustible; and it lacks internal boundaries and distinctions. But it is not spatially unlimited, for Anaximander (almost certainly) conceived it as a sphere. Also, it is not qualitatively indeterminate, like Aristotle's unformed matter, for it contains nature's basic elements in a fused, nonseparated state.

PYTHAGORAS. The Pythagoreans adopted Anaximander's concept. Some of them identified it with air (which Anaximenes considered to be the basic constituent of the universe). But their main contribution was to posit a limit (*peras*) as a principle that gives structure to the limitless or infinite. This limit was mathematical; the limitless once limited gives the point, twice limited the line, thrice limited the plane, and four times limited the solid. Later writers interpreted Pythagoras theologically. Thus in the *Placita* we are told that he believed in two principles—the monad (God, the Good, the essential nature of the One, *Nous* alone and by itself) and the indefinite dyad (or evil, which is bound up with materiality and multitude).

PLATO. Plato's speculations on infinity are contained in his *Philebus.* He gives a fourfold classification of "all that now exists in the universe." The whole world can be viewed in terms of the unlimited, limit, mixture, and the cause of the mixture. This theory is an application of the axiom that the nature (and therefore the good) of anything consists in an intelligible order or proportion. The cosmic cause mixes limit with the unlimited and so imposes structure on the world. In 15D–17A Plato interprets the *peras-apeiron* contrast logically. The unlimited stands for particulars, and the limited for the species into which they can be put. But in 23C–26D the contrast has an ontological significance of a Pythagorean kind. The limitless consists in a collection of opposites (for example, hot and cold, dry and moist). Limit consists in "all that puts an end to the conflict of opposites with one another, making them well proportioned and harmonious by the introduction of number" (25E). This principle of limitation is essential also in the moral realm. Plato affirms that human pleasures (which, in themselves, tend to unlimited excess) ought to be rationally controlled by a law and order that are marked by limit.

Thus, in classical Greek philosophy *infinity* represents a substratum that is formless, characterless, indeterminate. It is a pejorative word. An entity is good to the extent that it is limited by form. The Pythagoreans identified this form with numerical ratios. But, as the *Philebus* shows, it can be nonnumerical (such as a universal essence or the personal activity of reason).

An important fact emerges from this survey. Plato could not envisage God (or the divine) as infinite. If God is perfect, he must represent the principle of limit. The cause of cosmic mixture in the *Philebus* is equivalent to the Demiurge in the *Timaeus.* The latter's task is to impose intelligible form on preexistent matter and thereby make an ordered whole. Otherwise the world would be a vast *apeiron*—a formless, unintelligible chaos. Hence, to say that he is *apeiros,* or that the Forms that he copies are *apeira,* would have seemed self-contradictory.

PLOTINUS. Plotinus occupies a place between Plato and Christian theologians who, if they are orthodox, regard infinity as the first among God's attributes. Plotinus applied the concept of the infinite, or unbounded (*apeiron* or *aoriston*), to two categories of being. First, he applied it to matter, which is evil because it tends intrinsically to formlessness. In this he developed philosophical tradition. But second, he applied it to the divine hypostasis. Thus, he called Mind infinite because of its endless power, its complete unity, and its self-sufficiency. Yet while he says that the One is formless, he does not say that it is infinite. The history of *apeiron* prevented him from predicating it of the Absolute. He expressed the infinite nature of the One by denying that any positive idea abstracted from finite experience is applicable to it.

MEDIEVAL AND MODERN PHILOSOPHY AND THEOLOGY

Throughout the postclassical period of Western thought it has been widely assumed that God, or the Absolute, is infinite, or limitless. The division lies between those philosophers (such as Giordano Bruno, Benedict de Spin-

oza, and G. W. F. Hegel) who interpret God pantheistically and those (especially Christian theists) who hold that he wholly transcends the world. According to the first group of thinkers, the world, being divine, is also infinite (even if particular things and persons reflect its infinity in limited degrees). According to the second group, the whole world is finite (as created), and only God (as the Creator) is infinite.

PANTHEISM. The clearest example of the pantheistic group is Spinoza. Having posited one substance (God or nature), he affirmed that it must be infinite both in its essence and in the number of its attributes. God must be infinite in his essence because if he were finite, we could suppose the existence of something else by which he is limited, so that he would not be the sole reality. His attributes must be infinite because if his essence is infinite, there must be an infinite number of ways in which it can be conceived.

Hegel's theory is more dynamic and complex. It was based on the conviction that finite and infinite are correlative terms within a single system of thought and reality. The Absolute Spirit (God) is infinite. But it does not exist outside the finite spirits through whom it manifests itself. Since the world is the manifestation of the Absolute, and since the Absolute requires the world for its development, we can predicate infinity either of the Absolute (considered as an identity-in-differences) or of the world (considered as a rational totality). Hegel considered Christianity to be the highest form of religion because it represents a perfect reconciliation between man and God, the finite and the infinite.

Any theory that views the finite as, in some sense, the self-expression of the infinite is exposed to two basic objections.

(1) The world (so the theist claims) is not limitless. It is limited in two main ways. First, it is morally imperfect. The premise of Immanuel Kant's moral argument for immortality is irrefutable. We cannot in this life bring our wills into complete accordance with the moral law, and even if we could do so, the spatiotemporal order could not fulfill our deepest longings (as A. E. Taylor argued in his Gifford Lectures). Second (and this is the core of theism), the world in all its aspects bears the marks of radical contingency, so that its existence cannot be explained unless we suppose it to be derived from a transcendent being who is infinite or absolute.

(2) In any case, the world is full of differences and discordances. How can these be reconciled within a unitary Absolute? How can a set of finite (that is, limited and mutually exclusive) entities constitute a nonlimited and all-inclusive whole? In particular, how can this whole, if it is complete and perfect (as it must be if it is infinite), contain within itself both good and evil? There is no satisfactory answer to these questions. Nicholas of Cusa, in his pantheistic moments, affirmed that in God there is a "synthesis of opposites" (*coincidentia oppositorum*). Similarly, Friedrich von Schelling affirmed that the Absolute is a self-identity in which all differences vanish. But these affirmations are metaphysically vacuous, as Nicholas admitted when, using mystical terminology to conceal a contradiction, he called our knowledge of the all-inclusive Maximum a *docta ignorantia*.

THEISM. Theists do not have to face the above problems. Certainly they hold that all perfections preexist in God eminently. But they also hold that the mode of this existence is determined by the infinity that God does not share with any creature. God's infinity means that he is "not-finite." He is free from the limitations that affect every other being. There are two fundamental limitations.

First, every other being is a mode of existence (or existing). A man exists in one way, a dog in another. But God is existence *simpliciter*. He does not suffer from the determinations that are reflected in genera and species. We can express this (with deliberate paradox) by saying that he is his own genus.

Second, if God is existence "in itself," he must be self-existent in the sense that he does not derive his being from any other source. Every other being is dependent or derived. It does not contain within itself the cause of its existence. It depends continuously on the creative act of God who alone exists *a se* (that is, by his own intrinsic power).

Both these aspects of God's infinity are affirmed by the Scholastic dictum that in him essence and existence are identical. The finitude of any being consists in the lack of this identity at both the points mentioned above. Its essence limits its existential act (or pattern of activity), and this limitation follows from its dependent character. It exists as "this" or "that" by its derivation from a being who is existence in a necessary and perfect form.

This view of God's infinity must be safeguarded by the following assertions.

(1) God's infinity is not to be interpreted as formlessness (as if it were equivalent to Plato's *apeiron*). It is the nature of finite being (at any rate in the subangelic realm) to be a *compositum* of form and matter. The form limits matter. Without some degree of limitation there would be no difference (either generically or individually) between one finite being and another. But since God's essence and existence are identical, his form cannot be a principle of limitation. "Matter," Thomas Aquinas wrote, "is perfected and made definite by form. Infiniteness attributable to matter is imperfect and amorphous. On the other hand, form as such is not perfected by matter, but contracted rather; hence infiniteness attributable to form is perfection" (*Summa Theologiae* I, 7, 1).

(2) God's infinity is incomprehensible. We cannot imagine or conceive it. We can know that God is self-existent. But how he is self-existent is utterly unknowable by us in our present state. As soon as we try to represent his infinity through a univocal use of concepts, we commit three errors. We fall into anthropomorphism; we confuse infinity with formlessness; and, finally, we reach a self-contradiction, for the essence of a finite entity (however high it may be on the scale of being) is to possess a form that acts as a limit that excludes other forms.

However, the various attributes that constitute God's character are all deducible from his self-existence. He must be absolutely simple, for if in him essence and existence are identical, his qualities must be coinherent through the whole range of his activity. He must be spiritual and nontemporal, for corporeality entails spatial limitation and temporal successiveness implies divisibility. He must be omniscient and omnipotent, for there cannot be any externally imposed limit to his knowledge or his power. Finally, he must be absolutely good.

Two of these characteristics, spirituality and eternity, call for comment. Since God is nonspatial and nontemporal, the concept of his infinity is unaffected by the views we hold concerning space and time. Whether space and time are limited or unlimited makes no difference to the claims of the theist concerning God's infinity and his relation to the world. Thus, even if the world has existed for an endless length of time, it would still (according to the Cosmological Argument) be endlessly incomplete, so that we should still have grounds for positing a nontemporal act of divine creativity.

Yet the theistic view of God's infinity raises problems of its own. Four are especially urgent. First, if God is infinite and we are finite, how can we speak of him positively (as the biblical writers and doctrinal theologians do)? Second, Christians affirm that God is personal. But does not the idea of personality conflict with the idea of infinity? (This objection was first urged by Carneades and later elaborated by David Hume.) Third, is it not contradictory to say that all God's attributes (for example, justice and mercy) can coexist in a limitless degree? Are not even theists forced to posit a *coincidentia oppositorum* in the Godhead? Fourth, if God is infinite both in goodness and in power, how can we explain the presence of evil in the world?

The answers that theists normally give to these objections are as follows.

(1) While we cannot speak of God univocally, we can do so analogically. But in applying any analogue to God, we must distinguish between the manner of predication and the object signified. The only positive meaning that we can attach to a term we predicate of God is the one which it has when predicated of finite beings. Yet since God and the creature are ontologically related by an analogy of attribution, we can *affirm that* (although we cannot *know how*) the divine analogate possesses the analogue, according to the analogy of proportionality, in a manner appropriate to his infinite existence.

(2) The basic answer to the second question is that we need not equate the essence, or norm, of personality with its human mode. On the contrary, the latter (according to the Bible) is a created image of an infinite archetype. The theist would claim that while we cannot *see how* God can be both infinite and personal, we can *understand that* an infinite existence, so far from being incompatible with personality, would represent it in its most perfect form. At any rate (so the theist would maintain), it is not contradictory to assert that individuality can exist without individuation and that God therefore can have a positive character without possessing characteristics of the kind that differentiate a member of one created genus from a member of another.

(3) If God's attributes were essentially incompatible, they could not be predicated of him infinitely and simultaneously without a logical contradiction that could be solved (as Nicholas and Schelling found) only by an *asylum ignorantiae*. But theists

claim that any contradiction is only apparent. Everything depends on how we define our terms. Thus, if we take justice to mean retribution, it is bound to be incompatible with mercy, if both are infinitely conceived. But if we take it to mean the vindication of the moral order, mercy becomes (as St. Paul saw) the primary form of its expression.

(4) Most Christian theists would admit that the fact of evil seems to be incompatible with belief in a God who is infinite both in goodness and in power. But they would also claim that the apparent incompatibility disappears once we recognize first, that since God's power and goodness are inconceivable, his purposes are bound to be largely inscrutable and second, that in Christ he has shown that he not only can but also does bring the greatest good out of the greatest evil.

See also Absolute, The; Analogy in Theology; Anaximander; Bruno, Giordano; Carneades; Cosmological Argument for the Existence of God; Eternity; Hegel, Georg Wilhelm Friedrich; Hume, David; Nicholas of Cusa; Plato; Plotinus; Pythagoras and Pythagoreanism; Schelling, Friedrich Wilhelm Joseph von; Spinoza, Benedict (Baruch) de; Taylor, Alfred Edward; Theism.

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INFORMATION THEORY

Among the more interesting trends of the past half-century has been the consolidation of probability, statistics, combinatorial optimization, information theory, and computer science into a single imposing discipline of *infomatics*.

MINIMAL BELIEF CHANGE

Of special philosophical interest is the enrichment of Bayesian inference by a rule of belief change that goes by minimizing the distance between two probability distributions, $P = (p_1, \ldots, p_k$ and $Q = (q_1, \ldots, q_2)$, as measured by the expected log-likelihood ratio:

$$(1) \qquad H(P,Q) = \sum_{i=1}^{k} p_i \ln(p_i / q_i)$$

The likelihood ratio, $P(e|h):P(e|k)$, is a fundamental index of the support that e accords h over k (see the entry "Foundations of Statistics").

Using the visually transparent Gibbs inequality,

$$(2) \qquad \ln x \leq x - 1$$

with equality if and only if (iff) $x = 1$, in the equivalent form $\ln x \geq 1 - 1/x$, it follows that $H(P, Q) \geq 0$ with equality iff $P = Q$. Notice, however, that $H(P, Q) \neq H(Q, P)$.

Alan Turing and his wartime assistant, Irving John Good, used $H(P, Q)$ in their code-breaking work, but it

was not until 1959 that another wartime code breaker, Solomon Kullback, developed its properties systematically in his book *Information Theory and Statistics* (1959), unleashing a floodtide of applications to classification, contingency tables, pattern recognition, and other topics.

A second line of development began with Claude Shannon's creation of information and coding theory (Shannon and Weaver 1949), whose central concept is a measure of uncertainty,

$$(3) \qquad H(P) = -\sum_{i=1}^{k} p_i \ln p_i$$

that Shannon dubbed the entropy function. One sees that minimizing $H(P, U)$ against a uniform distribution, $U = (k^{-1}, \dots, k^{-1})$, namely,

$$H(P,U) = \sum_{i=1}^{k} p_i \ln(p_i / k^{-1}) = \sum_{i=1}^{k} p_i \ln p_i + \ln k$$

is equivalent to maximizing the entropy (MAXENT). In view of this relation $H(P, Q)$ is often called the cross (or relative) entropy of P with respect to Q, and the rule of minimizing it MINXENT.

Shannon characterized $H(P)$ axiomatically as continuous, strictly increasing in k when $P = (k^{-1}, \dots, k^{-1})$ is uniform, and by the general form of a consistency requirement exemplified by:

$$A(9) = \frac{3}{9} A(3) + \frac{4}{9} A(4) + \frac{2}{9} A(2) + H\left(\frac{3}{9}, \frac{4}{9}, \frac{2}{9}\right)$$

where $A(3) = H(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$, and so on. Roughly speaking, one's uncertainty about a lottery is the same for an equivalent two-stage form of it, where in the example $H(\frac{3}{6}, \frac{1}{6}, \frac{2}{6})$, is one's uncertainty about the first stage.

Exploiting the conceptual link Ludwig Boltzmann established between thermodynamic entropy and Shannon entropy through his celebrated formula, $S = k \ln W$, Edwin T. Jaynes showed how to derive the probability distributions (over microstates) of statistical mechanics by maximizing the (Shannon) entropy subject to mean value constraints given by measured values of macro variables like pressure, volume, or internal energy. Intuitively, the maxent distribution is the most spread out of all those satisfying the constraints, the one that is maximally noncommittal with regard to missing information. Statistical mechanics could thus be seen as a branch of statistical inference operating on physically given constraints. Jaynes quickly realized that MAXENT admits of much

TABLE 1

k	1	2	3	4	5	6	entropy
n_k	3246	3449	2897	2841	3635	3932	
g_k	0.16230	0.17245	0.14485	0.14205	0.18175	0.19660	1.784 990
p_k	0.15294	0.15818	0.16361	0.16922	0.17502	0.18103	1.790 103
q_k	0.16433	0.16963	0.14117	0.14573	0.18656	0.19258	1.785 225
r_k	0.16139	0.17361	0.14434	0.14256	0.18215	0.19594	1.784 993

wider application. A collection of his papers (Jaynes 1983) sparked an explosion of applications whose subsequent progress can be followed in the published proceedings of workshops on maximum entropy and Bayesian methods held annually since 1981 (e.g., see Erickson and Smith 1988). Brian Buck and Vincent A. Macaulay's *Maximum Entropy in Action* (1991) is a sampler of physical applications to such fields as spectroscopy, X-ray crystallography, the structure of macromolecules, magnetic resonance, thermodynamics, and plasma physics. The method is universal, however, and applies equally well to image reconstruction or time series.

INFERRING HIDDEN CAUSES

Irving John Good (1983) viewed $H(P, Q)$ as a natural measure of deviation suitable for testing multinomial hypotheses, and like Karl Pearson's better-known chi-squared measure of deviation

$$X^2 = \sum_{i=1}^{k} \frac{(n_i - np_i)^2}{np_i} = n \sum_{i=1}^{k} \frac{(f_i - p_i)^2}{p_i}$$

the analogous informational measure

$$\psi = 2nH(F,P) = 2n \sum_{i=1}^{k} f_i \ln(f_i / p_i)$$

is asymptotically distributed as χ^2_{k-1}, the chi-square distribution with $k - 1$ degrees of freedom. By comparing the current model to the ideally best-fitting model, the resulting psi test sets limits to how much room there is for improving support by moving to a new (possibly more complicated) model (Jaynes 2003). When such a move is indicated, MINXENT helps guide one to plausible better-fitting models, as the following example illustrates:

Seen in the first row of Table 1 are the frequencies with which the six faces of a white die turned up in $N =$

20,000 tosses recorded by the Swiss astronomer Rudolf Wolf. One sees at a glance that Wolf's die was biased; the question of interest is how to find physically plausible hypotheses that best account for these data. The distributions shown in rows 3 to 5 of the table afford successively better approximations to the empirical distribution, $\{g_j\}$, of row 2. Jaynes (1983) found them by moving the initial uniform distribution just enough to satisfy mean value constraints given by the data that correspond to physical imperfections of a die. Among the most plausible are:

(1) A shift in the center-of-mass due to the different amounts of ivory removed from opposite faces

(2) Oblateness, due to the difficulty of machining a perfect cube (Jaynes 1983)

The first implies a mean higher than the 3.5 of an "honest" die. Maximizing the entropy subject to the observed mean, $\langle i \rangle = 3.5983$, yields the distribution P of row 3. Notice that it assigns higher probability to the 6 spot than the 1 spot, the 5 spot than the 2 spot, and the 4 spot than the 3 spot, with decreasing margins, which is just what the posited physical cause would lead one to expect. But while P improves on the uniform distribution, its fit to the data is still poor, with $X^2 = 33.4$. This points to the existence of another constraint. The lower than expected frequencies of faces 3 and 4 are best explained by oblateness of the die, the 3-4 dimension being longer than the other two. This is reflected in the nonzero mean value, $\bar{f}_2 = 0.1393$, of the oblateness function, $f_2(j) = 1$ for j = 1, 2, 5, 6 and $f_2(j) = -2$ for j = 3, 4. Adding this constraint to the first leads to the maxent distribution Q for both constraints (row 4). The fit to Wolf's data is now fairly good, but there is some slight evidence for a third constraint, a slightly chipped 2-3-5 corner. Maximizing entropy subject to all three constraints then yields the distribution of the last row, whose fit to the data is preternaturally good. Note: It makes no difference in which order the constraints are applied, provided each one is retained in applying the next one.

If Wolf's die still exists, one could actually put the posited physical imperfections to the test of careful measurements. In any case, one would expect other dice to exhibit the first two imperfections. As it happens, Wolf also tossed a red die 20,000 times, and this expectation is realized (Jaynes 1983). To permit such inferences to physical causes, one must assume, of course, that Wolf tossed his dice in a manner that precludes skill.

MAXENT first enters, then, as a technique of mathematical modeling, as a means of generating plausible hypotheses for explaining old data or testing against new data (Good 1983, pp. xvi–xvii, 41, 99–100). Indeed, most of the probability distributions that figure prominently in pure and applied probability are maxent distributions for a suitable set of constraints. For example, the exponential distribution is maxent for a positive random variable whose (finite) first moment is given. (This result depends on extending the cross entropy function to continuous distributions, sums giving way to integrals.) Jaynes (2003, §7.6) even makes a case for thinking the ubiquitous use of the normal law of errors is owing to the fact that it is the maxent distribution having specified values of the first two moments.

When predictions based on MAXENT are verified, one's belief in the completeness of the given constraints is borne out, but one learns most when one's predictions fail. For then one infers the existence of a previously unsuspected cause to which the observed deviations point one. However, for this kind of "learning from error" to be effective requires that those inferences be one's best inferences (Jaynes 2003, p. 326). In what sense, then, are MINXENT or MAXENT inferences best possible?

One can look, first, at how MAXENT operates on a mean value constraint:

$$\sum_{i=1}^{n} p_i f(x_i) = \bar{f}$$

With $\sum p_i = 1$, the method of Lagrange for constrained extrema yields a solution,

(4) $\qquad p_i = Z(\lambda)^{-1} \exp(\lambda f(x_i)) \qquad i = 1, 2, \ldots, n$

with $Z(\lambda) = \sum_{i=1}^{n} \exp(\lambda f(x_1))$. More generally, given $m < n$ such constraints, $\sum_{i=1}^{n} p_i f_k(x_i) = \bar{f}_k$, a solution is

(5) $\quad p_i = Z(\lambda_1, \ldots, \lambda_m)^{-1} \exp[\lambda_1 f_1(x_i) + \ldots + \lambda_m f_m(x_i)]$

for $i = 1, \ldots, n$, where the partition function, Z, is defined by:

(5a) $Z(\lambda, \ldots, \lambda_m) = \sum_{i=1}^{n} \exp[\lambda_1 f_1(x_i) + \ldots + \lambda_m f_m(x_i)]$

Moreover, the moments of the resulting maxent distribution are given by the derivatives of $\ln Z$, so that, in particular, the mean values are:

(5b) $\qquad \dfrac{\partial}{\partial \lambda_i} \ln Z = \bar{f}_i$

as one can verify. Thus, Z is a kind of (exponential) generating function and is called the partition function for reasons given by Jaynes (2003, pp. 280–282). The parallel minxent distribution is given by:

$$(6) \qquad p_i = \frac{p_i^0 \exp[\lambda_1 f_1(x_i) + \dots + \lambda_m f_m(x_i)]}{\sum\limits_{i=1}^{n} p_i^0 \exp[\lambda_1 f_1(x_i) + \dots + \lambda_m f_m(x_i)]}$$

where $P^0 = (p_z^0, \dots, p_n^0)$ is the initial "pre-distribution." (6) reduces to (5) when $p_i^0 = n^{-1}$ is constant.

For a simple discrete example, let the mean for a die be $\langle i \rangle = 4$. Here, $x_i = i$ and $f(x) = x$, so the partition function becomes (with $x = e^\lambda$):

$$Z(\lambda) = \sum_{i=1}^{6} e^{\lambda i} = x(1 + x \dots + x^5) = x\frac{1 - x^6}{1 - x}$$

Then since $dx/d\lambda = e^\lambda = x$, the chain rule yields:

$$\frac{d \ln Z}{d\lambda} = x\frac{d\ln Z(x)}{dx} = x\left[\frac{1}{x} - \frac{6x^5}{1 - x^6} + \frac{x}{1 - x}\right]$$

$$= \frac{(1 - x)(1 - x^6) - 6x^6(1 - x) + x(1 - x^6)}{(1 - x)(1 - x^6)}$$

whereupon, setting $d \ln Z/d\lambda = 4$, $3(1 - x)(1 - x^6) = 5x^7 - 6x^6 + x$, which is solved numerically for x to yield, $x = 1.190804264$, or $\lambda = \ln x = 0.1746289309$. Hence, the maxent distribution of mean 4 is:

$$(p_1, \dots, p_6) = (.103, .123, .146, .174, .207, .247)$$

The general formula for mean $\bar{f}$ works out to $(6 - \bar{f})x^7 - (7 - \bar{f})x^6 + \bar{f}x - \bar{f} + 1 = 0$, and one seeks a root other than $x = 1$. Verify that for mean 3.5, the only root is $x = 1$, so the maxent distribution is uniform. Thus, MINXENT gives back the pre-distribution if it already satisfies the constraint—a redundancy property that should hold generally. Computer programs are available for finding maxent distributions subject to mean value constraints.

The method of Lagrange for constrained extrema is not guaranteed to yield a global maximum, and so to settle this point, one invokes the Gibbs inequality (2) to obtain:

$$\sum p_i \ln(u_i / p_i) \leq \sum p_i\left(\frac{u_i}{p_i} - 1\right) = 0$$

when $\sum u_i = \sum p_i = 1$, whence

$$-\sum p_i \ln p_i \leq -\sum p_i \ln u_i$$

with equality iff $p_i = u_i$. Knowing the form (5) of the maxent distribution, one sets

$$u_i = Z(\lambda_1, \dots, \lambda_m)^{-1} \exp[\lambda_1 f_1(x_i) + \dots + \lambda_m f_m(x_i)]$$

and the last inequality then specializes to:

$$H(p_1, \dots, p_n) \leq \sum_{i=1}^{n} p_i\left[\ln Z - \sum_{k=1}^{m} \lambda_k f_k(x_i)\right]$$

$$= \ln Z - \sum_{j=1}^{m} \lambda_j \bar{f_j}$$

with equality iff the p_i are given by (5). This not only shows that (5) is the (one and only) distribution of maximum entropy satisfying the given constraints, but that the right side,

$$(7) \qquad H_{max} = \ln Z(\lambda_1, \dots, \lambda_m) - \sum_{j=1}^{m} \lambda_j \bar{f_j}$$

is the maximum entropy permitted by those constraints. Any distribution of lower entropy must be importing additional information. Or, as in the example of Wolf's die, if the data distribution is of lower entropy than a hypothesized distribution, an additional condition must be constraining those data to lie in a proper subset of those allowed by the hypothesis in question.

AXIOMATIC CHARACTERIZATION

Every property of MINXENT (MAXENT) rules out potential rivals. Write $P = P^0 \circ C$ for the distribution, P, nearest the pre-distribution, P^0, among all those satisfying a constraint, C (of class C), where for equality or inequality linear constraints the class C is closed and convex and there is a nearest P to P^0. The following properties of MINXENT are then easily proved (Shore and Johnson 1980, §4; Williams 1980):

Uniqueness: The minxent distribution is unique

Redundancy $P \circ C = P$ when P satisfies the constraint C [since $H(Q, P) = 0$ only if $Q = P$]

Chain consistency: The order in which constraints are applied is immaterial, provided each is retained in applying the next one

System independence: The "post-distribution" should not import a dependence between two vari-

ates that is neither implied by the constraints nor the pre-distribution

Invariance: $P = P^0 \circ C$ should not depend on one's choice of a coordinate system

Subset independence: It should not matter whether one obtains a conditional distribution for disjoint subsets of outcomes by finding the post-distribution nearest the conditional prior for each subset or by obtaining the post-distribution for the whole outcome space and conditioning it on each subset

To illustrate the last property, the even and odd faces in tossing a die may be reported separately. Let the prior be uniform and the mean for both the odd and even faces be 4. By redundancy, the post-distribution, Q, is also uniform on the even faces: $Q(2) = Q(4) = Q(6) = \frac{1}{3}$, while for the odd faces, one finds (as above) that $Q(1) = 0.1162$, $Q(3) = 0.2676$, and $Q(5) = 0.6162$. One can also solve the problem by finding the post-distribution for all six states by applying the mean value constraints conjointly obtaining:

$Q'(1) = 0.0524$	$Q'(2) = 0.1831$
$Q'(3) = 0.1206$	$Q'(4) = 0.1831$
$Q'(5) = 0.2778$	$Q'(6) = 0.1831$

To condition on the subsets of odd and even faces, divide each column by its sum and obtain the same conditional distributions found earlier. If these two ways of solving the problem did not agree, MINXENT could be justly deemed inconsistent.

In 1980 John E. Shore and Rodney W. Johnson vindicated Jaynes's conjecture that "deductions made from any other information measure … will eventually lead to contradictions" (1983, p. 9) by deriving MINXENT for mean value constraints from uniqueness and the last three mentioned properties. All these ring changes on the consistency requirement that two ways of doing a calculation must agree, the very condition from which Richard T. Cox derived the basic rules of probability (see the entry "Foundations of Statistics"). Rather than attempt a sketch of their proof, one can illustrate how rival rules violate the Shore-Johnson axioms and lead to contradictions.

INCONSISTENCY OF OTHER RULES

An alternative measure of the spread of a distribution, $\sum p_i^2$, dubbed the repeat rate by Turing, is, like entropy, continuous and assumes its extreme values of $1/n$ and 1 at the extremes of uniformity and concentration. The closely related Gini diversity, $1 - \sum_{i=1}^{n} p_i^2$, has a well-established place in statistics as a measure of the qualita-

tive diversity of a population, with widespread applications to such fields as genetics, ecology, and linguistics. Table 2 shows how closely the distribution of a die of mean 4 obtained by minimizing $\sum p_i^2$, approximates the maxent distribution for this constraint found earlier.

On a superficial examination, one might easily suppose that the repeat rate (RR) rule performs about as well as MAXENT. Still, one knows it must violate one of Shore and Johnson's (1980) consistency postulates, and inconsistency always brings a degradation of performance in its train.

In casting a red and a white die with mean values, $E(R) = 4$ and $E(W) = 3$, and a uniform prior, the method of Lagrange for the RR-rule leads in this case to three linear equations in three unknowns (the Lagrange multipliers), which are easily solved to yield the joint post-distribution:

$$P(R = i, W = j) = \pi_{ij} = \frac{1}{36} + \frac{i - j}{210}$$

from which the marginal distributions for R and W are computed to be:

$$P(R = i) = p_i = \sum_j \pi_{ij} = \frac{3i + 7}{105}$$

and

$$P(W = j) = q_j = \sum_i \pi_{ij} = \frac{-3j + 28}{105}$$

One easily checks that $p_i q_i \neq \frac{1}{36} = \pi(i,i)$. Hence, the RR-rule violates system independence. Its inconsistency shows up even more clearly when one enlarges the problem to the case of symmetric mean values, $E(R) = 3.5 + \Delta$ and $E(W) = 3.5 - \Delta$. From the joint post-distribution, one can compute a value of Δ, namely, $\Delta = \frac{7}{12}$ at which the RR-rule makes the smallest of the joint probabilities zero, even though no outcome is excluded by the pre-distribution or the constraints. For values of Δ greater than $\frac{7}{12}$, the RR-rule breaks down completely, making some of the joint probabilities negative.

Consider the more general family of rules that minimize a Csiszar divergence:

$$H_f(P, Q) = \sum q_i f(p_i q_i)$$

with f a convex function. This family includes MINXENT as the special case $f(x) = x \ln x$, as well as the chi-squared

rule that minimizes $\sum_{i=1}^{k} \frac{(pi-qi)^2}{qi}$, given by $f(x) = (x - 1)^2$. Applied to a uniform prior, $q_i = 1/n$, this is minimized by minimizing $\sum p_i^2$, hence, it inherits the inconsistencies of the RR-rule.

RELATION TO BAYESIAN CONDITIONING

The upshot of Shore and Johnson's (1980) axiomatic derivation of MINXENT is to place it on a par with Bayes's rule for revising a probability assignment—the most basic rule of belief change. Hence, it is of interest to see what MINXENT delivers in this case (Williams 1980). For any distribution P satisfying $P(B) = 1$:

(8) $\qquad H(P, P^0) = H(P_B, P_B^0) - \ln P^0(B)$

writing $P_B(A) = P(AB)/P(B)$ for the conditional measure. For then using $\sum_{xi \in B} P(x_i) = P(B) = 1$,

$$H(P_B, P_B^0) = \sum_{x_i \in B} P(x_i) \ln[P(x_i)/\frac{P^0(x_i)}{P^0(B)}]$$

$$= \sum_{x_i \in B} P(x_i) \ln[P(x_i)/P^0(x_i)] + \ln P^0(B)$$

since $P_B(x_i) = P(x_i)/P(B) = P(x_i)$, which proves (8). Since (8) is clearly a minimum when $H(P_B, P_B^0) = 0$, hence, when $(P_B = P_B^0)$, one sees that the distribution P nearest P^0 among those for which $P(B) = 1$ is the Bayesian posterior distribution, P_B^0.

What if the constraint $P(B) = 1$ is weakened to $P(B) = q$, $0 < q < 1$? For any such P one has the following straightforward generalization of (8):

(8a) $\qquad H(P, P^0) = qH(P_B, P_B^0) + \bar{q}H(P_{\bar{B}}, P_{\bar{B}}^0)$

$$- q \ln\left[\frac{P^0(B)}{q}\right] - \bar{q} \ln\left[\frac{P^0(\bar{B})}{\bar{q}}\right]$$

with $\bar{q} = 1 - q$. The right side is minimized by making both $H(P_B, P_B^0)$ and $H(P_{\bar{B}}, P_B^0)$ zero, which means that the nearest P to P^0 is given by:

$$P = qP_B^0 + \bar{q}P_{\bar{B}}^0$$

a q-weighted average of the conditional distributions for B and its negation. There is an obvious generalization to a partition $B_1, \ldots, B_n$ and the constraint $P(B_i) = q_i$, with $\sum q_i = 1$. This special case of MINXENT is known as Jeffrey conditioning. Indeed, Williams (1980) generalizes

TABLE 2

i	1	2	3	4	5	6
Maxent	.103	.123	.146	.174	.207	.247
RR-rule	.095	.124	.152	.181	.209	.238

further to the case where the B's need not be mutually exclusive. The validity of this rule requires that the sole affect of the datum or sensory input is to raise the probability of B to a value $q < 1$. For conditions under which Jeffrey conditioning is not valid, see Jaynes (2003, §5.6).

FREQUENCY CONNECTIONS

MAXENT also has frequency connections (Jaynes 1983). Of the k^N outcomes (i.e., outcome sequences) of N trials, the number that yields category counts $(n_1, \ldots, n_k)$ with $\sum n_i = N$ is given by the multinomial coefficient:

$$W = \frac{N!}{n_1! \ldots n_k!}$$

Using Stirling's approximation to the factorial function, one easily proves that

(9) $\qquad N^{-1} \ln W \to H(f_1, \ldots, f_k)$

Hence, the maxent distribution is W-maximizing, hence realized by the most outcomes. Moreover, given two sets of relative frequencies, $\{f_i\}$ and $\{f_i'\}$,

(10) $\qquad \frac{W}{W'} \sim Ae^{N(H-H')}\left[1 + \frac{B}{12N} + O(N^{-2})\right]$

gives the ratio of the number of ways each can be realized, where $H = H(f_1, \ldots, f_k)$ and $H' = H(f_1', \ldots, f_k')$, $A = \prod_{i=1}^{k}(f_i / f_i')$ and $B = \sum_{i=1}^{k} \frac{(f_i - f_i')}{f_i f_i'}$. For example, for the two distributions of Table 2, $H = 1.7485056$ and $H' = 1.7470082$, and so at $N = 20,000$ trials, the maxent distribution is realized by $W/W' = 9.86 \times 10^{12}$ more outcomes than the similar looking distribution of the RR-rule. The peak is thus enormously sharp. Just how sharp is quantified by Jaynes's concentration theorem (1983), which allows one to compute the fraction of possible outcome sequences whose category counts, f_i, have entropy in the range $H_{max} - \Delta H \le H(f_1, \ldots, f_k) \le H_{max}$. This gives, in effect, a new kind of significance test for detecting when additional constraints are hidden in one's data.

Not unrelated results concern typical outcomes of a stationary Markov process (Khinchin 1957). Namely, if H is the entropy of a regular Markov chain and s sufficiently large, then almost all s-step outcomes C satisfy:

$$\left| \frac{\log \frac{1}{c}}{s} - H \right| < \eta$$

with η arbitrarily small. That is, almost all s-step sequences of the process deliver information arbitrarily close to the average, $H^{(s)} = sH$. The entropy is defined in the obvious way as the expectation of

$$H_i = -\sum p_{ik} \log p_{ik}$$

the one-step uncertainty, so that $H = \sum_i P_i H_i$ where $P = (P_1, \dots, P_k)$ is the stationary distribution and (p_{ik}) is the one-step transition matrix.

Aleksandr Khinchin's prophetic remark, that "the study of entropy will become a permanent part of probability theory" (1957, p. 2), has been borne out not only by the flowering of the maxent method but also by D. S. Ornstein's proof that entropy is a complete invariant of an ergodic Markov chain (for an informal treatment and references to the mathematical literature, see Suppes 2002, §4.5). That is, two ergodic chains (in which any state is reachable from any other) are isomorphic iff they have the same period and the same entropy.

INFORMATION THEORY AND STATISTICAL MECHANICS

The frequency implications of MAXENT play their most important role, however, in statistical mechanics. Thus, Ludwig Boltzmann found the famous Maxwell-Boltzmann energy distribution for molecules in a conservative force field by partitioning the 6n-dimensional phase space of position and velocity (or momentum) coordinates into cells, R_k, small enough for the energy to be a constant, E_k, and large enough to contain a sizeable number, N_k, of molecules. Then the total number, N, and the total energy, E, are constants of the molecular motion. Boltzmann argues that the most probable distribution, $(N_1, \dots, N_s)$, is the one that is realized by the most microstates among those compatible with the constraints:

$$\sum N_i = N \text{ and } \sum N_i E_i = E$$

By virtue of (5), this most probable distribution,

(11) $$\hat{N}_i = \frac{N}{Z(\beta)} \exp(-\beta E_i)$$

is none other than the maxent distribution for the given constraints.

In this derivation, Boltzmann may be said to have launched MAXENT and the information theoretical approach to statistical mechanics. All the canonical distributions J. Willard Gibbs (1902) later derived are simply maxent distributions for other sets of constraints, for example, that for fixed values of the total energy and angular momentum is Gibbs's rotational ensemble. Unfortunately, Gibbs slipped in the logical basis of his derivation so unobtrusively that most readers missed it. Moreover, he provided no clear or compelling rationale, so that in their famous review article of statistical mechanics published a decade later, Paul Ehrenfest and Tatiana Ehrenfest (1912) dismissed Gibbs's method of derivation as "a mere analytic trick" (for the relevant history, see Jaynes 1983, pp. 98ff). Thus began a long siege of confusion and controversy over the justification of Gibbs's formalism that continues to this day, notwithstanding Jaynes's rediscovery of the MAXENT method of Gibbs in 1957 and his clear rationale for using it (1983, chapter 1). In particular, the information theoretical approach dispenses with the ergodic hypothesis.

Jaynes's second great contribution was to extend the Gibbsian (MAXENT) formalism to irreversible processes and nonequilibrium thermodynamics (1983, chapter 10, §D). He writes:

> The final breakthrough came in the Christmas vacation period of 1962 when, after all else had failed, I finally had the courage to sit down and work out all the details of the calculations that result from using the Maximum Entropy Principle; *and nothing else*. Within three days the new formalism was in hand, masses of the known correct results of Onsager, Wiener, Kirkwood, Callen, Kubo, Mori, MacLennon, were pouring out as special cases, just as fast as I could write them down; and it was clear that this was it. (p. 239)

The unbelievably short derivation of (11) as the equilibrium distribution of the energies has seemed too short to many physicists and philosophers. This initial impression is only reinforced when it is seen that (11) implies the familiar barometric formula,

(11a) $$\rho(z) = \rho(0) \exp(-\beta mgz)$$

for the density of the atmosphere at height z, as well as Maxwell's velocity distribution in the form:

(12) $\qquad f(v_b) = B(\beta)\exp(-\beta m v_b^2/2)$

where $f(v_b)dv_b$ is now the probability that a molecule has a velocity in a tiny neighborhood of v_b. Indeed, even more follows, for (12) does not depend on the position of the molecule (an assumption Boltzmann was forced to make in his derivation of the Maxwell distribution from his collision equation). This implies, in turn, the dynamic stability of the distribution. However, the MAXENT derivation seems to ignore the dynamics altogether.

Jaynes responded in several ways. First, the derivation does not ignore the dynamics; it uses conservation of energy as well as the preservation of the volumes of the cells, R_k, under evolution of the system (Liouville's theorem). Jaynes emphasizes that, in addition, one is trying to predict reproducible macrostates. These are *ipso facto* under the experimenter's control, and so the myriads of details concerning microstates not under his control must needs be irrelevant for prediction. Moreover, reproducible macroscopic properties must be characteristic of the overwhelming preponderance of microstates in the allowed region of the phase space. Given the large number of degrees of freedom entailed, the maxent distribution will be enormously peaked. Hence, predictions of other macro quantities based on their mean values will be correct (within experimental error) with probability close to one (Jaynes 1983). As far as Jaynes is concerned, these considerations fully explain the predictive success of equilibrium thermodynamics as "inferences from the available information."

In particular, there is no need to appeal, as Maxwell and Boltzmann did (but Gibbs did not) to the equality of infinite time averages and averages with respect to the canonical distribution. Even if this could be established from some other easily verified assumption—the program of ergodic theory—it would be nothing to the purpose. For one would have to show, in addition, that the averages over finite time intervals involved in measuring macro quantities closely approximate their infinite time averages, and there are positive reasons to doubt this (Jaynes 1983).

Apart from the clarity, unity, and simplicity the information theoretical approach brings to the foundation of statistical mechanics, David Hestenes (1993) considers Jaynes's greatest merit to lie in his recognition that "in the evolution of statistical mechanics the principles of physics had gotten confused with principles of statistical inference" (1993, p. 153).

Jaynes regards the formalism of quantum mechanics as a similar "nasty omelet" scrambling together properties of physical systems and our information about them in ways that are difficult to unscramble. See the cited article by David Hestenes for one noteworthy attempt to disentangle subjective and objective aspects of the electron wave function, namely, a probability factor and a kinematic factor, using a powerful "universal geometric calculus" based on Hermann Grassmann's Ausdehnumgslehre. Hestenes purports to show, in particular, that the complex "probability amplitudes" of the formalism have nothing to do with probability per se but have, instead, a physical origin in the "Zitterbewegung", or circular dance, of the electrons generating their spin and magnetic moment.

Jaynes's views on quantum mechanics are outlined (with references) in the same volume—a festschrift in his honor—in which the article by Hestenes appears. For other views, see Philosophy of Statistical Mechanics and Quantum Mechanics.

See also Bayes, Bayes's Theorem, Bayesian Approach to Philosophy of Science; Bell, John, and Bell's Theorem; Bohr, Niels; Boltzmann, Ludwig; Copenhagen Interpretation; Einstein, Albert; Gibbs, Josiah; Maxwell, James Clerk; Philosophy of Statistical Mechanics; Probability; Quantum Mechanics; Semantics; Turing, Alan M.

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Roger D. Rosenkrantz (2005)

INFORMED CONSENT

A fundamental requirement of both ethics and the law is that medical treatment cannot be given to competent patients without their "informed consent." This represents a rejection of more traditional authoritarian or paternalistic accounts of the physician/patient relationship in which the physician had decision-making authority in favor of a process of shared decision making between physicians and patients. In this respect informed consent helps shape the nature of nearly all health-care treatment decision making. Informed consent also has special importance in a narrower class of cases in which patients and their physicians are unable to agree on a course of treatment. In these cases a competent patient is given the right to refuse any recommended treatment, even including life-sustaining treatment, no matter how strongly the physician or others believe that the treatment should be undertaken.

There are two principal moral values that are served by and justify the informed-consent requirement in health care. The first is patient well-being—arguably the fundamental goal of all health care. The concept of patient well-being, as opposed to the apparently more objective goals of protecting and promoting patients' health and lives, signals the important respect in which what will best serve a particular patient's well-being is often to a significant degree a subjective determination that depends on the particular aims and values of the patient in question. Increasingly, there are medically

acceptable alternative treatments (including the alternative of no treatment), no one of which is best for all patients with a particular medical condition. The patient's participation in decision making is therefore necessary in order to select the treatment that best fits his or her aims and values. The other fundamental moral value that undergirds the informed-consent requirement is individual self-determination or autonomy. Self-determination in this context is the moral right of ordinary persons to make significant decisions about their lives for themselves and according to their own aims and values. Requiring that health care not be rendered without a competent patient's informed consent respects this right of self-determination. The informed-consent requirement reflects the fundamental moral point that it is the patient and the patient's body that undergo the treatment, and so it should be the patient who is morally entitled to authorize or refuse the treatment.

Three conditions are necessary for ethically valid informed consent—that the patient's decision be informed, voluntary, and competent. The requirement that the decision be informed places a responsibility on the patient's physician to provide the patient with information, in an understandable form, about the patient's condition or diagnosis and the prognosis if no treatment is provided, together with the alternative treatments that would improve that prognosis, along with their risks and benefits. This typically does not require that the physician provide, or that the patient understand, complex medical and scientific information, but rather information about how the various alternatives would likely affect the patient's pursuit of his or her plan of life. Legal requirements regarding how much and which information must be provided vary, but the ethical ideal is to provide the information that the particular patient would reasonably want to know in order to make his or her decision.

The requirement that the consent be voluntary means that treatment must not be rendered against the patient's will, either by force or by coercing the patient's choice. More important, it also forbids physicians from manipulating the patient's choice through selective provision of information, playing on the patient's fears, and other means. Ethically objectionable manipulation, as opposed to appropriate informing and persuasion, aims to produce a different choice from what a competent patient would have made if fully informed and freely choosing.

The third requirement of competence is the most complex. Usually, patients are either clearly competent, with their normal decision-making capacities intact, or

clearly incompetent, unable to make any decision. In borderline cases in which there is significant, but not total, impairment of the patient's decision-making capacities, the competence determination is often controversial. The competence evaluation should address the process of the patient's decision making in order to determine whether there are significant impairments, limitations, or mistakes in that process that have resulted in a choice different from what the patient would have wanted in the absence of those impairments, limitations, or mistakes. The proper standard of competence in borderline cases is controversial but increasingly understood to be a variable standard, requiring a higher level of understanding and reasoning when the patient's well-being would be seriously affected by the decision in question and a lower level when there would be only limited impact on the patient's well-being. While treatment refusal may reasonably trigger an evaluation of the patient's competence, it should not serve as any evidence of the patient's incompetence—that evidence must come from impairments or limitations that cannot be remedied in the process of the patient's reasoning. When the requirements for ethically valid informed consent (that is, informed, voluntary, and competent) are met, the patient's choice should be reasonably in accord with his or her well-being, and his or her self-determination will have been respected.

When the patient has been determined to be incompetent to make his or her own treatment choices, a surrogate or proxy, typically a close family member, should substitute for the patient in the decision-making and consent process. The patient's informed consent is also not required in emergency conditions, when taking time to obtain consent would involve serious risks to the patient's well-being, or when the patient has waived his or her right to give consent and has authorized another to make the treatment decision.

See also Applied Ethics; Bioethics; Biomedical Ethics; Euthanasia; Medical Ethics.

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INFORMED CONSENT IN THE PRACTICE OF LAW

The doctrine of informed consent has deeper historical roots in the practice of law than in the practice of medicine. The modern rule that medical treatment cannot be given without the informed consent of competent patients did not arise until the late twentieth century, whereas a century earlier, courts already recognized that, like other agents, lawyers may breach their fiduciary duty to client-principals when they fail to provide them with sufficient information. In some respects, however, the legal profession may have lagged behind the medical profession. Thus lawyers, who played a critical role in developing the informed consent model in medicine, have been criticized for failing to adequately develop such a model for their own practice.

The legal profession has long recognized that lawyers may not reveal confidential information or represent conflicting interests unless the client consents after full disclosure. Because it has not always been clear precisely what information the lawyer must disclose to the client before acting, the American Bar Association (ABA) amended its Model Rules of Professional Conduct in 2002 to require the lawyer to obtain the client's *informed consent*, taking advantage of lawyers' familiarity with that term in the context of medical practice. The Model Rules also draw on language familiar in the medical context in defining informed consent to require the communication of "adequate information and explanation about the material risks of and reasonably available alternatives to the proposed course of conduct" (ABA *Model Rules*, Rule 1.0[e]).

Aside from confidentiality and conflicts of interest, the use of informed consent doctrine in legal practice is unclear. The difficulty lies in determining which decisions are for the client (in which case lawyers are required to provide sufficient explanation for the client to make informed decisions) and which decisions are for the lawyer (with or without consulting the client). Certain decisions are clearly reserved for the client—whether to accept a settlement offer and, in criminal cases, what plea to enter, whether to waive a jury trial, and whether the client will testify. In addition, there is agreement that the client defines the objectives of the representation. What remains unclear is how to distinguish between a client's objectives and the means of achieving those objectives (for example, when the client wants to win a lawsuit by asserting a particular right), how properly to allocate decision-making as to the means of the representation

(for example, when the client does not want to pay for additional depositions), and whether there are some decisions lawyers may make without first consulting the client (for example, deciding what questions to ask a witness on direct or cross-examination).

As initially promulgated, the ABA *Model Rules* appeared to suggest that all means decisions were for the lawyer to make after consultation with the client. Aside from the difficulty of distinguishing between objectives and means, many believe that there are some means decisions that ought to be for the client to decide, particularly when they involve expenses or concern for third persons, as opposed to technical, legal and tactical matters. On the other hand, it would be inefficient to require the lawyer to consult the client prior to taking any action, especially when the matter is in trial. Case law has not resolved these issues; some courts state that a lawyer must obey all lawful instructions of a client, while others adhere to the traditional distinction between ends and means.

The amended *Model Rules* provide that lawyers may act without prior consultation when the action is "impliedly authorized" to carry out the representation (Rule 1.2[a]), as when the lawyer reasonably assumes that the client would not want to be consulted because the matter is highly technical and does not involve significant risk to the client. As to other means decisions, the *Model Rules* require the lawyer to reasonably consult the client, but do not prescribe how to resolve disagreements between lawyer and client, other than suggesting that the lawyer may withdraw from the representation when the lawyer has a fundamental disagreement with the client and that, conversely, the client may resolve the disagreement by discharging the lawyer.

A similar problem exists in medical practice. Historically, the failure to obtain the patient's informed consent to surgery or some other invasive procedure was treated in law as a battery. In the 2000s, most courts agree that the cause of action is better understood as deriving from the patient's right to self-determination rather than the right to reject a nonconsensual touching; therefore, they base the informed consent action in negligence rather than battery. The question arises, however, whether the physician must obtain the patient's consent to all treatment (and perhaps diagnostic) options, even when the proposed treatment is noninvasive, such as bed rest, and one or more of the options is not one that the physician would recommend. Some courts hold that a physician may not subject a patient to a course of treatment, whether invasive or noninvasive, without disclosing information that will enable the patient to intelligibly evaluate the available options and risks of each.

These courts also recognize, however, that it would be unduly burdensome to require physicians to explain in detail all treatment options in every case, such as when a physician proscribes one of several potentially appropriate antibiotics in treating a respiratory infection. Other courts refuse to apply informed consent doctrine to procedures or diagnostic options not recommended by the physician or to situations where the patient refuses the recommended treatment, fearing that recognizing such a duty would in effect require physicians to give a mini-course in medical science and would further suggest that physicians should defer their medical judgment to the patient's wishes.

The difficulty of determining when to use informed consent doctrine stems from the need to balance the individual's right to self-determination with other concerns. Like physicians, lawyers resist being forced to give detailed explanations of every exercise of professional judgment, because some explanations entail either excessive costs or unwarranted invasions of professional autonomy. Obviously there must be some limits to the reach of informed consent doctrine. One approach is to draw admittedly arbitrary lines between the objectives and means of a representation, or between invasive and noninvasive procedures (or recommended and nonrecommended treatment or diagnostic options). Another approach is to reject arbitrary line-drawing in favor of fact-intensive, case-by-case determinations of the proper allocation of decision-making between professionals and consumers, guided by the decisions reasonable consumers would presumably want to make. In any event, the precise boundaries of informed consent doctrine, whether in legal or medical practice, continue to be debated.

See also Contractualism; Discourse Ethics; Medical Ethics; Philosophy of Law, History of; Philosophy of Law, Problems of.

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Nancy J. Moore (2005)

INGARDEN, ROMAN
(1893–1970)

Roman Ingarden, the Polish phenomenologist, was born in Kraków. He studied philosophy under Kazimierz Twardowski at Lvov and under Edmund Husserl at Göttingen. At Göttingen he also studied mathematics under David Hilbert and psychology under G. E. Müller. Ingarden followed Husserl to Freiburg, where he received his PhD in 1918 with the dissertation "Intuition und Intellekt bei Henri Bergson." The same year Ingarden returned to Poland, where he taught mathematics in high schools. After his habilitation in 1921 he was named Privatdozent in philosophy at the University of Lvov. During the German occupation Ingarden was basically preoccupied with writing "Controversy over the Existence of the World"; universities in Poland were closed at that time. In 1945 he accepted the chair of philosophy at the Jagellonian University at Kraków. During the early 1950s the Polish government barred him from teaching philosophy because of his adherence to "idealism"; during this period he translated Immanuel Kant's *Critique of Pure Reason* into Polish. Ingarden regained his chair in 1956 and retired in 1963, but he continued to be philosophically active.

Ingarden was one of the ablest pupils of Husserl. He accepted Husserl's main analytical results and the phenomenological method, but he rejected Husserl's transcendental idealism, showing instead how phenomenology could lead to realism. Max Scheler, Jean Hering, and, in her earlier works, Hedwig Conrad Martius, also exerted some influence on Ingarden. Traces of Ingarden's ideas can be found in the work of Nicolai Hartmann, Herbert Spiegelberg, and Michel Dufrennes, as well as in that of such American aestheticians as René Wellek.

Ingarden's philosophy is a fusion of two traditions: the variety of German speculative metaphysics as represented by Franz Brentano and the restrained and painstaking Polish analytical philosophy. Ingarden wove grand philosophical designs, but he wove them with great care and clarity. He opposed what he regarded as the narrowness and one-sidedness of the analytical trend, and he was probably the first to argue (in 1934) that the logical positivist verification principle of meaning, since it is a metalanguage statement, is itself unverifiable; and since it is not analytic, it is therefore meaningless. Ingarden followed this criticism with many others, but he nevertheless acquired and used the skills and techniques of the analytical philosophers. His phenomenology is therefore marked by an intelligibility and clarity rare among metaphysicians and ontologists.

AESTHETICS

Ingarden's earliest work was in epistemology, which he conceived of as an independent discipline able to show the certainty of its own conclusions. The center of his investigations later shifted to ontology, which he regarded as a science of pure possibilities. Ontology determines and describes these possibilities in order to provide us with conceptual apparatuses by which we can express various existential situations.

Ingarden also conducted significant work in aesthetics. His fully elaborated and original theory of art is perhaps the best-known part of his philosophy. He arrived at this theory through the ontological investigations that were central to his thought, and the theory itself was a preparation for his realistic ontology. One of the possible ways of settling the controversy between idealism and realism is through examining the nature of objects that exist. There seems to be a necessary connection between a mode of being and its formal structure. Ingarden first attempted to investigate this problem through examining works of art, which, in contrast with spatiotemporal objects, are dependent for their existence on the conscious act of the creator but which nevertheless transcend this act and continue to exist in their material shape afterward. What makes them works of art is the intention of the creator to endow them with significance, and it requires another intentional act on the part of the receiver to decipher this significance expressed by physically perceptible signs. Thus, the work of art possesses many strata. In a literary work of art, for example, the following can be distinguished: (1) the visual or phonic stratum; (2) the stratum of the meanings of words and sentences; (3) the stratum of objects described; (4) the stratum of the appearances of these objects. All these strata are polyphonically orchestrated to compose one work of art. In a poem it is not the printed marks in the shape of letters, nor even the actual meanings of particular words, that matter; rather, it is the "poetic significance" achieved through these printed marks and through the meanings of particular words. The inten-

tional act of the creator and another intentional act of the receiver are indispensable for the existence of the work of art. And because of this, works of art are called purely intentional objects.

ONTOLOGY

It is customary to link phenomenology with existentialism, as if Husserl, Martin Heidegger, and Jean-Paul Sartre were three links in the development of one trend and as if existentialism were an inevitable development of phenomenology. But the linking of phenomenology and existentialism in this manner blurs the fact that for Husserl phenomenology was primarily a cognitive philosophy, seeking to acquire knowledge, whereas for Sartre the main function of philosophy was consolatory, to explain the mystery of man and justify his tragic existence. Ingarden's philosophy was a continuation, development, and restatement of the cognitive core of Husserl's philosophy, and perhaps was closer to its cognitive spirit than any other development of Husserl's doctrine by his numerous pupils. Ingarden perhaps succeeded better than Husserl himself in making his phenomenological inquiries consistent and coherent. Husserl, as Ingarden observed, was entangled in a vicious circle of phenomenology: In order to conduct the phenomenological reductions that are to yield self-evident knowledge, Husserl had to assume that our consciousness is transcendental, whereas it is precisely through application of the phenomenological reductions that consciousness is revealed to be transcendental.

Ingarden attempted to break away from this circle by what he called eidetic analyses, the penetration of the nature of essences in an "objective" way, as opposed to the transcendental approach Husserl used in his later work. Ingarden's objective approach was to clear the ground for philosophy as an independent and self-sufficient discipline. He contended that any reconstruction of our knowledge must start from thorough analyses of the nature of the objects of our knowledge, both existing and possible. Ontology is basic to other philosophical endeavors because the manner of our cognizing is determined by the objects of cognition. It follows that there are as many types of immediate experience as there are types of objects and types of relationships occurring among objects.

Ingarden devoted his principal work, *Spór o Istnienie Świata* (The controversy over the existence of the world), to the analysis of these various objects and relationships. According to Ingarden, existence is not that which exists but that by means of which something exists. Not every-

thing that can be distinguished in an object belongs to its attributes: Existence is not an attribute of an object. Ingarden attempted to account for the specific role of existence in whatever is, by distinguishing between modes of being (*modus existentiae*) and existential moments (*momentum existentiale*). The real existence (reality) of something, the possibility of something, and the ideal existence of something are examples of modes of being (modes of existence). Nonexistence, however, is not a mode but the absence of any being. An existing object can never be experienced by us without its mode of being. In every mode of being we can distinguish existential moments. The existential moments are the elemental units of the modes and thus are the key to understanding them. Many different existential moments can be distinguished intuitively in each mode of being of something. What we grasp in the object is not existence as such, which is a certain universal idea, but particular existential moments.

Ingarden divided moments of being into mutually exclusive pairs. There are four basic pairs. The first pair comprises existential autonomy and existential heteronomy. "Something is self-existent (is existentially autonomous) if it has its existential foundation *in itself*. It has such a foundation if it is *immanently determined* in itself" (*Time and Modes of Being*, p. 43). Otherwise it is existentially heteronomous. "An object is *existentially original* if, in its essence, it cannot be produced by any other object" (ibid., p. 52). If it can be so produced, it is existentially derivative. "An object is existentially separate if, *for its existence, it does not in its essence require the existence of any other object with which it would have to coexist, because of its essence, within the compass of one and the same whole*" (ibid., p. 82). If it does require such another object, it is "inseparate." The fourth pair of existential moments are existential self-dependence and existential contingency. Existential contingency involves separate objects that, in spite of being separate, require for their existence some other existentially separate object. An existentially self-dependent object, which is also an existentially separate object, does not require such another object.

Ingarden discussed at length both time and causality. In the analysis of time he distinguished further pairs of existential moments, including actuality and nonactuality, persistence and fragility, fissuration and nonfissuration. His original interpretation of the causal relation arose out of his analysis of the moments of existential originality and existential derivation. For Ingarden a causal relation occurs between *C* and *E* if: (1) *C* and *E* are

diverse; (2) *C* actually conditions *E* but *E* does not condition *C* in the same way; (3) both *C* and *E* are events or processes (as far as their form is concerned); (4) the occurrence of *E* is simultaneous with that of *C*; (5) both *C* and *E* are real actual).

Modes of being consist of noncontradictory combinations of existential moments. Ingarden distinguished four basic modes, or regions, of being: absolute being, temporal (or real) being, ideal (or extratemporal) being, and purely intentional being. Absolute being is characterized by the existential moments of autonomy, originality, separateness, and self-dependence. The other modes have many subtypes, each of which is characterized by a number of existential moments.

Each of Ingarden's analyses of pairs of existential moments is a small monograph on traditional ontological problems usually rooted in Aristotle and scholastic philosophy. On one level they may appear to be analyses of language, as one linguistic philosopher has pointed out, but they are of a scope not generally undertaken by linguistic philosophers, and Ingarden regarded linguistic analysis as an inadequate tool for the systematic analysis of philosophical problems. The analyses contained in this work were to pave the way for the eventual solution of the controversy between idealism and realism over the nature of the world and our relation to it. They follow in many instances the spirit of Aristotle's analysis of categories, but to be fully comprehended they presuppose familiarity with medieval discussion of pure possibilities.

See also Aesthetics, History of; Aesthetics, Problems of; Aristotle; Brentano, Franz; Existence; Hartmann, Nicolai; Hilbert, David; Husserl, Edmund; Idealism; Kant, Immanuel; Ontology; Scheler, Max; Time; Twardowski, Kazimierz.

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INGE, WILLIAM RALPH
(1860–1954)

William Ralph Inge, the English ecclesiastic and religious thinker, was born at Crayke, Yorkshire. Educated at Eton and Cambridge, he was fellow of Hertford College, Oxford, from 1889 to 1905, vicar of All Saints Church, Knightsbridge, from 1905 to 1907, and professor at Cambridge from 1907 to 1911, when he was appointed dean of St. Paul's Cathedral, London. During his long tenure of this high office, he became one of the best-known Englishmen of his generation. He continued his lifelong studies in philosophy and mysticism, and his penetrating comments on the events of his time, especially on the foibles of contemporary civilization, earned him the sobriquet of "the gloomy dean." He retired in 1934 to Brightwell Manor, Berkshire, where he spent twenty years more of thought and activity before his death.

What provoked Inge's criticism of contemporary culture was its preoccupation with material progress; against this, he pleaded for an end to the separation of fact and value. He maintained that Plato taught an abiding truth when he instructed us to seek reality beyond what is present to the senses; and only a culture that is based on the invisible but eternal values of truth, beauty, and goodness is securely founded. These values are in turn grounded in God, the ultimate spiritual reality, so that Inge's plea was for a religious attitude toward life. The model for such an attitude is provided by the mystic, who penetrates the phenomena of the sensible world to the realm of values and whose soul ascends toward union with God. However, this advocacy of mysticism is not to be understood as escapism or as a denial of the reality of the world of the senses. Inge considered himself in some ways more of a realist than an idealist, and he insisted that any adequate philosophy must take account of the findings of the natural sciences. Mysticism, as he understood it, does not imply emotionalism or irrationalism. Mysticism is itself a kind of spiritual philosophy, a quest for knowledge of the real. If today there is a conflict between the rational and the religious approaches to reality, this is because modern rationalism has become too narrow in its understanding of reason. A genuine rationalism takes account of values as well as of facts; this is the kind of rationalism that flourished in the earlier tradition of Western philosophy, and such a broadly based rational philosophy conduces to the same results as the mystical insights of religion. Both lead, Inge claimed, to "perfect knowledge of the Perfect."

Inge steeped himself in the history of mystical and religious thought, but there was one particular school that seemed to him to approach his ideal of combining genuine rationalism with mystical insight and that therefore strongly attracted him: the Neoplatonism of Plotinus. Inge spoke of Plotinus in terms of almost exaggerated respect as not merely an intellectual teacher but also a spiritual director, and he studied his philosophy not just as a historical phenomenon but also as the classic statement of the insights that have guided Western culture—and thus as a message for our time. Platonism, Christianity, and Western civilization, Inge believed, are inseparable and interdependent; and a restatement of the philosophy of Plotinus can provide an intellectual basis that, when combined with the spirit of Christianity, can lead to the rejuvenation of the West.

See also Beauty; Mysticism, History of; Neoplatonism; Plato; Platonism and the Platonic Tradition; Plotinus; Rationalism; Truth.

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INGENIEROS, JOSÉ
(1877–1925)

José Ingenieros, the Argentine positivist metaphysician and ethical philosopher, was born in Buenos Aires. He studied, successively, medicine, psychiatry, axiology, and metaphysics and held appointments on the faculties of medicine and of philosophy and letters in Buenos Aires; he also founded the *Revista de Filosofía.* Ingenieros lived for some years in Germany and Switzerland. He had great influence in Latin America, and some of his works were translated into several European languages.

In *Proposiciones relativas al porvenir de la filosofía* (Buenos Aires, 1918), Ingenieros set forth a prospectus for a metaphysics of the "inexperiential." By the "inexperiential" he did not mean a transcendent object but those parts of the natural world that the limitations of the senses and instruments exclude from present experience. He rejected the "classical" problems of the existence and nature of God, immortality, and freedom, finding them to be not so much meaningless as falsely stated under the influence of theological and ethical orthodoxy. The legitimate problems of metaphysics are those of metacosmology, metabiology, and metapsychology; in metabiology, for example, some legitimate problems are the origin of life, the possibility of life beyond this planet, and the final purpose of life. Because its objects lie beyond experience, metaphysics cannot achieve certainty. Its statements are hypotheses, which must be logically consistent and compatible with experience. Like the sciences, the metaphysics of the future will be antidogmatic, tentative and indefinitely perfectible, and impersonal in the sense that it will be the work of many collaborators.

The ethics of Ingenieros, discussed with visionary enthusiasm in *El hombre mediocre* (Madrid, 1913), is naturalistic, evolutionary, and deterministic. Values or ideals are hypotheses for the perfecting of human life. They arise out of experience, are formulated by the imagina-

tion, are tested in the evolutionary process, and are at once relative and a challenge to strenuous philosophy. They are created by exceptional men, or idealists, and are often thwarted, at best conserved, by the mass of mediocre men. For these reasons *El hombre mediocre* is critical of democracy, although it calls for equality under law while asserting an aristocracy of merit.

See also Ethical Naturalism; Evolutionary Ethics; Metaphysics; Positivism.

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INNATE IDEAS

The theory of "innate ideas," in any of its philosophically significant forms, claims that all morally right judgment or all science, or both, rest upon or consist in a knowledge a priori either of (*a*) universal principles governing reality or (*b*) objects transcending sensory experience. Representative of such universal principles are "From nothing, nothing comes" (*Ex nihilo, nihil fit*); "Equals added to equals give equals"; "It is wrong to murder." Illustrations of transcendent objects are Platonic Forms and God. Concomitantly, the theory attempts to explain the genesis and epistemological status of the conception of such principles and objects. For this purpose it introduces the notion of innate ideas.

Proponents of the theory of innate ideas (henceforth "innatists") would typically agree with empiricists that sensory experience consists of particulars. They would claim, however, that scientific knowledge is knowledge that holds good everywhere and at every time, that such knowledge in fact exists, and that the abstracting and compounding of sensory particulars in empiricist inductions cannot possibly provide us with such knowledge, but at most only with opinion. Innatists would also maintain, in agreement with some empiricists, that the

abstractions and compoundings of sensory particulars described by empiricism as the basis of conception cannot possibly provide us with the conception of such universal principles or transcendent objects as are referred to above. At the same time, innatists would typically disagree with those realists who claim that such conceptions and knowledge are attained through direct perceptions or intuitions of nonsensory reality, or if they did join the theory of innate ideas with a theory of such intuitions, as Plato seems to have done, they would hold that scientific knowledge, though it may conclude in such intuitions, does not commence with them. (To maintain that scientific knowledge commences with such intuitions would be to make the notion of innate ideas methodologically and epistemologically superfluous.) The notion of innate ideas rests, for its philosophical significance, on the assumption that knowledge of reality is not given directly—at least, not in its chronologically first premises—but through representations. Where reality is viewed as something distinct from sensory particulars, innatists are thus representative realists.

Since proponents of the theory of innate ideas deny that such conceptions of universal principles or of transcendent objects as are described above are derived either from sensory experience or from intuitions of nonsensory reality, they are left with the problem of explaining their genesis. This they solve by holding these conceptions to be innate or inborn—to be, in short, innate ideas. But in speaking of innate ideas, proponents of the theory seem to mean two things. By "idea" they sometimes mean an object of awareness, like a mental image. When speaking in this way, innatists must maintain that conceptions of universal principles or of transcendent objects are present in the mind from birth or even prior to it. Innatists then typically explain why children and savages do not seem to be cognizant of the principles or objects in question by holding that these conceptions or representations, though present in the mind, are obscured by the presence of other conceptions or ideas—in particular, sensory ideas or percepts—much as the sound of a flute might be present in the air but be inaudible because of other sounds or noises. Again, innatists sometimes mean by "idea" not an object of awareness but, rather, a disposition of the mind or reason to form a determinate conception under certain conditions or stimuli. In René Descartes, for instance, whenever consciousness occurs, there also occurs the conception that something is conscious—namely, oneself—and this is innate in the dispositional sense.

An equally crucial problem for proponents of the theory of innate ideas is to explain the epistemological status of innate conceptions. Since these conceptions are held to constitute the foundation for all science and since science is conceived of as depicting reality, the question arises: How can we know that these conceptions apply to reality?

Again, two answers are traditionally given to this question. One answer, originating in Plato, holds that innate ideas are actually memories. These memories are the representations of direct intuitions of reality experienced before birth. Innate ideas express knowledge, then, in the way that memories do. A second answer, exemplified in Descartes, holds that the truth of innate ideas can be internally validated. Thus, in Descartes we find upon reflection that two innate ideas, the idea that I am and the idea that from nothing nothing comes, possess a special property—they not only involve the immediate assent of reason (their denial being a contradiction of sorts) but they cannot be subjected to doubt, since any possible argument of doubt, as, for instance, appeal to an evil demon as the source of these ideas, must implicitly affirm the ideas in question. Thus, in arguing that an evil demon might be deceiving me, I at the same time affirm that I am and employ the principle that from nothing nothing comes. Taking a stand on these two innate ideas, Descartes then purports to prove the existence of God and God's goodness; by so doing, he thinks to establish clarity and distinctness as both the necessary and the sufficient condition of an idea's being true and thus validate all other innate ideas.

In summary, then, the theory of innate ideas states that certain conceptions of universal principles and nonsensory objects are innate, in the sense of being either images present in the mind at or before birth or inborn dispositions of the mind to form conceptions under certain circumstances. Since these conceptions, taken as either images or dispositions, exist chronologically before sensory experience, they are a priori in the literal, temporal sense of the term. Since they are not composed from or testable in sensory experience but since they provide the basis for all scientific knowledge, they are also a priori in the logical and epistemological senses.

HISTORY OF THE THEORY

The notion of innate ideas patently lends itself to theological speculation and to systems of metaphysics that locate reality in realms transcending sensory experience. Plato employed the notion as the bridge to the realm of Forms, and similar metaphysical and theological uses of

the doctrine occur in the works of the Neoplatonists (Plotinus, for example), as well as in the works of later philosophers and theologians belonging to the Platonic and the Neoplatonic tradition, including St. Augustine in the early period of Christianity, and Marsilio Ficino in the Italian Renaissance. Outside the strictly Platonic and Neoplatonic line, Descartes, as already noted, employed the doctrine in his proof of God's existence, and it was used in a similar fashion by the ancient Stoics, Herbert of Cherbury, and many other philosophers.

The doctrine of innate ideas also has an intimate relationship with the philosophy of science. Historically, this relationship has minifested itself in the fact that philosophical controversy over the doctrine has been greatest just when philosophers have been most concerned to establish foundations and methods for science. Thus, the existence of innate ideas was especially debated in the fourth century BCE by the philosophers of the Academy and the Lyceum and in the seventeenth century by the Continental rationalists and the British empiricists.

The question of whether innate ideas exist is not without consequences in the establishment of science. The doctrine of innate ideas favors certain scientific procedures and discourages others. In particular, it favors meditation as opposed to laboratory experimentation and mathematical methods as opposed to inductive methods. It might seem, however, that philosophical theories concerning the origins and foundations of scientific knowledge could have had, and therefore have had, no actual influence on the establishment of science, just as it has seemed to many philosophers that philosophical theories concerning ethics could have had and have had no actual influence on men's moral behavior. But this view overlooks the failures of would-be science in the seventeenth and eighteenth centuries: On the one hand, the imposing but vacuous systems spun out of the doctrine of innate ideas, and, on the other, the aimless experimentation and observation that Jonathan Swift, for example, caricatures in parts of *Gulliver's Travels*. The truth would appear to be, not that the doctrine of innate ideas could have had no real influence upon the development of science, but that if it had been strictly and universally adhered to in the seventeenth century and afterward, science would not have been established; but, then, universal adherence to the stricter forms of empiricism would also have been a sterile cause, and so, too, it would seem, would have been an intellectual climate in which neither philosophical empiricism or philosophical rationalism played any part in men's thinking.

EVALUATION

The classic attack upon the doctrine of innate ideas is made by John Locke in the first book of *An Essay concerning Human Understanding*. Locke argues that if the doctrine of innate ideas were true, one would expect to find certain ideas, such as the idea of God or the idea that whatever is, is, possessed by everyone and consciously employed in all their reasonings. This is not the case, however. Small children and savages do not possess these ideas, nor do persons consciously employ them in all their reasonings.

Commentators on the theory of innate ideas have sometimes complained that Locke's criticism of the theory sets up a straw man that no responsible innatist has ever cared to defend. In particular it has been claimed that responsible innatists have not held, and have not pretended to hold, that universal recognition and acceptance are corollaries to the existence of innate ideas. But this complaint is beside Locke's point. It is clear, for instance, that if small children everywhere, at the commencement of their discourse with others, appealed explicitly to the idea that whatever is, is, or to the idea of God, there would be good empirical grounds for supposing that innate ideas existed. For these would be at least some of the crucial empirical consequences one would want to deduce from the theory. Since these crucial consequences are not observed but might theoretically be observed, the theory is an empirical theory and, as such, it stands refuted by experience.

It has been argued against the theory of innate ideas that whatever transcendent principles or conceptions the theory pretends to account for can be accounted for more plausibly by supposing them to be constructed from givens of experience or acquired through transcendent intuitions. This argument, however, is not very convincing. It is, for example, impossible to conceive how the concept of infinity could be constructed from givens of experience or acquired through the contemplation of some transcendent realm of entities. But it is not clear, either, how possession of the concept can be accounted for through the theory of innate ideas.

See also A Priori and A Posteriori; Augustine, St.; Descartes, René; Ficino, Marsilio; Greek Academy; Herbert of Cherbury; Hume, David; Knowledge, A Priori; Leibniz, Gottfried Wilhelm; Locke, John; Nativism, Innatism; Neoplatonism; Plato; Plotinus; Rationalism; Renaissance; Stoicism; Swift, Jonathan.

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Herbert of Cherbury bases his doctrine of natural religion upon a theory of innate ideas. In his *De Veritate*, translated as *On Truth* by M. H. Carré (Bristol, U.K., 1937), universal recognition and acceptance are treated as criteria distinguishing innate ideas from other ideas. Pragmatic overtones are introduced: Our common or innate notions are also those that conduce to our preservation, and conversely.

Descartes lays the foundation for most subsequent discussion, pro and con, of the theory of innate ideas in his account of the wax tablet and our judgments of other minds in the "Second Meditation" and in his threefold division of ideas in the "Third Meditation." See *Meditations*, in *The Philosophical Works of Descartes*, translated by E. S. Haldane and C. T. Ross. 2 vols. (Cambridge, U.K.: Cambridge University Press, 1911, 1931; New York, 1955).

Locke's classic attack upon the theory of innate ideas is given in Book I of the *Essay concerning Human Understanding* (edited by J. W. Yolton, 2 vols., London, 1961). Locke argues that the theory that all knowledge is acquired from experience can be substantiated in experience; the doctrine of innate ideas is disconfirmed by experience.

Gottfried Wilhelm Leibniz's *New Essays concerning Human Understanding* contains an exhaustive examination and critique of Locke's attack upon the theory of innate ideas. See "Specimens of Thoughts upon the First Book of the Essay on Human Understanding, 1698," the preface, and "Book I" in the *New Essays* as translated by A. G. Langley. 3rd ed. (La Salle, IL, 1949). In opposition to Locke, Leibniz argues that insensible perceptions exist and that thus Locke's arguments concerning children and savages being unaware of the concept of God or such principles as whatever is, is, do not refute the theory of innate ideas. Contains Leibniz's own version of the theory of innate ideas.

David Hume in his *Enquiry concerning Human Understanding* offers a very brief but penetrating and informative discussion of the theory of innate ideas and its relation to his principle that every simple idea is the copy of a precedent simple impression. See Sec. 2, footnote 1, in the *Enquiry* edited by C. W. Hendel (New York, 1955).

N. O. Losskii connects the historical appearance of the doctrine of innate ideas in the seventeenth century with the failure of empiricists of that era to account for transcendent knowledge, necessary truths, and knowledge of an external world. See Ch. 2 of his *The Intuitive Basis of Knowledge*, translated by N. A. Duddington (London: Macmillan, 1919), where he argues that although the pre-Kantian rationalists seemed able to resolve the difficulties in question by the doctrine of innate ideas, the cost of this resolution was prohibitive. They "had to assume that *the whole of knowledge is innate*."

R. I. Aaron in *The Nature of Knowing* (London: Williams and Norgate, 1930) discusses innate ideas in connection with his intuitionist theory of knowledge. Although he maintains that all discursive knowledge rests upon a priori knowledge of indubitable or self-evident principles, he denies that the latter are innate ideas.

H. H. Price maintains in *Perception* (London: Methuen, 1932) that there are a priori innate ideas, but that "we only come to clear consciousness of such concepts … when we have already applied them many times."

Lewis E. Hahn's *A Contextualistic Theory of Perception* (Berkeley and Los Angeles: University of California Press, 1942) contains a detailed discussion of the interrelationship of strict sense-data theories of perception, pragmatic theories of perception, and the doctrine of innate ideas. Hahn argues that a strict sense-data theory of perception forces one to accept the doctrine of innate ideas in order to account for one's knowledge and conception of material things, whereas a pragmatic theory of perception does not. He takes this consequence to count in favor of pragmatic theories of perception and against sense-data theories.

John Wild maintains in his *Introduction to Realistic Philosophy* (New York: Harper, 1948) that what evidence we possess strongly indicates that rational knowledge does not rest upon innate ideas, but is acquired. This evidence consists in the fact that "first we do not know. Then we know."

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INNATE IDEAS, NATIVISM

Nativism, or the doctrine of innate ideas, is the thesis that human beings possess at least some substantive knowledge innately. The doctrine has long been the subject of intense controversy among philosophers, and since the late 1950s, among cognitive scientists as well. It is generally understood in opposition to the doctrine of empiricism, according to which all substantive human knowledge derives from sense experience.

Proponents of nativism argue that experience alone cannot account, either *de facto*, or in principle, for the extent and specific content of human knowledge. Arguments of the first type focus on the type and amount of information actually available to a human being during a given period of empirical experience, and purport to show that the information contained in that experience is insufficient to account for a person's manifest cognitive achievements at that point. Such arguments have become known by the term introduced by linguist Noam Chomsky as "poverty-of-the-stimulus" (POS) arguments, and constitute the most common way of defending nativist hypotheses (Chomsky 1957, 1965, 1975). Arguments of the second type are transcendental in character. They purport to show that certain kinds of knowledge are preconditions of empirical learning, and could not, therefore, be the products of such learning. Philosopher Jerry Fodor, who posits an innate system of representation, is probably the most well-known contemporary author of an argument of this type (Fodor 1975). In both kinds of argument, nativists tend to focus on the particular mechanisms of knowledge acquisition presumed or posited by their opponents.

Opponents of nativism also employ a variety of strategies. Some attempt to rebut POS arguments, by showing that the relevant body of empirical experience does, in fact, contain the right types and amount of information to account for human knowledge, and that actual human learning mechanisms can, in fact, extract it. Others critics attack the doctrine directly, arguing either that the notion of innate knowledge is hopelessly obscure, or that it cannot be made scientifically respectable. Still other opponents contend that the doctrine properly understood is trivial—that it posits nothing an empiricist need reject.

Indeed, philosophical discussion of nativism has tended to focus on the meaning of the doctrine, and in particular, the operative terms, "knowledge" and "innate." Philosophers have traditionally made a provisional distinction between declarative, or theoretical knowledge—

"knowing-*that*"—and practical knowledge—"knowing-*how*." It is one thing to attribute to someone practical knowledge of, for example, logic, and quite a different thing to attribute to her declarative knowledge of logic. Normal human beings all have the ability to reason in accordance with the laws of logic, whereas few of us can articulate those laws, or even recognize them if they were laid out explicitly before us. Accordingly, the claim that some practical ability is innate is, on its face, different from the claim that some bit of declarative knowledge is.

The term "innate" has both a categorical and a dispositional sense. In the categorical sense, a trait is innate only if it is manifestly present at the creature's beginning; in the dispositional sense, a trait can be innate if the creature is disposed to manifest it under normal conditions. Now it may well be that a newborn human infant lacks the ability to reason—the relevant neuronal connections may not yet have formed—so that practical knowledge of logic is not innate in the categorical sense. Still, a normal infant is disposed to acquire the ability to reason, in normal circumstances. That is, the infant is so constituted that the necessary neurological connections will be formed, provided the infant gets enough to eat, suffers no head injuries. Practical knowledge of logic should therefore be counted as innate in the dispositional sense. The same point can be made with respect to declarative knowledge: It could be innate in the dispositional sense even if it is not innate in the categorical sense.

There are further complications. Knowledge can be either explicit or implicit. While it could be argued that few individuals have explicit declarative knowledge of the laws of logic, it is clear that everyone has—in virtue of being a competent reasoner—implicit knowledge of those laws. Contemporary cognitive science introduces another wrinkle: Knowledge can reside at the "personal" or at the "sub-personal" level. Personal-level knowledge is knowledge that can be consciously accessed, and that can play a role in conscious deliberation. Sub-personal knowledge is posited to reside in cognitive "modules"—subsystems that perform cognitive operations that are inaccessible to consciousness, and that are isolated from personal-level beliefs and desires. Many philosophers find the notion of sub-personal "knowledge" oxymoronic, and yet the notion has come to play an increasingly important role in contemporary cognitive science.

Contemporary cognitive science and cognitive ethology (the study of nonhuman animal cognition and behavior) have generated a great deal of support for the view that much apparently intelligent animal behavior is to be explained by natively structured cognitive "mod-

ules" containing domain-specific information and algorithms. Explanations of this sort have been posited for phenomena as diverse as bird navigation systems and bee foraging strategies (Gallistel et al. 1991). Psychologist Steven Pinker suggests that this conception of "instinct" provides the best way to understand the species-specific human capacity for language (Pinker 1994).

Nativism as it is understood in philosophy and contemporary cognitive science is a theory of human universals, of species-wide characteristics. It should therefore be sharply distinguished from "biological determinist" theories—theories that purport to explain individual human differences with respect to such traits as intelligence and criminality in terms of innate and supposedly immutable genotypic differences.

HISTORY OF THE DEBATE

The basic outlines of the debate were set in ancient Greece, and were further elaborated in the early modern period. Plato employed a POS argument for a version of nativism, his doctrine of "recollection" (*anamnesis*). In *Meno*, Plato's character Socrates elicits from an uneducated slave boy the solutions to a series of problems in geometry, culminating in the identification of an irrational number, the square root of two. Since the boy could not have learned it, Socrates argues, the relevant information must have already been present within his soul, needing only the stimulus of Socrates's questioning for it to be "recollected." Socrates goes on to argue that the origins of this knowledge, which every human being could "find … within himself" (Plato 1981, p. 75), are prenatal, the result of the soul's early encounter in a previous life with the objects of eternal truths.

Aristotle rejected Plato's doctrine of innate ideas, averring that the mind is initially blank. Universals, or "intelligible forms" can only be grasped through experience, by abstraction from the "sensible forms" delivered to the mind through sense perception (*Posterior Analytics*, Bk. II). This Aristotelian empiricism was embraced and elaborated by the Scholastics in the Middle Ages. According to Aquinas, apparently *a priori* knowledge such as that of Plato's slave boy could be accounted for in terms of the mind's detection of its own operations. Although the mind natively has the propensity to perform these operations, it is not until the mind is stimulated by the provision of the sensible forms imparted through perception that such operations actually occur. In this sense, then, even the apprehension of one's own inner mental life is indirectly dependent upon sensory experience (Adams 1975).

René Descartes revived nativism. He rejected the Aristotelian/Scholastic doctrine that our ideas of perceptual qualities resemble or share a form with the qualities of the bodies that occasioned them. On Descartes's view, perception, like all causal processes, involved the movement of tiny bodies or corpuscles, the properties of which bore no resemblance to the ideas of sensory qualities in which the process culminated. In that case, Descartes argued, our ideas of color, shape, movement could not have been imparted by sensation, but must rather be innate, and merely occasioned by sensation. In calling such ideas innate, Descartes was not claiming that they were manifestly present in the mind since birth. Rather, he meant that our minds are innately constituted in such a way that sensory experiences of certain sorts reliably give rise to ideas of certain sorts (Descartes 1648/1969).

Although Descartes did not believe that ideas must share forms with the objects they represented, he did accept a principle that constrained the relation between the two. This principle, sometimes called the "principle of proportionate reality," formed the basis of a type of POS argument, albeit an a priori one. The principle states that a cause must contain at least as much reality as its effect. Applied to the special case of the relation between ideas and their causes, Descartes claimed that the principle entails that the cause of an idea must possess at least as much "formal" reality as the "objective" (or representative) reality contained in the idea.

There are three possibilities, Descartes says, as to the causes of those of our ideas that are involved in judgments, that is, that admit of truth or falsity: they can be (a) caused by something outside of ourselves ("adventitious" ideas), (b) fabricated by ourselves ("factitious"), or (c) innate. Now our idea of God is an idea of an infinite, eternal, omniscient, omnipotent and perfectly benevolent being. Since the amount of objective reality in such an idea is infinite, the cause of this idea itself must be something infinite and perfect. No finite substance could be the cause, and hence it could not have been caused by a substance exeeeee e external to myself, nor could I have caused it myself. Only an infinite, perfect being could have caused it, i.e., only God Himself. Furthermore, since this idea does not come upon me "unexpectedly" as do ideas that come through the senses, and since it is not within my power to change it as is the case with ideas that I originate, my idea of God, Descartes concludes, must be innate, implanted by God at the beginning of my existence (Descartes 1641/1969).

Descartes also made two empirical arguments for the domain-specificity of the human language capacity, argu-

ments explicitly cited by Noam Chomsky in his twenti-eth-century defense of the same conclusion. In *Discourse on Method* (1637/1969) Descartes sought to establish the existence of a "special faculty" in human beings that accounted for our capacity, distinctive within the animal kingdom, for creative language use. He considers the objection, offered by a hypothetical interlocutor, that human linguistic competence might be due to a merely quantitative difference in some general ability between human beings and other animals, rather than, as Descartes's view had it, a difference in kind.

Descartes's first response is to point out that even the "stupidest" human children acquire language without difficulty, whereas not even the most intelligent infrahu-man animals are able to acquire it at all. (It is noteworthy that Descartes's judgment about the linguistic incapacity of infrahuman animals was confirmed during the 1970s, when a variety of researchers attempted, without success, to teach American Sign Language to apes and chimpanzees. Despite assiduous training, not one of the otherwise highly intelligent and creative animals even approached the linguistic achievements of the average deaf human three-year-old (Pinker 1995). This response, however, is vulnerable to the following rejoinder: It may be that there simply is no overlap between humans and other animals in the ranges of variation in the relevant ability, that the "stupidest" human has a far greater amount of this hypothetical general ability than does the "most perfect parrot or monkey." Descartes's second argument speaks to that possibility: if human linguistic ability is a manifestation of a more general ability, then we'd expect that human beings would excel above animals in all activities to the same extent we exceed them in the practice of communication. But this is not what is observed (Descartes 1637/1969).

John Locke, like Aristotle, held that the mind is initially only a "white paper void of all characters, without any ideas" (1689/1979, p. 2). He explicitly rejected Descartes's doctrine of innate ideas. It was unnecessary, he argued, to posit "innate principles" in order to account for any feature of human knowledge, when the humanly "natural faculties" of sensation and reflection could be shown to be quite sufficient. He particularly objected to the view that ideas of sense were innate, arguing that "it would be impertinent to suppose the ideas of colors innate in a creature to whom God hath given sight, and a power to receive them by the eyes from external objects" (1689/1979, p. 1). But he was equally adamant that truths of reason became known only through experience. The *faculty* of reflection was sufficient to ensure that we rec-

ognize such propositions as true as soon as we apprehend them.

Locke's *Essay* was meant to provide a systematic explanation of the origins of all human knowledge from these raw materials of human faculties and simple ideas of sense, and thus was addressed to Descartes's POS arguments. But Locke also had principled reasons for rejecting the doctrine of innate ideas, reasons that echo today in contemporary empiricists' objections to empirical nativist theories. To begin with, he argued, these allegedly innate principles are not in fact universally known—"children and idiots have not the least apprehension … of them" (p. 4)—and so could not have been imprinted upon the human soul at birth. If it is replied that the principles could have been imprinted without the subjects' being aware of them, Locke argues, then the doctrine of innate ideas is trivialized. If we can make sense of the notion of an unperceived idea, Locke argues, it can only be as an idea that we have the *capability* of acquiring. If the doctrine is understood in this way, however, it becomes trivial, because *any* truth a person can come to know in the course of a lifetime would count as "innate" in this sense. And in any case, even if "universal consent" were established, nativism would not provide the only explanation.

Locke's positive account of the acquisition of ideas and the formation of knowledge relied on posited mechanisms of association and abstraction for the accumulation and manipulation of sensory impressions into general ideas, abstract ideas, and judgments. Subsequent empiricist models of concept acquisition and learning have followed Locke's model in essentials.

Gottfried Leibniz, in his *New Essays*, attempted a systematic rebuttal of Locke's critique of the doctrine of innate ideas. Leibniz first addressed Locke's in-principle objection to the notion of an innate, but unperceived idea. Leibniz argues that Locke is operating with too restrictive a notion of "knowledge" if he does not acknowledge the existence of implicit or unconscious knowledge. And to Locke's objection that allowing implicit knowledge would trivialize the doctrine of innate ideas, Leibniz responds that a distinction can and must be made between sciences like arithmetic and geometry, that we can "construct for ourselves … in our private room … without learning through sight or even touch the truths which we need," and those which require sensory experience (Leibniz 1704/1975). Furthermore, Leibniz argues, there is a difference between the mind's actually possessing structure, of a sort that permits the generation, *a priori*, of knowledge, and the mind's simply having the

potential for acquiring truths. This disagreement between Locke and Leibniz about the nature and significance of innate mental structure has echoes in contemporary philosophical debates.

Leibniz then turned his attention to Locke's positive account of the development of knowledge, and here makes an argument of the type this entry has termed "transcendental." Leibniz focuses on two concepts repeatedly cited by Locke as examples of ideas that could not possibly have been innate, but must be acquired through experience, namely impossibility and identity. According to Locke, these ideas can only be the product of the comparison of various specific sensory experiences, such as the taste of a normal nipple, versus one rubbed with wormwood. But this, according to Leibniz makes no sense: abstraction cannot explain the acquisition of these concepts, because abstraction presupposes the ability in the subject to classify experiences as similar or different, and thus as possessing the concepts same and different. Possession of such concepts is a precondition of, and thus cannot be the result of empirical learning (Leibniz 1704/1975). Ironically, a similar argument was made by the empiricist David Hume for the innateness of the principle of induction. The notion that the future tends to resemble the past is not one, Hume argued, that could be acquired through experience, because we need to presume that principle in order to take experience as evidence for anything at all (Hume 1748/1977).

Immanuel Kant, from whom my use of the term "transcendental" is borrowed, argued similarly that empirical experience as we know it—"intuitions"—are only possible because of innate forms and structures that characterize our perceptual and intellectual capacities. Space and time, he argued, are not features of reality considered "in itself" but are rather the "a priori" forms of perception. Perceptual experiences are only cognitively available to us because of the "pure categories of the understanding," highly general concepts like object and cause, that allow us to utilize experience to form judgments (Kant 1781/1787/1929).

CURRENT CONTROVERSIES

At the beginning of the twentieth century, under the influence of logical positivism, many philosophers rejected not only the doctrine of innate ideas, but the very notion of the mind. Hypotheses about mental structures and processes were held to be at best unverifiable, and at worst, unintelligible; the only possible "science of the mind" would be, ironically, a science of behavior. J. B. Watson and B. F. Skinner developed what they claimed

was a fully general account of learning, applicable to all behavior, whether "intelligent" or reflexive, human or infrahuman. The basic mechanisms posited by behaviorists—classical and operant conditioning—involved the evocation, shaping and reinforcement of patterns of behavior. Although behaviorists eschewed any reference to the mental, they did tacitly accept Leibniz's point against Locke. Accordingly, they posited what philosopher W. v. O. Quine called an "innate similarity space"— a disposition to treat stimuli as falling into similarity classes, manifested by "stimulus generalization," the transfer of a reinforced response to similar but novel circumstances, a precondition of the learning of complex behavior (Skinner 1953).

Skinner thought that behaviorist principles could and would account for even the most complex behaviors acquired by human beings in their lifetimes, including the mastery of language. His book *Verbal Behavior* was the first, and to date, the last, effort by an anti-nativist, anti-mentalist to provide a systematic and relatively detailed explanation of the acquisition of human language (Skinner 1957). But in 1959, Noam Chomsky published a devastating review of the book in which he showed that the theory faced a fatal flaw: It was either grossly empirically inadequate or else devoid of empirical content (Chomsky 1959).

Chomsky had outlined his own positive account of language acquisition in 1957, an account that was iconoclastic at the time in reviving not only mentalism, but nativism. Unlike Skinner, who derived his model of language learning top-down, Chomsky urged a naturalistic approach to the study of language, one that focused on the actual conditions in which children acquired their linguistic competence. This focus quickly revealed several important points: (1) children attain language without any explicit instruction; (2) language is almost universally acquired, even for blind children (and deaf children if they are given access to signed language) within the first five years of life; and (3) the body of evidence available to children during acquisition—the body of "primary linguistic data"—is badly "impoverished" relative to the body of information eventually mastered. In particular, the data do not contain "negative evidence"—information that certain constructions are *not* licensed. This is highly significant, as there seem to be certain kinds of ungrammatical constructions that never appear among children's early mistakes. Given all this, Chomsky concluded that language acquisition was not the result of some general learning mechanism operating on sensory data, but that it rather involved, a domain-specific cogni-

tive mechanism that embodied constraints on the forms human linguistic systems can take—the "language acquisition device" (LAD). This natively specified set of constraints, "universal grammar" (UG), greatly simplifies the acquisition task by sharply constraining the set of candidate grammars a child must consider in response to data and by filling in gaps left by experience.

The POS paradigm has since been applied in many other ways within cognitive science. Psychologists Barbara Landau and Lila Gleitman have shown that blind children acquire verbs of sight (for example, "look" "see") in much the same way as sighted children, though, obviously, in the absence of any visual experience (Landau and Gleitman 1985). Gleitman has argued that children's mastery of semantics (as opposed to syntax, which is Chomsky's focus) cannot be explained on the basis of experience, showing that the most common verbs in human language have no distinctive profiles of contingency of usage from which the child could infer their meanings (Gleitman 1990). These findings directly contradict the empiricist accounts of meaning acquisition found in Skinner and Quine (Skinner 1957, Quine 1973).

Elizabeth Spelke, pioneering an experimental paradigm for studying infant cognition, has provided empirical support for the views of Leibniz and Kant that our basic conceptual organization of the external world is natively specified, as a precondition of all other empirical learning (Spelke 1995). Evidence from the study of autistic persons has led many researchers to posit an innate "theory of mind" that enables non-autistic persons to interpret the facial expressions, gestures, intonation patterns of their fellow human beings in a reflexive way, and to effortlessly generate appropriate hypotheses about their likely intentions, desires, and reactions (Frith 1992, Baron-Cohen 1995). Empiricist critics of this so-called "theory-theory" approach to our capacity for psychological understanding argue that we do not need innate psychological knowledge; that rather, we utilize our capacity to mimic our conspecifics to run "simulations" of other individuals' psychologies, and thus to learn empirically what is going on in their heads (Gordon 1986, Heal 1994, Goldman 2006).

Philosophical critics of Chomsky have challenged the intelligibility of his model of mind and his conception of innate knowledge, raising many of the points raised by Locke and other empiricists. Gilbert Harman and Hilary Putnam each have argued that Chomsky's arguments demonstrate, at best, the existence of native principles of induction governing the learning of language, a thesis any empiricist could accept. Putnam also argued that

nativism is not the only or the best explanation for the existence of linguistic universals, or the ubiquity of acquisition (Putnam1967, Harman 1967). Chomsky replies that the real issue is whether there are specialized mechanisms that in some sense embody domain-specific information, not how that information is embodied (See also Katz 1966). He insists that the notion of "innate knowledge" should be understood as an abductive posit in a scientific theory, with the details to be worked out as part of the relevant scientific investigation, as is usual in other branches of science (Chomsky 1969). Pinker and others have stressed, in response to Putnam's second point, that it is the poverty of the stimulus, rather than universality, that provides the strongest support for nativism. Alvin Goldman considers and responds to the objection, first found in Locke, that mere innateness cannot secure the justification required for knowledge, arguing that an externalist epistemological framework that takes account of selectional processes that account for native beliefs or biases can provide the systematic warrant needed for knowledge (Goldman 2006).

On the empirical side, critics have focused, appropriately, on the POS argument. Some have attacked the logic of the POS argument, contending that many cognitive achievements are made in the absence of apparently needed evidence, with there being no reason to think the relevant knowledge is innate. Fiona Cowie, for example, argues that she acquired the concept "curry" without explicit instruction, without negative evidence, but that that is no reason to think the concept is innate (Cowie 1998). Others contend that the primary linguistic data are richer than Chomsky has supposed. For example, it has been widely documented that parents and other speakers interacting with infants tend to produce a simplified and pedagogically friendly version of human language, dubbed "Motherese," that may provide the child with a salutarily biased sample of the language (Snow 1972). Other critics argue that our cognitive resources for extracting information from the environment are more powerful than Chomsky supposed. These latter critics include advocates of a new empiricist model of mind called "connectionism." Connectionists reject the view that cognition involves the manipulation of structured representations, arguing instead that the mind is a vast network of neural nodes, capable, given suitable "training," of detecting and responding, at levels not accessible to consciousness, to very subtle regularities in the data stream (Elman et al. 1996).

Chomsky's theory is computationalist—that is, it presupposes that the mind is, *inter alia*, an information

processing device. In 1975, philosopher Jerry Fodor argued that not only Chomsky's, but all successful and fruitful psychological theories were tacitly committed to this model, and that the model itself carried a heavy ontological commitment. Computations, Fodor argues, require a *medium of computation*. Since the acquisition of natural language is one of the processes that is, *ex hypothesi*, computational, natural language cannot itself be the medium in which the relevant computations take place. There must be an antecedently existing medium, an innate "language of thought" (LOT), with at least as much syntactic complexity and expressive power as needed to fully represent natural languages (Fodor 1975).

Fodor's view on the latter point has developed. Initially, he claimed that the argument showed that all concepts were innate, but he has recently modified this to the claim that no concept is *learned*, leaving open the possibility that there are non-computational, and hence non-psychological means for acquiring concepts (Fodor 1997). The argument that no concepts are learned is transcendental in character, and simple to state: (1) Concept learning (if there is such a thing) would involve the formulation, projection and confirmation of hypotheses as to the extension of the concept to be learned; (2) Such processes presuppose the means to represent the extension of the concept to be learned; (3) But any system that has the means to represent the extension of a concept *ipso facto* possesses the concept. Therefore, (4), one cannot learn a concept without already possessing that concept; hence (5) concept *learning* is impossible.

Fodor's critics include many of the philosophers who have challenged Chomsky. Critics have charged that the LOT leads to an infinite regress of languages and interpreters (Dennett 1975, Harman 1975). Connectionists have argued that Fodor's fundamental assumption—that mental operations involve the manipulation of structured symbols—is mistaken, and that there is therefore no need to posit an innate medium of computation (Clark 1993). Other critics have argued that Fodor has constructed a false dilemma about concept learning: that there are plausible models that do involve a rational extraction of information, and that should thus count as learning, but that do not employ the hypothesis-confirmation model that Fodor presumes to be the only alternative to non-psychological triggering (Margolis 1998, Cowie 1998).

Fodor is also responsible for revitalizing the theory of mental modularity (Fodor 1983). According to Fodor, processing in each sensory modality, as well as linguistic processing, takes place in specialized functional regions of the brain, equipped with proprietary algorithms, memory, and computational vocabulary. Such processing is characteristically fast, automatic, and "informationally encapsulated"—insensitive to information from outside the module, typically information stored in central systems. The character of these modules is specified in the genome, although their development may require experiential inputs at crucial stages. Contemporary anthropologists and social psychologists, along with some cognitive psychologists, have become increasingly interested in developing modular explanations for a wide variety of human cognitive and psychological traits, from reasoning about social contracts to men's alleged aesthetic preference for firm breasts in women (Barkow et al. 1992; see Pinker 1997, 2002 for an overview). Ironically, Fodor has emerged as the most vocal critic of this line of thought, objecting both to the strict adaptationist presumptions of the modularists' methodology, and to what he regards as the emptiness of the conception of modularity they employ (Fodor 2000). The debate beginning with Plato will no doubt continue as philosophers, psychologists, and cognitive scientists try to bring fresh insight to the issue of innate ideas.

See also Aristotle; Artificial and Natural Languages; Chomsky, Noam; Connectionism; Dennett, Daniel C.; Descartes, René; Fodor, Jerry A.; Harman, Gilbert; Hume, David; Innate Ideas; Kant, Immanuel; Leibniz, Gottfried Wilhelm; Locke, John; Plato; Putnam, Hilary; Quine, Willard Van Orman; Skinner, B. F.; Thomas Aquinas, St.

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Louise M. Antony (2005)

INNER SENSES

The scholastic theory of the inner senses can be viewed as an attempt to explain and classify cognitive abilities shared by human beings and nonrational animals, abilities that go beyond pure sensation and require a certain level of abstraction. Given that capacities such as reason or belief were generally denied to animals beginning in the classical period of Greek philosophy, these powers or faculties of the sensible soul were thought to account for goal-directed or intentional animal behavior as well as memory and dreaming in humans and animals.

Historically, the concept of the inner senses is rooted in Aristotle's (384–322 BCE) remarks on postsensory faculties of the soul in the second and third books of *De Anima* and in *De memoria et reminiscentia*. A model list-

ing three "inner" psychic faculties, assigned to three cerebral ventricles (imagination/front ventricle, intellective faculty/middle ventricle, memory/rear ventricle), stems from the writings of Galen (129–c. 199) and was handed down to medieval thinkers via Nemesius's (fourth century AD) *De natura hominis* (chapter 5) and John Damascene's (c. 675–749) *De fide orthodoxa* (chapters 32–34). St. Augustine (354–430) was the first to use the Latin term *sensus interior*, meaning Aristotle's common sense (*Confessions*, book 1, chapter 17; *vis interior* in book 7, chapter 27).

However, the notion of the inner sense only appears there in its singular form. The tendency to posit a plurality of inner senses was probably most influenced by Avicenna's (980–1037) *Liber de anima sextus de naturalibus* (part 1, chapter 5). The Islamic philosopher lists five inner senses as powers of the apprehensive part of the sensible soul: (1) the common sense (*sensus communis*) combines the forms it receives from the five external senses; (2) the imagination (*imaginatio*) keeps these forms stored; (3) the imaginative power (*vis imaginativa*) combines and separates forms kept in the imagination; (4) the estimative power (*vis aestimativa*) judges perceived salient or of interest (e.g., the sheep that apprehends the perceived wolf as something it should flee from); and (5) the memory (*vis memorialis et reminisci-bilis*) keeps these prerational estimations. Although Avicenna gives three- and fourfold classifications as well, this fivefold classification came to be frequently cited in medieval texts.

Albert the Great (Albertus Magnus, c. 1200–1280) uses Avicenna's classification and combines it with a description of the brain and the functions of animal spirits taken from Costa ben Luca's (c. 864–923) *De differentia animae et spiritus* to localize the inner senses. According to Albert the classification reflects different levels of abstraction and corresponds to the grades of subtlety of the animal spirits (*Summa de homine*). The common sense belongs to the same level of abstraction as the five external senses because its function depends on the immediate presence of a perceived object. Nonetheless, it is not counted as an external sense because it does not receive its forms directly from the external object, but from the external senses.

St. Thomas Aquinas (1225–1274) calls the common sense the "root and principle" of the external senses because it joins the different impressions of the external senses and thus combines the raw sense-data to form a unified episode of perceiving an object. Besides the common sense Aquinas's fourfold list of inner senses (*Summa*

Theologiae, pars Ia, quaestio 78, articulus 4) includes the imagination (*imaginatio sive phantasia*), the functioning as storage for sensible forms, the estimative power (*vis aestimativa*), and the memory (*vis memorativa*, *memoria sive reminiscentia*). In contrast to Albert and Avicenna, Aquinas—following Averroes (1126–1198)—stresses that in human beings the animal estimative power is replaced by the cogitative power (*vis cogitativa sive ratio particularis*) that accounts for quasi-propositional perception. In modern philosophy the term *inner sense* is used to signify the mind's ability to reflect on its own operations (Locke 1975, Kant 1998).

See also Aristotle; Augustine, St.; Avicenna; Thomas Aquinas, St.

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Alexander Brungs (2005)

INSTRUMENTALISM

See *Dewey, John; Pragmatism*

INTENSIONAL TRANSITIVE VERBS

A verb is transitive if it takes a direct object and intensional if it exhibits one or more intensionality effects in its direct object. The three main such effects are (i) resistance to interchange of coextensive expressions, such as coreferential names or common nouns that happen to apply to exactly the same objects; (ii) lack of existence entailments even when the direct object is existentially

quantified; and (iii) a relational-notional ambiguity if the direct object is quantified.

Verbs of search, desire, and expectation, exhibit all three intensionality effects. Thus, for (i), "Lois seeks Superman" and "Lois seeks Clark" might differ in truth-value even though Superman is Clark. For (ii), "Perseus seeks a gorgon" can be true even if there are no gorgons (contrast the extensional transitive *found*). For (iii), "Richard III seeks a horse" is normally understood to mean that his search may be concluded successfully by finding any one of a range of horses: There need be no particular horse he must find. This is the notional reading. The relational reading is that there is some horse such that he is looking for that horse: Finding other horses will not do. Extensional transitives only allow relational readings: If Richard III rode a horse, there is a particular horse he rode. The relational/notional distinction was named and explored in Quine (1956).

Other groups of verbs exhibit various effects in various ways, providing much for an account of intensional transitives to explain. For example, depiction verbs generate a relational-notional ambiguity only with certain quantifiers in the direct object. "Guercino drew a dog" has both the relational reading—some specific dog—and the notional reading—no specific dog. But "Guercino drew every dog" seems to advert to some antecedent domain on which "every dog" is interpreted, requiring him to have drawn particular dogs (similarly with "most dogs" and "the dog"). By contrast, "Aldrovandi seeks every dog on his property" has a notional reading, according to which he simply has a general intention to find all the dogs there may be in the area. So depiction verbs are a special case.

Verbs of evaluation, such as *despise, fear, respect* and *admire*, resist interchange of coreferential expressions (for example, "Lex Luthor fears Superman but not Clark") but it is not so clear that they give rise to relational/notional ambiguities, at least with existential direct objects. The sentence "Churchill scorned a pedant" (pedantry was something up with which he was not prepared to put) can be understood in two ways: There is a relational reading, according to which there was a particular pedant who was the object of his scorn, and there is a generic reading, which attributes a ceteris paribus response-disposition to him and allows for exceptions. Generic readings are not notional ones, since they are just as common with extensional verbs—for instance, "Corporations overcompensate their CEO's" (see Ariel 1999 for more on generics). So "scorned a pedant" lacks a notional reading.

The verb *need* (and transaction verbs such as *wager* and *owe*) displays the opposite behavior: notional readings are unproblematically available, but substitutions are permitted that fail with evaluation verbs and desire verbs. For example, if Richard III is dehydrated and therefore needs some water, it follows, since water is H_2O, that he needs some H_2O, whether or not he has such concepts as hydrogen and regardless of his other beliefs. But if he thinks H_2O is a kind of rat poison, he may want some water without wanting some H_2O and fear H_2O without fearing water.

An obvious question is whether the three types of intensionality effect have a common ground or whether two or even three distinct mechanisms are involved. The contrast between *need* and *scorn* suggests that one mechanism is involved in substitution resistance and another in generating notional readings: The former is not available to *needs*, the latter not to *scorn*. And since one may need more flu vaccine even if there is no more left, existence neutrality apparently goes with the availability of notional readings.

It might be objected that we get existence neutrality with evaluation verbs as well: The Ancient Greeks worshipped Zeus even though there is no such entity. However, serious use of names for fictional or mythical items requires an ontology of abstract fictional or mythical entities that exist contingently (they would not have existed if the corresponding fictions or myths had not been created; see Salmon [2002]). We should also note that *worship* is peculiar among evaluative verbs as regards notional readings. For instance, if a priest sacrifices with the words "To whichever god is out there," this is, arguably, a case of worshipping a god, but no particular one.

The next step is to describe the mechanisms accounting for the intensionality effects. One possibility is that in all three cases, the problems with intensional transitive verbs simply duplicate those encountered with propositional attitude verbs. This position seems quite plausible for substitution-resistance. If we have a good account of why substitution fails in "Lex Luthor fears that Superman is nearby" we would surely expect it to transfer straightforwardly to "Lex Luthor fears Superman"—unless, that is, the account for propositional attitude verbs depends on the presence of a clausal complement, as appears to be the case with Davidson's "paratactic" analysis of propositional attitude ascriptions (Davidson 1969). However, other accounts of substitution-failure in propositional attitude ascriptions transfer more smoothly—for instance, any account on which a name is associated with

a way of thinking of the referent and that way of thinking somehow enters into the truth conditions of the ascription. (See, for example, the "hidden indexical" mechanisms explored in Crimmins [1992] and Forbes [2000]).

There is also the view that substitution resistance is an illusion (locus classicus Salmon [1986]), which, if correct for propositional attitude verbs, should be equally correct for intensional transitives. On this view a name contributes only its referent to the meaning of a sentence, so no semantic distinction is to be drawn between "Lex fears Superman" and "Lex fears Clark."

The idea that no new problem is presented by intensional transitives runs into trouble, however, when we consider the relational-notional distinction. With propositional attitude verbs, the difference between (a) ascribing some cognitive relation between a subject and a specific item that the attitude is about and (b) not making such an ascription is captured by a scope distinction: "Lex fears that an extraterrestrial is nearby" gets the relational meaning when the quantifier "an extraterrestrial" is moved out of the attitude-content specification so that it has scope over "fears," as in "An extraterrestrial is such that Lex fears it is nearby"; the notional reading corresponds to unambiguous restriction of the quantifier to the attitude-content specification, as in "Lex fears-true the proposition that an extraterrestrial is nearby." But when we turn to intensional transitives, we find that, at least within a first-order framework, notional readings cannot be represented as ones in which the intensional verb has scope over the quantifier. For the verb to have wide scope, the quantifier must be one of its arguments: "seeks (Lois, an extraterrestrial)." But in first-order language a quantifier cannot be an argument to a relation: it must take scope over a sentence, open or closed, hence "without an inner sentential context, distinctions of scope disappear" (Kaplan 1986, p. 266).

According to propositionalism, the inner sentential context is there but partly hidden. Quine (1956) advances this view in the thesis that search-verb sentences can be paraphrased in terms of trying to find. So "Perseus seeks a gorgon" would be paraphrased as "Perseus is trying to find a gorgon." Partee (1974, p. 97) notes that search verbs cannot all be paraphrased using "trying to find," since they are not all synonymous (*cf.* "hunt" and "rummage about"), but in defense of propositionalism, both Parsons (1977) and Larson (2001) suggest using the search verb itself along with "to find." So we get "Perseus seeks to find a gorgon," or, in a more explicitly propositionalist formulation, "Perseus seeks (in order) to make it true that he himself finds a gorgon."

Evidence for an implicit inner sentential context varies with different kinds of verbs. For example, "Richard III needs a horse quickly" barely makes sense if *quickly* is understood to modify "needs" or any other explicit material. It seems instead to modify an implicit *get*. Along with other evidence (see Den Dikken et al. [1996] for more) this makes it quite plausible that desire verbs and *needs* are not really transitive but take infinitival *to get* clauses as their true complements. However, comparable evidence for search verbs is hard to find, and whether converting the direct object into a purpose clause is meaning-preserving can be doubted. Depiction verbs and evaluative verbs present even more of a challenge. For instance, to fear x is not to fear encountering x, since one may not fear x but may fear encountering x because x has a dangerous communicable disease. Nor is fearing x the same as fearing that x will hurt you, since you may fear that your accident-prone dentist will hurt you without fearing your dentist. It is therefore conceivable that intensional transitives are not a unified semantic group: for some, such as desire verbs, *need*, and maybe verbs of expectation, propositionalism is workable, but not for others.

The main alternative to propositionalism is developed in Montague (1973) as part of a higher-order, type-theoretic semantics for natural language. In this framework, quantifiers can be arguments to verbs, so "seeks (Lois, an extraterrestrial)" is allowed as the semantics of the notional reading of "Lois seeks an extraterrestrial." Montague's ideas are refined, revised, and developed in Zimmerman (1993), Moltmann (1997), and Richard (2001), although in all these accounts, notional readings of search-verb sentences still put the searcher into a search relation to an abstract entity, the meaning of the quantifier (in standard Montague grammar, this is something rather complicated, a function from possible worlds to sets of intensional entities; see Dowty et al. [1981] for an accessible account). It is unclear that such a semantics is compatible with the evident univocality of *seeks* in "seeks an extraterrestrial, but no particular one" and "seeks a particular extraterrestrial."

The approach of Forbes (2000) avoids this problem by employing a Davidsonian event-semantics (Davidson 1967) in which verbs are treated as predicates of events and the same predicate *search* appears in both relational and notional readings. In relational readings, the syntactic object signals a theme of the event, but in notional readings, it simply classifies the search as being one of a certain kind, for instance, as being a search of the at-least-one-extraterrestrial kind.

Intensional transitives raise interesting logical problems. It may be argued that propositional attitude ascriptions have no logic at all: even "x believes that p and q" does not logically entail that "x believes that p": at best we may endorse a psychological principle that persons aware that they accept a conjunction will also accept each conjunct individually. But for intensional transitives, there are substantial questions about the validity of certain inference-patterns. For example, if Richard III needs a warhorse, does it follow that he needs a horse? If notional readings are glossed in terms of indifference ("any would do," as in Lewis [1972, p. 199]) it does not follow: Even if Richard III needs a warhorse, and any one will do, it does not follow that he needs a horse, and any one will do—in the mayhem of the Battle of Bosworth, a cart horse would not do. On the other hand, the standard glossing of notional readings using "no particular one" seems to leave open the logical status of the inference rather than settling it one way or the other. These and other issues about the validity of specific inference patterns are pursued in Richard (2000) and Forbes (2003).

See also Davidson, Donald; Language; Language, Philosophy of; Propositions; Quine, Willard Van Orman; Semantics; Sense.

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Graeme Forbes (2005)

INTENTION

Philosophical work on intention is motivated by three general concerns. First, philosophers of action want to understand what it is for an event to be an intentional action and how intentional actions are produced by their agents. They have good reason to think hard about what intentions are and how they may be involved in the production of intentional actions, because, even if it is unclear exactly how intentional actions and intentions are related to each other, it is clear that they are intimately related. Second, moral philosophers and others in the business of developing theories of the evaluation of actions and their agents need an account of intentional action, and such an account is likely to involve intention in an important way. Moral evaluations of actions have intentional actions as their primary subject matter, even if people sometimes are proper targets of moral blame for some unintentional actions (e.g., when a drunk driver accidentally injures or kills someone). Third, some philosophers have the goal of crafting analyses of philo-

sophically interesting concepts as they are reflected in ordinary language.

INTENTIONS AND RELATED STATES OF MIND

It is generally agreed that intentions are closely linked to desires—especially *action-desires*, desires to do things—and beliefs. An intention to do something *A* has a motivational dimension, as does a desire to *A*. Having an intention also is widely regarded as requiring the satisfaction of a belief condition of some sort. Few philosophers of action would maintain that people who believe that their chance of winning today's lottery is about one in a million intend to win the lottery, no matter how strongly they desire to win. A relatively popular claim is that having an intention to *A* requires believing that one (probably) will *A*. The proposal is designed to capture, among other things, the confidence in one's success that intending allegedly involves. A less demanding claim is that having an intention to *A* requires that one lack the belief that one (probably) will not *A*. (The agent may have no belief on the matter.) Other alternatives include the requirement that the agent believe to some nonzero degree (even a degree associated with a subjective probability well below 0.5) that he or she will *A* and the requirement that the agent believe that there is a chance that he or she can *A*.

Philosophers are divided on how tight the connection is between intentions, on the one hand, and desires and beliefs, on the other. In particular, they disagree about whether intentions are reducible to combinations of action-desires and beliefs. The central point of contention is whether the settledness that intention encompasses can be captured in terms of beliefs and desires. One who desires to *A*—even someone who desires this more strongly than he or she desires not to *A* and who believes on inductive grounds that he or she probably will *A*—may still be deliberating about whether to *A*, in which case the person is not settled on *A*-ing. Ed wants more strongly to respond in kind to a recent insult than to refrain from doing so, but, owing to moral qualms, he is deliberating about whether to do so. He is unsettled about whether to retaliate, despite the relative strength of his desires and despite his inference from his past behavior in similar situations that he is more likely to retaliate than not to do so (Mele 1992). In acquiring an intention to retaliate—or an intention to refrain from retaliating—Ed becomes settled (but not necessarily irrevocably) on a course of action.

Two ways of coming to intend to *A* should be distinguished. Many philosophers claim or argue that to decide to *A* is to perform a mental action of a certain kind—an action of forming an intention to *A*. According to one version of this view, deciding to *A* is a momentary mental action of intention formation, and it resolves uncertainty about what to do (Mele 2003). The assertion that deciding to *A* is momentary is meant to distinguish it from, for example, a combination of deliberating and deciding. Students who are speaking loosely may say, "I was up all night deciding to major in English," when what they mean is that they were deliberating or fretting all night about what major to declare and eventually decided to major in English. Not all intentions are actively formed. For example, "When I intentionally unlocked my office door this morning, I intended to unlock it. But since I am in the habit of unlocking my door in the morning and conditions … were normal, nothing called for a *decision* to unlock it" (Mele 1992, p. 231). If I had heard a fight in my office, I may have paused to consider whether to unlock the door or walk away, and I may have decided to unlock it. But given the routine nature of my conduct, there is no need to posit an act of intention formation in this case. My intention to unlock the door may have been acquired without having been actively formed.

Some intentions are for the nonimmediate future and others are not. Ann may decide on Tuesday to attend a meeting on Friday, and she may decide now to phone her mother now. The intention formed in the former decision is aimed at action three days in the future. The intention Ann forms when she decides to phone her mother now is about what to do now. Intentions of these kinds are, respectively, *distal* and *proximal* intentions. Proximal intentions also include intentions to continue doing something that one is doing and intentions to start *A*-ing (e.g., start running a mile) straightaway. *Temporally mixed* intentions have both proximal and distal aspects. Consider an intention to watch the movie *Dangerous Intentions* in one sitting, beginning now. Executing it requires doing something now and continued activity for some time.

INTENTION'S FUNCTIONS AND CONSTITUTION

What work do intentions do? And how are they likely to be constituted given that they do this work? Functions plausibly attributed to intentions include initiating and motivationally sustaining intentional actions, guiding intentional action, helping to coordinate agents' behavior over time and their interaction with other agents, and

prompting and appropriately terminating practical reasoning (see Brand 1984, Bratman 1987, McCann 1998, Mele 1992, and Searle 1983).

Intentions, like many psychological states, have both a representational and an attitudinal dimension. The representational content of an intention may be understood as a *plan*. The intending attitude toward plans may be termed an *executive* attitude. Plans, on one conception, are purely representational and have no motivational power of their own. People have many different attitudes toward plans, in this sense. They may believe that a plan is too complicated, admire it, hope that it is never executed, and so on. To understand the executive dimension of intention—something at work in the initiation of action—recall that intending to *A*, unlike desiring to *A*, is partially constituted by being settled on *A*-ing. To have the intending attitude toward a plan is to be settled (but not necessarily irrevocably) on executing it. In virtue of this motivational feature of intentions, acquisitions of proximal intentions are well suited to the task of initiating actions and the persistence of intentions that initiate actions is well suited to sustain them. (In the case of an intention for a not-doing—for example, an intention not to vote in tomorrow's election—the agent may instead be settled on not violating the simple plan embedded in it, the plan not to vote.)

Why do acquisitions of proximal intentions initiate and sustain the actions that they do? Why, for example, does acquiring a proximal intention to order a hamburger and fries initiate and sustain one's ordering a hamburger and fries rather than one's ordering a salad or one's singing a song? Attention to the representational side of intentions provides an answer. An intention to *A* incorporates a plan for *A*-ing, and which intentional action(s) an intention generates is a partial function of the intention-embedded plan. In the limiting case, the plan in an intention has a single node. It is, for example, a prospective representation of one's pushing a window closed. Often, intention-embedded plans are more complex. The proximal intention to check his bank account online that Bob is executing incorporates a plan that includes clicking on his bank's link, then typing his ID and password in a certain pair of boxes, and so on. Agents who successfully execute an intention are guided by the intention-embedded plan. The guidance depends on agents monitoring progress toward their goals. The information (or misinformation) that Bob has entered his ID, for example, helps to produce his continued execution of his plan.

Although the content of an intention is a plan, such expressions as "Bob's intention to check his bank account now" and "Ann intends to shoot pool tonight" are common. It should not be inferred from such expressions that the agent's intention-embedded plan is structurally simple. Often, ordinary expressions of an agent's motivational attitudes do not identify the full content of the attitude and are not meant to. Bob says, without intending to mislead, "Ann wants to shoot pool tonight," even though he knows that what she wants is to play eight-ball with him at Pockets tonight for a dollar a game until the place closes, as they normally do.

Intention's coordinative capacities lie both in its executive aspect, which includes settledness, and in its plan component. Comprehensive plans for extended activity can be constructed out of plans embedded in less inclusive intentions, and developments in plans will be influenced and constrained by what one is already settled on doing. (This is not to deny the possibility of revising earlier intentions.) Moreover, knowledge of what others are settled on doing assists one in forming intentions and plans for cooperative ventures. To the extent to which coordination depends on practical reasoning, intention promotes coordination by providing motivation for required reasoning—motivation deriving from the settledness intention encompasses. Michael Bratman argues that the coordinating roles of distal intentions rest on several features of these intentions: they have the capacity to control behavior, they "resist (to some extent) revision and reconsideration," and they involve dispositions to reason with a view to intention-satisfaction and "to constrain one's intentions in the direction of consistency" (1987, pp. 108–109). All of these features are tied to the settledness intentions encompass.

Intention is an appropriate terminator of practical reasoning precisely because in forming or acquiring an intention one becomes settled on a course of action. Practical reasoning is aimed at action; and, if all goes well, one does what one has become settled on doing on the basis of one's practical reasoning. Intention's capacity to prompt such reasoning, as just noted, also derives from the settledness it involves.

INTENTIONS AND REASONS

Are people's reasons for intending to *A* limited to their reasons for *A*-ing? Gregory Kavka's (1983) "toxin puzzle" suggests that they are not. In this puzzle, a trustworthy billionaire offers you a million dollars for intending tonight to drink a certain toxin tomorrow afternoon. You are convinced that he can tell what you intend independ-

ently of what you do. Although drinking the toxin would make you ill for a day, you do not need to drink it to get the money. Constraints on prize-winning intentions include prohibitions against creating special incentives for yourself to drink the toxin, various tricks, and forgetting relevant details of the offer. For example, you will not receive the money if you hire a hit man to kill you should you not drink the toxin or persuade a hypnotist to implant the intention in you. If, by midnight tonight, without violating any rules, you intend to drink the toxin tomorrow afternoon, you will find a million dollars in your bank account when you awake tomorrow morning. Because you are well aware of this point and would love to be a millionaire, you seemingly have a great reason to form the intention. Now, you probably would drink the toxin for a million dollars. But can you, without violating the rules of the offer, intend tonight to drink it tomorrow? Apparently, you have no reason to drink the toxin and an excellent reason not to drink it. Seemingly, you will infer from this that you will not drink the toxin. Indeed, it seems that you will be confident that you will not drink it, and your confidence in that seems inconsistent with your having an intention to drink it.

Kavka draws the moral that intentions are "dispositions to act that are based on *reasons to act*—features of the act itself or its (possible) consequences that are valued by the agent" (1983, p. 35). However, because not all the work in Kavka's puzzle is done by truths about intention, reasons, and the like, his perfectly general claim about intentions cannot be established by reflection on the puzzle. Were it not for the rule against forgetting, for example, you could become a millionaire. If, tonight, you can so arrange things that at midnight you will be confident that the toxin will be in your favorite afternoon drink tomorrow and confident, as well, that by tomorrow you will have forgotten about the toxin, then at midnight you can intend to drink the toxin tomorrow. The content of your intention may be described roughly as follows: "Tomorrow afternoon, I drink the toxin unintentionally while sipping my customary afternoon tea." Even though you will have a reason tomorrow to drink tea, you will have no reason at all to drink the toxin; and that is clear to you at midnight. This scenario falsifies the idea that all possible intentions to *A* are based on reasons to *A*. A more cautious diagnosis of your apparent inability to intend to drink the toxin given the constraints Kavka imposes is that having an intention to *A* is inconsistent with being convinced that one will not *A*.

The preceding scenario leaves open a more modest version of Kavka's moral. Perhaps all possible intentions to *A* such that in executing them one would *intentionally A* are based on reasons to *A*. Although one cannot find in reasons for *A*-ing a necessary basis for all possible intentions to *A*, one may find in them a necessary basis for all intentions of the sort just identified—*orthodox intentions*. The relatively cautious diagnosis previously mentioned provides a hint about how to test this hypothesis. Might there be agents who know that they have no reason to drink the toxin, have not forgotten anything relevant, and nevertheless believe that they will drink it?

Consider the following story. An evil genius tricks Ted into drinking nonlethal liquid toxins whenever such toxins happen to be nearby, and Ted is well aware of this. Ted also has—as he knows—a condition called *intention perseverance*: once he forms an intention, he will not abandon it unless he has a good reason to abandon it. Finally, Ted is indifferent between drinking toxins unintentionally and drinking them intentionally: only the subsequent illness bothers him.

Seemingly, Ted can get the big prize in Kavka's scenario. Although normal folks are confident that they will not drink the toxin, Ted is confident that he will drink it. He also has an excellent reason to decide to drink it: in so deciding he would form an intention that will make him a millionaire. And he can count on the intention formed in his decision to persist and to result in intentional toxin drinking, given that he lacks a good reason to abandon the intention after he forms it. Ted's intention to drink the toxin is such that, in executing it, he intentionally drinks the toxin. So he undermines even the more modest version of Kavka's moral. His intention to drink the toxin is based on his reasons for forming that intention, and it is not based at all on reasons for drinking the toxin. This leads back, then, to the relatively cautious diagnosis of one's apparent inability to intend to drink the toxin. The diagnosis is about a completely general connection between intention and belief, not a completely general connection between intention and reasons: having an intention to *A* is inconsistent with being convinced that one will not *A*.

Sometimes people consider reasons for and against taking a prospective course of action. Gilbert Harman (1986) and Michael Bratman (1987) argue that the concept of intentional action is sensitive to reasons agents have for not doing what they do in a way in which the concept of intention is not. The upshot is that agents sometimes intentionally do things that they lack an intention to do. For example, Bill knows that his vacuuming his carpets today will cause Beth to sneeze, and he counts that as a reason not to vacuum them today. Even so,

because he believes that it is important to vacuum today, he does so, and he notices Beth sneezing as he works. Harman and Bratman would say that even though making Beth sneeze is no part of what Bill intends, he intentionally makes her sneeze. This judgment may be in line with ordinary usage of the terms at issue, and it may be a judgment that a majority of nonspecialists would make. However, granting the existence of intentionally produced side effects that the agent does not intend to produce would complicate the task of philosophers of action who say that they are in the business of explaining how intentional actions are produced by their agents. They would need a theory that explains intentional actions of two different kinds: actions the agent is trying to perform and actions the agent is not trying to perform. Such philosophers may do well to seek—and to set up as the target of their explanatory efforts—a more circumscribed notion of intentional action that is no more sensitive to reasons against doing what one does than Harman and Bratman say the concept of intention is.

See also Belief; Content, Mental; Propositional Attitudes.

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Alfred R. Mele (2005)

INTENTIONALITY

The term "intentionality" was used by Jeremy Bentham to distinguish between actions that are intentional and those that are not. It was reintroduced by Edmund Husserl in connection with certain doctrines set forth in Franz Brentano's *Psychologie vom empirischen Standpunkt* (1874). The word is now used primarily in this second sense.

> Brentano wrote:

> Every mental phenomenon is characterized by what the scholastics of the Middle Ages called the intentional (and also mental) inexistence of an object, and what we would call, although not in entirely unambiguous terms, the reference to a content, a direction upon an object (by which we are not to understand a reality …), or an immanent objectivity. Each one includes something as an object within itself, although not always in the same way. In presentation something is presented, in judgment something is affirmed or denied, in love [something is] loved, in hate [something] is hated, in desire something is desired, etc.

> This intentional inexistence is exclusively characteristic of mental phenomena. No physical phenomenon manifests anything similar. Consequently, we can define mental phenomena by saying that they are such phenomena as include an object intentionally within themselves. (*Op. cit.,* Vol. I, Book II, Ch. 1)

This passage contains two different theses: one, an ontological thesis about the nature of certain objects of thought and of other psychological attitudes; the other, a psychological thesis, implying that reference to an object is what distinguishes the mental or psychological from the physical. These two theses are the subject matter of the present article. It should be noted, however, that "intentionality" is also used in connection with certain other related theses of phenomenology and existentialism.

INTENTIONAL INEXISTENCE

The problem that gave rise to the ontological thesis of intentional inexistence may be suggested by asking what is involved in having thoughts, beliefs, desires, purposes, or other intentional attitudes, which are directed upon objects that do not exist. There is a distinction between a man who is thinking about a unicorn and a man who is thinking about nothing; in the former case, the man is

intentionally related to an object, but in the latter case he is not. What, then, is the status of this object? It cannot be an actual unicorn, since there are no unicorns. According to the doctrine of intentional inexistence, the object of the thought about a unicorn *is* a unicorn, but a unicorn with a mode of being (intentional inexistence, immanent objectivity, or existence in the understanding) that is short of actuality but more than nothingness and that, according to most versions of the doctrine, lasts for just the length of time that the unicorn is thought about.

EARLY THEORIES. St. Anselm's ontological argument was thus based upon the assumption that, if God is thought about, he thereby "exists in the understanding." Anselm then proceeded to contrast the perfections of that which "exists in the understanding alone" with that which "exists in reality." Peter Aureol and William of Ockham contrasted the intentional existence of the objects of thought with the subjective existence of the thoughts themselves. The term "objective existence," referring to the existence of something *as* an object of thought, was used by medieval philosophers and by René Descartes as a synonym for "intentional existence"; Descartes thus contrasted the formal, or subjective, existence of actual objects with the objective existence in the mind of objects that are merely thought about. The terms *objective* and *subjective,* in these uses, had connotations quite different from those that they have now; that which was said to have objective existence (for instance, a unicorn as an object of thought), unlike that which had subjective existence (the idea of a unicorn, for instance), need not exist in fact.

Advantage of the doctrine. The doctrine of intentional existence, or, as Brentano called it, intentional inexistence, had at least the advantage of providing a literal interpretation for the dictum that truth consists in a kind of correspondence between mind and thing: an affirmative judgment is true if the properties of the intentional object are the same as those of the actual object. The very statement of this advantage, however, betrays the fact that the judgment is directed, not upon the intentional object, but upon the actual object, in which case, as Pierre Gassendi pointed out, the intentional object would seem to be superfluous.

Intentional reference. The difficulty of the apparent superfluity of the intentional object may be traced, in part, to the fact that the phenomenon of intentionality has two sides. Our intentional attitudes may be directed upon objects that do not exist (Diogenes looked for an honest man), but they may also be directed upon objects

that do exist (there is a certain dishonest man whom the police happen to be looking for). The object of the latter quest, obviously, is not a thing having only immanent or intentional existence. But this is also true, as Brentano was later to point out, of the object of the former quest: Diogenes was not looking for an immanent object (for, if the doctrine of intentional inexistence were true, he already had one in his mind); he was looking for an actual, existing honest man, despite the fact that, as we may suppose, no such man exists. Thus, Brentano said, "If we think about a horse, the object of our contemplation is a horse and not a contemplated horse."

In the expression of the ontological thesis of intentionality, "intentional" may be said to refer to a mode of being *within* the mind; but in the expression of the psychological thesis of intentionality, "intentional" is used to describe the direction upon objects that may exist *outside* the mind. It is not inaccurate to say that intentional entities were posited in the attempt to account for intentional reference, but precisely because they were intentional, the attempt did not succeed. Husserl said, in the fifth of his *Logische Untersuchungen,* that the objects of our intentional experiences are never immanent—never intentional objects—but are always transcendent.

BRENTANO'S LATER VIEWS. Thus, for various reasons Brentano abandoned the ontological part of his doctrine of intentionality. In his later writings, he said that "unicorn" in the sentence "John is thinking about a unicorn" has no referential function; a contemplated unicorn is not a type of unicorn. "Unicorn," in such sentences, is used syncate-gorematically to contribute to the description of the person who is said to have a unicorn as the object of his thought. But this conclusion seems to leave us with our problem. The statement "John is thinking about a unicorn" does not describe *John* as a unicorn; how, then, does "unicorn" serve to contribute to his description?

The ontological problem, therefore, may be said to survive in the question, "How are we using 'unicorn' in 'John believes that there are unicorns'?" There is a temptation to say that the use of "unicorn" in such sentences has no connection at all with the use it would have in "There are unicorns." That this would be false, however, may be seen by noting that "John believes that there are unicorns" and "All of John's beliefs are true" together imply "There are unicorns." Thus, Ludwig Wittgenstein remarked:

One may have the feeling that in the sentence "I expect he is coming" one is using the words "he is coming" in a different sense from the one they

have in the assertion "He is coming." But if it were so, how could I say that my expectation had been fulfilled? If I wanted to explain the words "he" and "is coming," say by means of ostensive definitions, the same definitions of these words would go for both sentences. (*Philosophical Investigations,* p. 130e)

CARNAP'S THEORY. In the *Logical Syntax of Language* (London, 1937), Rudolf Carnap suggested that linguistic entities are the objects of our intentional attitudes. "Charles thinks (asserts, believes, wonders about) *A,*" he said, might be translated as "Charles thinks '*A.*'" Taken literally, this suggestion would imply, falsely, that a man who wonders whether there are unicorns is a man who wonders whether there is the word *unicorns.*

INSCRIPTIONAL THEORY. A closely related view has been developed by W. V. Quine and Israel Scheffler. These authors, however, instead of saying that our intentional attitudes have linguistic entities as their objects, suggest instead that certain sentences, which relate people to words or to other linguistic entities, might be used to perform all of the functions of intentional sentences; if this view were adequate, the problem of the status of the intentional object might be avoided. Thus, "John believes-true a Socrates-is-mortal inscription" may be interpreted as a sentence affirming a certain relation to hold between John and a linguistic entity or "inscription," but a relation that is true only under the conditions under which "John believes that Socrates is mortal" is true; hence, if we use the former sentence instead of the latter, we relate John only to inscriptions.

However, it may be held (1) that the plausibility of this approach depends upon the assumption that there are certain semantic sentences (for instance, "The German sentence '*Sokrates ist sterblich*' means that Socrates is mortal") that are true of certain inscriptions and (2) that these semantic sentences are abbreviations for intentional sentences that leave us with our original problem (for instance, "German-speaking people use '*Sokrates ist sterblich*' to express and convey the belief that Socrates is mortal").

This inscriptional approach, moreover, fails to distinguish between such sentences as "Someone is looking for a horse" and "There is a horse that someone is looking for"; these two types of sentence, as noted above, reflect the two different sides of the phenomenon of intentionality. It has been suggested that sentences of the latter sort may be illegitimate, on the ground that they

quantify, in effect, into contexts that are referentially opaque, in a sense explained below. To say that such intentional sentences are illegitimate is to imply that the mind is incapable of referring to objects that exist and, hence, that we cannot "get outside the circle of our own ideas."

RESPONSE THEORY. There have been still other approaches to the problem of the intentional object. Some of the American New Realists proposed, behavioristically, that to think about a unicorn might merely be to "put one's unicorn responses in readiness." The thinker, instead of relating himself to unicorns, disposes himself to behave in just those ways in which he would behave if there *were* unicorns. Other psychological attitudes were treated analogously. It would seem, however, that "unicorn responses" cannot be adequately specified except by reference to beliefs and desires that are directed upon unicorns, since the ways in which a man would respond to a unicorn would be, in part, a function of what he otherwise perceives, desires, and believes. More recent revivals of the specific-response theory seem to be subject to similar difficulties.

CHURCH'S VIEW. Alonzo Church, in his *Introduction to Mathematical Logic* (Princeton, NJ, 1956), proposed that the sentence "Schliemann sought the site of Troy" asserts that a certain relation holds between Schliemann and the *concept* of the site of Troy; Church said, negatively, that the relation is "not quite like that of having sought," but he did not say more positively what it is. This view suggests a return to the medieval doctrine, at least to the extent of viewing the objects of our intentional attitudes as beings of reason.

ANALOGICAL THEORY. Thomas Aquinas seems to have held that "unicorn," in such sentences as "John is thinking about a unicorn," is used *analogically* (*De Potentia* 7c; *Summa Theologiae* 1, 13, 10). There is ground for questioning whether the doctrine of analogical predication is itself sufficiently illuminating to throw light upon the problem of intentionality, but the fact that we can understand the use of "unicorn" and cannot say just what function the word there performs may, on the other hand, throw some light upon the doctrine.

The most plausible defense of the doctrine of intentional inexistence, therefore, would seem to be that this doctrine, unlike most of its alternatives, *does* provide us with a straightforward account of the use of "unicorn" in "John is thinking about a unicorn": The word is being used simply to designate a unicorn.

PSYCHOLOGICAL THESIS OF INTENTIONALITY

According to Brentano's second thesis, intentionality is peculiar to psychological phenomena and thus provides a criterion by means of which the mental may be distinguished from the nonmental. The problem for the proponent of this second thesis is not so much that of showing that mental phenomena *are* intentional as it is that of showing that physical phenomena are *not* intentional. Some now believe that the thesis can be defended by reference to the language we use in describing psychological phenomena—that the sentences we must use in describing psychological phenomena have certain logical properties that are not shared by any of the sentences we must use in describing nonpsychological phenomena, and that these properties are correctly called intentional. If this view is true, then the basic thesis of physicalism and the unity of science is false. Can we find, then, a logical criterion of the intentional, one that we may then use to distinguish the mental from the physical?

UNSATISFACTORY CRITERIA OF INTENTIONALITY. It has been suggested that failure of existential generalization yields a logical criterion of the intentional. The intentional "John is thinking about a horse," unlike the nonintentional "John is riding on a horse," does not imply that there are horses. However, existential generalization also fails in application to some of the terms in the following statements that describe physical phenomena: "New Zealand is devoid of unicorns," "That lady resembles a mermaid," and "The dam is high enough to prevent any future floods."

Nonextensional occurrence has also been proposed as a possible criterion of the intentional. A phrase, *p,* may be said to occur nonextensionally in a sentence, *s,* provided that the result of replacing *p* in *s* by any phrase having the same truth value as *p* will be a sentence having the same truth value as *s.* Thus, "Johnson is Kennedy's successor" may replace "Socrates was a philosopher" in "Either Socrates was a god or Socrates was a philosopher," without altering the truth value of the whole, whereas similar replacement is not possible in "Plato believed that Socrates was a philosopher." Nonextensional occurrence, however, is not peculiar to sentences that are intentional; compare "It is necessarily true that if Socrates was a member of the class of philosophers, then Socrates was a philosopher."

Referential opacity has also been proposed as a criterion of the intentional. The occurrence of a substantival expression in a sentence, *s* (for instance, "Truman's suc-

cessor" in "Joe Martin believed that Dewey would be Truman's successor"), is referentially opaque if its replacement in *s* by another substantival expression (such as "Eisenhower") designating the same individual may result in a sentence having a truth value different from that of *s.* However, referential opacity is not peculiar to the intentional; we may assert "It is necessarily true that if Dewey was Truman's successor, then Dewey was Truman's successor," but not "It is necessarily true that if Dewey was Truman's successor, then Dewey was Eisenhower."

SATISFACTORY CRITERIA. The failure of nonextensional occurrence and referential opacity has led some to believe that there are no logical characteristics peculiar to intentional statements. However, there are other criteria that do seem to be satisfied only by intentional statements. We may mention two.

Let us refine upon ordinary English in the following way: instead of writing propositional clauses as "that" clauses, we will eliminate the "that" and put the remainder of the clause in parentheses; for example, instead of writing "John believes that there are men," we will write "John believes (there are men)." A simple sentence prefix may be said to be an expression that contains no proper part that is logically equivalent to a sentence or to a sentence function and that is such that the result of prefixing it to a sentence in parentheses is another sentence. We may say that a simple sentence prefix, *M,* is *intentional* if, for every sentence p, $M(p)$ is logically contingent. Thus, "it is impossible" is not intentional, since when prefixed to "(some squares are circles)," it yields a sentence that is necessary and therefore not contingent; "it is right" is not intentional since, when prefixed to "(there is not anything of which it can be truly said that it is right)," it yields a sentence that is contradictory and therefore not logically contingent.

However, *every* sentence, whether it is itself contingent or not, is such that the result of thus prefixing it by "John believes" is contingent. Similar observations apply to "John questions," "John desires," and to other prefixes referring to intentional attitudes. Thus, we might say that the psychological differs from the nonpsychological in this respect: an adequate description of the psychological requires the use of intentional prefixes.

It may also be argued that some intentional prefixes (for instance, "John believes") are such that the possible ways of inserting them into a universally quantified sentence (for instance, into "For every x, x is material") and into the corresponding existentially quantified sentence

("There exists an *x* such that *x* is material") yield four statements ("John believes that, for every *x*, *x* is material"; "For every *x,* John believes that *x* is material"; "John believes that there exists an *x* such that *x* is material"; and "There exists an *x* such that John believes that *x* is material") that are logically related in ways in which no corresponding sentences with nonintentional prefixes are related. Thus, it may be said of the four sentences just cited: Neither the first nor the third implies any of the others; the second implies all but the first; the fourth implies the third but does not imply either the first or the second; and there is no nonintentional prefix that will yield four sentences that are similarly related. This contention, to the extent that it applies to "John believes," is based upon the assumptions that in believing a thing to have certain properties, one thereby believes that the thing exists; that one may believe falsely, of some nonuniversal set of things (some set comprising less than everything there is), that it comprises everything there is; and that one may believe falsely, of a universal set of things, that it does not comprise everything there is.

There are other psychological sentences—for instance, "He is in pain" and "He is thinking about Jupiter"—that may not satisfy the above criteria of intentionality. The first of these sentences, however, might be said to be intentional if, as some believe, one cannot be in pain if one is not *aware* that one is in pain; or if one does not *believe* that one is in pain; or if, at any one instant, one does not *remember* the pain of previous instants; and analogously for the second quoted sentence. Another possible view, however, is to say that intentionality is at least a sufficient if not a necessary condition of the psychological.

See also Anselm, St.; Bentham, Jeremy; Brentano, Franz; Carnap, Rudolf; Church, Alonzo; Existentialism; Gassendi, Pierre; Husserl, Edmund; Language and Thought; Meaning; New Realism; Nonexistent Object, Nonbeing; Ontological Argument for the Existence of God; Peter Aureol; Phenomenology; Philosophy of Mind; Physicalism; Quine, Willard Van Orman; Reference; Thomas Aquinas, St.; William of Ockham; Wittgenstein, Ludwig Josef Johann.

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Roderick M. Chisholm (1967)

INTENTIONALITY [ADDENDUM]

The medieval word *intentionality* was reintroduced into late nineteenth-century philosophy by Franz Clemens Brentano. Intentionality is the power of minds to represent, stand for, or be about things, properties, and states of affairs. The English word *intentionality* stems from the Latin verb *intendere*, which can be used to denote the act of stretching a bow string with the aim of propelling an arrow into its target. In Brentano's sense intentionality is the mental tension whereby the human mind aims at objects. The nature of intentionality has been a central topic in the philosophy of mind and language in the twentieth century in both the phenomenological tradition (founded by Edmund Husserl, a student of Brentano) and the analytic tradition.

In several well-known paragraphs from his 1874 classical work, *Psychology from an Empirical Standpoint*, quoted by Roderick M. Chisholm at the beginning of his entry, Brentano did two things: he provided a puzzling definition of intentionality and he put forward the thesis

that intentionality is the mark of the mental. This entry briefly considers some of the logical and ontological puzzles raised by Brentano's definition of intentionality. It then turns toward issues raised by Brentano's thesis that intentionality is the mark of the mental, considering whether only mental (or psychological) phenomena exhibit intentionality and whether all do, in this order.

LOGICAL AND ONTOLOGICAL PUZZLES

WHAT INTENTIONALITY DOES NOT MEAN. To grasp the philosophical significance of the concept expressed by the word *intentionality* for contemporary philosophy, it is important not to confuse it with two of its cognates: *intention* and *intension*. *Intention* and *intending* refer to specific mental states, events, or processes that, unlike others (e.g., beliefs, judgments, expectations, perceptions, fears, desires, and hopes), play a distinctive role in the etiology, the preparation, and the execution of actions. By contrast, in Brentano's philosophical tradition, intentionality is a property of many—if not all—such mental states and events as beliefs, judgments, desires, and perceptions. Nor should *intentionality* be confused with *intensionality* (with an *s*). *Intensional* and *intensionality*, which mean respectively "nonextensional" and "nonextensionality," refer to logical features of words and sentences. To take Willard Van Orman Quine's famous example, "creature with a heart" and "creature with a kidney" have the same extension because they apply to the same things: all the creatures with a heart have a kidney and conversely. But the two expressions have different intensions because *heart* and *kidney* have different meanings and extensions.

THE IMPACT OF BRENTANO'S DEFINITION. Brentano defined *intentionality* as what enables a psychological state or act to be directed on what he called an intentional object. He further ascribed to intentional objects the puzzling property that he called intentional inexistence or immanent objectivity. Finally, Brentano's quote suggests that a satisfactory explanation of intentionality must be able to account for the inferences illustrated by the following sentences, which contain a psychological verb that refers to a mental intentional state (e.g., "to watch," "to admire," or "to fear"), in which (b) is a conclusion that follows from premise (a), and (c) represents the logical form of (b):

(1a) George W. Bush watches Laura Bush.

(1b) George W. Bush watches something.

(1c) ($\exists$x) (George W. Bush watches x).

(2a) George W. Bush admires Sherlock Holmes.

(2b) George W. Bush admires something.

(2c) ($\exists$x) (George W. Bush admires x).

(3a) George W. Bush fears God.

(3b) George W. Bush fears something.

(3c) ($\exists$x) (George W. Bush fears x).

As illustrated by sentences (1) to (3), all sorts of things can be the target of intentionality and, therefore, qualify as intentional objects: concrete physical objects in space and time (e.g., stars, stones, plants, animals, and persons), abstract objects (e.g., numbers), and objects of fiction (e.g., Sherlock Holmes) that are neither in space nor in time, and even objects whose properties are inconsistent with known natural or geometrical laws (e.g., unicorns and squared circles). As Chisholm elegantly puts it in his entry, although unicorns do not exist, thinking about a unicorn is not the same thing as thinking about nothing. Arguably, by ascribing to intentional objects the property he called intentional inexistence or immanent objectivity, what Brentano presumably meant was that intentional objects need not exist in space and time: it is enough that they exist within the mind.

ARE THERE THINGS THAT FAIL TO EXIST? Brentano's definition gave rise to a fundamental gap in twentieth-century philosophical logic between intentional objects theorists, who claimed that there are things that do not exist, and their opponents, who denied it. On the one hand, Alexius Meinong (who was Brentano's student) and his followers took it as a genuine condition of adequacy on an account of intentionality that it ought to provide a uniform account for the validity of all inferences from premises of type (a) to conclusions of type (b), in sentences of type (1) to (3), notwithstanding the fundamental ontological differences between the kinds of entities over which the bound variable ranges in the logical form of conclusions of type (c).

For example, Meinong (1904/1960) supposes that for any set of properties, there is an intentional object that instantiates them, but only some, not all, such objects exist. On his view, it is one thing to say that there are unicorns. It is another thing to say that unicorns exist. On the contrary, following Bertrand Arthur William Russell, Quine (1960) and most twentieth-century analytic philosophers denied that there are things that do not exist, on the threefold grounds that (1) existence is not a property (or the English verb "to exist" should be treated as a quantifier, not as a predicate); (2) the theory of inten-

tional objects incurs intolerably heavy ontological commitments; and (3) an ontology of nonexistent objects can hardly be reconciled with the ontology of the contemporary natural sciences. The rest of this entry is devoted to issues that arise only if one denies that there are things that do not exist.

PSYCHOLOGICAL AND LINGUISTIC INTENTIONALITY

What Quine (1960) calls semantic ascent (and others the linguistic turn) enables one to rise from talk about things to talk about talk about things (i.e., words and sentences). As Chisholm explains in the second half of his entry, the ascent from talk about intentionality to talk about talk about intentionality raised the prospect of a linguistic doctrine of intentionality and it also gave rise to an objection to Brentano's thesis that only mental phenomena exhibit intentionality.

IS INTENSIONALITY A CRITERION OF INTENTIONALITY? Sentences about intentionality exhibit the two logical features of intensionality (or referential opacity). First, sentences about intentionality do not always license substitution of coreferential terms *salva veritate*. Thus, even though sentence (4a) expresses a true proposition, it does not automatically follow that sentence (4b) does, even though "Cicero" and "Tully" name one and the same individual:

(4a) George W. Bush believes that Cicero was bald.

(4b) George W. Bush believes that Tully was bald.

If George W. Bush fails to know that "Cicero" and "Tully" are coreferential, then the truth of (4a) does not entail the truth of (4b). Second, sentences about intentionality do not always license the rule of existential generalization. A speaker may truly believe that Bush holds the belief ascribed by (5a) without committing him- or herself to the truth of (5b):

(5a) George W. Bush believes that Zeus transformed himself into a bull.

(5b) (∃x) (George W. Bush believes that x transformed himself into a bull).

On this basis, Chisholm (1957) argues, on the one hand, that linguistic descriptions of intentional phenomena, which fail the criteria of extensionality, cannot be replaced by descriptions of observable behavior (or bodily movements), which satisfy the criteria of extensionality. On the other hand, he contemplates the prospect that the intensionality of sentences describing intentional

phenomena might constitute a logical criterion for the intentionality of the described phenomenon. This criterion fails for two reasons. First, reports of visual perception may be extensional. For example, if "Ralph saw Laura" is true, then "Ralph saw something" is true. Furthermore, if "Laura" and "the president's wife" are coreferential and if "Ralph saw Laura" is true, then "Ralph saw the president's wife" cannot fail to be true. So if "Ralph saw Laura" truly reports an intentional phenomenon, then the intensionality of a report cannot be a necessary condition for the intentionality of the reported phenomenon. Second, many sentences that do not describe intentionality (e.g., sentences about natural laws) exhibit intensionality. So, the intensionality of a report cannot be a sufficient condition for the intentionality of the reported phenomenon.

DERIVED VERSUS UNDERIVED INTENTIONALITY. Brentano's thesis that only mental phenomena exhibit intentionality can be questioned on the grounds that the utterances of sentences, which have meaning but are nonmental things, exhibit intentionality. Most contemporary philosophers of mind, such as Jerry A. Fodor (1987), John Haugeland (1981), and John R. Searle (1983), would respond to this objection to Brentano's thesis by offering a distinction between the underived (or primitive) intentionality of a speaker's mental states and the derived intentionality of the utterances of the sentences whereby he or she expresses his or her mental states. On their view, sentences of natural languages have no intrinsic meaning and would be deprived of meaning if humans did not use them for the purpose of making their private thoughts known to others. Thus, according to the revised version of Brentano's thesis, only mental phenomena have underived intentionality. Daniel C. Dennett (1987), however, disagrees because, according to him, the distinction between derived and underived intentionality is just an illusion.

HOW TO NATURALIZE INTENTIONALITY

QUINE'S DILEMMA. The thesis that only mental phenomena possess underived intentionality lead both Chisholm and Brentano to embrace a version of the ontological dualist distinction between mental and physical things. Quine (1960) agrees with Chisholm's thesis that sentences describing an agent's intentional phenomena cannot be successfully paraphrased into sentences about the agent's behavior or bodily movements: intentionality, therefore, cannot be naturalized. He does not, however,

endorse ontological dualism. Instead, he embraces a physicalist ontology according to which everything, including allegedly mental things, are physical, and he puts forward an influential dilemma: since intentionality cannot be naturalized, one must choose between a physicalist ontology and intentional realism (i.e., the view that intentionality is real). Some of the physicalists who accept Quine's dilemma (e.g., Churchland 1989) embrace eliminative materialism and deny purely and simply the reality of beliefs and desires. It is, however, difficult to make sense of the belief that there are no beliefs. Others (such as Dennett 1987) take the instrumentalist view that although the intentional idiom is a useful stance for predicting a complex physical system's behavior, it lacks an explanatory value. But the question arises how the intentional idiom could make useful predictions if it fails to describe and explain anything.

As a result of the difficulties inherent to both eliminative materialism and interpretive instrumentalism, several physicalists choose to deny both Quine's challenge and Brentano's thesis that only nonphysical things can exhibit intentionality. Their project is to naturalize intentionality. Since they are physicalists, they assume that all so-called mental things are physical things, and their goal is to show that uncontroversially physical things exemplify, if not full-blown intentionality, at least the seeds of intentionality.

INFORMATIONAL SEMANTICS. One influential strategy for doing so has been Fred I. Dretske's (1981) proposal that a device that carries information exhibits some degree of intentionality. According to Paul Grice's (1957/1989) distinction between natural and nonnatural meaning, whereas the English word *fire* nonnaturally means fire, *smoke* naturally means fire. Dretske extends the Gricean notion of natural meaning into an information-theoretic approach according to which the informational relation is the converse of a nomic relation. If the length of a metal bar is nomically correlated with variations in temperature, then the former carries information about the latter. The direction of the needle of a compass carries information about the location of the North Pole because it nomically co-varies with the location of the North Pole. If it is not a law that polar bears live at the North Pole, then a compass will fail to indicate where polar bears live even though it indicates the location of the North Pole and this is where polar bears happen to live. If so, then the linguistic report of the information carried by a signal exhibits some of the intensionality (with an *s*) of reports of intentionality.

It is widely recognized, however, that pure informational semantics fails to generate the full intentionality of human mental representations. It is part and parcel of human mental representations that they can misrepresent what they are about. Since the informational relation is the converse of a nomic correlation, it cannot account either for misrepresentation or for the normativity of the contents of representations.

TELEOSEMANTICS. A second major proposal for naturalizing intentionality is the teleosemantic approach championed by Ruth Garrett Millikan (1984). It starts by offering a direct solution to the problems that plague informational semantics, namely the problems of misrepresentation and the normativity of mental content. Its basic insight is that what Brentano calls intentional inexistence is exemplified by biological (so-called teleological) functions and is, therefore, a particular case of a more general biological phenomenon. For example, if it is the function of a mammal's heart to pump blood, then a mammal's heart ought to pump blood even though it might fail to do so: it may fail to fulfill its function. Of course, a heart has no semantic properties: it represents nothing and does not exhibit intentionality in Brentano's sense. Millikan's teleosemantic claim is not that having a function is a sufficient condition for semantic aboutness, but that it is necessary. Something cannot be a representation unless it can misrepresent what it is about. It could not misrepresent anything unless it could malfunction and it could not malfunction unless it had a function. Arguably, nothing can have a function unless it results from some historical selection process. Selection processes are design processes. According to teleosemantic theories, design is the main source of function, which in turn generates intentionality.

Such theories are called teleosemantic in virtue of the intimate connection between design or teleology and content (or intentionality). Selection processes can be intentional or nonintentional. The fundamental goal of the teleosemantic approach is to derive the intentionality of human mental states from the nonintentional process of natural selection that gave rise to human cognition in the course of human phylogeny.

IS INTENTIONALITY CONSTITUTIVE OF MENTALITY?

THE SEVERAL DIMENSIONS OF INTENTIONALITY. Ever since Brentano put forward his thesis that intentionality is constitutive of the mental, philosophers have identified two major dimensions along which intentional

phenomena vary. The first psychological distinction arises from the ontological distinction between objects and states of affairs (such that the former are constituents of the latter). Some mental states are intentional in virtue of being directed toward an object under a particular psychological mode. Thus, perceiving, remembering, loving, or hating someone or something may be instances of such object-directed psychological states. Other (arguably more complex) psychological states are intentional in virtue of the fact that they represent full states of affairs. True beliefs and judgments represent actual states of affairs (or facts). False beliefs, false judgments, desires, intentions, and hopes represent possible or even impossible states of affairs.

One important issue in the philosophy of mind has been whether object-directedness can be reduced to propositional content. Philosophers of perception, in particular, sharply disagree about the intentionality of visual perception: does visual perception always represent full states of affairs, as David Malet Armstrong (1968) and Dennett (1991) argue? Or can visual perception be merely object-directed or nonepistemic, as Dretske (1969) argues? These questions are closely linked to the question whether perceptual experiences have nonconceptual content, as argued by, for example, Gareth Evans (1982) and Christopher Peacocke (1992), and as denied by John McDowell (1994).

The second distinction is internal to the category of psychological states that represent full states of affairs. Russell calls them propositional attitudes, because they are ascribed by complex sentences containing a singular term standing for a person, a main verb expressing his or her attitude (e.g., believing, judging, desiring, and hoping) followed by a that clause expressing the propositional content that is the object of the attitude (as in "John believes that Pegasus flies"). Following Gertrude Elizabeth Margaret Anscombe (1957) and Searle (1983), beliefs and judgments are said to have a "mind-to-world direction of fit" because their function is to record facts. Intentions and desires are said to have a "world-to-mind direction of fit" because their function is not to represent facts but nonactual states of affairs that are goals for actions.

THE VARIETIES OF CONSCIOUS AWARENESS. What do a pain, a visual experience of blue, the taste of a glass of burgundy, the smell of a rose, an intention to act, a thrust of anger, a feeling of depression, and the belief that 2 is a prime number have in common? If they have nothing in common, then presumably the English word *men-*

tal fails to express any well-defined property. If so, then as Richard Rorty (1979) argues, the word *mental* may just be part of an academic language game with no realistic explanatory, let alone scientific, import. According to Brentano's thesis, all these psychological phenomena have something in common: they exhibit intentionality (in the form of either object-directedness or propositional content). Is Brentano's thesis true? Much twentieth-century philosophy of mind has addressed this issue by asking the question: Can one be consciously aware without being aware of something or other?

As many philosophers would recognize, however, the concept expressed by conscious awareness needs some clarification. A first clarification is provided by David M. Rosenthal's (1991) distinction between creature consciousness and state consciousness. A creature can be said to be conscious and a creature's mental state (e.g., one of his or her beliefs) can be said to be conscious. Second, as Rosenthal also points out, if conscious, a creature can either be intransitively conscious or transitively conscious of something. A creature is intransitively conscious if he or she is not unconscious (e.g., as in a coma). He or she can be transitively conscious of things, properties, and states of affairs by either perceiving them or thinking of them. Whereas a creature can be either intransitively conscious or transitively conscious of something, a creature's mental state (or representation) can only be intransitively conscious. Third, one of the things a creature can be transitively conscious of is him- or herself. Arguably, a creature could not be self-conscious or self-aware unless he or she had some concept of him- or herself. But it does not follow that a creature could not be transitively conscious of things in his or her environment unless he or she was self-conscious and unless he or she had a concept of the self. Finally, as Ned Block (1997) argues, there are two distinct ways a mental state can be conscious: It is access conscious if it is poised for free use in reasoning and for the direct rational control of action and speech. It is phenomenally conscious if, as Thomas Nagel (1974) famously puts it, "there is something it is like" to be in that state, that is, if the state has a phenomenal character.

THE DISPUTES BETWEEN INTENTIONALISTS AND NONINTENTIONALISTS. Philosophers who accept Brentano's thesis that all psychological phenomena exhibit intentionality are intentionalists. Philosophers who do not are nonintentionalists. The nonintentionalists argue that the phenomenal character (phenomenal consciousness) of qualitative mental states (*qualia*) such as pains cannot be accounted by its intentionality if it has any. Radical nonintentionalists, such as Searle (1992) and

Galen Strawson (1994), reject Brentano's view that intentionality is the mark of the mental and argue that either accessibility to consciousness or phenomenal consciousness is the true criterion of the mental. If accessibility to consciousness were the criterion of the mental, then psychological states and processes investigated by cognitive science that are unavailable to consciousness would fail to qualify as mental (or psychological). If phenomenal consciousness were the criterion of the mental and if the belief that 5 is a prime number lacks phenomenal consciousness, then this belief would fail to be mental. Many nonintentionalists, such as Block (1997), David J. Chalmers (1996), and Charles P. Siewert (1998) hold a more moderate dual view according to which many, if not all, mental states have both intentional and phenomenal properties.

If a psychological state has some phenomenal character, then it is incumbent on an intentionalist either to show that its phenomenal character is derivable from its intentionality or to argue that its having a phenomenal character is merely an illusion. Radical intentionalists, such as Dennett (1991), who are *qualophobes*, choose the last option and argue that the mysteries of phenomenal consciousness should be explained away or dissolved. Philosophers who subscribe to moderate forms of intentionalism take the former option, which in turn can be divided into two distinct strategies. According to the higher-order thought (HOT) theory of conscious states (defended by Rosenthal [1991]), what makes a person's mental state phenomenally conscious is that the person is transitively conscious of it by virtue of forming a HOT about it. If, however, a creature (e.g., a human baby) lacks the ability to form a HOT about his or her own perceptions, then his or her perceptions will lack phenomenal consciousness—a consequence that many will find implausible. Finally, pure intentionalists, such as Michael Tye (1995) and Tim Crane (2001), argue that *qualia* are mental representations with nonconceptual content. Tye, for example, argues that pains are mental representations of damaged bodily parts and that the phenomenal features of pains arise from the nonconceptual content of the bodily representation. Arguably, the intentionalist account of pain may derive some empirical support from the phenomenon of phantom pains, whereby people who have had limbs amputated may still experience pain in their phantom limb. A bodily part need not exist for someone to feel pain in it: it is enough that the bodily part be mentally represented.

See also Belief; Content, Mental; Propositional Attitudes: Issues in Philosophy of Mind and Psychology; Reference.

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INTERNAL RELATIONS

See *Relations, Internal and External*

INTERNALISM AND EXTERNALISM IN ETHICS

Among the various uses of the term *internalism* in ethics, there are two that are central and importantly different. In the following entry, these two uses will be distinguished as judgment internalism and reason internalism.

JUDGMENT INTERNALISM

Judgment internalism is the view that moral judgments can be sufficient to motivate actions. Motivation is internal to morality. Externalists, by contrast, hold that the motivation to act morally is supplied by motives that are only contingently related to moral judgments. Internalism is thus opposed to the view that we need to appeal to special motives in order to explain compliance with moral demands, such as sympathy, as well as to a Hobbesian outlook claiming that the motivation to act is always self-interested, and that the motivation to act morally must therefore be self-interested, too. Internalism in this sense has been defended by Thomas Nagel (1970), John McDowell (1978), Christine Korsgaard (1986), and possibly by Immanuel Kant (1785).

One of the first to introduce the term in this sense was William Frankena (1958) who is critical of internalism. Externalism—the view that moral judgments as such

cannot motivate moral actions—has few explicit defenders. However, John Stuart Mill (1861) claimed that we should distinguish sharply between the 'proof' of the moral principle (the principle of utility, as he sees it) and its 'sanctions.' While it can be demonstrated to anyone that an action is morally wrong if it violates the principle of utility, the motivation to act in accordance with the principle will be present only in those who received an appropriate education.

One response to judgment internalism is error theory (Mackie 1977). On the level of semantics, internalists have it right: Moral judgments involve an attempt to refer to properties that exist independently of a person's desires, but that are capable of motivating him or her. Thus, on the one hand, those properties must be features of the world as it is independently of our responses to it. But, on the other hand, we necessarily respond to them in certain ways. This combination of claims is, according to Mackie, ontologically speaking, 'queer:' It requires that moral properties be primary and secondary properties at the same time. But there can be no such properties. Therefore, all our moral judgments are false (for a critical discussion of J.L. Mackie's argument, see McDowell [1985]).

REASON INTERNALISM

Yet there is a different use of the terms *internalism* and *externalism* that in effect reverses the one sketched above. Bernard Williams in his influential essay *Internal and External Reasons* (1980) defends the view that all practical reasons are internal reasons. By *internal* he means that they are related to a person's given desires—to the elements of his or her subjective motivational set. This Hume-inspired view is based on an explanation of motivation in terms of desires as a distinct kind of psychological state.

Practical reasons are potentially both explanatory and justificatory: They determine what a person should do, but also explain his or her actions (if he or she acts for those reasons). But as explanation must appeal to an agent's motives (or desires), reasons have to be suitably linked to those. Desires, in turn, are not (ultimately) the product of reasons. Therefore, in order to be explanatorily relevant, a person's reasons must be based on his or her given desires. A person has a reason to ϕ, if he or she can reach the conclusion to ϕ by a sound deliberative route starting from his or her given desires (Williams 1989).

Desires, Williams explains, need not be conceived narrowly. The term applies to a whole array of states of a

very different kind comprising a person's projects, commitments, and loyalties. Desire is simply a term of art that can be used to refer to all motivationally relevant attitudes. It follows that a person has reason to act in a certain way only if he or she happens to have an appropriate desire: a desire that will be satisfied if he or she acts accordingly, provided the desire is not based on false belief and formed on the basis of correct information about the relevant facts. Therefore a person's reasons do not exist independently of his or her psychological states.

This view is at odds with the normal understanding of moral reasons, and of practical reasons more generally. We tend to interpret at least some reason statements as referring to how things are in the world (independently of the agent's attitude toward them). They are thus external reasons, according to Williams's terminology: reasons that are independent of a person's psychological states. In interpreting reason statements as referring to external reasons, Williams claims, we are mistaken because external reasons are incapable of explaining a person's actions (for an earlier, yet different defense of a similar view, see Davidson [1963]).

Williams's defense of internalism led to an intense and continuing debate (see Hooker [1987], Smith [1995], Millgram [1996], FitzPatrick [2004]). McDowell (1995) replied that Williams may well be right thinking that if reasons can be external, then not everyone is capable of being motivated by practical reasons that apply to him or her. But the externalist is not committed to thinking that they can. The externalist's crucial claim is that reasons exist independently of motives—not that they can motivate anyone independently of what his or her motives happen to be. Is the externalist committed to denying Williams's claim that practical reasons are both justificatory and explanatory then? According to McDowell, he or she is not. Those who are motivated by reasons may not be so motivated by a desire whose existence is independent of the reason.

McDowell suggests an Aristotelian alternative to Williams's Humean view: The capacity of being motivated in the right way is a matter of moral upbringing. But moral upbringing is (in part) the ability to be motivated by moral reasons. The moral person is one who responds to his or her perception of the morally salient features of the his or her situation. Thus McDowell can agree with Williams that practical reasons are both justificatory and explanatory, but denies that explanation must appeal to desires that exist independently of reasons. Reasons exist independently of desires, and they can

motivate independently of them—at least those who have been brought up in the right way.

Various versions of reason externalism have been proposed in recent years (see Dancy [2000], Parfit [1997], Raz [1999], Scanlon [1998]). Korsgaard (1986 and 1996) defends a version that is stronger than the one proposed by McDowell: She claims that a reason can motivate a person insofar as he or she is rational (independently of given motives). According to her, being rational is the ability to respond to reason, and we all have that ability (perhaps to a lesser or higher degree). Thus there is no emphasis on moral upbringing in Korsgaard's account of motivation.

Against this, Michael Smith (1987) provides an a priori argument for internalism, or—as he puts it—the Humean theory of motivation. Smith develops Hume's view that beliefs and desires are distinct psychological states, distinguishing them by their different direction of fit. Beliefs aim to represent the world as it is, whereas desires are an agent's dispositions to change the world in such a way that it fits with the desire. Beliefs have a mind-to-world and desires a world-to-mind direction of fit. Only states with the right direction of fit (i.e., desires) can motivate. Beliefs as such cannot. If we are to understand value judgments as beliefs (as Smith thinks we should) they will not be sufficient to explain actions (Smith 1994). This argument gave rise to an ongoing discussion (Wallace 1990; Velleman 1992).

The two uses of internalism can be seen as related: The older tradition of judgment internalism identifies internalism with the claim that moral judgments as such are capable of explaining actions. This claim, however, bears some similarity to Williams's claim that practical reasons are both justificatory and motivating. The main difference is that judgment internalism is confined to moral judgments, whereas Williams is concerned with practical reasons more generally (a further difference is that reason internalists are not committed to accepting that practical reasons are, at least in part, judgments; for the significance of this difference see Dancy [2000]).

Yet, according to Williams, put together with some version of the Humean theory of motivation, the claim that practical reasons are both explanatory and justificatory leads to the conclusion that reasons must be based on desires, which is the view that he calls internalism: reason internalism. Thus, roughly, judgment internalism labels one of the premises of Williams's argument internalism, whereas Williams himself uses the term to refer to its conclusion. The focus of disagreement is then on the

Humean theory of motivation, which divides the two approaches.

See also Error Theory of Ethics; Hume, David; Kant, Immanuel; Mackie, John Leslie; McDowell, John; Metaethics; Mill, John Stuart; Moral Motivation; Nagel, Thomas; Normativity; Response-Dependence Theories; Williams, Bernard.

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INTERNALISM VERSUS EXTERNALISM

Internalism in epistemology is a thesis about the nature of epistemic normativity, or the sort of normativity that is involved in the evaluation of cognition. Specifically, internalists claim that the (epistemically) normative status of a belief is entirely determined by factors that are relevantly "internal" to the believer's perspective on things. By contrast, externalists in epistemology deny this. The externalist says that the epistemic status of a belief is not entirely determined by factors that are internal to the believer's perspective.

When internalism and externalism are characterized in this way, several things become apparent. First, internalism is a rather strong thesis, in the sense that it says that epistemic status is entirely a function of internal factors. By contrast, the denial of internalism is a relatively weak thesis. Externalism in epistemology holds that some factors that are relevant to epistemic status are not internal to the believer's perspective. A second point to note is that there are several kinds of epistemically normative status, corresponding to several kinds of epistemic evaluation. We can say that a belief is justified, rational, reasonable, or intellectually responsible, and these need not

mean the same thing. It is possible, then, to be an internalist about some kinds of epistemic status and an externalist about others. Hence, there are a variety of internalisms and a corresponding variety of externalisms.

Third, we get different understandings of internalism (and externalism) depending on different ways that we may understand the phrase "internal to the believer's perspective." The most common way to understand the phrase is that something is internal to a believer's perspective just in case the person has some sort of privileged access to the thing in question. For example, some fact F is relevantly internal to some person S's perspective if S can know by reflection alone whether F obtains. A related, though not equivalent, understanding of "internal to S's perspective" is as follows: Some factor F is internal to S's perspective just in case F constitutes part of S's mental life. For example, a person's perceptual experience counts as internal on this understanding, since how things appear perceptually to S is part of S's mental life in the relevant sense. Also, any belief or representation that S has about how things are would be internal on this understanding, since one's beliefs and other representations are also part of one's mental life. These two understandings are related because it is plausible to think that one has privileged access to what goes on in one's mental life, and perhaps only to what goes on in one's mental life. In that case the two understandings would amount to the same thing for practical purposes. Internalism would then be the thesis that epistemic status (of some specified sort) is entirely a function of factors that are part of one's mental life, and to which one therefore has privileged access.

Finally, it is apparent that some varieties of internalism are initially more plausible than others. That is, some sorts of epistemic evaluation are obviously externalist on the previous understandings. Most importantly, and perhaps most obviously, whether a belief counts as knowledge is an external matter, if only because a belief counts as knowledge only if it is true, and whether a belief is true is typically an external matter.

OBJECTIVE VERSUS SUBJECTIVE EVALUATIONS

There is another reason knowledge and many other sorts of epistemic evaluation must be understood as externalist, however. Consider that we can evaluate both persons and their beliefs in two different ways. Broadly speaking, we can evaluate them either from an objective point of view or from a subjective point of view. From the objective point of view we can ask whether there is a good fit between the person's cognitive powers and the world. For example, we can ask whether the person has a good memory or an accurate vision. Also from this point of view we can ask whether a person's methods of investigation are reliable, in the sense that they are likely to produce accurate results. By contrast, there is a second broad category of epistemic evaluation. This sort does not concern whether a belief is objectively well formed, but whether it is subjectively well formed. It asks not about objective fitness, but about subjective appropriateness. Internalism is pretty much a nonstarter with respect to evaluations of the first category. Evaluations from an objective point of view involve factors such as accuracy, reliability, and appropriate causal relations to one's environment, and these are paradigmatically external factors. Therefore, internalism is best understood as a thesis about the second broad category of epistemic evaluation: It is a thesis about what factors determine subjective appropriateness. Let us use the term *epistemic justification* to signify this second sort of epistemic status. In that case internalism is the thesis that epistemic justification is entirely a function of factors that are within the believer's perspective.

THREE CONSIDERATIONS IN FAVOR OF INTERNALISM

Why would someone be an internalist? Three considerations have been stressed in the literature. The first begins with an assumption about the nature of epistemic justification (where *epistemic justification* refers to the sort of subjective appropriateness required for knowledge or some other important epistemic status). The assumption is this: A belief is epistemically justified just in case it is epistemically responsible. However, the argument continues, epistemic responsibility is entirely a matter of factors that are internal to S's perspective. Therefore, epistemic justification is entirely a matter of factors that are internal to S's perspective.

A second consideration put forward in favor of internalism invokes a strong intuition about epistemic justification. Namely, in many cases it seems that believers who are alike in terms of internal perspective must also be alike in terms of epistemic justification. The point is often illustrated by considering René Descartes's victim of an evil deceiver. Suppose that the victim is exactly like you in terms of internal perspective. Even if the victim lacks knowledge, the argument goes, surely his beliefs are as well justified as yours are. If you are justified in believing that there is a table before you, and if the victim's perspective is exactly as yours, then he must be justified in believing that there is a table before him.

A third consideration invoked in favor of internalism is that externalism makes an answer to skepticism too easy. Philosophical problems are supposed to be difficult. If the externalist has an easy answer to the problem of skepticism, this argument goes, then that is good reason to think that externalism is false. At the least it is good reason to think that the externalist has changed the subject—that he is no longer talking about our traditional notions of justification and knowledge.

How does externalism make an answer to skepticism too easy? The idea is roughly as follows: According to the skeptic one can know via sense perception only if one knows that sense perception is reliable. Similarly, one can know by inductive reasoning only if one knows that inductive reasoning is reliable. This creates problems for the internalist, because it is hard to understand how one can mount a noncircular argument to the desired conclusions about the reliability of one's cognitive powers. There is, however, no such problem for the externalist since the externalist can deny the initial assumption of the skeptical argument. For example, an externalist can insist that sense perception gives rise to knowledge so long as sense perception is in fact reliable. There need be no requirement, on an externalist account, that one know that one's perception is reliable. What is more, on an externalist account one seemingly can know that one's cognitive powers are reliable, and easily so. For example, one can use reliable perception to check up on perception, and then reason from there that perception is reliable. Similarly, one can use reliable induction to check up on induction, and then reason from there that induction is reliable.

EXTERNALIST REPLIES

Externalists reply that none of these considerations adequately motivate internalism. First, externalists argue, even if epistemic justification is to be understood in terms of epistemic responsibility, it is false that epistemic responsibility is entirely a matter of factors that are internal to S's perspective. This is because whether a belief is epistemically responsible is partly a function of the belief's etiology, or how S came to have the belief in the first place. For example, whether a person is epistemically responsible in holding some belief is partly a function of the person's prior behavior: If S's reasons for believing b are the result of prior negligence, then S is not now blameless in believing b. Similarly, we can make a distinction between (1) merely having good reasons for a belief, and (2) believing on the basis of those reasons. Plausibly, a belief is epistemically praiseworthy only if it is believed

on the basis of good reasons—merely having good reasons, if one does not use them, is not enough. But etiological considerations such as these involve external factors; that is, factors that are not typically internal to S's perspective.

The same line of argument has been used to counter the second consideration in favor of internalism. The problem is that two believers might be alike internally, and yet different regarding the causal genesis of their beliefs. Suppose that two persons arrive at the same internal perspective, but that one does so in a way that is epistemically responsible, whereas the other does so in a way that is careless and thick-headed. The two persons will not be alike in epistemic justification, although they share the same internal perspective.

Finally, externalists argue that the third consideration in favor of internalism is self-defeating. In effect, internalists claim that only they can give a satisfactory answer to traditional skeptical concerns. On the contrary, externalists argue, internalism makes it impossible to answer the skeptic. This is because traditional skeptical arguments assume internalism about epistemic justification. Moreover, if one concedes that assumption, externalists argue, then the skeptic has all he or she needs to construct skeptical arguments that are otherwise sound. Therefore, externalists conclude, internalism about epistemic justification guarantees skepticism about epistemic justification.

See also Epistemology.

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INTRINSIC VALUE

A thing's intrinsic value is the value it has in itself as opposed to the instrumental value it derives from causally producing something else. Such value is important for the theory of the right, since on most views at least one moral duty is to promote intrinsic goods and prevent intrinsic evils. But it also matters in itself. If an earthquake causes suffering no one could have prevented, the suffering is still intrinsically bad. In fact, it is distinctive of the concept of value that, unlike that of ought or right, it is not restricted to what is under our voluntary control. And intrinsic value is the central kind of value. Something is instrumentally good if it produces something else good, but on pain of infinite regress, what it produces must eventually be intrinsically good.

There are two types of questions about intrinsic value: conceptual questions about what it is and substantive questions about what things have it. One conceptual issue is whether judgments of intrinsic value are objectively true or false or merely express emotions, but this question arises equally for all normative concepts. A more distinctive question is how intrinsic goodness relates to other normative concepts. One view, defended by G. E. Moore (1903), says the concept of goodness is simple and unanalyzable, even in normative terms; a rival view analyzes the good as what one ought to desire (Sidgwick 1907) or as the desire for which is correct or appropriate (Brentano 1969, Ewing 1948). Like the first view, the second allows judgments of goodness to extend beyond ones about right action, since one can desire what one cannot produce. But it cannot say, as the first can, that one ought to desire something *because* it is good, and it faces the further difficulty that, since one often cannot produce desires at will, its *ought* cannot be the simple deontic one and is therefore not clearly distinguishable from *good*.

A second conceptual question is what type of entities have intrinsic value. The most common view is that they are states of affairs, so to say that pleasure is good is really to say that the state of affairs in which someone enjoys pleasure is good. But some attach value primarily to objects. Thus, Immanuel Kant (1998) held that the prime bearers of intrinsic value are persons (and not the states of affairs in which persons exist) while others find such value in, say, beautiful works of art. A related question is what the morally required response to intrinsic value is. Many who locate such value in states of affairs say this response is only to desire and promote the good; others say there is a separate and stronger requirement to respect good states by not directly destroying them. In fact the Kantian view centers on respect. Since one cannot promote values that already exist, as the Kantian value of persons does, the required response is not to treat them in a way that disregards their value.

A final conceptual question is what kind of properties intrinsic value can depend on. Moore held the strict view that a thing's intrinsic value can depend only on its intrinsic properties, those it has independently of relations to other things. He therefore tested for intrinsic value by a *method of isolation*, which involves imagining a world where only a given thing exists and asking whether that world is good. Others hold, more liberally, that intrinsic value can depend on relations, so a belief can be intrinsically better if it corresponds to reality and therefore is true, or a pleasure can be better if it is that of a virtuous person and so deserved. (Some restrict the term *intrinsic value* to value that depends only on intrinsic properties and use *final value* for what can vary with relations; they still differ from Moore in holding that some value worth promoting for itself depends on relations.)

The substantive issues about intrinsic value arise most clearly if it is located in states of affairs; the question then is which states are worth desiring and promoting for their own sakes. Here, the simplest view is hedonism, which holds that only pleasure is intrinsically good and only pain intrinsically evil. Though defended by Jeremy Bentham, Sidgwick, and other utilitarians, hedonism faces numerous objections. It implies that a world of intense mindless pleasures like those of *Brave New World*, where people are systematically deluded and exercise no serious skills, can be supremely good; it makes morally vicious pleasures, such as pleasure in another's pain, purely good; and it also makes undeserved pleasure good.

In response, many philosophers develop pluralistic views according to which the intrinsic goods include not just pleasure but also, for example, other states of persons such as knowledge, the achievement of difficult goals, and moral virtue; patterns of distribution of goods across persons, such as equal distributions or ones proportioned

to people's deserts; and even states outside persons, such as the flourishing of complex ecosystems. These pluralistic views require comparisons between their different goods whereby some may be higher or greater than others. Thus, scientific knowledge may be better than the pleasure of eating chocolate and the virtue of compassion better than both. But in so far as there is a duty to promote intrinsic value, one should pursue the best overall outcome, weighing all goods appropriately against each other.

Many nonhedonic goods involve what Moore called the "principle of organic unities (1903, p. 27-36) according to which the intrinsic value of a whole need not equal the sum of the values its parts would have on their own, so states with little value when apart can make for significant value when combined. The exact formulation of this principle depends on whether intrinsic value can depend only on intrinsic or also on relational properties. Either way, the greatest value can be found not in simple states such as pleasures but in complexes combining several elements in a specified way.

A final substantive question is whether all intrinsic values are agent-neutral, so everyone has equal reason to pursue them, or some are agent-relative, with greater value from some people's point of view than from others'. Given Moore's view that goodness is an unanalyzable property, agent-relativity is impossible: A state either has the simple property, in which case everyone has a duty to promote it, or it does not. But analyses of good in terms of ought allow relativity: We can say that each person's pleasure is something only that person ought to desire, or that parents should care more about their children's pleasure than about that of strangers. On the agent-neutral view, intrinsic value specifies a common goal that everyone is to pursue together; given agent-relativity, there can be different goods and different required goals for different people.

See also Bentham, Jeremy; Intuitionism and Intuitionistic Logic; Kant, Immanuel; Objectivity in Ethics; Sidgwick, Henry; Value and Valuation.

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INTROSPECTION

The term *introspection* might be defined as the direct, conscious examination or observation by a subject of his or her own mental processes. The term is derived from two Latin words, *spicere* ("to look") and *intra* ("within").

From at least the time of René Descartes up to the early twentieth century, it would have been considered unproblematic that the mind can reflect (or bend its attention back) upon itself. In the eighteenth and nineteenth centuries, if not earlier, self-reflection began to be interpreted, in the main, as introspection. In turn, to introspect one's own mental processes was explained in terms of the capacities (1) to focus the full glare of one's conscious attention upon the task of observing some particular, first-level, conscious process (or mental act), which was an item in one's stream of consciousness, and (2) to report in a privileged and incorrigible way upon the results of such observation. This introspective act was considered to be a form of inner, though nonsensuous, perception, and deliberate parallels were frequently drawn between it and ordinary outer perception by means of our senses, such as those of vision or hearing.

In the nineteenth century, Franz Brentano and other philosophical psychologists were at pains to distinguish introspection (sometimes called inner observation) from its close relative, self-consciousness (sometimes called inner perception). Introspection was a deliberate act of focusing a subject's attention on some inhabitant in his stream of consciousness. Self-consciousness was an indeliberate but inescapable, though partial, concomitant awareness on the part of a subject of at least some features of some of his first-level conscious mental acts. To put it metaphorically, introspection was a deliberate ogling with the inner mental eye; self-consciousness was

unavoidably catching sight of something out of the corner of one's mental eye.

However, even as this canonical version of introspection was being formulated, doubts were being voiced about the possibility of splitting consciousness into two processes that operated at two different levels at the same time. Pushing aside these doubts, the early psychological introspectionists—such as Wilhelm Wundt, Edward B. Titchener, Narziss Ach, Karl Bühler, and William James—believed that either introspection proper or some version of self-consciousness was nevertheless the only possible method for inaugurating a truly empirical, that is, scientific, psychology. For only the subject of mental acts or processes can have "eye witness," knowledge by acquaintance of the denizens of his or her stream of consciousness. So, the very first psychological laboratories were devoted to introspection (for this term came to be used for both introspection proper and for scientific versions of self-consciousness). In carefully designed laboratories bristling with chronograph and tachistocope, subjects were asked to produce detailed introspective reports on various aspects of the inner conscious effects of carefully controlled stimuli applied to their senses.

These experiments resulted in some of the most tedious literature that psychology has ever produced. Also, there could be found little or no agreement about results across schools or from one laboratory to the next. Yet another consequence, which Wundt, for example, readily admitted, was that introspection experiments seemed confined to a study of comparatively trivial mental episodes.

Surprisingly, the failure of introspectionism did not lead many people to question the inherent model of introspection. As psychology and philosophy wound their way through behaviorism and versions of the mind-brain identity theory to contemporary forms of physicalism, such as functionalism, both were faithful to the original, classical model of introspection. They abandoned the Cartesianism of the psychological introspectionists and questioned the privileged status of introspection reports, but they did not question the basic two-level picture—that introspection was a second-level monitoring, observing, registering, or tracking of some first-level process or processes.

Thus, classical psychological behaviorists such as John Broadus Watson or B. F. Skinner gave, as at least one account of one employment of introspection, that it was a literal monitoring by the subject of his thinking (which for a classical behaviorist was to be analyzed as inner truncated movements in the muscles of speech, or

"stopped short" speech). Only the repeated failure of experiments seeking to verify this theory led to the abandonment of that particular, and now notorious, explanation.

The philosophers, or most of them, also championed some version of the two-level account of introspection, and still do. Even the most tough-minded of the physicalists, such as David M. Armstrong or Daniel Dennett, stick resolutely to a two-level monitoring account of introspection. Thus, in *A Materialist Theory of the Mind* Armstrong describes introspection as one part of the brain scanning another part of the brain such that the subject, whose brain it is, generates (in entirely causal fashion) a belief about the nature of the first-level, scanned, brain process. In *Content and Consciousness* and again in *Brainstorms* and *Consciousness Explained*, in an uncompromising functionalist account of mind, Dennett describes introspection in terms of one part of the brain "accessing" another (like one part of a computer accessing another) and then, via the speech center, "printing out" the results.

In philosophy and psychology since the 1950s, there has been a minority view that this two-level account of introspection is simply mistaken. Humans have no such second-level inspecting or scanning or monitoring capacity. Earlier, Gilbert Ryle (1949) argued convincingly that this two-level account did not make theoretical sense. Unfortunately, he substituted for it an unconvincing behaviorist account (in terms of the ordinary perceptual "retrospection" of ordinary behavior). More recently, psychologists and philosophers (such as Wilson and Nisbett 1977 and Lyons 1986) have suggested that, besides those theoretical grounds for rejecting the two-level account of introspection, there are also empirical grounds for rejection drawn from contemporary experimental psychology, anthropology, and the brain sciences. In contemporary introspective experiments subjects produced reports that were more like stereotyped and predictable "folk" interpretations than detailed eyewitness accounts of inner events. Besides, it seems that in cultures more or less uninfluenced by European culture people do not claim to have powers of introspection. More important, there does not seem to be any part of the brain that functions as a monitor of those neurophysiological states that maintain and control conscious states. Finally, it seems both possible and more plausible to give an account of what humans are doing, when they claim to be introspecting, in terms of the exercise of the internal but quite ordinary capacities of memory and imagination. This opposition of views has not yet been resolved, and,

because of this, introspection (like consciousness itself) is likely to receive more direct and sustained treatment in the future.

See also Armstrong, David M.; Behaviorism; Brentano, Franz; Descartes, René; Functionalism; James, William; Philosophy of Mind; Physicalism; Ryle, Gilbert; Skinner, B. F.; Wundt, Wilhelm.

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INTUITION

The broadest definition of the term *intuition* is "immediate apprehension." *Apprehension* is used to cover such disparate states as sensation, knowledge, and mystical rapport. *Immediate* has as many senses as there are kinds of mediation: It may be used to signify the absence of inference, the absence of causes, the absence of the ability to define a term, the absence of justification, the absence of symbols, or the absence of thought. Given this range of uses, nothing can be said about intuition in general. Instead, it is necessary to pick out those principal meanings of the term that have played the most important roles in philosophical controversy and to discuss each of these individually.

Four principal meanings of *intuition* may be distinguished: (1) Intuition as unjustified true belief not preceded by inference; in this (the commonest) sense "an intuition" means "a hunch." The existence of hunches is uncontroversial and not of philosophical interest. (2) Intuition as immediate knowledge of the truth of a proposition, where *immediate* means "not preceded by inference." This is a philosophically important sense, since philosophers have found it puzzling that one can have knowledge, and thus justified belief, without having made oneself aware through the process of inference of any justification for this belief. (3) Intuition as immediate knowledge of a concept. "Immediate knowledge" here means, roughly, "knowledge that does not entail ability to define the concept." (4) Intuition as nonpropositional knowledge of an entity—knowledge that may be a necessary condition for, but is not identical with, intuitive knowledge of the truth of propositions about the entity. This sense of *intuition* is exemplified by (*a*) sense percep-

tions, considered as products of a cognitive faculty distinct from the faculty of forming judgments concerning the entity sensed; (*b*) intuitions of universals, or (as in Immanuel Kant) of such insensible particulars as time and space—intuitions that are necessary conditions of our intuitive knowledge of a priori truths; (*c*) mystical or inexpressible intuitions that, unlike sense perceptions and intuitions of universals, do not make possible knowledge of the truth of propositions about the entities intuited—such intuitions as Henri Bergson's inexpressible intuition of duration, Johann Gottlieb Fichte's intuition of the Transcendental Ego, and the mystic's intuition of God.

FACULTY AND LINGUISTIC EXPLANATIONS OF INTUITIVE KNOWLEDGE

INTUITIVE AND NONINFERENTIAL KNOWLEDGE. There is both a strong and a weak sense of "intuitive knowledge that *p*." In the weak sense of this term, *S* knows that *p* intuitively if (*a*) *p* is true, (*b*) he is justified in believing that *p*, and (*c*) his knowledge that *p* is not based upon his inferring *p* from other propositions. The criterion for its not being so based is simply that *S* would deny, for any set of propositions *p** from which *p* follows, that he believes that *p because* he believes that *p** (although he might in fact believe *p** and be willing to adduce *p** to satisfy someone else's doubts about *p*). In this sense of "intuitive," we may know intuitively that we have two legs or two children, but we cannot know intuitively that the Civil War was caused by slavery, or that nothing can move faster than the speed of light. In this sense, the existence of intuitive knowledge is unquestionable; and "intuitive" in this sense is synonymous with "noninferential."

In the stronger sense of *intuition*, however, only a certain species of noninferential knowledge is intuitive: *S* knows that *p* intuitively only if (*a*) *p* is true, (*b*) he is justified in believing that *p*, and (*c*) there are no accepted procedures for resolving doubts about the truth of *p*, given *S*'s belief that *p*. Thus we may be justified in believing without inference that we have two legs, but if we have doubts we can undertake such tests as looking and seeing, asking others, and checking the possibility of collective hallucination. Given these tests, so much evidence may appear to show that one leg is missing that it would be irrational to maintain our previous belief. But in certain cases—for example, our belief that we are in pain, or that every event has a cause—there are (at present) no procedures available for resolving doubt. It is never irrational to continue to believe that *S* has a pain once one knows

that he believes he does, despite, for instance, the failure of physiologists to find a concomitant neural process. Again, if someone thinks that some events are uncaused, we have no way of testing his hypothesis. Yet we are not willing to give up our claim to know that he is wrong. In both sets of cases—so-called rock-bottom data of perception and introspection, and so-called unquestionable first principles—justified belief is accompanied by the lack of procedures to settle doubt. These are the two paradigm cases of "intuitive knowledge," in the strong sense of the term—first-person statements about those psychological states to which one has "privileged access" and underived a priori truths.

In this stronger sense, too, the existence of intuitive knowledge is unquestionable. Two points should, however, be noted. First, if in formulating the conditions for the application of this sense of intuitive knowledge we had simply said "*p* is indubitable" rather than "there are no accepted procedures for resolving doubts about *p*," then it would have been questionable whether any such knowledge existed. It can plausibly be argued that, under sufficiently peculiar circumstances, it may be rational to doubt one's belief that one is in pain, or that every event has a cause. In general, it can plausibly be argued that there are no intrinsically indubitable propositions, for rational doubt may outstrip the possibility of rationally settling doubt. Second, it is possible for procedures to come into existence for settling doubt in areas where none existed before. Thus we now take *S*'s belief that he was in pain as the best possible evidence for his having been in pain, but advances in physiology may bring about a practice of withdrawing claims to have been in pain when the relevant neural processes have failed to occur. Under these conditions, *S*'s belief that he was in pain would be intuitive in the weak sense, but no longer in the strong sense. Again, some philosophers would argue that, with the rise of quantum theory, we are now in a position to treat "every event has a cause" as an empirical hypothesis, even though it was once the paradigm of an unquestionable first principle. In general, whether a proposition can count as the object of intuitive knowledge (in the strong sense) is a function of the availability of accepted procedures for settling doubt, and it is doubtful that we can know a priori in what areas such procedures will and will not be developed.

Noninferential will here be used in place of the weak sense of intuitive, and *intuitive* in place of the strong sense. Both noninferential and intuitive knowledge seemed to philosophers to require explanation because the paradigm of knowledge has, since Aristotle, fre-

quently been taken to be inferential knowledge—the case in which one knows not only that *p* is true but also why *p* is true, and believes that *p* is true because one believes certain other propositions from which *p* may validly be inferred (see Aristotle's *Posterior Analytics* I, 2). Noninferential knowledge has often been explained by being assimilated to this paradigm through the use of the notion of implicit or unconscious inference. Cases of nonintuitive knowledge have been treated as cases in which an inference from intuitively known premises was performed, and cases of nonintuitive, noninferential knowledge as cases in which the knower is not aware of having performed the appropriate inference.

FACULTY THEORY. Various explanations have been given of the existence of intuitive knowledge. As was noted, the objects of intuitive knowledge seem to fall into two quite different groups—such very particular facts as "This looks white" or "This hurts," and such very general facts as "Every event has a cause" or "If *p* implies *q*, and *p*, then *q*." Our knowledge of the particular has often been referred to as sensory intuition, and of the very general as nonsensory intuition. The simplest, most familiar, and least helpful explanation of our possession of these two sorts of intuition is that we possess faculties which produce such knowledge. Accepting this explanation amounts to granting that the presence in our mind of the original starting points of knowledge is inexplicable and must be accepted as a brute fact. Aristotle was content with this solution, and so was René Descartes. In Cartesianism this inexplicability was woven into the fabric of a metaphysical dualism, according to which no mental event (such as a coming-to-know) could be caused by any sequence of physical events, and in which the only mental relation that could bring about a coming-to-know was the relation of being inferred from. This picture of the mind required that comings-to-know which were not preceded by inference be treated as uncaused causes, incapable of explanation.

Descartes's extreme rationalism led him to insist that sensory intuitions are not really cases of knowledge at all, and this in turn led him to hold that they are not really mental events but merely physical ones. Thus he did not recognize two intuitive faculties (one sensory and one nonsensory) but only one, the nonsensory. In his view, sense perception is in principle nonessential to attaining complete knowledge, although it is mysteriously necessary in practice. This paradoxical position was criticized by John Locke and others. Under the impact of such criticisms, a more moderate rationalistic position was developed, according to which both sense perception and the

intellect are sources of genuine knowledge and enjoy equal status as intuitive faculties.

LINGUISTIC THEORY. The new moderate rationalism was attacked by the immoderate empiricism of David Hume, according to which our only intuitive faculty is that of sensory intuition. Hume, however, and such later empiricists as Bertrand Russell, continued to accept the Cartesian metaphysical framework, thus admitting that no explanation can be given of the fact that a physical event *p* (the modification of one of *S*'s sense organs) is frequently followed by the mental event *M* (*S*'s coming-to-know that *p*). They insisted, however, that an explanation can be given of the acquisition of our nonsensory intuitive knowledge and that consequently it is not necessary to postulate a special faculty that provides us with knowledge of first principles. The alternative explanation (in the form it was given by the logical positivists) was that all such knowledge is knowledge of analytic truths and that the process of acquiring such knowledge is identical with the process of learning the conventions of one's language. This view—sometimes called the linguistic theory of a priori knowledge—held that to know, for example, that all events are caused is simply to know something about the meanings of the words *event* and *cause*, and that this knowledge is acquired by easily understandable processes of psychological conditioning. To this suggestion, rationalists objected, first, that the process of learning the meaning of *cause* cannot be accounted for except by invoking a special faculty of intuitive acquaintance with universals; and, second, that the linguistic theory represents a confusion of acquiring knowledge with acquiring the ability to express this knowledge.

PRELINGUISTIC KNOWLEDGE. The rationalists held, concerning the linguistic theory, that even granted that it would be a violation of linguistic conventions to speak of "uncaused events," the real question is: How do we know that this is the right convention to adopt? Is not this latter piece of knowledge, knowledge of nonlinguistic fact? Are not linguistic conventions adopted on the basis of such prelinguistic knowledge? Such questions, many philosophers thought, show that the linguistic theory does not enable us to dispense with a faculty of nonsensory intuition. As long as the central presupposition of these questions—that *S* can properly be said to know that *p* prior to his ability to express *p* in language—was granted, this rationalist rebuttal created a new deadlock.

The influence of Cartesianism, and particularly of the Cartesian notion of sense perception as a special,

unanalyzable mental act correlated with certain modifications of sense organs, made it difficult to question this presupposition. Sense perception was, it seemed to most philosophers, a clear example of our ability to know facts without having the ability to express them. If a child, by virtue of his faculty of sensory intuition, can see that a physical object O has the sensory quality Q by a simple, uncaused act, prior to acquiring the ability to express this fact in language, then why cannot the same child see with his mind's eye that every event has a cause and, on the basis of this prelinguistic intuitive knowledge, check the correctness of conventions concerning the words *cause* and *event*?

BEHAVIORIST ANALYSIS. The notion of prelinguistic knowledge, and with it the whole Cartesian conception of comings-to-know as mental occurrences, was questioned by Gilbert Ryle, Ludwig Wittgenstein, and their followers. Under the influence of these writers, many philosophers have come to treat "S knows that p" not as a statement about S's mind but as a statement that, besides presupposing the truth of p, asserts that S is disposed to assert p on appropriate occasions, and also either that S is prepared to give good reasons for believing that p or that S is justified in believing p even though he is unable to give reasons for believing that p. The last case covers all noninferential knowledge, both intuitive and nonintuitive. In the case of S's nonintuitive, noninferential knowledge—that, for example, he has two children, or that there is a house in front of him—the criteria that establish that S is entitled to assert these propositions are of two sorts: those that determine whether he knows the meanings of the terms he uses and those that determine whether his situation and abilities are normal (where *normal* means, roughly, that the sincere reports of persons with these abilities in these situations are usually confirmed when checked by independent means). For example, S would be justified in believing that there is a house in front of him if he knew what a house is (that is, knew what *house* means), had his eyes open, and had normal vision. He would be justified in believing this even if, when asked, "How do you know that that's a house?" he was too unsophisticated to make any reply except "I just know." Whether S satisfies these criteria can be determined by public procedures—testing his grasp of the language, his vision, and his position vis-à-vis the house in straightforward and unmysterious ways.

According to the Cartesian view, what justifies S in believing p in the absence of an ability to produce good reasons for believing p is a special, private, introspectable mental state. S introspects to see whether or not he knows

that p, and thus he knows intuitively that he knows that p and has better ground for the belief that he knows that p than anyone else can have. The behaviorist alternative asserts, on the contrary, that the fulfillment of public criteria is not just an external symptom of the presence of an occult mental state called knowledge, but that the statement of such criteria gives a full account of the meaning of "to know." This treatment of such cases of nonintuitive, noninferential knowledge as "I see that O is Q" is designed to replace the Cartesian notion of sense perception as a simple, unanalyzable act with the view that to see that O is Q cannot happen prior to the ability to use correctly the terms O and Q (or some equivalent expressions). Infants and animals, confronted by O, have sensations but do not have perceptions. They begin to perceive that O is Q when these sensations, and only these sensations, are accompanied by a disposition to assert or assent to "O is Q." Thus, they begin to perceive that O is Q only when their belief that O is Q becomes a reliable indicator of the truth of "O is Q."

This behaviorist analysis of nonintuitive, noninferential knowledge can be used to explain the difference between this case and the case of intuitive knowledge. The difference is that in the case of intuitive knowledge the only criterion that S must satisfy in order to be entitled to believe p without being able to offer good reasons for p is that he knows his language. The paradigms of intuitive knowledge—knowledge of "private" psychological states and knowledge of underived a priori truths—are such that if a person claims knowledge of this sort, the only way in which his claim can be refuted is to show that he does not know his language. For example, if someone sincerely believes that he is in pain, we cannot show that his belief is mistaken unless (as in the case of a young child) we can show that his use of *pain* is idiosyncratic. Again, if someone claims to know that every event has (or does not have) a cause, we cannot show that his belief is unjustified unless we discover that he does not understand what he is saying (and we discover this by discovering that his use of *event* or of *cause* is idiosyncratic). To know what one is saying is, in certain cases, to know that what one says is true.

Behaviorist analysis also permits an explanation of our possession of intuitive knowledge that dispenses with the notion of intuitive faculties. In the case of sensory intuition, the process of acquiring intuitive knowledge is simply the occurrence of certain sensations in a person who knows a language that contains ways of describing these sensations (that is, contains expressions whose utterance speakers of the language are conditioned to

correlate with occurrences of these sensations). In the case of nonsensory intuition, we acquire intuitive knowledge simply by reflecting upon our own linguistic behavior (where *reflecting* means, roughly, "asking ourselves questions about what we would say if …"). In both cases, the crucial precondition is knowledge of a language, and the process of acquiring this knowledge is taken to be a matter of psychological conditioning—conditioning whose operations are explicable entirely in terms of a stimulus-response model. Whereas according to the traditional Cartesian faculty view the difference between men and animals is a matter of man's possession of a special sui generis power (variously called awareness, consciousness, spirit, reason, and the like), this difference is regarded by many contemporary philosophers as a matter of the ability (due, presumably, to a more complex central nervous system) to respond in more diverse ways to a wider variety of stimuli—as a matter of degree rather than of kind.

CARTESIAN AND WITTGENSTEINIAN ATTITUDES. The difference between Cartesian and Wittgensteinian attitudes toward the fact that intuitive knowledge that *p*, such that belief in *p* is justified yet there is no way to settle doubt about *p*, exists may be summed up by saying that for a Cartesian the claim that belief in *p* is justified must reflect a natural fact—for example, some intrinsic feature of that belief (considered as a mental state), such as self-evidence. For the Wittgensteinian, this claim need reflect only a social convention. On the Cartesian view, it is only contingently true that we possess intuitive knowledge, a fact that is to be explained (if at all) by reference to the makeup of our minds. On the Wittgensteinian view, our possession of intuitive knowledge is a necessary truth, built into the use of the word *know*. The Cartesian reasons that since there cannot be an infinite regress—and thus justification of beliefs must stop somewhere—there must be certain kinds of belief that are intrinsically of a special sort, such that to have them is to know that they do not require justification. Followers of Wittgenstein reason that since there can be no infinite regress—and thus justification of belief must stop somewhere—one would expect, given our use of the word *know* to mean "justified belief," that there would be certain conventions dictating that certain beliefs are justified even in the absence of good reasons. For the Cartesian, these conventions reflect introspectable facts about the mind or about entities (such as universals) visible to the eye of the mind; for the Wittgensteinian, they do not reflect anything. To ask why we have procedures for settling doubt about *S*'s claim that he sees a house, although

we do not have procedures for settling doubt about his claim that he has a pain, is, according to Wittgensteinians, to ask why we use the words *pain, house*, and *see* as we do. To such questions there is no answer. Nor is there any answer to the question why we use *event* or *cause* in such a way that it does not make sense to ask whether or not a given event was uncaused. We just do. That in certain cases it does not make sense to ask certain questions—for example, the question "How do you know?"—is, on this view, as much a matter of convention as the fact that one normally says "I am in pain" when being tortured but not when being caressed.

OBJECTIONS TO THE LINGUISTIC EXPLANATION. Much contemporary epistemological controversy consists of arguments for and against the behaviorist analysis of knowledge and the linguistic explanation of intuitive knowledge. The principal objections to the linguistic explanation are three: (1) It has been claimed that no behavioristic analysis of *believes* (and thus a fortiori of *knows*) can be achieved without recourse to terms that, like *believes* itself, exhibit intentionality. (2) It has been argued that the view that there is no awareness, perception, consciousness, or knowledge prior to the acquisition of linguistic ability makes it impossible to understand how we can learn language in the first place. (In rebuttal, it has been argued that to suppose that we learn how words are used by associating certain awarenesses with certain utterances is a misleading backward projection of the way in which an adult learns new words into the original learning of language by the child.) (3) It has been argued that the stimulus-response model is inadequate for explaining the learning of languages, on the ground that one who knows a language is able to produce grammatical sentences he has never heard. This fact has suggested to some theorists that we must postulate innate knowledge in order to explain language-learning.

This entry will not attempt to resolve these issues, but will only describe how the linguistic explanation has been brought to bear upon (*a*) the notion of unconscious inference, (*b*) the notion of intuitive awareness of universals, and (*c*) the notion of nonpropositional knowledge.

NONINFERENTIAL KNOWLEDGE AND UNCONSCIOUS INFERENCE

It has traditionally been held that all knowledge that is not intuitive is inferential, and thus that the cases of nonintuitive, noninferential knowledge should properly be regarded as the products of unconscious inference. This view is most familiar in the form of the phenomenalist

claim that *S*'s knowledge that, for instance, there is a white house before him is always the result of an inference from propositions concerning the sense data that *S* is currently having or concerning the appearances that the house is presenting to him. Proponents of this view regard *S*'s denial that he made such an inference or believed such propositions simply as evidence of a lack of philosophical sophistication. Such a view results from the assumption that only certain special propositions are suited, by virtue of their intrinsic properties, to be objects of noninferential knowledge. Thus, phenomenalists hold that "That is a white house" is inherently unsuited to be noninferentially known, whereas "I am now having a white sense datum" or "There now seems to me to be something white in my visual field" is inherently suited to be so known. The occurrence of an unconscious inference in *S*, they hold, is guaranteed by the fact that his belief is unsuited to be an expression of direct sensory awareness. No empirical evidence is allowed to disconfirm that such an unconscious inference was performed.

The criterion for being an expression of direct sensory awareness used by sense-datum theorists usually takes one or the other of the following forms:

(1) *p* expresses *S*'s direct sensory awareness if and only if *S* has intuitive knowledge that *p* (if, in other words, there are no procedures available that would provide better evidence against *p* than the fact of *S*'s belief that *p* provides for *p*), and if *S*'s coming to know that *p* is correlated with *S*'s having a certain sensation.

(2) *p* expresses *S*'s direct sensory awareness if and only if a sufficient condition of the acquisition of knowledge that *p* by *S* is that *S* has a certain sensation (so that none of *S*'s antecedent knowledge interferes to provide an interpretation of what his senses give).

These two criteria are often taken as interchangeable by philosophers who have gone in quest of the "given" elements in experience—for, at first blush, such intuitively knowable propositions as "I am in pain" or "I seem to be seeing something white" seem the most promising candidates for satisfying the second form.

The linguistic explanation of sensory intuition attempts to dispense with both the given and unconscious inference. According to the linguistic theory nothing could possibly satisfy the second form, since a sensation is never a sufficient condition for the acquisition of a bit of knowledge. Also, there is nothing paradoxical in saying that a man may simultaneously come to know, without performing any inferences, that this is an airplane, a Boeing airplane, and a B-29 as a result of a single modification of the eyes—the same modification that, in a child, would produce only the knowledge that this is something silver. According to this theory, the man's belief in all these propositions is justified because, roughly speaking, he has been conditioned to utter statements expressing each of them when certain sensory stimuli are received. Some men, as we say, just know a B-29 when they see one, and others do not. An aircraft spotter trained to respond to the appearance of a B-29 by saying "There is a B-29" would have a justified belief in this proposition even if he were unable to list any criteria for B-29-hood (and thus were unable to provide any reasons for his believing the plane to be a B-29).

For those who accept a linguistic explanation of intuitive knowledge, the traditional attempt to identify noninferential and intuitive knowledge by means of the notion of unconscious inference results from a confusion of the context of *S*'s acquisition of the knowledge that *p* with the context of his justifying his belief that *p* to one who doubts *p*. If an argument between *S* and a doubter of an empirical proposition *p* were carried to its ideal limit, *S* might eventually have to retreat to such intuitively known statements as "It seems to me that I remember that *q*" and the like. The ideal empiricist would be the man who never believes an empirical proposition *p* unless he has previously performed an inference embodying the argument that he would give in defense of *p* when challenged by a die-hard doubter. (The ideal empiricist, in other words, is the ideal Cartesian doubter; he always doubts every proposition he knows how to doubt.) The notion that we are all unconsciously ideal empiricists is a confusion of "*S* would not be able to justify his belief that *p* to a die-hard doubter without appealing to certain propositions that he knows intuitively to be true" with "*S* is not justified in believing *p* if he has not previously so justified his belief to himself."

Once we adopt the linguistic explanation of intuitive knowledge, its defenders argue, we see that whereas noninferential knowledge is a matter of one's disposition to make certain statements being a sufficient ground for one's belief that they are true, intuitive knowledge is a matter of that disposition serving as the best possible evidence for their truth. The propositions that can be noninferentially known by *S*, like those that can be intuitively known by him, are determined by *S*'s training, circumstances, and abilities, together with the conventions in force within his linguistic community. The fact that certain propositions are usually known noninferentially, and

others usually known intuitively, by normal adults has misled philosophers into thinking that certain special intrinsic properties belong to all those propositions, and only to those propositions, properties detectable by our mental eye. The linguistic theory, freeing us from the "mental eye" model, directs our attention to the factual criteria that we use in deciding whether a certain belief, held by a certain person, is justified.

INTUITIVE ACQUAINTANCE WITH CONCEPTS

A person is said to have intuitive acquaintance with a concept if he is able to understand a large range of propositions that employ a term signifying this concept and is unable to explain the significance of this term. Thus (confining ourselves, for the sake of simplicity, to descriptive concepts) we may say that *S* grasps F-ness intuitively if and only if he can use the expression "F" correctly, and he does not know any noncircular definition of "F," where a "definition of 'F'" is any true statement of the form "*X* is called 'F' (or 'an F') if and only if it is _____," and "noncircular" means that the blank is filled by some expression that neither contains "F" nor contains any word whose definition itself contains "F," nor any word whose definition contains words whose definition contains "F," and so on.

ACT OF ABSTRACTION THEORIES. As in the case of intuitive knowledge that *p*, there is no dispute among philosophers about the existence of intuitive acquaintance with concepts. Rather, as in the former case, controversy arises concerning the explanation of this fact. In this case also, philosophers working within a Cartesian tradition accept a "simple act" theory. On this traditional view, we possess a faculty called abstraction that, for example, peels the whiteness of white objects from these objects and holds the whiteness up before our mental eye; once we have whiteness clearly in focus, we can label it with the term *white* and thus can acquire a knowledge of how to use this term. This act of abstraction, like the act of intuiting that *p*, is specifically mental, simple, and unanalyzable. Within this Cartesian framework, the principal issue is that between rationalists and empiricists: Whether such a simple act of abstraction must be postulated to explain only our knowledge of apparently indefinable sensory concepts (like "white"), or whether it is also needed to explain our knowledge of apparently indefinable nonsensory concepts, such as "being," "cause," "necessity," or "good." Empiricists have traditionally held that these latter concepts are not grasped intuitively. They have claimed either that our knowledge of how to use

terms signifying them is a result of our implicitly or unconsciously possessing noncircular definitions of them, or that these terms do not refer to concepts at all but are without meaning. Consequently, they have devoted themselves to proposing such definitions, or to developing theories of meaningfulness that would permit the conclusion that these terms have no meaning. Rationalists, on the other hand, have insisted that certain terms signify a priori concepts, and that none of the definitions of these terms proposed by empiricists (such as Hume's definition of *causation* as "constant conjunction") are adequate.

LINGUISTIC THEORY OF CONCEPTUAL INTUITION. The traditional account of our intuitive grasp of concepts contains many of the same elements as the traditional view of intuitive knowledge that *p*. It is again assumed that we need to account for a difference between humans and animals (the fact that we can use concepts, whereas animals can merely respond to stimuli) by postulating a simple sui generis mental act and that this simple act does not occur in all the cases that, prima facie, are cases of immediate knowledge, but that some such cases are cases of unconscious mediation. Just as recent philosophical thought has turned away from the notion that intuitive knowledge that *p* is to be regarded as such a simple act, and has offered an account of the acquisition of such knowledge in terms of a theory according to which the use of language is a necessary condition of the possession of any piece of knowledge, recent thought has likewise asserted that the ability to use "F" correctly is all that is signified by the phrase "acquaintance with F-ness," and thus that the notion of a prelinguistic grasp of F-ness is incoherent. According to this newer view, no object of acquaintance (such as a concept, conceived of as a sort of mental particular) need be postulated as that with which language learners correlate utterances of general terms. We learn such terms as *white* not by correlating utterances of them with anything but by being subjected to a conditioning process that leads us, after some trial and error, to utter these words in appropriate contexts in appropriate situations. This process need not, at any stage, involve our knowing the truth of any proposition of the form "*X* is called 'F' only when it is an instance of F-ness."

The older view, in insisting on the necessity of such knowledge, assumes that the process of learning the use of an indefinable word such as *white* must parallel the process of learning the use of a word by learning its definition. Just as we might correlate utterances of "bachelor" with situations in which we would be inclined to say

"unmarried male," and thus learn the meaning of "bachelor," so (the older theory holds) we correlate utterances of "white" with situations in which we are aware of whiteness. But, proponents of the newer view object, the only test we have for knowing whether we are aware of whiteness is whether or not we are inclined to utter "white." Nothing is added to an explanation of learning words ostensively by a reference to acquaintance with concepts, save the unverifiable claim to possess a piece of prelinguistic knowledge. If this newer view (largely due to Wittgenstein and his followers) is accepted, then what distinguishes us from the animals is not that they cannot perform the mysterious operation of intuiting concepts but simply that we can respond in much more various ways to a much greater variety of stimuli than they can (and, specifically, we can develop patterns of linguistic behavior). Once again, the difference between humans and animals reduces to the possession of language.

One advantage claimed by defenders of this newer view is that, if it is accepted, the old controversy about the existence of a priori concepts that divided rationalists from empiricists is rendered moot. The question of whether we must postulate a sort of nonsensory ostention of such concepts as causality, or an innate grasp of them, no longer arises if the same sort of process that enables us to learn the use of *white* enables us to learn the use of *cause*. To acquire the concept of causality is, on this view, to learn the use of the word *cause*; this can be done without correlating utterances of *cause* with anything, but simply by trial and error: Sometimes when we say "This caused that," we are rebuked, and sometimes praised, until gradually we get it right. (Before we got it right, we were said not to know the meaning of *cause*, just as we were said not to know the meaning of *white* as long as we called "white" what our parents called "gray.") The question of whether *cause* (and other terms that have been held to signify a priori concepts) is definable without circularity now loses its philosophical interest.

INTUITION AS NONPROPOSITIONAL KNOWLEDGE

The final sense of intuition comes primarily from Kant, who defined "intuition" as "knowledge that is in immediate relation to objects" (see *Critique of Pure Reason*, A19–B34, A320–B377). By *immediate* he here meant "without the mediation of concepts," and he took sense perception as the paradigm of intuition (although he also argued for the existence of pure intuitions of space and time). Kant sharply distinguished immediate knowledge from knowledge of the truth of judgments concerning the objects sensed, since he held that the formation of judgments requires the addition of concepts to intuitions. The former sort of knowledge is a necessary condition of the latter. The knowledge gained in sense perception is expressed by judgments concerning the objects sensed but exists prior to the formation of these judgments. Perceptual knowledge of *O* is, on this view, not reducible to knowledge that *O* has certain properties.

This distinction between immediate knowledge of objects and mediate knowledge of facts about these objects was formulated by Russell, in *The Problems of Philosophy*, as the distinction between "knowledge by acquaintance" and "knowledge by description." He proceeded to explain a priori knowledge by postulating a faculty, analogous to sensation, that acquaints us with universals and with the relations between universals. The assertion of the existence of universals has, traditionally, gone hand in hand with the faculty explanation of our intuitive knowledge of a priori truths and of our grasp of nonsensory concepts. It is still current among contemporary philosophers who resist the linguistic explanation of this knowledge. These philosophers include both such traditional rationalists as Brand Blanshard and phenomenologists who adopt Edmund Husserl's notion of intuition of essences.

The Kantian notion of sense perception as a kind of nonjudgmental knowledge has had the effect of opening the door to the suggestion that we possess a certain sort of knowledge that is like sense perception, or Russellian acquaintance with universals, in being immediate but unlike either in being inexpressible. In other words, it is suggested that we have an intuition of a certain object *O* even though we do not know the truth of *any* proposition of the form "*O* is *Q*." The reason usually given for our failure to have the latter sort of knowledge is that conceptual thought (or language) is inadequate to capture the essence of *X*. For example, Bergson argued that duration cannot be captured by concepts (nor, a fortiori, expressed in language) because concepts (and thus language) are designed precisely to freeze and stabilize (and thus to distort) the flux of experience, whose essence is duration. Again, God's perfect simplicity—his identity with his own attributes—is held to make it impossible truly to apply any predicate to him, and thus to know any true propositions about him.

Philosophers who adopt the view that there is no knowledge prior to the possession of language, and who construe knowledge in the behavioristic manner, naturally object to the notion of nonpropositional knowledge. On their view, the original Kantian notion of sense per-

ception as a kind of knowledge is based upon a confusion. Once this confusion is dissipated, the analogy to sense perception that is the basis of Russellian accounts of a priori knowledge and of theories of inexpressible intuition will no longer be available, and the notion of knowledge of *O* that is irreducible to the knowledge that *O* has certain features will appear as paradoxical as it really is. The original confusion, these philosophers argue, is that of the cause of the belief that some sensed object *O* has the feature *Q* with the justification of this belief. Specifically, the fact that knowledge that *O* is *Q* is caused by a sensation of *O* is combined with the assumption that nothing can serve to justify *S*'s claim to know about *O* except another piece of knowledge about *O* by *S*. This produces the conclusion that the mere sensing of *O* is itself a case of knowing—distinct from, because giving a ground for, the knowledge that *O* is *Q*. Since sensing *O* is construed as a direct relation between the knower and *O*, whereas knowing that *O* is *Q* is construed as a relation between the knower and something distinct from *O* (a fact or a proposition), it is inferred that there are two sorts of knowing, one of which is primitive and direct and the other derivative and indirect. A causal condition for knowledge is thus confused with a special type of knowledge—knowledge by acquaintance.

Philosophers who deny the existence of such nonpropositional knowledge by acquaintance argue that the notion of knowledge of *O* that is not knowledge that *O* has some feature is neither present in ordinary usage nor part of a useful explanatory theory. On their view, all knowledge of objects is knowledge of the truth of propositions about these objects. This anti-Kantian position is supported by, and supports, the anti-Cartesian behaviorist position, according to which knowledge cannot occur prior to the ability to learn language. Although it is logically possible to hold both that there can be prelinguistic knowledge of facts and that there is no such thing as knowledge of particulars as distinct from knowledge of facts, this position is not popular. Contemporary epistemological thought is, by and large, split between those who adopt both a Cartesian "simple act" explanation of the intuitive knowledge that *p* and a Kantian notion of nonpropositional knowledge as a necessary condition for intuitive propositional knowledge, and those who reject both of these views in favor of a radically behavioristic approach.

INTUITION OF THE INEXPRESSIBLE

Even philosophers who have remained faithful to the traditional Cartesian and Kantian positions tend to criticize the use of the notion of intuition as nonpropositional awareness made by such philosophers as Fichte, Bergson, and contemporary Thomists. Their criticism is based on the view that the only criterion for knowing whether *S* has nonpropositional knowledge of *O* is his knowledge of the truth of propositions about *O*. Thus both groups reject claims to have knowledge that one is unable to express (except, perhaps, in analogies and metaphors). Anti-Cartesian philosophers, however, argue that it is precisely the Kantian view that sensing is a kind of knowing that opens the gates to claims to intuit the inexpressible. This view leads naturally to the conclusion that even the objects of ordinary sensory acquaintance are incommunicable and inexpressible. No amount of talk by Jones (who has seen *O*) will suffice to reproduce in Smith (who has not) the sensation Jones had when he was in the presence of *O*. This failure to reproduce an experience is, given the view that sensing is a kind of knowing, taken as a failure to convey knowledge of *O*, even though Smith may learn, from Jones's reports, every fact about *O* that Jones knows. We thus find ourselves adopting a novel, and peculiarly philosophical, sense of "express"—a sense in which an experience would be expressed only if it were reproduced. Whereas in the normal sense of the term, my seeing a white house is completely and adequately expressed by some finite set of such propositions as "That's a white house," in this new sense such propositions are inherently unsatisfactory surrogates. This line of thought, opponents of nonpropositional knowledge argue, plays into the hands of those who, like Bergson, hold that language is inadequate to reality.

The claim that language is inadequate to express one's intuitive knowledge of reality would, in itself, be harmless. However, the danger of adopting this new meaning of "inexpressible" is that we may find ourselves claiming private justification for our moral, philosophical, religious, aesthetic, or other beliefs by saying, "Although I cannot, of course, express (or communicate or put into words) the experience that I had, and hence cannot supply you with reasons for believing that *p*, I am nevertheless entitled to believe that *p* solely on the strength of that experience." The plausibility of this sort of reasoning stems from the fact that, in the case of noninferential belief about physical objects, we sometimes say things like "Since you haven't seen a flying saucer, you have no reason to believe that there are flying saucers; but I have seen one, and so I do believe in them." Here we seem to be justifying a belief solely on the basis of private experience. The difference is that "I saw a flying saucer" is a complete and adequate expression of this experience, in the ordinary sense of "express." The justification is sufficient because the state-

ment that an experience *E* was had analytically implies *p*. (If *S* saw a flying saucer, then there are flying saucers to be seen.) In the former case, however, the statement that an experience *E* was had cannot entail any statement about the object of the experience because the nature of the experience is, ex hypothesi, inexpressible.

This obvious disanalogy is veiled by the fact that in the second, philosophical sense of "inexpressible," our experiences of seeing houses or flying saucers are just as inexpressible as the Thomists' intuition of Being, or Bergson's intuition of duration. In other words, a tacit shift to a new sense of "express" creates the sophistical argument "Since your sensory experiences are inexpressible, and yet sufficient to justify your beliefs, it is unfair of you not to let my inexpressible nonsensory experiences justify my beliefs." Of course, in the ordinary sense of "express," sensory experiences are as expressible as experiences can be.

In addition to this criticism of the ambiguity contained in the philosophers' use of "inexpressible," a further criticism of such claims to private justification is available if the behaviorist view of the nature of justification of claims to noninferential knowledge is adopted. If this justification is viewed not as a matter of an intrinsic, introspectable property (self-evidence) of certain beliefs but rather as a matter of social convention, then one will hold that we know which of our noninferential beliefs are justified only by knowing which ones our peers would agree are justified. In the flying saucer example, we rightly think that our belief in flying saucers is justified if we think we have seen flying saucers, because we are confident that anyone who had had the sensations we have had would have been disposed to utter "I see a flying saucer." We know that our belief is justified because our peers admit that if they should ever have an experience of the sort we claim to have had, they would share our belief. The only element of privacy lies in the fact that they can have doubts about, for example, whether we are being truthful in claiming that we had this experience, or whether we were sober, or attentive, whereas we cannot.

In the "inexpressible intuition" case, however, we cannot tell whether our peers would share our belief if they shared our experience, for we do not know what our experience was. Here we could speak of a private justification only if we had a private language in which we could express to ourselves, although to no one else, what we experienced, and private criteria of justification formulated (in part, at least) in this private language. But, aside from the general difficulties in the notion of a private language pointed out by Wittgenstein, "private criteria of justification" is an intrinsically paradoxical notion. One can

no more have private rules for justifying beliefs than one can have private rules for justifying actions. A criminal has no greater claim on our sympathy if he proclaims that his private ethical code differs from ours, and a believer in untestable beliefs has no greater claim on our attention when he says that his epistemological code is not ours.

See also Intentionality; Objectivity in Ethics.

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The medievals used "intuitive cognition" as we would use "sensory intuition" to refer to knowledge about objects present to the senses. The term was opposed to "abstractive cognition," which included memory and imagination. They also, however, used "intuition" to refer to a vision of God. This use of "intuition" for any sort of knowledge that has the same noninferential character as knowledge of the apparent features of an object present to the senses was continued by Descartes (*Regulae* XII), Benedict de Spinoza (*Ethics* II, Prop. 40, Note 2), and Locke (*Essay concerning Human Understanding*, Book II, Ch. 2, Sec. 1). These philosophers used the term as we would use "nonsensory intuition"—to refer to our noninferential knowledge of, for instance, mathematical axioms and analytic truths, and of the validity of valid inferences. Between Descartes and Kant, "intuition" was rarely used in reference to perceptual knowledge, nor was a clear distinction made between propositional and nonpropositional knowledge. Since Kant, however, it has been usual to speak of both nonpropositional perceptual knowledge of a particular, and of the propositional knowledge derived from this nonpropositional knowledge, as cases of intuition.

Whereas Kant had denied the existence of intellectual intuition (nonpropositional knowledge of insensible objects), Fichte asserted it in his *Werke*, edited by I. H. Fichte (Berlin, 1845), Vol. I, pp. 463ff. However, Fichte argued that he did not really disagree with Kant because the object of this intuition, the Transcendental Ego, was an act rather than a thing. The same strategy is adopted by contemporary neo-Thomists, who speak of an intuition of Being; what is intuited, they say, is an act rather than a thing or an essence. See Jacques Maritain, *Existence and the Existent* (New York: Pantheon, 1948), Ch. 1, and Étienne Gilson, *Being and Some Philosophers* (Toronto: Pontifical Institute of Mediaeval Studies, 1949), Ch. 6. The most influential recent proponent of a faculty of nonpropositional knowledge other than sense perception is Henri Bergson; see his *Introduction to Metaphysics* (New York: Putnam, 1913). For a criticism of Bergson's notion of intuition, consult G. Watts Cunningham, *A Study in the Philosophy of Bergson* (New York: Longmans Green, 1916), Ch. 3. For a discussion of the philosophical importance of the ineffable intuitions claimed by mystics, see W. T. Stace, *Mysticism and Philosophy* (New York, 1960), Chs. 1 and 3.

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INTUITION [ADDENDUM]

In the history of philosophy "intuition" has been used primarily as a term for an intellectual, or rational, episode intimately tied to a priori knowledge. The term has sometimes been used in a broader way to include certain sensory episodes (appearances) and certain introspective episodes (e.g., inner awareness of the passage of time). In contemporary philosophy this broader use has fallen out of fashion (except among Kantians), and the narrower use prevails.

An intuition in this sense is simply a certain kind of seeming: For one to have an intuition that *P* is just for it to seem to one that *P*. This kind of seeming is intellectual, not sensory or introspective, in the following sense: Typically, if it is possible for someone to have the intuition that *P*, then it is possible for someone to have the intuition that *P* in the absence of any particular sensory or introspective experiences relevant to the truth or falsity of the proposition that *P*. For this reason, intuitions are counted as "data of reason" not "data of experience." In this connection, intuitions are sometimes called "a priori intuitions" or "rational intuitions."

Intuition must be distinguished from belief: Belief is not a seeming; intuition is. For example, I have an intuition—it still seems to me—that the naive set-abstraction axiom from set theory is true despite the fact that I do not believe that it is true (because I know of the set-theoretical paradoxes). There is a rather similar phenomenon in sense perception. In the Müller-Lyer illusion, it still seems to me that one of the two arrows is longer than the other, despite the fact that I do not believe that one of the two arrows is longer (because I have measured them). In each case, the seeming persists in spite of the countervailing belief. Similar considerations show that intuitions must likewise be distinguished from guesses, hunches, and common sense.

Many philosophers identify intuitions with linguistic intuitions. But this is mistaken if by "linguistic intuition" they mean intuitions about words, for most of our intuitions simply do not have any linguistic content. Other philosophers think of intuitions as conceptual intuitions. Nothing is wrong with this if "conceptual intuition" is understood broadly enough. But there is a common construal—originating in David Hume's notion of relations of ideas and popular with logical positivists—according to which conceptual intuitions are all analytic. The problem is that countless intuitions are not analytic on the traditional construal of that term (convertibility into a logical truth by substitution of synonyms). For example, the intu-

ition that, if region r_1 is part of region r_2 and r_2 is part of region r_3, then r_1 is part of r_3. Possibility intuitions are also not analytic (e.g., in epistemology the intuition that the Gettier situations are possible). In response, some philosophers have countered that possibility intuitions are just intuitions of consistency, but this view is mistaken on several counts. For example, it is consistent to hold that region r_1 is part of r_2, r_2 is part of r_3, but that r_1 is not part of r_3, despite the fact that such a thing is not possible.

Standard practice in logic, mathematics, linguistics, and philosophy is to use intuitions as evidence. (For example, in epistemology Roderick Chisholm uses intuitions to show that traditional phenomenalism is mistaken, and Edmund Gettier uses intuitions to show that the traditional identification of knowledge with justified true belief is mistaken. In metaphysics Saul Kripke uses intuitions to show that, if water is H_2O, then it is necessary that water is H_2O. In philosophy of mind, Hilary Putnam uses intuitions to show that logical behaviorism is mistaken, and so forth.) A great many philosophers believe that use of intuitions is essential to the indicated disciplines.

Radical empiricists, who doubt that intuitions have evidential weight, usually defend their view by pointing to the fact that intuitions can be unreliable. They cite, for example, the fact that our intuitions about naive set theory are in conflict with our intuitions about classical logic. But this shows only that traditional infallibilism is mistaken, not that intuitions lack evidential weight. After all, sense perceptions have evidential weight even though they can be unreliable. (Incidentally, although various cognitive psychologists—Peter C. Wason, Philip Johnson-Laird, Eleanor Rosch, Richard E. Nisbett, D. Kahneman, A. Tversky, and others—have examined human rationality with a critical eye, their studies have not attempted to test empirically the reliability of intuitions, and it will be quite difficult to do so.)

Why should intuitions have evidential weight? A plausible answer is that intuitions have an appropriate tie to the truth: As a noncontingent fact, if a subject's cognitive conditions (intelligence, attentiveness, and so forth) were suitably close to ideal, the subject's intuitions would be sufficiently reliable to permit the subject to arrive at a mostly true theory regarding the subject matter of those intuitions. This is a consequence of an analysis of what it is to possess concepts determinately: A necessary and sufficient condition for determinately possessing one's concepts is that one's intuitions have this kind of tie to the truth; if the subject's intuitions lacked this sort of tie to the truth, that would only show that the subject did not determinately possess those concepts (or that the sub-

ject's cognitive conditions were not sufficiently good). In contemporary philosophy, many have come to accept (some form of) this moderate rationalist theory of intuitions and concept possession.

See also A Priori and A Posteriori; Belief; Chisholm, Roderick; Empiricism; Hume, David; Kripke, Saul; Philosophy of Mind; Putnam, Hilary; Truth.

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George Bealer (1996)

INTUITION [ADDENDUM 2]

An intuition is a noninferential awareness of something: a concept, a proposition, space or time, a physical object, our own existence, or God. While sometimes people talk of sensory intuitions of perceptual objects, by which they mean an immediate awareness of how they appear, this use of "intuition" is becoming more rare. Nowadays philosophers use the term primarily to mean a nonsensory and nonintrospective awareness of a proposition or concept. Some philosophers hold that an intuition must be of a proposition that seems necessarily, or possibly, true. But people who lack the concepts of necessity and possibility are able to have something very like what philosophers call intuitions. So a more plausible view is that a person has an intuition that P if and only if P seems true, or possibly or necessarily true, where that appearance is intellectual—that is, based on the understanding, not on perception or introspection. George Bealer thinks that intuitions are not beliefs because we can disbelieve something that still appears true. Perhaps some argument has convinced us that in a lottery with seventy-six million tickets we know before the drawing that we hold a losing ticket if the ticket is in fact a loser, but it may still seem that at that time we do not know that it will lose.

Thus, by "intuition" most philosophers mean a rational intuition—or a rational insight—that is based solely on understanding the proposition that is its object. The intu-

ition that a person who commits suicide kills himself, that nothing can be red and green all over at the same time and in the same respects, and that it is prima facie wrong to flog or torture an infant to death are based solely on understanding the relevant propositions. These examples show that the propositions that are the objects of intuitions can be either analytic or synthetic, where analytic propositions are ones that can be reduced to logical truths by the substitution of relevant synonyms, and synthetic ones are nonlogical truths that cannot be so reduced. The first proposition about suicide is analytic but the other two are not.

The propositions that are the objects of intuitions need not be true, though they must at least seem true. People often have the intuition that an unmarried male of marriageable age is a bachelor but come to see that this is false once they consider the example of the pope, who is such an unmarried male of marriageable age but not a bachelor. This shows that intuitions are fallible.

It is also possible to distinguish between immediate and mediate intuitions. For some propositions, such as "bachelors are unmarried," the proposition immediately seems true upon considering it. For others, such as "knowledge requires true belief," or "personal identity requires continuity of memory," reflection may be required before a sufficient understanding of the concepts involved develops and enables one to "see" that these things are true. A person might have to consider examples where it is intuitively obvious that a person lacks knowledge because he has a false belief before the general claim that knowledge requires true belief seems true to him. Similarly, a person might have to consider a case where someone has completely and irretrievably lost her memory in an auto accident to see that personal identity requires continuity of memory.

Intuitions are mental events that occur and then end, and so are unlike beliefs that are dispositions that endure even when nothing is presently before the mind (as happens when one is in a dreamless sleep). However, it is the understanding, which is the basis of rational intuitions, that provides a priori justification and sometimes knowledge. We are justified in believing that if A is greater than B, and B is greater than C, then A is greater than C solely on the basis of understanding what that proposition asserts. We will know that proposition, and not simply be justified in believing it true, provided that it is true and we believe it on the basis of the corresponding intuition.

There are some necessary truths that we cannot know, or even be justified in believing, on the basis of intuition. No one can be justified in believing that water

is H_2O solely on the basis of understanding that proposition. Empirical investigation is needed. However, we can know on the basis of intuition that some clear, odorless, colorless, drinkable liquid that does not have the same underlying physical structure as water is not water.

One challenge to the justificatory force of intuitions is that they lack such force when directed to propositions that are expressed by sentences that contain natural kind terms, terms such as water, aluminum, horse, topaz, and ruby. Further, some argue that the concepts that philosophers are interested in are natural kind concepts. Some hold, for instance, that causation, knowledge, and justice are natural kind concepts whose essence can only be discovered empirically. Note that some terms such as "ruby" might express what might be called hybrid concepts because we can know via intuition that a ruby must be red, but can learn only through empirical investigation what chemical structure rubies must have. Rubies differ from topaz in this respect because topaz can be any color, and the essence of topaz can be discovered only by empirical investigation. If concepts of interest to philosophers are either not natural kind concepts at all or hybrid concepts such as the concept of a ruby, then intuitions can be used to discover, and justify, conceptual truths involving those concepts.

Another challenge to the justificatory force of intuitions is that people with different backgrounds have conflicting intuitions about, say, the nature of knowledge. Gettier examples show that having a justified true belief is not sufficient for knowledge. For instance, if you are driving down a road where ninety-nine out of a hundred structures that look like barns are really indistinguishable facades, you do not know, though you are justified in believing, that you are looking at a barn if you happen to stop in front of the one barn on that road. Here it seems intuitively obvious to many that you have a justified true belief but lack knowledge. However, it is reported that people from other cultures do not have this intuition. So how can intuitions provide justification if there is this sort of disagreement? Surely no one would think that, say, clairvoyance had justificatory force if people "saw" events happening at a distance but did not agree on what they "saw."

A third challenge says that if intuitions provide justification then there must be a faculty of intuition similar to one of our five senses or to memory. But because there is no such faculty, intuitions cannot provide justification. One response to this objection is to maintain that intuition is a faculty, similar to the language faculty and similar to what Jerry Fodor calls a module, and then ask why

that is a problem. Another response denies that intuitions must come from some faculty if they are to provide justification.

A fourth challenge says that we can never be justified in believing that intuitions sometimes provide justification because we would have to rely on intuitions that say they do, and such a circular argument could never provide real justification. Of course, this is a problem for all basic sources of evidence. For instance, to be justified in believing that memory provides justification, we would have to remember instances where our memories have been correct. But then we would be relying on memory to justify reliance on memory.

A plausible view to hold is that intuitions can provide a priori justification when their objects are certain sorts of propositions, say, mathematical, logical, or what at least appear to be conceptual truths, though this justification is fallible and can be defeated by widespread disagreement among people who understand the relevant propositions equally well. An argument for the view that intuitions sometimes justify can be constructed from the notion of what it is to possess a concept: To possess the concept, C, we must be able to apply C and not-C correctly to most hypothetical situations. Hence our possession of the concept guarantees reliability in its application, though reliability does not require infallibility.

See also A Priori and A Posteriori; Fodor, Jerry A.; Perception.

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INTUITIONISM, ETHICAL

Philosophers thought of as intuitionists include Henry Sidgwick, H. A. Prichard, W. D. Ross, C. D. Broad, and A. C. Ewing. More recent intuitionists include Derek Parfit, John McDowell, and Thomas Scanlon. Though all but one of these philosophers are British, the expression "British intuitionism" standardly refers only to work done in the first half of the twentieth century by Prichard, Ross, Broad, and Ewing.

WHAT IS INTUITIONISM?

To be an ethical intuitionist is to hold a combination of five views in metaethics, only one of which says anything about intuitions. The first view is the pluralist view that there are many different ways in which an action can get to be right or wrong, good or bad. This is opposed to monism, the view that all moral requirements can be captured in one basic principle. The classic example of monism is John Stuart Mill's utilitarianism, which holds that an action is right if and only if, of all available alternatives, it has the best (or least bad) effect on the general happiness.

Note, however, that there are two sorts of monism: monism about the right and monism about the good. Mill's position combines both. He held that there is only one way for an action to get to be right, and only one sort of thing that is good; the only sort of thing that is good is happiness, and the only way for an action to be right is to produce as much of that good as possible. G. E. Moore, by contrast, was a monist about the right and a pluralist about the good; he agreed that a right action is one that produces the most good, but held that there are several different goods, mainly social intercourse and aesthetic appreciation, which cannot be reduced to one. So Moore is not an intuitionist, because he is a monist about the right, though he agreed with the intuitionists on everything else. Intuitionists, by contrast, combine both forms of pluralism. W. D. Ross, for instance, provided a list of goods, as Moore did, but also argued that there are many different moral duties and that they cannot all be reduced to the duty to produce the most good.

The second view is the realist (or "objectivist") view that some ethical or moral judgments are true and others are false; there is truth and there are facts of the matter in ethics. This is opposed to the noncognitivist claim that moral assertions are expressions of attitude (pro or con) rather than of belief; in saying that an action is wrong, one is not trying to characterize correctly some slice of moral reality, but expressing one's opposition to the action, the stance one takes toward it.

The third view is the nonnaturalist view that moral facts are not natural facts; the opposite view is naturalism. A natural fact is one that can be discovered using the methods of the natural sciences. (At least, this is one way

of trying to say what it is for a fact to be natural.) There are naturalist and nonnaturalist forms of utilitarianism. The naturalist form holds that rightness *is* the natural property of increasing general happiness; sociologists are presumably the people best equipped to tell us which actions have that property. Mill, however, held that actions that increase the general happiness have the *further* property of being right, and he showed no signs of thinking that this further property is natural. (One could however think that to show a moral property to be natural we do not need to find a second, "natural" way of picking it out.) Intuitionists, anyway, think that moral properties and moral facts are irreducibly nonnatural. They tend to argue for this position by pointing out that moral properties and facts are *normative*, and insisting that nothing normative can also be natural. The most famous way of making this point is Moore's "open question argument": since the question "Is increasing the general happiness being right?" is not the same question as "Is increasing the general happiness increasing the general happiness?", to increase the general happiness cannot be the same thing as to be right.

The fourth view is that the normative status of moral or ethical facts cannot be explained, but also requires no explanation. Normativity is not a mystery. When we say that it matters whether people are free or oppressed, we are saying that something is morally important, or makes a moral difference. Intuitionists think that this "making a moral difference" is a feature that some things have and others do not, but they do not think that the special nature of such features is one that calls for elaborate explanations. In this they are opposed to those nonnaturalists who feel called on to provide such explanations— in particular, they oppose Kantians, whose explanations of the morally important run in terms of some relation to the will of a rational being. Compared to the Kantians, intuitionists are quietists; they do not feel the need to say any more.

The fifth view is the one that talks about intuitions. If there are these distinct, nonnatural, normative facts and features, how do we find out about them? By which aspect of our intellectual or sensory equipment are we rendered capable of discerning when an action is right and when it is not? Intuitionists maintain that we are capable of coming to know *basic* moral facts directly, in ways that involve no inference from other nonmoral facts. They have to say this, since it seems impossible simply to move by inference from a natural belief to a normative one, given the great difference intuitionists discern between the two. And they have to say that there

are basic moral facts, since even if some of our moral beliefs are defended by appeal to others, this process has to stop somewhere. There must, then, be some basic moral beliefs, which if true are beliefs in basic moral facts. How then do we come to recognize those basic moral facts? The intuitionist answer is (supposedly): by a special faculty of moral intuition. Hence the name.

COMMENTS ON THESE VIEWS

The form of monism that intuitionists targeted most eagerly would now be called consequentialism: the view that actions are made right or wrong by the value of their consequences. Intuitionists tended to argue against this view by appeal to example. Ross (1930, 1939), for instance, said that when I keep my promises, my thoughts are not normally on the future, on the good that I will achieve by doing what I once promised to do, but on the past, on the fact that I did promise to do it. That is my reason for doing it, and it is my having promised to do it that makes the action my duty. More generally, Ross thought that actions can become duties in various ways, only some of which have anything to do with consequences. One can have duties that derive from one's role as a neighbor, or as a teacher, or as a friend, and these duties are not necessarily related to making things go better. In fact, they are not grounded in thoughts about what is better or worse, in considerations of value, at all. At this point Ross is expressing a deontological stance; and indeed intuitionists are standardly deontologists.

Historically speaking, intuitionists tended not to argue for the view that there is truth in ethics; they more or less assumed it. They were familiar with the idea that to express a moral opinion involves expressing an attitude or feeling, but Ross wrote, "What we *express* when we call an object good is our attitude towards it, but what we *mean* is something about the object itself and not about our attitude towards it" (1939, p. 255).

Nonnaturalism arouses extreme passions in some quarters. The real pressure behind naturalism is the sense that there cannot be two distinct realms: the familiar natural realm investigated by physics and a much less familiar normative realm learned about in quite other ways. If there really are such properties as right and wrong, good and bad, they must be properties that natural objects such as people and actions can have (and of course physical objects too can be good or bad, of course, though not morally so). But surely natural objects can have only natural properties, and so the normative properties must somehow be natural. To claim anything else is to commit oneself to the existence of some most peculiar features,

quite unlike, and utterly unconnectable to, any natural features. To this the intuitionists reply that there is a connection; it is *because of* their natural features that objects come to have, or to lack, normative ones. This "because of" is not a causal "because," of course. Actions are not caused to be wrong by their natural features; they are made wrong by them. Put another way, the natural features are the reasons why an action is wrong, the reasons for not doing it. The question then focuses on this notion of a reason, which is itself not a natural notion but a normative one. Intuitionists would say that nobody can do without this notion, and that it is not possible to think of "being a reason for" as a natural relation.

This focus on what it is for one thing to be a reason for an action gives the intuitionists something to say against the Kantians. Is it possible to think that the relation of "being a reason for" is one that can be, and needs to be explained (whether in natural terms or, as the Kantians would urge, in nonnatural terms)? Intuitionists have more recently tended to say that the basic notion here is that of favoring; a fact is a reason for an action if it favors doing that action. But there is, they say, very little that can be said about this notion of favoring, even though it is one with which we are all familiar.

Finally, with respect to intuitions, we need first to decide what sorts of facts are basic moral facts. Henry Sidgwick (1874) thought that the utilitarian principle was a basic moral fact. For him, a basic moral fact is a universal principle, then, and he held that such principles are self-evident, meaning that one has only to consider them in order to recognize their truth. W. D. Ross held that what we know first is that a certain feature counts in favor of (or is a reason for doing) a particular action, and that we work from this to the recognition of a general "prima facie" duty by a process of "intuitive induction." In Ross's view, then, what we are capable of directly recognizing is that one thing is a reason for another, and that is not a matter of drawing inferences. This seems to commit him to the view that we know these things by intuition (though he never explicitly said as much). The question is, What else could one say about our ability to recognize reasons?

See also Metaethics; Moore, G. E.; Objectivity in Ethics; Ross, William David.

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INTUITIONISM AND INTUITIONISTIC LOGIC

Logic, in the modern preponderantly mathematical sense, deals with concepts like truth and consequence. The main task of logic is to discover the properties of these concepts. Ever since Aristotle it had been assumed that there is one ultimate logic for the case of descriptive statements, which lent logic a sort of immutable, eternal appearance. Only in the beginning of the twentieth century were certain principles of traditional logic submitted to a critical revision. It was L. E. J. Brouwer, who, in a radical constructive framework of mathematics, discovered that traditional logic could not be upheld in its full extent.

This entry sketches the basic ideas of Brouwer's constructivism, which goes by the name of intuitionism, and then discusses the fundamental principles. Next, an exposition of the familiar notions, such as proof system, semantics, and the like, is provided. In particular, this entry will show how the Brouwerian mathematical universe takes a special place in terms of its logical properties.

INTUITIONISTIC TRUTH

For all practical purposes it suffices to consider in mathematical logic only a few logical constants, or connectives. The traditional conjunction (*and*, $\wedge$), disjunction (*or*, $\vee$, and *not*, $\neg$), and implication (*if* …, *then* … , $\rightarrow$) will do for propositional logic. By adding the two quantifiers, the universal quantifier (*for all*, $\forall$) and the existential quantifier (*there is*, $\exists$), one gets the required connectives for predicate logic. The notion of intuitionistic truth is laid down for composite statements by an inductive procedure. Hence, one has to start by explaining the truth of the basic statements, the so-called atomic ones.

In intuitionism the objects and relations of mathematics are mental creations of the individual, called sub-

ject here. And logic has its domain of action in the self-constructed universe. The fundamental construction is that of the natural numbers. The move of time causes the subject to experience a sensation, which is succeeded by another sensation, while the first one is stored in memory. Brouwer called this the ur-intuition. Through a process of abstraction (identification of experienced two-ities), the empty two-ity, that is, the number 2 is obtained. A process of iteration then yields the natural numbers, and reflection on the process yields the principle of complete induction. Now, one can establish simple identities like 2 + 3 = 5. This is done by a construction of the following kind: (1) construct 2, (2) construct 3, (3) construct the sum of 2 and 3, (4) construct 5, (5) carry out the comparison construction for the outcome of (3) and (4). The success of (5) tells one that "2 + 3 = 5." The basic statements are thus verified, or proved, by constructions. One can denote "the construction a proves φ" by "a:φ." It is easy to see how a conjunction is proved; one has a proof of $\varphi \wedge \psi$ if one has a proof of φ and a proof of ψ. So the proof of $\varphi \wedge \psi$ is an ordered pair (a, b), such that a:φ and b:ψ.

The disjunction is slightly more problematic; $\varphi \vee \psi$ is a statement that contains two possibilities φ and ψ, and at least one of these is to be the case. Constructively, one wants therefore to select one of the two and provide a proof for it. We put this as (a, b):$\varphi \vee \psi$ if $a = 0$ and b:φ, or $a = 1$ and b:ψ. So a distinguishes between φ and ψ and b is the required proof. The classical notion of disjunction (the word *classical* is used here for "nonintuitionistic") is more liberal, something like "it is φ or ψ but I don't know which." This notion is not constructively acceptable. The implication is by far the most interesting; p is a proof of $\varphi \rightarrow \psi$ means that p is an operation that carries proofs into proofs such that for a proof a of φ, $p(a)$ is a proof of ψ. In symbols: $p : \varphi \rightarrow \psi \Leftrightarrow$ for any a a:$\varphi \Rightarrow p$(a):ψ. This notion is in fact the natural interpretation of implication. The interpretation of negation has also to be rendered constructively, that is, we have to explain what a:$\neg \varphi$ means, a mere "not" will not do. Brouwer's solution was: $\neg \varphi$ is true if φ can be reduced to a contradiction (absurdity); in terms of constructions: p:$\neg \varphi$ if for any proof a:φ, $p(a)$:$\perp$, where $\perp$ stands for a contradiction. That is, $\perp$ is a statement that has no proof. As a consequence, φ cannot have a proof. In Brouwer's conception the paradigm of a contradiction is $0 = 1$.

For the quantifiers, one has the following proof clauses, where one considers some fixed domains D of objects d:

$$a:\forall x \; \varphi(x) \text{ if for each } d \in D \; a(d):\varphi(d).$$

$$(a, b):\exists x \; \varphi(x) \text{ if } b:\varphi(a).$$

The constructive character of existence is thus made explicit in the sense that the proof contains a witness a and a proof of $\varphi(a)$.

The above proof interpretation defines *truth* as "having a proof," where a proof is a construction of an open-ended, unspecified nature. Hence, there is no preferred class of constructions specified—one recognizes a construction when one sees one. The precise form was published by Arend Heyting in 1934, and a similar interpretation was provided by Kolmogorov in his "problem-interpretation" (1932). In an informal manner the proof interpretation was conceived and used by Brouwer. He demonstrated the use of the interpretation, for example, in his proof of the historically first theorem of intuitionistic logic: $\neg \varphi \leftrightarrow \neg \neg \neg \varphi$. On the proof interpretation the principle of the excluded middle (PEM), $\varphi \vee \neg \varphi$, is not always provable (i.e., true). For it would demand that one can give for each proposition φ in advance either a proof of φ, or a construction that reduces any proof of φ into a proof of $\perp$. This is not a matter of abstract logic, but a matter of a general superalgorithm that decides any φ, a so-called omniscience principle. Hence, on the proof interpretation, PEM is equivalent to Hilbert's dogma, which states that all mathematical problems are solvable (1900). However, on the same interpretation, there are no absolutely unsolvable problems, for if $\varphi \vee \neg \varphi$ has no proof, φ cannot have a proof, and this is equivalent to "$\neg \varphi$ has a proof." So in this respect, David Hilbert was right, "there is no ignorabimus."

FORMAL SYSTEMS

The first formalization of (a fragment of) intuitionistic logic was presented by Kolmogorov (1925), and Heyting followed in 1930 with a full system. Both used Hilbert-type formalizations. The axioms were chosen in such a way that the classical system is obtained by adding just one extra axiom (schema): the principle of the excluded middle. The following is an axiom system:

$\varphi \rightarrow (\psi \rightarrow \varphi)$	$(\varphi \rightarrow \psi) \rightarrow ((\varphi \rightarrow (\psi \rightarrow \sigma)) \rightarrow (\varphi \rightarrow \sigma))$
$\varphi \rightarrow (\psi \rightarrow (\varphi \wedge \psi))$	$(\varphi \rightarrow \sigma) \rightarrow ((\psi \rightarrow \sigma) \rightarrow ((\varphi \vee \psi) \rightarrow \sigma))$
$(\varphi \wedge \psi) \rightarrow \varphi$	$\varphi \rightarrow (\varphi \vee \psi)$
$(\varphi \wedge \psi) \rightarrow \psi$	$\psi \rightarrow (\varphi \vee \psi)$
$(\varphi \rightarrow \psi) \rightarrow ((\varphi \rightarrow \neg \psi) \rightarrow \neg \varphi)$	$\neg \varphi \rightarrow (\varphi \rightarrow \psi)$
$\varphi(t) \rightarrow \exists \; x \varphi(x)$	$\forall x \varphi(x) \rightarrow \varphi(t)$

There are three derivation rules:

From φ and φ→ψ derive ψ, in symbols φ, φ→ψ / ψ (modus ponens); σ→φ(x) / σ→∀xφ(x); φ(x)→σ / ∃xφ(x)→σ.

An alternative formalization was presented by Gerhard Gentzen (1909–1945); his system of natural deduction differed from the Hilbert-type formalization in having no axioms and only rules. The rules are particularly perspicuous, in the sense that they tell one how to introduce a connective and how to eliminate it. In other words, what one has to assume to conclude a composite statement, and what are the consequences of a composite statement. For example, from φ and ψ infer φ∧ψ; from φ∧ψ infer φ and likewise ψ. In Gentzen's notation:

$$\frac{\varphi\ \psi}{\varphi\wedge\psi} \qquad \frac{\varphi\wedge\psi}{\varphi} \qquad \frac{\varphi\wedge\psi}{\psi}$$

Thus, the rules appear in the form of *introduction rules* and *elimination rules*. Some rules are purely local in the sense that they only concern the immediate premises and the consequence, and some are more complicated in that they concern the whole history of the derivation. The remaining rules can be found in the literature.

The Gentzen rules can be viewed as a means of providing the meaning of the connectives. This was the underlying idea of Per Martin-Löf's (1984) type theory, and it also played a role in Michael A. E. Dummett's (2000) meaning theory.

A question of immediate interest concerns the relation between intuitionistic and classical logic. The first is a subsystem of the second, that is, every intuitionistic theorem is a classical one. There is also a natural way of interpreting classical logic in intuitionistic logic. Kolmogorov (1925), Kurt Gödel (1934) and Gentzen (1934) translated classical logic so that derivability was preserved. If one denotes classical derivability by $\vdash_c$ and intuitionistic derivability by $\vdash$, then $\Gamma \vdash_c \varphi \Leftrightarrow \Gamma^\circ \vdash \varphi^\circ$ where φ° is the translation of φ. One can see here the Gödel translation:

$\varphi^\circ = \neg\neg\varphi$ for atomic φ $\qquad (\varphi\wedge\psi)^\circ = \varphi^\circ\wedge\psi^\circ$

$(\varphi\vee\psi)^\circ = \neg\varphi^\circ\wedge\neg\psi^\circ \qquad (\varphi\rightarrow\psi)^\circ = \varphi^\circ\rightarrow\psi^\circ$

$(\forall x\varphi(x))^\circ = \forall x\varphi^\circ(x) \qquad (\exists x\varphi(x))^\circ = \neg\forall x\neg\varphi^\circ(x)$

The translation clearly indicates from an intuitionistic point of view a weakening of the meaning of the connectives. The translation also works for concrete theories, for example, arithmetic. Let **PA** be the standard formalization of Peano's arithmetic, and HA the same for Heyting's arithmetic, where **PA** = **HA** + PEM. Now **PA** $\vdash_c$ A $\Leftrightarrow$ **HA** $\vdash$ A$^\circ$. This immediately shows that **PA** and **HA** are equally consistent. Historically, this came as a surprise. **HA** was supposed to be more consistent on the ground of its constructive nature. Translations, such as Gödel's, can also be carried out for certain higher order systems.

Gödel (1934) also observed that the extra strength of intuitionistic logic (from a constructive point of view) had an implicit modal character. He translated propositional logic into a modal logic, where □φ had the heuristic meaning "I know φ" or "I have established φ." The translation is given by:

$\varphi^m = \Box\varphi$ for atomic φ $\qquad (\varphi\wedge\psi)^m = \varphi^m \wedge \psi^m$

$(\varphi \vee \psi)^m = \neg(\neg\varphi^m \wedge \neg\psi^m) \qquad (\varphi \rightarrow \psi)^m = \Box(\varphi^m \rightarrow \psi^m)$

Intuitionistic logic thus translates into modal logic, and derivability is preserved in the sense that $\vdash \varphi \Rightarrow S4 \vdash \varphi\psi)^m$. Gödel's idea was recently adopted and vigorously extended by Artemov (2002), who combined the proof interpretation and the modal interpretation for arithmetic and extensions.

There are many classically derivable propositions that are not derivable in intuitionistic logic, the best known being PEM and the double negation principle ¬¬φ→φ. The latter obviously follows from the first, but conversely the schema ¬¬φ→φ implies the schema φ∨¬φ (Bernays). One simply applies the double negation principle to φ∨¬φ (and uses some intuitionistic logic).

It is convenient to remember the following rule: ∃ and ∨ are strong connectives. So, as to be expected, for example, ¬(φ∧ψ)→(¬φ∨¬ψ), (φ→ψ)→(¬φ∨ψ), ¬∀xφ(x)→∃x¬φ(x), ∀x(φ∨ψ(x))→(φ∨∀xψ(x)) are not derivable.

In an obvious way intuitionistic logic is weaker than classical logic, that is to say, as a subsystem. However, it is stronger on the ground of certain metalogical properties. For example, if $\vdash\varphi\vee\psi$, then $\vdash\varphi$ or $\vdash\psi$ (disjunction property). This testifies to the strength of the disjunction in intuitionistic logic. Similarly, one has $\vdash\exists x\varphi(x) \Rightarrow \vdash\varphi(c)$ for a constant c (in a language without function symbols) (existence property).

SEMANTICS

Where classical logic basically has one natural semantics, the truth table semantics of true, false, intuitionistic logic has many semantics, each with its specific features. The intended intuitionistic semantics is the proof interpretation, but for model theoretic applications it is rather too open ended. There are semantic interpretations of intuitionistic logic that have the flexibility one needs for

uncovering logical properties. There are roughly two classes of semantics: those based on (classical) set theory and those of an algorithmic nature. The set-theoretical ones will be considered first.

THE TOPOLOGICAL INTERPRETATION (TARSKI). In classical logic one can interpret propositional logic by means of Venn diagrams (or rather interpret monadic logic), that is, one assigns subsets of a set to propositions and interprets $\wedge$, $\vee$, $\neg$ as $\cap$, $\cup$, ^{c}. The topological interpretation refines this by considering open sets in a topological space and reinterpreting $\neg$ by the interior of the complement (where the interior of a set is the largest open subset of that set). More precisely, given a topological space X and a domain D, assign an open set $[\![\varphi]\!]$ in X to each atom φ (and $\emptyset$ to $\bot$) then

$[\![\varphi \wedge \psi]\!] = [\![\varphi]\!] \cap [\![\psi]\!]$, $[\![\varphi \vee \psi]\!] = [\![\varphi]\!] \cup [\![\psi]\!]$

$[\![\varphi \to \psi]\!] = \text{Int}([\![\varphi]\!]^c \cup [\![\psi]\!])$, $[\![\neg\varphi]\!] = \text{Int}([\![\varphi]\!]^c)$

$[\![\exists x\varphi(x)]\!] = \cup\{[\![\varphi(d)]\!] \mid d\in D\}$, $[\![\forall x\varphi(x)]\!] = \text{Int}(\cap\{[\![\varphi(d)]\!] \mid d\in D\})$

Under this interpretation one obtains completeness:

$\vdash\varphi \Leftrightarrow [\![\varphi]\!] = X$ for all topological spaces X.

Brouwer's theorem, $\neg\neg\neg\varphi \to \neg\varphi$, is topologically explained by the fact that the interior of the interior is the interior (also "the closure of the closure if the closure"). One can easily see that $\varphi\vee\neg\varphi$ and $\neg\neg\varphi\to\varphi$ are not valid, and hence not derivable: consider the real line R and put $\varphi = R-\{0\}$, then $[\![\neg\varphi]\!] = \emptyset$ and $[\![\neg\neg\varphi]\!] = R$.

HEYTING VALUED INTERPRETATIONS (TARSKI AND MCKINSEY). Classical propositional logic, from an algebraic point of view, is a Boolean algebra if one identifies provably equivalent propositions. A similar fact holds for intuitionistic logic, only the algebra fails to be Boolean, for in general $\varphi \leftrightarrow \neg\neg\varphi$ is not valid. The algebras for intuitionistic logic are called Heyting algebras. Since Heyting (and Boolean) algebras have a partial ordering (given by $[\![\varphi]\!] \leq [\![\psi]\!] \Rightarrow \vdash\varphi\to\psi$) with suitable properties, they turn out to be lattices. The algebraic and lattice theoretic approach are closely related. Jaskowski (1936), in his pioneering work, constructed certain lattices that in a specific sense capture intuitionistic propositional logic. The applications of Heyting algebras and Heyting valued models can be found in Peter T. Johnstone's book, *Stone Spaces* (1982).

BETH AND KRIPKE MODELS. Where the previous interpretations are more technical than foundational in char-

acter, Beth and Saul Kripke formulated in the 1950s and 1960s interpretations that intended to do justice to Brouwer's philosophical motivations, in particular his conception of mathematics, and thus logic, as a creation of the subject. Beth introduced his models in 1956 and Kripke in 1963. Kripke showed how the two interpretations are in a precise sense equivalent. The underlying idea is to take the notions "*the subject knows* (or 'has established') φ *at time t*" seriously. So Beth and Kripke consider stages of research (or knowledge) in time for the subject. These states are partially ordered, as the subject has at each stage a number of options of how to pursue his or her research further. The subject is assumed to have perfect memory, so what is known at a certain stage is preserved in future stages. The subject directly becomes aware of and establishes basic facts, so at each stage k a number of atomic statements are accepted; one can denote "φ is known at stage k" by k $\Vdash$ φ, and we can say "φ is forced at stage k." The interpretation for composite statements is defined inductively. Some decisions are made on the spot, for example, $\varphi \wedge \psi$ is forced at k if both φ and ψ are forced at k; some, however, involve the future. The paradigmatic case is the implication: $\varphi \to \psi$ may be accepted as correct although no information is available about the correctness of φ and ψ. Here is a Brouwerian example: Let φ stand for "there are 100 consecutive zeros in the decimal expansion of π," and ψ for "there are 99 such decimals." Obviously $\varphi \to \psi$ is correct, even for an intuitionist. So what does $k \Vdash \varphi\to\psi$ mean? The natural solution is: If at a future stage k' one has $k' \Vdash \varphi$, then $k' \Vdash \psi$. In fact, this is the natural interpretation of implication, which is only obscured by the truth table definition.

The universal quantifier also involves the future. The subject not only establishes atomic facts but also constructs objects of the domain. So at a later stage, in general, more objects will be available (exist) than at an earlier one. So the universal quantifier has also to take future elements into account; one can denote the domain at stage k by $D(k)$. One can now give Kripke's definition of $\Vdash$:

$k \Vdash \varphi \wedge \psi \Leftrightarrow k \Vdash \varphi$ and $k \Vdash \psi$; $k \Vdash \varphi\vee\psi \Leftrightarrow k \Vdash \varphi$ or $k \Vdash \psi$;

$k \Vdash \varphi \to \psi \Leftrightarrow \forall k' \geq k(k' \Vdash \varphi \Rightarrow k' \Vdash \psi)$;

$k \Vdash \exists x\varphi(x) \Leftrightarrow \exists d\in D(k)(k \Vdash \varphi(d))$;

$k \Vdash \forall x\varphi(x) \Leftrightarrow \forall k' \geq k \forall d\in D(k')(k' \Vdash \varphi(d))$.

Furthermore $\bot$ is never forced. So for negation one has $k \Vdash \neg\varphi \Leftrightarrow \forall k' \geq k$ not $k' \Vdash \varphi$. This semantics is sound, and even complete for intuitionistic logic. A particular partially ordered set with prescribed forcing for atoms, and a given domain assignment $D(k)$ for all k, is called a Kripke model. It is a simple exercise to construct coun-

termodels for nonderivable statements. For example, the model with two stages, k_o and k_1, such that $k_o < k_1$ and k_o forces no atoms, and

$k_1 \Vdash \varphi$, has the property that not $k_o \Vdash \varphi \vee \neg\varphi$.

The completeness theorem (Kripke 1963) states that

$\vdash\varphi \Leftrightarrow$ for all Kripke models K and all stages $k \in K\ k \Vdash \varphi$.

For propositional intuitionistic logic it even suffices to consider only finite Kripke models. In that case the so-called finite model property holds: if not $\vdash \varphi$, then there is a finite Kripke model that refutes φ.

Kripke models have been extensively used in metalogical research. Unfortunately, the proofs of the completeness theorem use a classical metatheory and are based on PEM. Hence, not all the applications of Kripke semantics are intuitionistically correct. W. Veldman (1976) generalized the notion of the Kripke model, so that the use of PEM can be avoided.

Beth models are similar to Kripke models, be it that the clauses rely strongly on the future. For example, $\varphi \vee \psi$ is forced at stage k if any (infinite) sequence of future stages $k \leq k_o \leq k_1 \leq \ldots$ eventually leads to a stage in which φ or ψ is forced.

Beth models are less flexible than Kripke models, but they have their advantages for metalogical applications and for modeling second-order theories.

ALGORITHMIC INTERPRETATIONS. In 1945 Stephen Cole Kleene introduced an algorithmic interpretation of intuitionistic arithmetic called realizability. One may think of the constructions in the proof interpretation as partial recursive functions, so that the proof evidence can be given as the index n of such a function. We can say that "n realizes φ" ($n\ \mathbf{r}\ \varphi$). For closed atoms the correctness can immediately be verified, so one defines $n\ \mathbf{r}\ t_1 = t_2$ if $t_1 = t_2$ is true. The interesting case is, again, the implication: $n\ \mathbf{r}$ $\varphi \rightarrow \sigma$ if $\forall m(m\ \mathbf{r}\ \varphi \Rightarrow \{n\}m\ \mathbf{r}\ \sigma)$, where $\{n\}m$ is assumed to converge. The class of all realizable sentences is a theory that extends **HA**; it is axiomatized by some natural axioms. The interesting and surprising fact is that Church's thesis, $CT_0\ \forall x\exists y\varphi(x,y) \rightarrow \exists e\forall x\ \varphi(x\{e\}x)$, is realized. Church's thesis claims that all algorithms (on natural numbers) are recursive functions. Hence, in this extended arithmetic (which is inconsistent with PA) all functions are given by Turing machines.

Gödel introduced an interpretation of arithmetic by means of (effective) functionals of higher types, the so-called Dialectica interpretation (1958). Another such interpretation was introduced by Georg Kreisel (b. 1923):

modified realizability. For a survey of the previously discussed text and more, see the bibliography.

SECOND-ORDER SYSTEMS

On Brouwer's view, there are two basic kind of objects, given by the first and second act of intuitionism. The first act gives one the discrete objects, and the second infinite sequences. These sequences, say of natural numbers, need not be given by a law; they are chosen more or less arbitrarily by the subject, hence the name choice sequences. The codification takes place in second-order logic with variables for natural numbers $x, y, z, \ldots$ and variables for infinite sequences of natural numbers, $\alpha, \beta, \gamma, \ldots$ (see Troelstra and Dalen 1988). There are a number of systems treating this intuitionistic analysis. Besides the obvious axioms they usually contain an axiom of countable choice, $\forall x\exists y\varphi(x,y) \rightarrow \exists\alpha\forall x\varphi(x,\ \alpha(x))$, and continuity axioms of various strengths. The motivation for the continuity principle that comes to mind first runs as follows: suppose one has a function F from choice sequences to natural numbers; since the output has to be computed in a finite time, only a finite part of the input choice function α can be used. Hence F is a continuous function from Baire space to N. This argument is an oversimplification (see Atten and Dalen 2002). A formulation of the (weak) principle of continuity, WC, runs as follows: $\forall\alpha\exists x\varphi(\alpha,x)$ $\rightarrow \forall\alpha\exists xy\forall\beta\ [\alpha(0)=\beta(0)\wedge \ldots \wedge \alpha(y-1) = \beta(y-1) \rightarrow \varphi(\beta,x)]$. For functions F one gets the $\forall\exists!$ prefix.

This continuity principle evidently fails for the following $\varphi(\alpha,x)$: $[\forall z(\alpha(z)=0\wedge x=0)\ \vee\exists z(\alpha(z)>0\wedge x=1)]$. Hence, intuitionistic systems with continuity principles are inconsistent with PEM. Furthermore, Brouwer introduced a certain principle of transfinite induction, the principle of bar induction, which lends the system a considerable proof theoretic strength (enough to prove consistency of **HA** and **PA**). A corollary is the so-called fan theorem, which basically says that the intuitionistic Cantor space is compact. A consequence of the fan theorem is the following: "every real function on a closed interval is uniformly continuous" (Brouwer 1975–1976); Brouwer also showed that the continuum is indecomposable, that is, R cannot be split into two nonempty parts.

In the 1920s Brouwer started to exploit the idealized choice activity of the subject. This was formalized and further analyzed by Kreisel, Kripke, and John Myhill in the 1960s. Kreisel laid down axioms for the theory of the creating subject in a kind of modal formulation. Let $\square_n\ \varphi$ stand for "the subject knows (has evidence for) φ at time n." The axioms are $\square_n\ \varphi \rightarrow \square_{n+m}\ \varphi$; $\square_n\ \varphi \vee \neg\square_n\ \varphi$; $\exists x$ $\square_x\varphi \leftrightarrow \varphi$.

Kripke simplified the theory by condensing the total action of the creating subject in one schema, $\exists\alpha(\varphi\leftrightarrow\exists(\alpha(x)\neq 0))$, Kripke's schema (KS). This schema allowed a formal reconstruction of Brouwer's later results. A recent application of KS showed that, for example, the set of irrationals is indecomposable.

Of course, there is also a second-order arithmetic with set variables, HAS. In general, sets are less palpable then functions. In constructive mathematics one cannot reduce sets to characteristic functions, since only decidable sets have characteristic functions.

METAMATHEMATICAL ASPECTS

There are striking similarities between function spaces and logic, which were first observed by Haskell Curry (1900–1982), who indicated the relation between certain combinators and propositional axioms. In the Curry-Howard isomorphism, this is extended to full logic. The present typed lambda calculus is based on these ideas. Henk Barendregt (b. 1947) systematized the various logical- and typed λ-calculus systems and arranged them in Barendregt's cube. Martin-Löf had already in the early 1970s introduced type systems that treat in a uniform way intuitionistic logic and higher-order type systems. These systems yield a most perspicuous presentation of mathematics in a constructive setting and also allow a thorough proof theoretical analysis. It may be remarked that in Martin-Löf's systems (suitable forms of) the axiom of choice became provable, thus confirming the strength of a constructive approach to mathematics. The type theoretic approach to mathematics has born fruit in computer science; there are, for example, implementations of type theory that allow automatic theorem proving. Nicolaas Govert de Bruijn (b. 1918) was the first to develop modern type systems in his AUTOMATH system.

The various semantics that were introduced over the years have found a generalized formulation in category theory. There is a special class of categories, called toposes, that in a most flexible way yields the existing older semantics. A topos can be viewed as a higher-order intuitionistic universe. Hyland (1982) introduced the effective topos, in which Church's thesis holds. Thus nowadays there are many models of all kinds of constructive universes around that allow metamathematical analysis. In particular, there are generalizations of the topological interpretation, the so-called sheaf interpretations, that perfectly model intuitionistic analysis and topology.

One particular line of research by McCarthy shows that in a universe with Church's thesis, intuitionistic truth

(for predicate logic) is not arithmetical (hence, the logic is incomplete), and moreover that HA has up to isomorphism, only the standard models. This extends earlier work by Kreisel and refines insights into incompleteness of intuitionistic logic.

A great deal of metamathematical research deals with basic principles, such as transfinite inductions, axioms of choice, and continuity principles. Some of these principles are far from neutral with respect to logic, for example, the full axiom of choice implies PEM.

See also Brouwer, Luitzen Egbertus Jan; Logic, Non-Classical; Mathematics, Foundations of.

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Dirk van Dalen (2005)

IONESCU, NAE
(1890–1940)

Nae Ionescu, the Romanian logician, metaphysician, and religious philosopher, studied at the University of Bucharest and received his doctorate from the University of Munich in 1919 with the thesis *Die Logistik als Versuch einer neuen Begründung der Mathematik.* From 1920 on he was professor of logic, history of logic, and metaphysics at the University of Bucharest. He was also the editor in chief (1924–1928) and director (1928–1934) of the newspaper *Cuvântul*, in which he published more than 1,000 articles on religious, political, and economic problems.

Ionescu's scholarly publications were few—some articles on logic, a few prefaces, and a series of articles in the theological journal *Predania* (1937–1938). Nevertheless, his influence from 1922 to 1940 was enormous. His teachings and writings inspired a new interest in metaphysics and religious philosophy in Romania. Although he was primarily a logician, he strove to understand all forms of human activity. According to Ionescu, the philosopher must take into consideration not only the theoretical expression of historical life—from religion to logic and science—but also its meaningful creations: crafts, arts, biographies, political events, and all others. He approached the history of logic, as well as the history of metaphysics and of religion, as a typology of the human spirit. Such a typology he regarded as always a creation of history and ultimately of life. This seems to imply a radical historicization of the mind's activities, but God, for Nae Ionescu, is present in history through the Incarnation. On the other hand, man's mode of being is completely fulfilled only through death, and death is above all transcendent.

See also Logic, History of; Philosophy of Religion.

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A complete posthumous edition of Ionescu's philosophical works in twelve volumes was announced during World War II, but only three volumes were published: *Istoria Logicei* (Bucharest, 1941) and *Metafisica*, 2 vols. (Bucharest, 1942–1943). New editions of many of Ionescu's works appeared during the 1990s, all edited by Marin Diaconu and published by Humanitas Press, Bucharest, most notably: *Curs de metafizica* (2 vols., 1991 and 1995; Lectures in metaphysics), *Curs de istorie a logicii* (1993; Lectures in the history of logic), and *Curs de logica* (1993; Lectures in logic).

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IONIAN SCHOOL
See *Pre-Socratic Philosophy*

IQBAL, MUHAMMAD
(1877–1938)

Muhammad Iqbal, an Islamic poet and metaphysician, was born in Sialkot, Pakistan. He studied philosophy at Cambridge for three years under J. M. E. McTaggart and James Ward. He received his Ph.D. from Munich University in 1908 for his thesis *The Development of Metaphysics in Persia.*

Inheriting the classical tradition of Muslim mystic poets, both Persian and Urdu, Iqbal was for a long time an admirer of the Spanish Sufi philosopher Ibn al-Arabi (1165–1240), the most consistent advocate of pantheism among Muslim thinkers. Very soon, however, he realized that this philosophy was foreign to the simple and invigorating message of Islam as embodied in the Qur'an and as represented in the dynamic life of Muḥammad and his

early followers. Under the influence of Jalāl al-Din Rūmī (1207–1273), the great mystic poet, whose philosophical outlook was allied in several important respects with post-Kantian voluntaristic thought in the West, as represented by Friedrich Nietzsche and Henri Bergson, he evolved a new system of thought that was meant to revitalize the faith of the Muslims of the Indo-Pakistan subcontinent. At first his message, written in verse in the *Secret of the Self* (1915), raised a storm of opposition, but very soon this opposition died its natural death, and the whole subcontinent reverberated with his inspiring melodies. He exerted great influence in molding the pattern of political, social, and intellectual life of the Muslims in the early decades of the twentieth century, an influence that is visible everywhere even now. In 1930, as president of the Muslim League, he proposed the creation of a "Muslim India within India." Pakistan, Iqbal's dream, came into being in 1947, nine years after his death. As a tribute to his memory, the government of Pakistan established in 1951 a statutory body known as Iqbal Academy, in order "to promote the study and understanding of the works of Iqbal."

The system of thought that he evolved may be called theistic pluralism in contradistinction to Ibn al-Arabi's pantheistic doctrine of the unity of being, which denied not only the unique personality of the Divine Being and his existence as distinct from the universe but also the existence of human individuals and their partnership with God in constituting the commonwealth of ends.

Immanuel Kant's negative answer to the possibility of metaphysics provided Iqbal with a basis on which to construct his thought. Human thought, Kant asserted, is circumscribed by the categories of space and time; therefore, the Ultimate Reality, which, by definition, is beyond these categories, cannot be comprehended by pure thought, which is intimately related to and based on the normal level of experience. According to Iqbal, however, time and space are not fixed and unvarying modes, as Kant had thought; their significance may vary with the beings of higher or lower grade, the degree of being determined by greater or lesser psychic powers. Moreover, this normal level is not the only level of knowledge-yielding experience. The level above spatiotemporal experience is revealed by intuition, a form of perception that is allied to ordinary experience in giving objective knowledge but which is quite distinct from it in not being solely dependent upon sense perception; intuitive experience is individual and incommunicable. It is not simple Bergsonian "intellectual sympathy," which implies negation of the perceiver; intuition, according to Iqbal, by bringing the

perceiver into contact with the Most Real, has the power to vitally transform his character and to endow him with a new personality, which reveals to him the higher consciousness of his manifold relations with God and the universe. Through his contact with Reality, the individual discovers his uniqueness, his metaphysical status, and the possibility of improvement in that status. The experience of intuition not only serves to confirm his reality and deepen his whole being but also sharpens his will with the creative assurance that the universe is not something to be really seen and known through concepts but rather something to be made and remade by continuous action, by interpreting the intuition of reality as a stimulus to ideal ends and purposes. Conceptual knowledge gives us knowledge of relations, not of reality; it is only through intuition that we can grasp the Real and give a fresh direction to the course of human history.

To Iqbal, ego is the basic reality revealed by intuition as the center of all efforts—a revelation that is vouchsafed not in the barren contemplation of the recluse but in moments of great decision and action, which are expressive of a firm faith in the ultimate purposiveness of the universe. The life of the ego consists in meeting obstruction in its contact with matter and overcoming it. This gives the ego the power to act freely. It is partly determined and partly free, and it reaches fuller freedom by approaching the individual who is most free—God. In other words, the ego is continually moving from a state of lesser freedom to that of greater freedom.

The ego is also immortal. According to Averroes immortality means transindividual eternity of intellect; according to Nietzsche immortality is synonymous with what he calls eternal recurrence, a most "intolerable" conception, as Iqbal put it. Immortality, according to Iqbal, must be individual and personal. He repudiated the pantheistic belief that the self, as a differentiation of the Absolute, will in the end be submerged and lose its identity in the Whole. It was to save man from this fate that Iqbal advocated that immortality is not a gift that every ego will enjoy; rather, it is a hope, an aspiration, depending, of course, upon a particular philosophy of life and a particular ethic that tends to maintain the state of tension in the ego and develop self-reliance, self-respect, self-confidence, self-preservation—even self-assertion, when such a thing is necessary in the interest of life—and the power to stick to the cause of truth, justice, and duty, even in the face of death. Such behavior helps in the integration of the forces of ego, thus hardening it against the forces of disintegration and dissolution. Because the ego, which exists only in the state of tension, is the most valu-

able achievement of man, he should exert all efforts not to revert to a state of relaxation. We are mortal insofar as we keep ourselves fettered to spatialized time; as soon as we rise above it and immerse ourselves in what Bergson called duration, we become timeless. It is possible, Iqbal held, to realize this timelessness even in this life, although it be but for a moment. It is the moral duty of man to keep the state of tension intact by repudiating life-negating philosophies and to attain immortality by his ego-sustaining behavior. It is in this sense that attaining immortality, according to Iqbal, becomes a moral duty.

How is the ego related to the world of matter? Iqbal viewed matter, as did Albert Einstein, as "a system of interrelated events" and the universe as an "organism," as did Alfred North Whitehead. Every atom, however low in the scale of being, is an ego. Mind, with its capacity for self-consciousness, is a higher ego, and body is a combination of subegos. Thus, on this principle the universe is of the nature of life—free, creative, and original. The universe is constantly growing and progressing toward an end—a rationally directed creative life.

How is the Ultimate Ego (God) related to the universe and to the human ego? To the Absolute Self the universe is not a reality confronting him as an "other"; it is only a passing phase of his consciousness, a fleeting moment of its infinite life. Iqbal began with Einstein's view that the universe is finite but boundless and added that it is finite because it is a passing phase of God's extensively infinite consciousness and boundless because the creative power of God is intensively infinite. But the human self is the exception; it is not a mere passing phase in God's consciousness, for it is self-centered and exclusive. It is distinct but not isolated from God. The Ultimate Ego is characterized by the most beautiful names and attributes; he is transcendent and yet immanent, and above all he is a Person who responds to man's inner yearning in "the awful silence of the universe."

See also Absolute, The; Averroes; Bergson, Henri; Einstein, Albert; Ibn al-ʿArabī; Kant, Immanuel; Intuition; McTaggart, John McTaggart Ellis; Metaphysics; Nietzsche, Friedrich; Pantheism; Religious Pluralism; Ward, James; Whitehead, Alfred North.

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B. A. Dar (1967)

IRIGARAY, LUCE
(1930–)

Luce Irigaray is a Belgian-born French feminist philosopher whose work draws on her multiple doctorates in the areas of linguistics, philosophy, and psychoanalysis. Her main contributions are her concept of sexual difference and the methodology she developed for a feminist interpretation of the history of philosophy. Like many feminist philosophers, Irigaray argues that women have always been defined in relation to men. She would agree with the mid-twentieth century French feminist philosopher Simone de Beauvoir, who argued that "the relation between the sexes is not quite like that of two electrical poles, for man represents both the positive and the neutral … whereas woman represents only the negative, defined by limiting criteria." Irigaray agrees that the feminine tends to be described "in terms of deficiency or atrophy, as the other side of the sex that alone holds a monopoly on value: the male sex" (1985b, p. 69). Irigaray demonstrates this idea with examples from literature, philosophy, everyday life, and economic and social history.

Irigaray stresses that texts from the history of philosophy have been inconsistent in their discussions of women. They have included conflicting, often overlooked hypotheses about the sexes. These may be explicit contradictions in canonical literature or implicit alternatives. In this sense, the most sex-biased historical text may be a rich resource for a feminist rereading. Rather than dismissing sex-biased caricatures of women as false or irrelevant, Irigaray recommends critiques of their their incoherence as part of a project of imaginative literary elaboration. She therefore argues that feminists should not forgo the close study of historical texts about the

sexes, particularly those of the history of philosophy, and her interpretations have focused on such figures as Plato, Aristotle, Plotinus, Hegel, Nietzsche, Heidegger, Sartre, Levinas, Marx, Lévi-Strauss, Freud, and Lacan.

Irigaray's methodology involves extensive citation, parody, and whimsical or ironic diagnoses of what a thinker does not "want" to say about women. Such diagnoses are often accompanied by writing experiments in which Irigaray attempts to describe women or write as a woman in ways that she claims would be deemed undesirable by the authors of the texts she is analyzing.

"Sexual difference," as an Irigarayan concept, does not refer to historical depictions of men and women counterposed in terms of such unsatisfactory hierarchies as reason/sensibility, wisdom/ignorance, culture/nature, and public/private. Instead, Irigarayan "sexual difference" refers to a hypothetical, alternative means of envisaging the sexes, according to which they would be considered neither like men nor their opposites or complements, but genuinely different. The concept is not generated through empirical description nor utopian imagination. Instead, it is primarily grounded in Irigaray's notion that such a prospect seems to have been "excluded" historically.

Irigaray has argued, controversially, that equality often means "equal *to*" a default individual (for example, male or white or able-bodied). She has proposed the alternative notion of equivalent rights for men and women and has devised a short bill of "sexuate" rights (1993). Such initiatives embody her view that legal reform should include a concern with the quality of representation of sexual identity. She has also directed collective research on empirical differences in the speech habits of contemporary European men and women, and she has formulated linguistic reforms corresponding to a hypothetical culture that would affirm sexual difference.

See also Continental Philosophy; Feminism and Continental Philosophy; Feminist Philosophy.

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Penelope Deutscher (2005)

IRRATIONALISM

Like other words in current philosophical use, such as *historicism* and *subjectivism, irrationalism* is an exceedingly imprecise term that is employed with a wide variety of meanings and implications. Consequently, any attempt to elucidate its sense within the confines of a clear-cut and tidy formula quickly runs into difficulties. It might be said, for instance, that to describe a writer as an irrationalist is to speak of him as denying the authority of reason. But how is the notion of "reason" itself to be understood, and in what respects is its authority supposed to be flouted? It would scarcely be sufficient to reply that denial of reason consists in illogicality or confusion of thought, or that it manifests itself in a tendency to arrive at unacceptable conclusions; for this would apply to the work of many thinkers to whom the label "irrationalist" is clearly inapplicable. In addition, the suggestion fails to identify the primary point of calling a writer an irrationalist. A man may be accused of irrationality if he is prone to make mistakes of a particular kind or to indulge in invalid reasoning; but it is only insofar as he maintains some specific doctrine concerning such things as the status and role of reason or the relevance of rational standards within various domains of experience or inquiry that he can be called an irrationalist. In other words, attention is focused not on an unwitting failure to conform to norms of generally recognized validity, but on the explicit repudiation, or putting into question, of such norms in the light of certain considerations or in relation to certain contexts.

ENLIGHTENMENT RATIONALISM

A more promising approach to the understanding of irrationalism is the historical. One might try to understand irrationalism by contrasting it with that "belief in reason," that faith in the application of mathematical and scientific procedures, which was so prominent in the thought and speculation of seventeenth-century and eighteenth-century Europe and which provided the inspiration for the Enlightenment. Such a proposal, however, runs the risk of invoking generalities as vague as they are misleading. Seventeenth-century and eighteenth-century theorists interpreted the ideal of rationality in widely differing ways, and they assumed it or sought to realize it at various levels of inquiry—metaphysical, epistemological, ethical, and political. René Descartes, John Locke, Thomas Hobbes, Gottfried Wilhelm Leibniz, Benedict de Spinoza, and David Hume shared the conviction that in their speculations concerning the nature of the world and our knowledge of it they were conforming

to a course acceptable to reason and were applying methods that reason prescribed. But they differed fundamentally concerning both what constituted rational procedure and what types of discovery such procedure was capable of achieving. Similar disagreements may also be discerned at the other levels of investigation mentioned.

NINETEENTH-CENTURY IRRATIONALISM

The diversity of opinion attributable to thinkers who all held a general belief in rationality puts in doubt the notion that irrationalism can be neatly and unambiguously identified by reference to its rejection of a single set of assumptions allegedly shared by philosophers associated with the Enlightenment. Nevertheless, the ideas of those thinkers most typically classified as irrationalists did develop to a large extent in reaction to the ambitious claims made on behalf of reason by Enlightenment theorists and their nineteenth-century successors, however widely such claims may have varied in actual content and formulation. That the world is in some sense a rational or harmonious whole, that the human mind is capable of comprehending it, and that there exist certain communicable and teachable methods by means of which its inner workings can be revealed; that this knowledge can be systematically utilized in a manner that will insure the continuous improvement of human society in the foreseeable future; that man is by nature a reasonable and progressive being whose potentialities can be realized through the removal of ignorance and the creation of institutions based upon principles of justice—it has been against views like these that irrationalist philosophies have, in different ways, characteristically protested. Vociferous insistence upon the limitations and weaknesses of reason followed an equally vociferous insistence upon its possibilities and powers.

ONTOLOGICAL IRRATIONALISM

The belief that reality, at least in its innermost nature, represents an intelligible, ordered system whose fundamental character is accessible to the human intellect, is an ancient one; in philosophy, it dates at least from Plato. During its long history it has admittedly been subjected to a number of widely differing interpretations, ranging from the animistic or religious to the mathematical or scientific. Yet the notion of some kind of comprehensible pattern or rational structure to which all that exists or happens can finally be shown to conform retained its hold. From this point of view the world we belong to is not an alien world; on the contrary, it is one in which, by virtue of our own rationality, we can feel at home.

PASCAL'S SKEPTICISM. There have, however, been thinkers to whom the consoling idea of an intelligible world has seemed less acceptable. Thus even in the seventeenth century, the heyday of Cartesian rationalism, Blaise Pascal was questioning the conception of reality as a logically coherent whole, transparent to human reason and in which everything, including man himself, can be seen to have its necessary place: "Too much clarity darkens," he wrote with reference to Descartes's famous "clear and distinct ideas." Forcibly impressed both by the contingent character of human existence in an unfathomable universe and by the inadequacies of human reason, Pascal had little use for rational theology with its pretended proofs of God; he eschewed all such forms of ratiocination in favor of an inward religious faith that transcended ordinary methods of argument and justification and that was beyond demonstration.

THE WORLD AS WILL. The intense dissatisfaction and disquiet Pascal experienced when he contemplated the world and our situation within it has been echoed in the works of many subsequent writers, although they have not always shared the religious convictions that ultimately sustained him. For some it has appeared necessary simply to acquiesce in the realization that reality, far from representing an intellectually satisfying or morally acceptable system, is in truth devoid of all rational meaning or purpose and that salvation can only be reached through a complete liberation from its trammels. Such an attitude found perhaps its most eloquent and forceful exponent in Arthur Schopenhauer. In Schopenhauer's conception of existence there was an explicit and uncompromising reversal of the traditional approach. He made it his object to show, not that the world is governed according to some beneficent teleological principle or that it is the embodiment of certain fundamental rational categories, but that, on the contrary, what lies at its center is something antithetical to all reason and value, namely, a blind unconscious force or striving he termed "will." It is this that constitutes the metaphysical essence of the world, and not (as G. W. F. Hegel and his followers had taught) Absolute Spirit or Mind manifesting itself according to the inner laws of its own rational development. For Schopenhauer, in fact, all forms of rationalism—metaphysical and scientific alike—involve an illicit projection into the ultimate nature of reality of principles whose actual source and spring is the human intellect alone.

THE DOCTRINE OF ABSURDITY. Schopenhauer's theory rested, in the last analysis, upon a professed knowledge of what "really" lies beneath the phenomenal (and finally illusory) surface of things. Yet there have also been thinkers whose skepticism, although quite as profound as Schopenhauer's, did not derive from claims of this kind but instead took as its point of departure the concrete facts of ordinary experience. Such is the doctrine of *absurdité* in the work of twentieth-century French existentialists like Jean-Paul Sartre and Albert Camus. In some respects Sartre remained firmly within the Cartesian tradition, founding his epistemology upon the conception of man as a thinking consciousness confronted by an external world of unthinking substance. But the world that we are aware of is not, for Sartre, an intrinsically intelligible world whose nature conforms to a determinate logical order and whose existence is guaranteed by a benevolent deity. Sartre's view of material existence is perhaps most succinctly expressed in his first novel, *La nausée*, a book that contains in embryo many of the cardinal themes that later figure in his impressive philosophical treatise *L'être et le néant*. The hero of *La nausée*, Roquentin, is described as experiencing in a peculiarly vivid and horrifying way the brute "contingency" of things, their palpable failure to measure up to the standards of logical rigor and necessity, of clarity and distinctness, that reason of its nature seeks to impose upon or find realized within the world. Roquentin is impressed by the loose and arbitrary character of our modes of classifying objects and by the manner in which existence, in all its rich and pointless superfluity, seems inevitably to elude the network of interpretative concepts and schemes that we try to throw over it. When so perceived, the world can strike us as divested of all significance or value. "The world of explanations and reasons," Roquentin remarks, "is not the world of existence."

The impossibility of trying to reduce experienced reality to a system, whether Cartesian, Hegelian, or some other, had already been accepted by Søren Kierkegaard, who is often regarded as the originator of modern existentialism. But in Sartre's work one is conscious of a more positive and explicit insistence upon the opacity and ultimate unintelligibility of the world and its resistance to the abstract categories of thought. For Kierkegaard there was something eccentric, some element of radical misunderstanding, in the entire project of attempting to explain or justify existence as a whole in rational terms. By contrast, both Sartre in his philosophical works and Camus in *Le mythe de Sisyphe* are plainly sympathetic to those who demand intellectually or morally satisfying systematic accounts of existence; it is felt to be in some sense an imperfection of our condition as human beings in the world that such demands are necessarily incapable of being satisfied. The essence of what they call *absurdité* lies precisely in the contrast between the contingent amorphous character of reality, on the one hand, and the understandable requirements of reason that reality so patently fails to meet, on the other.

EPISTEMOLOGICAL IRRATIONALISM

Irrationalism sometimes finds expression, not in the claim that reality itself is devoid of ultimate senses or purpose, but in the distinguishable idea that the customary or scientific methods by means of which we are accustomed to explore its nature and to which we accord the honorific title of "rational," are inherently defective or suspect. There are clearly close connections between this view and the conceptions of ontological irrationalism. For if the world really is irrational in the ways it is sometimes declared to be, this presumably implies that, at some level at least, it is not amenable to those modes of investigation typically regarded as rational. But some philosophers, while agreeing that such methods are incapable of leading us to any finally acceptable and satisfying explanation of the nature of things, have not supposed themselves to be thereby committed to holding that all comprehension of the desired kind is in principle impossible. They have suggested, in other words, that alternative modes of apprehending and understanding the world, free from the limitations that beset standard procedures, remain open. The object of their strictures has been the distortions inherent in these procedures, rather than the world itself.

THE LIMITS OF RATIONAL INQUIRY. The belief that there exist determinate limits to what we can discover by the resources of ordinary sense and understanding received precise and systematic exposition in the works of Immanuel Kant. To prescribe limits to what rational inquiry can accomplish is not, as such, to impugn such inquiry, and much of the argument in the *Critique of Pure Reason* is, in fact, expressly concerned with establishing and explaining the validity of mathematical and scientific forms of reasoning within the empirical realm. But there were, nevertheless, two strands in Kant's philosophy that led to doctrines far removed in spirit from those Kant himself propounded. One of these was the claim that the fundamental principles in terms of which phenomenal reality is intelligible derive from the human mind and understanding; the other was the claim that there is a "noumenal" realm of things-in-themselves that is necessarily inaccessible to rational investigation.

SUBJECTIVITY OF CRITERIA OF RATIONAL INQUIRY. Kant's description of the means by which phenomenal reality is intelligible gave rise to the suggestion that the criteria of rational judgment and inference we normally accept are not the stable, objectively grounded things we take them to be but are, on the contrary, essentially subjective and even susceptible to change and variation. Thus Johann Gottlieb Fichte, at any rate in his earlier writings, often gave the impression of having thought that the basic principles in terms of which human beings interpret their experience ultimately fall within the sphere of individual choice or commitment; as prerational posits they cannot be themselves subject to rational assessment and must, instead, be evaluated by reference to the needs and demands of human beings conceived as volitional agents in the world. Fichte ended by taking refuge in the notion of an Absolute Spirit or rational ego that transcended all particular human selves.

Other nineteenth-century thinkers, however, reinterpreted Fichte's initial postulates in a fashion that implied a definite skepticism regarding the claims of rationality. This was true above all of Friedrich Nietzsche, who—at least in certain aspects of his complex and not always consistent thinking—exhibited a profound suspicion of accredited concepts and procedures. Possibly more sensitive than any previous philosopher to the emotional drives and attitudes that operate beneath the surface of human life and unconsciously influence thought and behavior, he was at times prepared to speak as if the entire manner in which we approach the world were founded upon pervasive myths and fictions. The "lies and frauds" that permeate our cherished forms of scientific investigation and description are not devoid of all value; on the contrary, from a "life-furthering, life-preserving, species-preserving" point of view they are actually indispensable. But insofar as we take them to embody or reveal the truth, we are the victims of deception.

NONRATIONAL COGNITION. Although his own confident affirmations concerning the limitations of common sense and science might seem to have required it, Nietzsche did not, in fact, postulate a superior form of cognition capable of circumventing the delusive schemes of ordinary thought and experience and of arriving at some clear, unsullied understanding of the world as it is in itself: in the last analysis there could be no escape from particular interpretations and perspectives. But to other thinkers this has not seemed so evident. Friedrich von Schelling, the contemporary of Fichte and Hegel, evolved an elaborate system in which intuition of a mystical or quasi-religious character was accorded a central place and

was held to provide access to the ultimate nature of reality. "The nature of the Absolute *itself*," Schelling wrote, "which as ideal is also immediately real, cannot be known through explanations, but only through intuition" (*Philosophie und Religion*, p. 15). Later Henri Bergson also drew a sharp distinction between the intellect, regarded as having a basically practical function and as rationalizing experience through the construction of mechanistic models and hypotheses, and intuition, whereby an inner sympathetic consciousness of the creative flow that underlies and pervades the universe was attainable.

The division between rational and nonrational or suprarational modes of apprehending the world, which these and other writers have stressed, often merges into further, related contrasts; for example, between conventional perception and artistic perception, between scientific and historical understanding, or between technical know-how, which is communicable in words, and a sense of, or feel for, the inward direction and meaning of things, which is not. Rationalists have tended to point out in return that such contentions are open to serious objections. Emphasis is laid upon the "privacy" of the alleged "insight" or "intuition"; but how can such insight aspire to the status of knowledge if no public criteria are available whereby its findings may be tested or confirmed? Again, in what sense can one speak of knowledge or understanding if—as often seems to be assumed—the intuition is of a kind that precludes conceptualization? Nevertheless, whatever difficulties irrationalist epistemology may present, these have not prevented its adherents from claiming that there are modes of awareness of the deepest significance to which rationalistic theorists have remained perennially blind.

ETHICAL IRRATIONALISM

Questions have also been raised with regard to our claims to moral knowledge and certainty. For instance, a number of writers of an empiricist persuasion (including Rudolf Carnap, A. J. Ayer, and C. L. Stevenson) adopted views concerning the meaning and function of moral judgments that would seem to deny, or at least put in doubt, the possibility of treating these as the proper subjects of rational argument. Yet such writers would certainly reject the suggestion that they are irrationalists in any of the senses so far distinguished. If they owe a historical debt, it is to David Hume (himself a skeptic concerning the rationality of morals) rather than to Continental sources, and they would in any case claim that their theories are grounded upon purely logical considerations related to the analysis of moral concepts and terms rather than

upon alleged discoveries about the nature of the world or the status of human beings within it. Nor would they be likely to admit that what they say entails any dramatic consequences so far as the realm of practical choice and action is concerned; on the contrary, they have tended to contend that their theories, being of a wholly conceptual character, are neutral between particular moral standpoints and outlooks.

ABSENCE OF A MORAL ORDER IN THE WORLD. Not every challenge to the rationality of morals has, however, been characterized by a comparable detachment. One of the strongest motives in recent times for belief that moral convictions are without basis or justification has been precisely the decay of all-encompassing theological and philosophical interpretations of reality; for these were thought of as providing the moral consciousness with the kind of backing it logically required. Along with the religious beliefs to which it was sometimes allied, the conception of a moral order at the heart of existence, either revealing itself directly to the eye of reason or manifesting itself empirically in the course of human life and history, was already in decline during the nineteenth century. Schopenhauer's theory of all-pervasive metaphysical will was directly expressive of this development, but it was Nietzsche, not Schopenhauer, who drew the radical consequences. According to Nietzsche, it was necessary to recognize, once and for all, that there is no moral order, no system of ready-made values, objectively subsisting "out there" in the world—"there are no moral phenomena, only moralistic interpretations of phenomena," he wrote in *Beyond Good and Evil*. The notion of moral facts is a philosopher's delusion. With such ideas in mind Nietzsche, in effect, did two things. First, he embarked upon a devastating analysis intended to show how traditional moral codes, far from resulting from the operations of contemplative reason, derive instead from deep-lying nonrational forces in the human psyche, from motives like resentment and sadism and fear. Second, he urged that it is now possible for us—since, in his famous phrase, "God is dead"—to create new values, more fitted to preserving the dignity of humanity and to realizing those human energies and capacities that still await their true fulfillment.

ALTERNATIVE THEORIES. The claim that it is now possible to determine new values along these lines drew attention to a difficulty that has beset theorists who have denied the possibility of appealing to rational canons within the moral sphere. Nietzsche was a moralist who wished to insist that certain forms of character and behavior were evidently superior to others; at the same time, he was committed to the opinion that, objectively considered, there was nothing to justify preference for one way of life, one system of values, rather than another—*nichts ist wahr, alles ist erlaubt* ("nothing is true, everything permitted"). If traditional Christian morality is without foundation in fact or reason, then so, likewise, is any alternative ethics with which we may seek to replace it.

Similar tensions and ambiguities underlie other varieties of individualist or existentialist teaching, from Max Stirner and Kierkegaard on. Sometimes it seems to be maintained that sheer intensity and sincerity of commitment is all that ultimately counts from a moral point of view. What is chosen is not a matter for argument, since in the last resort there is no yardstick, no privileged set of criteria, against which rival possibilities may be assessed and evaluated. The vital thing is for a man to assert his essential freedom by refusing to conform his will to forces and agencies external to himself, including the falsely substantialized standards of conventional religion and ethics.

Sometimes, on the other hand, an attempt is made to give the notion of an acceptable mode of living more positive content, the implication being that certain forms of behavior are more appropriate to our situation in the world than others. For beings who find themselves in an alien and meaningless world, which is bereft of purpose or value, there may be virtue, or at any rate fittingness, in conduct that reflects the inescapable absurdity of their condition. Suggestions as to how conduct might be said to do so have for the most part been as vague as they have been various. Living in the present or for the moment, giving spontaneous vent to instincts or passions (as opposed to trying to heed the reasonable dictates of conscience or prudence), indulging in anarchical or incongruous behavior for its own sake, undertaking certain types of useless artistic activity—these are among the proposals that may be extracted from works purporting to show what is meant. Such works often seem to be inspired by a curious form of inverted rationalism; the rational response to an irrational world is to act irrationally. Yet it would be incorrect to imply that this is the only consideration that has been used to justify such behavior. Instead, the recommendation appears to be held by some proponents to follow from a realization of what constitutes our true innermost nature as human beings; and this claim introduces a further dimension of irrationalist thought.

PSYCHOLOGICAL AND SOCIAL IRRATIONALISM

The claim that it is not the human situation that is intrinsically absurd, but that human nature itself is in some fundamental sense irrational, is not confined to philosophers of a metaphysical or speculative persuasion; its adherents also include psychologists, political scientists, social theorists, historians, literary artists, and even statesmen. In this area, above all others, a pervasive departure from certain dominant Enlightenment conceptions may be discerned, involving a shift of outlook that has led to drastic changes in the approach adopted by many writers to problems concerning man and society.

It is difficult neatly to summarize the complex and sometimes conflicting ideas involved here. One underlying theme, however, has been that the *idéologues* of the eighteenth century, together with the utilitarians and progressive radicals who followed them in the nineteenth century, grossly exaggerated the extent to which human behavior is motivated, or is capable of being modified, by rational consideration. It has further been suggested that such overvaluation of reason or intellect caused liberal and democratic thinkers to adopt absurdly optimistic, unrealistic, and naive views concerning the capacity of men to improve themselves and the conditions under which they live.

INDIVIDUAL PSYCHOLOGY. At the level of individual psychology it is held to be false that people usually or consistently are activated by calculations regarding their best interests or that they can confidently be expected to respond to considerations of abstract moral principle or general advantage once these are clearly apprehended and understood. Such doctrines are the fictions of philosophical theory and ignore three essential points. First, vast areas of human behavior are, in fact, governed by overriding antisocial passions like pride and cruelty. The indulgence of these is in general detrimental to the agent's long-term advantage, frequently causing as much harm to him as to those against whom his actions may be directed. Second, it is a mistake to write off as mere eradicable superstition the various myths, religious and otherwise, in terms of which men are prone to conduct their lives. These are often attuned to powerful nonrational forces in the psyche that demand expression and that, if frustrated, are likely to seek outlet in other, possibly more dangerous forms. Third, it is important to appreciate how often people are totally unaware of the true motives and drives that determine their actions; human beings are adept at rationalization and self-deception, and their conduct may appear to be guided by reason when, in reality, it is directed by quite different factors. Intimations of these notions occurred in the writings of the Marquis de Sade and Joseph de Maistre at the close of the eighteenth century; and they were subsequently given forceful expression in the works of romantic and postromantic thinkers like Schopenhauer and Nietzsche. More recently, they have been regarded as receiving impressive and detailed corroboration from the advances in psychoanalysis initiated by Sigmund Freud and C. G. Jung.

POLITICAL AND SOCIAL THOUGHT. In the sphere of political and social theory, insistence upon the irrationality of human nature has tended to be combined with traditionalist, authoritarian, or reactionary conceptions of government. To some, it has seemed obvious that the only enduring way of preserving the integrity of society against the disruptive forces of violence and passion lurking beneath the thin surface of civilized life consists in the use of coercion and suppression. De Maistre, for instance, considered the executioner to be the most significant figure in the state. Stress is laid on the importance of instilling habits of obedience to authority by appeals to supernatural or providential powers and by safeguarding the atmosphere of reverence and awe that surrounds the person of the ruler in established societies—a principal objection to proposals for the reorganization of social life according to egalitarian or consciously utilitarian general principles has been the belief that they can only lead to a loosening of the mysterious ties that hold a political community together. Likewise, attempts to displace unreasoned acceptance of the existing order of things by the propagation of scientifically inspired ideas and policies strike at the root of all that makes for social cohesion.

Edmund Burke was, for these reasons, deeply distrustful of revolutionary theories and plans. He thought that the true sources of political harmony lay below the level of rational reflection and showed considerable prescience concerning the consequences likely to ensue if the checks upon men's passions provided by traditional arrangements were challenged or removed. He did not, however, share the curiously ambivalent attitude toward violent or sadistic human propensities discernible in certain later social thinkers, who saw these as something to be systematically exploited rather than inhibited and for whom the ideas of force and brutality seem to have possessed a powerful emotional appeal. In the case of Vilfredo Pareto, for instance, the approach adopted toward the role of the irrational in human life was not as detached or objective as he tried to present it. Such writers did not merely dismiss humanitarian schemes for

social amelioration and improvement as ultimately unrealistic, impracticable, or utopian; it was also strongly suggested in their works that if these schemes were to be realized, this would constitute an intrinsically undesirable state of affairs. It is for pressing the second claim, as well as the first, that fascism is often described as an irrationalist ideology.

Major currents of thought do not originate in a vacuum, and the various components of modern irrationalism have many diverse sources. Among them are the void left by the decay of institutionalized religion, the recurrent failure of large-scale reformist movements (like the French and Russian revolutions) to fulfill the hopes that originally inspired them, and the inability of contemporary industrial society to provide scope for individual self-expression. But it would be a mistake to regard irrationalist trends as purely pathological symptoms or to suppose that they have contributed nothing of value to the development of thought. It is common for Anglo-Saxon critics to denounce some irrationalist claims as having played a pernicious role in the formation of extremist political ideologies and to dismiss others as representing no more than inflated or misleading formulations of familiar logical doctrines—for instance, it has been suggested that the existentialist conception of the world as irrational is (partly at least) a bombastic restatement of the Humean insight that there exist no necessary connections between matters of fact. Up to a point such objections may be justified. However, it is worth remembering that there are important areas of human consciousness and behavior that theorists of a rationalistic temper have been characteristically prone to overlook and that it has been largely left to theorists of a different outlook to explore and define these areas. To say that the task has sometimes been perversely performed is not to say that it should not have been undertaken at all.

See also Ayer, Alfred Jules; Bergson, Henri; Burke, Edmund; Camus, Albert; Carnap, Rudolf; Descartes, René; Enlightenment; Existentialism; Fascism; Fichte, Johann Gottlieb; Freud, Sigmund; Jung, Carl Gustav; Hegel, Georg Wilhelm Friedrich; Historicism; Hobbes, Thomas; Hume, David; Kant, Immanuel; Kierkegaard, Søren Aabye; Leibniz, Gottfried Wilhelm; Locke, John; Maistre, Comte Joseph de; Myth; Nietzsche, Friedrich; Pareto, Vilfredo; Pascal, Blaise; Sartre, Jean-Paul; Schopenhauer, Arthur; Spinoza, Benedict (Baruch) de; Stevenson, Charles L.; Stirner, Max.

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ISAAC OF STELLA
(c. 1100–c. 1169)

Isaac of Stella, one of the great monastic thinkers of the Middle Ages, was born in England about 1100. He apparently studied in both England and France before entering the monastery of Citeaux. After several years at Stella (L'Étoile) in Poitou, where he became abbot, Isaac attempted to found a monastery on the lonely island of Ré, near La Rochelle, but soon returned to Stella, where he died about 1169. His writings include a treatise on human nature (*De Anima*), an exposition of the liturgy (*De Officio Missae*), and fifty-four sermons, preached either at Ré or at Stella. Through the *De Spiritu et Anima* of Alcher of Clairvaux his psychological theories became widely influential, notably in the Franciscan school of the thirteenth century.

Isaac's mind, schooled in the biblical spirituality of the Cistercians, was steeped in Scripture, and his writings are full of biblical allusions. In contrast to many of his contemporaries, however, he was careful and systematic in his use of Scripture. Moreover, although most monastic interpreters were content with the moral lessons derivable from the biblical text, Isaac was deeply interested in its doctrinal content. Thus, his biblical exegesis reflects his metaphysical concerns.

As a philosophical theologian, Isaac stood in the tradition of Christian Neoplatonism at the point where it first felt the impact of the Aristotelian renaissance. Both the Greek Fathers and Augustine were extensively studied by the Cistercians, but Isaac's grasp of their teaching was exceptional. Indeed, apart from Erigena no earlier medieval thinker could equal his knowledge of Eastern and Western Neoplatonism. On the one hand, as both his doctrinal tendencies and his extensive use of a Dionysian vocabulary, including at least a dozen Greek terms, indicate, he was well acquainted with the works of the pseudo-Dionysius. On the other hand, he was thoroughly familiar with the philosophical, theological, and mystical thought of Augustine.

Isaac's ambition to reconcile Neoplatonism and Aristotelianism is apparent in his account of human knowledge, which combines the Augustinian doctrine of illumination with the theory of abstraction. In his synthesis reason forms universal concepts by abstraction from sense experience of corporeal objects. Intelligence, however, must be aided by divine illumination in its effort to apprehend incorporeal beings.

The influence of the pseudo-Dionysius can be seen in Isaac's insistence on the negative approach (*via nega-*

tiva) to the knowledge of God. It appears also in his emphasis on the hierarchical structure of reality, in his exemplarist doctrine of creaturely participation in the divine perfections, and in his strong interest in liturgical symbolism.

The influence of Augustine's theology is most conspicuous in Isaac's discussion of predestination. With frequent echoes of Augustine's own style, he fully develops the theme of God's initiative in the process of human salvation. Augustinian influences are obvious also in Isaac's teaching on many points, including the Trinity, the virtue of charity, and the church as Christ's mystical body.

See also Aristotelianism; Augustine, St.; Determinism, A Historical Survey; Erigena, John Scotus; Illumination; Neoplatonism; Pseudo-Dionysius.

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ISLAMIC PHILOSOPHY

In Islam the development of philosophical thought, properly speaking, succeeded earlier schools of dialectical theology (*kalām*) that began to arise in the eighth century (second century AH in the Islamic calendar) through the action of foreign ideas—particularly Greco-Christian—on certain fundamental moral issues raised within the Islamic community. These moral issues clustered particularly around the problems of the freedom of the human will, God's omnipotence and justice, and God's relationship to the world. Although these early schools do not properly belong within the scope of this article, since they are theological rather than philosophical, a very brief characterization of the main groups and their tenets will serve to elucidate the content of the philosophical movement itself. Broadly speaking, there were two theological schools. The so-called rationalist, or Muʿtazila, school maintained the freedom of the will; insisted that right and wrong are knowable through reason independently of, but confirmed by, revelation; and claimed that God's attributes are identical with his essence and that God cannot do what is unreasonable or unjust. However, the Muʿtazilites posed and solved all these problems theologically, not philosophically; their entire thought was theo-

centric. For example, they did not pose the problem of the will absolutely but discussed it mainly insofar as it is relevant to the concept of a just God. However, their opponents (the Ahl al-Sunnah wa'l-Jamāʿah), who came to constitute the orthodoxy, accused them of stark humanism and opposed them on all these major questions. The orthodoxy, after a long, hard struggle, completely routed the Muʿtazilites as a theological school, but the spark of the Muʿtazilites kindled the purely rationalist movement in philosophic thought.

The work of the original philosophers in Islam was preceded by feverish translation that began around 800 and lasted for about two hundred years; its climax was reached in the time of Caliph al-Maʾmūn al-Rashid (reigned 813–833). Al-Maʾmūn set up the first official seat of liberal learning in Islam, called the House of Wisdom, whose main function was to translate the works of the Greek masters of science and philosophy. The translations, however, were mostly from Syriac versions and not directly from the Greek. These translations, which were made almost invariably by Arab Christians, covered the entire range of Greek civilization—that is, its thought content—but excluded such specifically cultural aspects as mythology, drama, and literature, which were foreign to the Arabs and to Islam. The Arabs were able to develop a highly technical philosophical diction with astonishing rapidity and to integrate it into the Arabic language so successfully that a philosopher like al-Fārābī (c. 873–950), who was a Turk and not an Arab, was able to express himself philosophically in Arabic with remarkable facility. All this happened within a span of about 150 years in a language that had previously known no technical philosophical literature whatsoever.

The main character of Islamic philosophy was set by the combination of Aristotle and Neoplatonism that had constituted an important tradition in the late stages of Hellenistic philosophy and that was represented particularly by the Neoplatonic commentators on Aristotle in Athens and Alexandria, such as Simplicius and John Philoponus (sixth century). The Muslim philosophers introduced into this tradition other fundamental concepts in order to adapt it to an Islamic milieu; the most important were the ideas of contingent and necessary being and of prophethood. Despite these fundamental changes, the Muslim philosophers accepted the general cosmological scheme they had inherited from the Greek traditions. Thus, an important place in their cosmology and metaphysics is occupied by the role of the stars and the heavenly bodies, a role that has no place in the scheme of reality of the Qur'an. This must be attributed to the

Greek beliefs about the status of stars and the heavenly bodies and their creative influence on the sublunary sphere, although such a picture of the universe was also quite in harmony with other traditions existing in the Middle East, for instance, Sabaeans and Babylonians.

AL-KINDĪ

The first important Muslim philosopher was the Arab prince Abū-Yūsuf Yaʿqūb ibn Isḥāq al-Kindī (d. after 870). Al-Kindī's philosophic thought is directly connected with, on the one hand, Greek philosophical doctrines transmitted to him through translations and, on the other, with the rationalist theological movement of the Muʿtazilites. He seems to have espoused the Muʿtazilite doctrines in toto and to have sought to create a philosophical substructure for them. Thus, the Muʿtazilite dogma of the attributeless transcendence of God must have led him to the somewhat parallel idea of God as absolute and transcendent being, a combination of the Aristotelian concept of God and the Neoplatonic concept of the One. It is this affinity that must have led him further to formulate the doctrine, common to all the great Muslim philosophers, that philosophy and religion, or the rational truth and the revealed truth, not only do not conflict with each other but, in fact, lend support to each other and are basically identical. This recalls the Muʿtazilite doctrine that the source of our knowledge of values is reason confirmed by revelation.

In his philosophy, al-Kindī was more of a Neoplatonist than an Aristotelian. (The Arabs attributed certain Neoplatonic works, such as *De Causis* and *Theologia Aristotelis,* to Aristotle.) He adopted the Neoplatonic doctrine of emanation in his metaphysics and cosmology. Also, in his theory of intellectual knowledge he adopted the doctrine of the active intellect and the passive intellect, originally formulated by Aristotle, later elaborated by the commentator Alexander of Aphrodisias, and subsequently reworked and essentially modified by Neoplatonists. Al-Kindī introduced into the Greek framework of ideas some fundamental doctrines of Islam. Thus, although he accepted the theory of emanation, he asserted that the first being was created by the sheer act of God's will and out of nothing, an antithesis to the general Greek doctrine that nothing comes out of nothing. Aristotle had postulated two ultimates—one was God, the form of forms; the other, the prime matter—each of which had "existed" independently of the other. Similarly, although the Neoplatonic doctrine of emanation differs vitally from Aristotle's theory of the cosmic movement, it still seeks to avoid having to accept creation ex nihilo by

postulating the emanatory process. However, it is difficult to see how, in the last analysis, the emanation theory can overcome the difficulties of creation ex nihilo. Al-Kindī, however, simply asserted emanationism and creationism side by side without reconciling the contradiction between the two. It was Avicenna (Ibn Sīnā) who later attempted the reconciliation, but it was important to the development of Islamic philosophy that al-Kindī, far from giving up the Islamic requirements of the relationship of God and the world, juxtaposed both the Islamic and the Greek doctrines. In his theory of intellection, al-Kindī was attracted by the ideal of a form of knowledge that would do justice to the demands of reason and revelation, although in his extant works we do not find an elaborated theory of prophethood. This, again, was taken up later by al-Farabi and Avicenna, but it was al-Kindī who initiated development of the theory of intellection in Islamic philosophy.

AL-FĀRĀBĪ

With al-Fārābī, philosophy reached maturity in Islam. Not many of his works have come down to us, but his writings that we do possess reveal an unusually incisive and clear mind. In his cosmology, as well as in his psychology, al-Fārābī was almost entirely Aristotelian, except for the doctrine of emanation. In political theory, which seems to have preoccupied him considerably more than it did other Muslim philosophers, he based himself on Plato's *Republic* and *Laws,* but he adapted the Platonic system to his contemporary political situation with a remarkable ingenuity. He developed the doctrine of the intellect from the point at which al-Kindī had left off, and he constructed a theory of divine inspiration that was to serve as a model for Avicenna. But apart from his original theories, the importance of al-Fārābī lies in his attempt to elevate philosophy to the place of highest value and to subordinate the revelation and the *sharīʿa,* or religious law, to it. In this also he served as a model for both Avicenna and Averroes (Ibn Rushd), but it was precisely this doctrine, in which the *sharīʿa* took an inferior place as a symbolic expression of a higher intellectual truth, that was also ultimately responsible for the fatal attacks on the philosophical movement by representatives of the orthodoxy.

In his religious attitudes, al-Fārābī was a genuinely universalistic spirit who believed that the entire world should have one religion, of which all particular religions would be considered symbolic expressions. However, it would be a mistake to regard al-Fārābī as a relativist. He tells us in no uncertain terms that not all religions are

equal either as adequate symbols of truth or as the effective harnessing of men's minds and hearts. Indeed, he believed that there are religious symbolisms that are positively harmful and must be discarded. He did affirm, however, that there are religions which are equivalent in their religious value; and any one of these symbolic systems may be applied in a given milieu, depending upon circumstances. Although al-Fārābī gave no concrete examples of religions or names of prophets, there is little doubt that the prophet Muḥammad was fixed in his mind as a paradigm par excellence of a prophet and a lawgiver. This becomes clear in his insistence that the teachings of a prophet should not only be universal but should also be successful in history.

Al-Fārābī's writings give us a full-scale picture of the basic world view of Muslim philosophy. At the apex of his scheme of reality stands God, who is both the One of Plotinus and the First Cause of Aristotle. From him proceeds the first intelligence, which is also the archangel. The first intelligence has a dual nature and gives rise to two further beings: the highest sphere on the physical side and the second intelligence on the spiritual side. This process of emanation continues until we reach the tenth sphere and the last intelligence, identified as the angel of revelation, Gabriel, on the one hand, and as the sphere of the moon on the other. The entire process of the world below the moon is an interaction between the materials emanating from the sphere of the moon and the spiritual influence generated by the tenth intelligence, called the Active Intellect. This interaction generates the world process, and its culminating product is man, with his fully organized body and rational soul.

The goal of man, wherein lies his ultimate bliss, is to develop his rational faculty by his will. The rational faculty is developed by the action of the active intelligence upon it, through which actual thought arises. The end of man, therefore, is to reach philosophic contemplation, and al-Fārābī categorically states that men whose rational faculty remains undeveloped cannot attain immortality but perish with their physical death. The actual activation of man's rational power, however, demands certain practical virtues as well, and this makes it necessary for man to live in organized societies rather than in isolation. People who are ultimately responsible for organizing and directing human societies are those possessed of philosophical wisdom, for it is not possible to enunciate practical laws for humankind without having theoretical wisdom. Therefore, for al-Fārābī the philosopher and the prophet are identical. It is the philosopher-prophet who can formulate the practical principles and laws that will lead men to their final goal of philosophic bliss. Societies governed by such laws are "good societies"; others are "ignorant societies," "misguided societies," or "retarded societies."

At the final stage of the intellective development, the philosophical mind becomes like matter to the Active Intellect, which becomes its form. This is the absolute apogee of human bliss. The prophet is a person who, having attained this philosophical illumination, transforms the philosophic truth into an imaginative myth that moves people to action and can influence societies toward greater morality. It is because of his imaginative power, the power to represent the intellectual truth in the form of a figure or a symbol, that the prophet is able to make laws and to bring revelation. Revelation, therefore, is not philosophic truth but imaginative truth. Only a few gifted philosophical spirits can pierce the imaginative shell and reach the philosophic truth. In al-Fārābī 's theory of prophethood, there seems to be no place for miracles; the accommodation of miracles on a philosophical basis was the work of Avicenna.

Al-Fārābī likened the ruler to the head in the human organism and, like Plato, developed the idea of a hierarchy in which each stratum receives orders from above and issues commands to those below. Just as at the top there is a ruler who is not ruled, so at the bottom there are those who are ruled but do not rule. It is a fully authoritarian view of government, and some scholars have suggested that al-Fārābī was influenced by Shiʿite doctrine. The fact that al-Fārābī was at the court of the Shiʿite ruler is supposed to lend some support to this view. We do not have sufficient historical evidence for such a judgment, but it should be noted that the ultimate ruler of the Farabian state does resemble the Shiʿite Imam, the repository of divine wisdom.

BRETHREN OF PURITY

During the tenth century, a secret coterie of popular philosophers known as the Brethren of Purity (*Ikhwan al-Safa*) was formed, and they wrote a series of "epistles," or treatises, titled Rasāʾil Ikhwān as Safāʾ, to propagate their views. The epistles exhibit a thoroughly Neoplatonic character. They seek to formulate a worldview culminating in a universalistic religion transcending all organized religions, which, at best, serve as so many different ladders to the ultimate truth. The philosophy preached by the Brethren of Purity is also esoteric, and there are strong reasons to believe that this group was either formed by members of or was connected with the Ismāʿīli movement, a religious sect; it is very likely that it was

through such channels that Ismāʿīlism absorbed those Greek philosophic elements which were rejected by the Muslim orthodoxy but were akin to certain patent Oriental theories and to attitudes about religion and the nature of the ultimate truth. The view of the Brethren of Purity does not constitute philosophy in the strict sense but is a kind of vague and romantic idealism; nevertheless, it is important to note it because its ideas have also influenced the development of another powerful spiritual movement in Islam, Sufism.

AVICENNA

The most important and original of Muslim philosophers was Abū ʿAlī ibn Sīnā, known to the West as Avicenna (980–1037). The philosophic movement in eastern Islam comes to its fullest fruition in the thought of Avicenna, who elaborated one of the most cohesive, subtle, and all-embracing systems of medieval history. In the West his ideas had a profound influence on medieval scholastic philosophy, and in the Muslim world his system is still taught in the traditional centers of Islamic learning. The central thesis of Avicenna's metaphysics is the division of reality into contingent being and Necessary Being. In order to formulate this doctrine, whose influence has been so palpable and enduring in both Eastern and Western thought, Avicenna devised his theory of the distinction between essence and existence. In this theory, he refined the implications of the Islamic doctrine of creation, which al-Kindī had crudely asserted, into an integrated philosophic system.

The bases of this theory of essence and existence are set in Aristotle's doctrine of movement and in the Neoplatonic doctrine of emanation, but in order to achieve the desired results, Avicenna had to effect basic changes both in the doctrine of emanation and in the Aristotelian doctrine of matter and form. Briefly, Aristotle had taught that matter is the principle of potentiality and form the principle of actuality, and that through the interaction of the two the actual movement of the universe takes place, in which potentialities are progressively actualized. Thus, the analysis of any given thing—with the exception of God and prime matter—falls into matter and form. There are, however, grave objections to this view. How can an actual thing come into existence through the interaction of a matter that, according to Aristotle, does not exist and a form that also does not exist? Why should things not remain unactualized in their potentialities, and where is the necessity of movement? Emanation seems to simplify this problem by asserting a single, universal process of outward movement, but it gives no rationale of this movement.

Closer examination led Avicenna to posit three factors—matter, form, and existence—and to postulate a Necessary Being as the basis for the world process. There is little doubt, however, that it was not merely these philosophic reasons that led him to formulate this doctrine but also the fact that Islam demanded a fundamental distinction between God and the world. Since Avicenna could not accept the creationism of the Muslim theologians because it implied temporal priority of God over the world, he affirmed that God is distinguished from the world by the fact that his being is necessary and simple; God cannot be composed of matter and form but must be pure existence. From God emanate the intelligences, which, although they have no matter, are nevertheless composites of essence and existence; the material beings are composed of matter and form, which constitute their essence, and the fact of their existence—all existence flowing from God.

Avicenna was thus able to solve, to his own satisfaction, the contradiction that seemed to exist between the Greek philosophic world view and the Islamic doctrine of creationism: in accord with the philosophers he affirmed the eternity of the world and rejected temporal creation, but with the Islamists he made the world entirely and eternally dependent upon God. This solution led him to establish the relationship between religion and philosophy. Since the findings of religion and of philosophy do not contradict one another on this crucial point but are not identical either, they run parallel to one another. From this, Avicenna expounded his further view that religion is a kind of philosophy for the masses: It does not tell the naked philosophical truth but is an endeavor to make the masses come as near to the philosophical truth as possible. The prophets are, then, mass psychologists who launch religious movements as pragmatic endeavors to make people virtuous. Thus, Avicenna reaffirms al-Farabi's position that revelation is not philosophic truth but symbolic truth.

The possibility of prophethood in Avicenna's system is intimately connected with his theory of knowledge, particularly with his theory of the creative knowledge and of the "internal sense," which appears to be his own contribution to the history of thought. According to Avicenna, all genuine intellectual discovery implies an intuitive act of knowledge, and our ratiocination merely prepares for us this intuitive act. However, there can be—and there are—people who possess a tremendous native intuitive power even without any ratiocination and

process of learning. The ultimate limit of such a gifted mind is the prophetic mind, which does not receive knowledge through learning but creates knowledge. This constitutes the prophetic revelation at the intellectual level. But this intellectual power, in a genuine prophet, flows into the imagination or the "internal sense" as well, thus enabling the imaginative faculty to transform the intellectual truth into images and symbols capable of moving people's minds and bodies. It was on the basis of this power of imagination and suggestion that Avicenna explained the possibility of miracles attributed to prophets. He was thus able to accept even the miracle doctrine of the orthodoxy, although he rejected certain miracles as being "impossible."

AL-GHAZĀLĪ

Avicenna's system went furthest in integrating the traditional demands of the orthodox religion with the purely Greek rationalism, which explains why his works continue to be studied in the traditional Islamic schools even today. However, his system was made the object of denunciatory criticism by the orthodoxy on certain points: the eternity of the world, the inferior status of the *sharī‘a* (religious law) as a mere symbol of the higher truth, and the rejection of the resurrection of the body. The classical criticism was carried out by al-Ghazālī (1058–1111) in his famous work *Tahāfut al-Falāsifa* (Incoherence of the philosophers), which was also rendered into Latin in the thirteenth century under the title *Destructio Philosophorum.*

AVERROES

The unrelenting criticism of philosophy as it appeared in Avicenna's system by al-Ghazālī and others led Ibn Rushd, known in the West as Averroes (c. 1126–c. 1198), to defend the claims of philosophy. In the process of doing this, Averroes sought to resurrect the original Aristotelian doctrines from the later Neoplatonic and Muslim accretion as much as possible. He wrote many commentaries on the works of Aristotle, whom he believed to be the philosopher par excellence. He accused both Avicenna and al-Ghazālī of having mutilated philosophical theses and of having confused them with religious doctrines. Averroes, however, did not advocate a theory of two truths, although this may be a logical conclusion of what he said in his work titled *Faṣl al-Maqāl* (The decisive statement) on the relationship between philosophy and religion.

Averroes rejected Avicenna's distinction between essence and existence. He insisted that existence is, in a way, part of the essence of a thing. The one conspicuous doctrine on which Averroes does not appear to be a faithful follower of Aristotle is that concerning intellect. He declared the passive human intellect also to be eternal and incorruptible and, indeed, to be universal to all humankind, like the Active Intellect. This doctrine of the unity of intellect, besides being apparently unfaithful to Aristotle, was also unacceptable to the followers of the revealed religions. He was thus attacked both by Muslims and, in the West, by Thomas Aquinas, who wrote a special treatise, titled *De Unitate Intellectus,* against the Averroistic doctrine. It must, however, be pointed out that the common objection raised against Averroes' doctrine of the universality of the intellect ever since Thomas's classic formulation of it as *ego intellego* is very superficial. Averroes not only never held that the act of cognition is universal but was, in fact, at pains to prove its individual character. What he seems to be concerned to show is that all thinking, although it occurs individually, becomes in a real sense universal, and that this universal aspect is more intrinsic to human cognition than is the fact that it is the product of such-and-such an individual or individuals. In any case, it is certain that Averroes never denied the individuality of the act of cognition.

Although Averroes believed that religion and philosophy are in two different orbits, he nevertheless felt the necessity of reconciling the two and of so stating the philosophic doctrines as not to offend religion and of so conceiving the religious dogmas that they would not conflict with philosophy. We are, therefore, back at the position of Avicenna. On the question of the eternity of the world, Averroes taught the doctrine of eternal creation. Although he did not reject the religious dogmas of the resurrection of the body, as Avicenna had done, he taught that the numerically same body cannot be resurrected. There was, however, bitter opposition to the doctrines of Averroes, who was also the *qadī* (judge) of Seville, and today very few of his works survive in the original Arabic; they are to be found mostly in Hebrew and Latin translations.

ABU'L-BARAKĀT IBN MALKĀ

In the East we find another important attempt at the *rapprochement* of the content of religion and philosophy in the works of Abu'l-Barakāt ibn Malkā (also known as Abu'l-Barakāt al-Baghdādī, d. c. 1174/1175). A Jew converted to Islam, Abu'l-Barakāt's doctrines show a decisive trend toward Islamic orthodox beliefs. Thus, on the question of the attributes of God, he affirmed all the attributes of the Deity in the positive sense and not as pure nega-

tions, as his predecessors had done. His doctrine that the eternal essence of God can be the subject of changing accidents is palpable proof of his conscious orthodoxy. The doctrine is so obviously removed from the teaching of the early great Muslim philosophers and of Aristotle himself that, while it did not seem to have much appeal for the philosophic tradition in Islam, it evoked enthusiastic approval from such orthodox ʿUlamā' (the "learned") as Ibn Taymiya (thirteenth and fourteenth centuries). Similarly, Abu'l-Barakāt taught that the intellectual and the perceptual faculties are not different but are one and the same. He rejected the teachings of the Aristotelians that God does not know the particulars but only the universals, and he obviously did not accept Avicenna's formulation of the doctrine that God knows every particular but "in a universal way" rather than through perception. According to Abu'l-Barakāt, both sense perception and intellective perception belong to the soul and do not intrinsically involve the body. Then he concludes that God knows the particulars just as he knows the universals.

Although further progress of philosophy was cut off by the blows of the orthodoxy, philosophical developments, especially the system of Avicenna, had exerted a rejuvenating influence on orthodox theology (*kalâm*). After al-Ghazālī's refutation of philosophy, the scope of theology was expanded to include all the epistemological and metaphysical questions the philosophers had dealt with but to which theological answers were now provided. The first person to attempt this and who is, in fact, the forerunner of all Islamic theologians is Fakhr ad-Dīn ar-Rāzī (1149–1209). Logic was simply taken over by *kalam* as a necessary instrumental science. Thus, the official theology set itself up as "the crown of the religious sciences" and began to function as a sufficient substitute for philosophic thought. Rational thought was thus banished from the schools as being redundant; only Avicenna's works (and commentaries and compendia based upon them) were taught, but more in order to be refuted than to instigate independent thought.

Under the attacks of orthodoxy, philosophy went underground, as it were, and lived on in the form of now one theosophy, now another. Instead of continuing as a purely rational expression of the human mind, it emptied its contents into intellectual Sufism. Henceforth, we do not get pure philosophy in Islam but a mystical philosophy. After the activity of the pantheist Sufi theosoph Ibn al-Arabī (1165–1240), the new philosophic mysticism developed into a closely argued and elaborate system in the works of Ṣadr al-Dīn al Shīrazī, commonly known as Mullā Ṣadrā (1571/1572–1640). Mullā Ṣadrā represents a

conjunction of the Shiʿite doctrine, the philosophic tradition of Avicenna, the mystical intellectualism of Shihāb al-Dīn Yaḥyā Suhrawardī (executed at Aleppo in 1192), and of Ibn al-Arabī. He is a typical representative of the intellectual-spiritual tradition of late medieval Islam. A monist, Mullā Ṣadrā believed in a doctrine of mystic "return" to the First Principle of being. The reality as given is constituted by three levels of "worlds"—the spiritual, the imaginative, and the physical. The "imaginative" world (ʿālam al-mithāl) is the world of symbols or images that relates the spiritual and the physical realms to one another, and it is the realm essentially relevant to the genesis and interpretation of symbols given in religious experience. This doctrine exercised a very considerable influence on subsequent developments in Islamic thought until the dawn of modern times. The centrality of "the world of symbols," with its religious implications and with its escapism from the external world, is symptomatic of the refined spiritual and intellectual culture of Islam in the later Middle Ages until the impact of Western influence upon it.

The story of philosophic thought in Islam after Averroes still remains to be written. Modern Western students of Islamic philosophy generally stop short at Averroes because the Muslim philosophic movement exerted an influence on medieval Western philosophy until his time. It is a pity that Muslim philosophy has been studied not as an internal whole but essentially from the point of view of its impact upon and relationship to Western philosophy. However, even a thorough account of the influence of Islamic ideas on Western thought is still lacking.

See also Alexander of Aphrodisias; al-Fārābī; al-Ghazālī, Muhammad; al-Kindī Abū-Yūsuf Yaʿqūb ibn Isḥāq; Aristotelianism; Aristotle; Averroes; Averroism in Modern Islamic Philosophy; Avicenna; Determinism and Freedom; Dialectic in Islamic and Jewish Philosophy; Enlightenment, Islamic; God, Concepts of; Ibn al-ʿArabī; Mullā Ṣadrā; Mysticism, History of; Neoplatonism; Philoponus, John; Rationalism; Simplicius; Sufism; Suhrawardī Shihāb al-Dīn Yaḥyā Thomas Aquinas, St.

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Fazlur Rahman (1967)

ISLAMIC PHILOSOPHY [ADDENDUM]

MYSTICISM (SUFISM)

Mysticism is of enormous significance in Islamic philosophy. Few Islamic philosophers were not committed to some form or another of mysticism. Ibn Sabʿīn (1217–1270) led an important school of thought that argued that Aristotelian philosophy and logic were of no use in understanding the way things really are. Logical thought is analytical, a process of dividing a concept into its parts. This method fails to represent the basic unity and wholeness that exists in reality, a unity that reflects the unity of God and everything as part of God, and any system of thought that is accurate is one that is based on unity, not division. The most influential mystical thinker Ibn al-ʿArabī (1165–1240) established this line of thought and represented himself as burying the old Peripatetic form of thought when he transported the bones of Ibn Rushd (Averroes) back to al-Andalus from North Africa.

This antagonism to analytical philosophy is certainly not the only position adopted by those committed to mysticism, though. Many philosophers managed to combine mysticism with peripatetic philosophy, arguing that they were just alternative philosophical methodologies, with different objects of thought. Peripatetic thought deals with the natural world and science, while mysticism goes deeper, and investigates the inner and the secret. The philosophers talked about a science of mysticism, and adopted a systematic attitude to this approach to understanding the nature of reality so that it is seen to represent something different from the exercise of subjective feelings. Sufism takes the searcher after knowledge further, it allows the individual to develop and understand significant experiences as well as valid concepts.

ILLUMINATIONIST (ISHRĀQĪ) PHILOSOPHY

Illuminationist (ishrāqīi) thought comes from the term *ishrāq*, a term linked with the idea of the east, and like Sufism was often adopted by thinkers who combined it with peripatetic thought. There is a more extreme form of illuminationist thought, though, that opposes peripatetic thought by attacking the crucial notion of definition, and using in its place immediate or intuitive knowledge. The peripatetic approach to reasoning has at its core the idea of definition in terms of genus and differentia, a process of explaining something by breaking it down into its smaller parts. Illuminationist thinkers such as al-Suhrawardī (1154–1191) criticize this approach as an attempt at explaining the unknown in terms of something even less known than itself, because the parts of the definition themselves will require definition, and so on ad infinitum. These criticisms also apply to deductive knowledge itself because this sort of knowledge is based on analysis and definition, and so operates on principles that are not philosophically respectable. Aristotelian demonstration is supposed to be the gold standard of argument and proof, and thus attacking it is an effective

way of suggesting that an alternative approach is necessary. The ishrāqī thinkers replace demonstration with knowledge by presence, knowledge that is so immediate that it cannot be doubted. If this knowledge is completely trustworthy, then it is highly appropriate as the starting point of one's reasoning process.

According to many ishrāqī thinkers, there is a type of knowledge that is so self-evident that it cannot be doubted. What counts as self-evident knowledge for the ishrāqī thinkers is that level of knowledge that is so intimately tied in with peoples' perception of themselves that in doubting it they would doubt themselves, and that implies doubting what makes the doubting possible in the first place. The conclusion is taken to be that such doubt is impossible. The truth that is presupposed by any perception is that the subject of perception exists. It is perhaps Suhrawardi who explores this notion of immediate knowledge, *ʿilm al-ḥuḍūrī*, most precisely; he argues that immediate knowledge is so immediate and incontrovertible that it is known in far more than an intellectual sense. That is, there are propositions that are known through reason and that are known perfectly, in the sense that humans grasp all aspects of them and can hold them in their minds all at once perfectly. The sorts of knowledge that are called *ʿilm al-ḥuḍūrī* are not only indubitable, but people experience their indubitability. The light of knowledge that shines on them makes the truth they possess evident to people in more than merely an intellectual sense. Of course, another advantage that perception of the self has over discursive knowledge is that the assumption is made that the self is basically a simple thing, so the use of human intelligence implies the activity of a simple self, a self that is pure agency.

The key term in illuminationist thought, as its name suggests, is light, and the idea is that immediate knowledge is lit up or illuminated in such a way to make it impossible to doubt. Light is commonly experienced as pervasive throughout the universe, and because people notice things clearly if they are brightly illuminated, this concept has familiarity as its basis. Yet people also tend to think that the things that are illuminated already exist before the light strikes them. For most of the ishrāqīs, what things are depends on degrees of their luminosity or light, not on their essences. God is often identified with the Light of Lights, the light that is the source of all other light and that does not itself receive light.

Illuminationism is often combined with both Sufism and Peripateticism, although more often with the former than with the latter. Although it sounds like a mystical approach, it is actually often carried out with analytical

exactitude, and there is a good deal of controversy in the literature as to whether ishrāqī thought represents a long-standing esoteric tradition in philosophy, or whether it is basically logical in the widest sense of that term. Ishrāqī thought is largely limited to the Persian cultural world, and so there is a temptation to see in it something linked with early Iranian ideas such as Zoroastrianism because light was also important there. However, the argument for such influence is difficult to make plausible.

It is difficult to overemphasize the significance of Persians in Islamic philosophy, although they generally wrote in Arabic. Most Islamic philosophers were Persians—albeit often living in other parts of the Islamic world—and Persia has a long history of absorbing philosophical ideas from a wide variety of sources. Mullā Ṣadrā is with little doubt the most outstanding thinker to have emerged from Persia, and his thought has defined the Persian philosophical curriculum since his day. Unlike some ishrāqī thinkers, such as al-Suhrawardī, Mullā Ṣadrā suggested that existence precedes essence, and so the first question in ontology deals with the characteristics of what exists, not with what they would need to be like to exist. He argued that existence is equivalent to God and so when people talk of ordinary things existing, they are really describing a relationship that they have with God. This is always going to be difficult to describe because ordinary language is based on a form of existence that it itself cannot explain. What is required for people to understand existence is first of all to comprehend all the different ways in which things exist, how those different forms of existence are linked, and the nature of the intermediaries between the different levels of existence. This concern for grasping the unity of being links Mullā Ṣadrā with the mysticism of Ibn al-ʿArabī, while the desire to understand the nature of the different levels of existence involves the sort of analysis found in the illuminationist tradition.

CONTEMPORARY ISLAMIC PHILOSOPHY

There are a variety of different approaches to philosophy in the contemporary Islamic world—as is hardly surprising—but some themes do recur. One of these themes comes from the notion of Islamic philosophy and deals with how Islamic it should be and what links it has to have with Islam itself, if any. How does Islamic philosophy's taking place within a particular cultural context shape it? How far should it continue to shape it? Although many Islamic philosophers continue to use techniques and ideas from outside of the region, the links that should

be established between Islam and the rest of the world is frequently a contentious issue. It is worth adding that the Islamic world can no longer, if it ever could, be identified with a specific geographical area because Islamic thinkers are today to be found virtually everywhere in the world.

The issue of the links between Islam and the rest of the world has persisted for some time and was highlighted in the nineteenth century as a result of orientalism and colonialism. In the subsequent centuries this has become an even hotter topic, because globalization and Zionism have been seen as yet another assault on the Islamic world and its distinct ethos. In the past the Islamic world was far in advance of the rest of the world, and yet for many centuries this has been entirely reversed and has led to many debates about the sources and significance of this apparent relative decline. It has been taken to be more than just a social or economic issue; it is a cultural one also, and clearly philosophy is then relevant in trying to resolve it.

THE RENAISSANCE IN ISLAMIC PHILOSOPHY. The *Nahḍa* or Islamic renaissance that started in the nineteenth century and became significant in Egypt in particular played a large role in shaping the modern debate in the Arab world. The *Nahḍa* involved a strategy of maintaining a distinctive Islamic identity while also incorporating within Islamic society those aspects of modernity that are not incompatible with religion. The idea was to combine the traditions of Islam with what was desirable from the rest of the world, in particular science but also aspects of culture such as philosophy.

It is often said that Islam never went through an enlightenment, yet the *Nahḍa* movement was clearly a sort of Enlightenment, albeit one that unlike some advocates of the European Enlightenment did not involve hostility to traditional religion. Jamāl al-Dīn al-Afghānī (1838/9–1897) and Muḥammad ʿAbduh both argued that Islam is perfectly rational and in no way opposed by European and North American scientific and cultural ideas, so there is no problem in not using those ideas. The Egyptian philosopher Muṣṭafā ʿAbd al-Rāziq went so far as to argue that all the main Islamic schools of thought are inherently rational and in no way inimical to European and North American science and rationality. By contrast, Muḥammad ʿAbd al-Jābrī is critical of much traditional Islamic thought, arguing that the reasons for the decline of the Arab world need to be analyzed clearly. He calls for a reexamination of the argument between those who emphasize the glory of the Islamic past and those who praise European and North American moder-

nity. What is required is a liberation of the Arab consciousness from its traditional ties to its Islamic past, and yet also a cautious attitude to the ideas that have come from Europe and North America and are aspects of foreign domination.

Fuʾād Zakariyya agrees that Arab failure is linked with the failure to criticize tradition, while Fazlur Rahman outlines the links between Islam and social progress. He argues that Islamic traditionalism is opposed to Islam itself because the religion is in favor of economic and social development and change. The attempt to fix a rigid and stultified version of Islam as the ideal is to fail to understand how science and technology can improve the lifestyle and moral welfare of the community. Hasan Hanafi uses the methodology of phenomenology to describe the concept of *tawḥīd* or unity. He suggests that Islam is dynamic enough to extend this notion so that it may provide a generally acceptable principle of unity and equality for everyone, something we can observe by examining how unity is actually used within contemporary and prior Islamic culture. He is also critical of blind faith in European and North American progress, suggesting that Europe and North America are now entering into a period of decadence that will require an infusion of ideas from elsewhere and in particular the Middle East. The idea that Islam is based on fixed rules he finds unrealistic, it is based on a revelation appropriate at its own time and place, but now other interpretations of the message should be adopted to match present conditions and represent more accurately the dynamism of Islam.

PHILOSOPHY'S PRESENCE IN THE ISLAMIC WORLD. It is often said that philosophy declined in the Islamic world after the death of Ibn Rushd in the twelfth century, but this is far from the truth. Today there is a lively philosophical presence in most of the Islamic world, often with the infusion into Islamic philosophy of ideas such as logical positivism, hermeneutics, pragmatism, Hegelianism, deconstructionism, and so on. Philosophy continued vigorously in the Persian cultural world, especially the philosophy of Ibn Sīnā and the ishrāqī (illuminationist) thinkers developing and commenting on al-Suhrawardī and Mullā Ṣadrā. In Iran philosophy has now moved away from the theological school, the *madrasa*, into the university. A good example of this is represented by the thought of Mehdi Haʾiri Yazdi. He develops a complex theory of knowledge that is based on knowledge by presence, a form of knowledge that is immediate and incorrigible and that serves as the foundation of other knowledge claims. He uses ideas from both ishrāqī thinkers like al-Suhrawardī, and the modern philosopher Wittgenstein.

Rather similar to Hanafi's phenomenology, ʿAlī Shariati uses the ishrāqī school's intermediary position between mysticism and Peripateticism to develop a view of humanity having God at its essence while maintaining the scope to determine its own form of existence. The notion of unity (*tawḥīd*) is seen as therapeutic—it links both personal and political justice and harmony. He interprets the main figures of Shiʿite Islam as models for people not only in a personal sense but also to bring about more progressive social ideals, and he sees them as representing archetypes that have always been regarded as desirable. Over time these archetypes themselves have not changed in essence, but they have changed in appearance to make them more appropriate to the particular audiences for whom they are designed.

This kind of link of the personal and the political is significant in modern Persian thought. An excellent example is Ayatollah Khomeini (Khumaynī), who led the Islamic revolution in Iran and combined the roles of spiritual and temporal ruler of the Islamic Republic of Iran. He wrote about and practiced a political philosophy that has become much discussed today in the Islamic world and beyond. The arguments for theocracy have become familiar again in political philosophy as a result of the Islamic revolution and its theoretical context.

CONTEXT FOR THE ISLAMIC REVOLUTION. What is the Islamic revolution's theoretical context? In his account of the Islamic state, Khomeini follows the familiar strategy of reflecting on the past and what took place then. He points out that the Prophet instituted a practical way of life as well as transmitting God's message, and also made provision for his successors. (It is on this issue of successors that the big divide in Islam between the Sunni and the Shiʿa occurred, the latter believing that the Prophet's son-in-law ʿAlī was his legitimate successor as head of the polity.) Islam is not only a religion in the sense of a system of belief about spiritual issues, but it also includes specific rules about how people ought to live, and if they can live in those ways then the legal and material provisions of the state must support that form of life.

There are three strong arguments for the continuing relevance of Islamic government. As Khomeini points out, the claim that Islamic government was only appropriate in earlier times might be taken as equivalent to the thesis that Islam itself is only valid at earlier times. Also, if Islam were not supposed to be a comprehensive and constant legislative system, why would it in fact consist of such detailed prescriptions? Finally, had there existed a unified Islamic polity, the constant humiliations of the Islamic world at the hands of its enemies would not have taken place. This is a reference not only to the creation of the State of Israel and its continuing dominance in the Middle East, but also to the repugnant actions of groups such as the Jews, according to Khomeini.

From an Islamic perspective, the state is not neutral. States are either Islamic or founded on unbelief and corruption. The Muslim cannot live in the latter kind of state without being irretrievably affected by it, unless he actively opposes it. It is the duty of all Muslims to struggle against the state unless the state is Islamic. Khomeini denounces the division of the international Islamic community into individual states, one of the effects of imperialism to weaken and divide Islam, in his view. Everything in Islam, he argues, is opposed to injustice, and yet, he argues, we see injustice in what is called the Islamic world. What is needed is the overturning of the corrupt regimes and their replacement by real Islamic governments.

A theme of Khomeini's thought is that religion does not just apply to private morality but must also be applied to the state as a whole, and the religious authorities should be in charge of the state because only then will the community be rightly guided. The school of Qom, of which he was a member, contained also Muhammad Hossein Tabataba'i, Murtaza Mutahheri, and Muhammad Taqi Misbah Yazdi, all important religious Shiʿite thinkers who nonetheless did not reject ideas just because they came from Europe. They argued that traditional Islamic philosophy could only gain by opening itself to some of the important philosophical achievements created outside of the Islamic world. All of the main religious thinkers in Iran disapproved of the work of Abdul Soroush, who took a rather distanced view of religion when he applied what he took to be the arguments of Popper, Moore and Wittgenstein to them. Soroush was opposed by Sadiq Larijani, the chief representative of the School of Qom, who suggested that Soroush had misapplied the theories of Popper, Stalnaker, Watkins, and Hempel. It is interesting that the debate took the form not of the clash between religion and reason, but rather of the correct understanding of philosophical theories, although it is fairly clear that there are serious issues of the role of religion in philosophy implicitly in the debate. Soroush managed to infuriate both the school of Qom and also the supporters of Heidegger, and that left him thoroughly isolated intellectually in Iran.

THE FUTURE OF ISLAMIC PHILOSOPHY Perhaps the best-known Iranian thinker outside the country in the early twenty-first century is Seyyed Hossein Nasr. He enters the debate on modernity by being critical of European and North American science—he praises some of its material achievements but points to the ecological consequences of a worldview that does not base itself on the presence of God. Science without spirituality is blind to moral issues, Nasr believes, because there is nothing that it holds sacred; it bases itself entirely on measurements of quantities, not on the quality of existence. More spiritual philosophies such as those based on Islam are holistic and integrative; they embed spiritual values in the technological agenda and so make ecological disasters less likely. For Nasr, the main question is not what the Middle East should take from Europe and North America, but vice versa.

Along with this view, Nasr has established in some detail the theoretical presuppositions of Sufism, the school of mysticism in Islamic thought. His historical accounts of this doctrine have played a large role in its increasing domestication outside of the traditional Islamic world. Indeed, as the Islamic world spreads out ever more widely, it is likely to involve itself much more in the ideas that it finds in an originally non-Islamic source. In this way Islamic philosophy is returning to its roots, in a sense, because it was the meeting of Islam with Greek philosophy in the early years of Islam that led to the subject coming into existence in the first place.

See also Aristotelianism; Averroes; Avicenna; Ibn al-ʿArabī; Illuminationism; Enlightenment, Islamic; Hanafi, Hassan; Moore, George Edward; Mullā Ṣadrā; Mysticism, History of; Nasr, Seyyed Hossein; Peripatetics; Popper, Karl Raimund; Sufism; Suhrawardī, Shihāb al-Dīn Yaḥyā; Wittgenstein, Ludwig Josef Johann; Zoroastrianism.

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ISRAELI, ISAAC BEN SOLOMON
(c. 855–955)

Isaac ben Solomon Israeli, the first Jewish Neoplatonist, was one of the most distinguished Jewish physicians of the Middle Ages. He was so renowned for his medical competence, both in theory and in practice, that his works were widely circulated in manuscript, translated into Latin, and printed in the early years of the sixteenth century, as *Omnia Opera Ysaac* (Lyons, 1515). This printed edition and the manuscripts on which it was based contained some of Israeli's philosophic writings as well as his scientific treatises. As a result, his name became well-known, beyond his philosophic deserts; indeed, his fame among Christian scholars was second only to that of Moses Maimonides. Yet Maimonides held Israeli's philosophy in no great esteem, referring to him as "merely a physician."

Isaac Israeli was a native of Egypt. He left his native land to study medicine in the intellectual center of Kairouan, in north Africa, under the tutelage of Ishaq ibn Imram, a Muslim. Later Israeli served as court physician to Ubaydullah al-Mahdi, founder of the Fatimid dynasty in north Africa.

In addition to the philosophic materials in his "Book of Elements" (a medical work), Israeli has long been known as the writer of a "Book of Definitions." Recent studies have added also a "Book of Substances," a "Book on Spirit and Soul," and, probably, a short "Chapter on the Elements," found in a unique manuscript in the Bibliotheca Communale of Mantua and ascribed to Isaac Israeli by A. Altmann. On the basis of these works, Israeli

can be confidently classified as a Neoplatonist whose work is akin to that of other Neoplatonists among the Muslim philosophers of his age.

His surviving works do not include any significant discussion of the existence and nature of God but they do describe God as a perpetually active Creator. God's original creative act is a creation out of nothing; later acts of creativity in nature are not of the same order but are "the passing of corporeal substances from privation to existence" in accordance with God's will. Along with this account, however, Israeli also maintained a doctrine of emanation. Thus, on the one hand God creates because of his goodness, while on the other his creativity is a perpetual overflowing. These two accounts of creation are never reconciled in Israeli's thought.

The process of emanation terminates with the emergence of the visible sphere. From this point, Israeli's explanation of the universe is physical and more closely akin to the views of Aristotle. Retaining the classical Greek theory of the four elements, he accounted for everything in the world of our experience by the combination of the elements earth, air, fire, and water. Once again, however, we are confronted with an uncertainty. In the "Book of Definitions," Israeli asserted that the four elements came into being through the movement of the sphere of heaven, but in the "Book of Elements" they are attributed to the power of God. Except by straining the language, these two views cannot be reconciled.

A similar double view emerges in Israeli's doctrine of the soul. Here he spoke of a cosmic soul, which exists independently of body, appearing in three successive stages of emanation—rational, animal, and vegetable—and also of a divine spark within the individual, striving ever upward toward the cosmic soul. Perhaps in this double account of soul we have a reflection of the Neoplatonic doctrine of man as the microcosm. If so, we can understand the emphasis Israeli put on self-knowledge, the road to the knowledge of the universe. Self-knowledge is knowledge of both body and soul; one who knows himself in both soul and body knows everything, and he alone is worthy of the name of philosopher.

See also Aristotle; Jewish Philosophy; Maimonides; Neoplatonism; Self-Knowledge.

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ITŌ JINSAI
(1627–1705)

Itō Jinsai, a Japanese Confucianist of the *kogakuha* ("school of ancient learning"), was born in Kyoto, the son of a poor merchant, and spent his life there as an educator. After studying the official Zhu Xi Confucianist doctrine, he rediscovered ancient Confucianism and became its systematizer and, through the Kogidō, a school he founded in 1680, its propagator. The novelty of his teaching aroused the suspicion of the central government in Edo (Tokyo). However, it was not suppressed although his *kogigaku,* or "learning-of-the-ancient-meaning," was gaining a large following. Through the able guidance of his scholarly son, Tōgai, and of his grandson the school was operated until 1871, when all Confucianist schools were abolished in favor of the new Western system.

Itō's philosophy, stemming from a great admiration for Confucius and Mencius, is quite contrary to the Neo-Confucianism of Zhu Xi. Itō is clearly a monist in the sense that he does not admit any priority of *ri,* the principle (reason), over *ki,* the material force, which for him is material energy. A primordial material energy (*ichi genki*), having neither beginning nor end, is the root of everything. *Ri* is but a pattern of *ki; ki,* through the motion of the yin-yang, or passive-active, elements, forms the great living organism (*dai-katsubutsu*), the universe itself.

Itō holds with Mencius that human nature is originally good, and he does not make the usual Zhu Xi distinction between physical and original nature, which he treats as a spurious Daoist influence. Evil in physical nature need not be explained as if it arose from lack of cultivation of the potentialities of human nature. The four sources of virtue (in Chinese, *ssu tuan*; in Japanese, *shitan*) according to Itō are righteousness, humaneness, ritual or propriety, and wisdom. Righteousness is the pivotal virtue of Itō's ethics. Humaneness is benevolent love, or condescension from the superior to the inferior, for in Confucianism universal equalitarian love is practically nonexistent. Morality, the natural Way of things, has a cosmological meaning in addition to the ethical one. The material energy of the universe is manifested in humankind through humaneness or love. Itō's principles of education centered on forming moral character rather than on imparting knowledge; will is above the intellect.

Itō did not make much of astronomy and mathematics, but he was very fond of history. However, unlike most other Confucianists of the "ancient learning" school, he did not become a nationalist through the study of history. For him China remained the fountainhead of culture. Itō's outstanding merits as a Sinologist were the result of painstaking research in ancient texts, yet he patiently bore the faultfinding of his gifted son and the criticisms of his best pupil, Namikawa Temmin (1679–1718).

See also Chinese Philosophy; Confucius; Human Nature; Mencius; Wisdom; Zhu Xi (Chu Hsi).

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Itō's chief works can be found in collections in Japanese, including Inoue Tetsujirō, ed., *Nihon rinri ihen* (Library on Japanese ethics; Tokyo: Ikuseikai, 1901), Vol. V, pp. 11–181, and *Dai Nihon shisō zenshū* (Collected works on the thought of great Japan; Tokyo, 1934), Vol. XLI, pp. 7–249. See also Ishida Ichirō, *Itō Jinsai* (Tokyo, 1964), which is in Japanese.

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IVANOV, VIACHESLAV IVANOVICH
(1866–1949)

A major poet and theorist of the symbolist literary movement in Russia, Viacheslav Ivanov left an elaborate and influential body of work on art, culture, and religion. To the chagrin of his contemporaries, he never formalized his protean and wide-ranging ideas as a philosophical system. However, Ivanov's writings can be divided into several core areas, which succeeded each other at the center of his attention: the ritual roots of tragedy; the artwork as symbol of the transcendent; the role of art in creating historical myth; and the prospects for a religious revival in modernity. Despite his protean views, Ivanov can be seen as a philosopher in the hermeneutic tradition for whom the world reveals itself as an historical continuum of discrete acts of expression and understanding.

BIOGRAPHY

Born in Moscow, Ivanov was educated as a classical historian and philologist at the universities of Moscow (1884–1886) and Berlin (1886–1891). In 1895 he abandoned his academic career and devoted himself to poetry. This awakening was instigated by his move to Italy, his adulterous affair with Lidiia Zinov'eva-Annibal (who became his second wife in 1899), and his discovery of Friedrich Nietzsche. Ivanov entered into contact with the philosopher Vladimir Solov'ëv, who approved some of Ivanov's poems and the title of his first book of poetry *Kormchie zvezdy* (Pilot Stars, 1902). Ivanov followed up on his poetic debut with a series of lectures for Russians in Paris called *Ellinskaia religiia stradaiushchego boga* (The Hellenic Religion of the Suffering God, published 1904; continued in 1905 as *Religiia Dionisa* [The Religion of Dionysus]).

After completing another book of poetry, *Prozrachnost'* (Transparency, 1904), Ivanov moved to St. Petersburg in the revolutionary year 1905. Between 1905 and 1912, Ivanov hosted weekly symposia at his "Tower" apartment which attracted many major writers, artists, and thinkers. The first session, for example, was devoted to the question of "Eros" and chaired by philosopher Nikolai Berdyaev. Ivanov was also active at the St Petersburg Religious-Philosophical Society. His essays from 1904 to 1909 were gathered into the volume *Po zvezdam* (By the Stars, 1909). After his wife's sudden death in October 1907, Ivanov commemorated her in an elaborate poetic cult, the highpoint of which is marked by the two-volume book of poetry *Cor Ardens* (1911–1912).

In 1912 Ivanov married Lidiia's daughter from a previous marriage Vera Shvarsalon, who gave birth to a son Dmitrii; these events inspired Ivanov's 1912 collection *Nezhnaia taina* (The Tender Mystery). Moving to Moscow in 1913, Ivanov became active in the Moscow Religious-Philosophical Society and became close to such "neo-Slavophile" philosophers as Pavel Florenskii, Sergei Bulgakov, and Vladimir Ern. Ivanov identified himself closely with the memory of Fëdor Dostoevsky, on whom he wrote extensively. He also became a friend of the mystical composer Aleksandr Scriabin, on whom Ivanov wrote a series of poems and essays.

During World War I Ivanov published two books of essays: *Borozdy i mezhi* (Furrows and Boundaries, 1916) and *Rodnoe i vselenskoe* (Matters Native and Universal, 1917). In the latter Ivanov's strident political tone reflects his enthusiastic embrace of the February 1917 revolution and his initial opposition to the Bolshevik revolution in October 1917. However by late 1918 Ivanov had assumed an important position in the cultural organs of the fledgling Soviet state and published two earlier works: the autobiographical narrative poem *Mladenchestvo* (Infancy, 1918) and the drama *Prometei* (Prometheus, 1919).

After Vera's death in August 1920 Ivanov moved to Baku, where he taught at the new Azerbaijan State University for four years. In 1921 Ivanov defended his doctoral dissertation, *Dionis i pradionisiistvo* (Dionysus and Pre-Dionysianism, 1923), a more rigorous elaboration of his earlier ideas about Greek religion and tragedy. The Baku period was comparatively barren of original work, especially poetry; Ivanov wrote only a satirical drama *Liubov'—mirazh?* (Is Love a Mirage?, 1924). In 1924 he emigrated to Italy, where in 1926 he became a Roman Catholic. From 1926 to 1935 Ivanov taught at Collegio Borromeo in Pavia.

Ivanov achieved some renown in European intellectual circles between the wars. Most notably, *Perepiska iz dvukh uglov* (The Correspondence from two corners), which Ivanov coauthored in 1920 with cultural historian Mikhail Gershenzon, was translated into numerous languages beginning in 1926. In 1932 he reworked and translated his essays on Fë Dostoevsky as *Dostojewskskij: Tragödie—Myth—Mystik* (Dostoevsky: tragedy, myth, mysticism; translated as *Freedom and the Tragic Life* [1952]), the single best introduction to Ivanov's thought. In 1939 he published *Chelovek* (Man), a philosophical poem written mainly between 1915 and 1919. In 1944 he kept a lyric diary which was included in his posthumous book of poetry *Svet vechernii* (The fading light, 1962).

IVANOV'S THOUGHT

Influenced by Arthur Schopenhauer and by Nietzsche, in his early metaphysics Ivanov viewed the physical world as a veil of *Maya* or nonbeing, which can be overcome only in cathartic ritual or ritual-like tragedy. In Ivanov's initial aesthetic statements, the ineffable transcendent event resisted concrete expression, and so the emphasis fell squarely on the psychological transformation of artist and beholder in mimetic performance. Following Richard Wagner, Ivanov projected the renewal of tragedy as a synthesis of the existing arts that would lead to a religious revival. In particular Ivanov equated the rebirth of the tragic chorus in art to the achievement of *sobornost'*, the spiritual unity of the believing community or nation. Ivanov christianized Nietzsche, identifying the suffering god Dionysus with Christ and ancient tragedy with the Christian liturgy.

In politics Ivanov elaborated a theory of mystical anarchism, predicated on the expectation that the community would be unified inwardly by common ritual practice in symphonic unanimity, or *sobornost'*, instead of by formal legal and political structures. He constructed a cyclical theory of cultural history in which periods of critical or classical culture alternate with organic periods of barbarian (i.e., Scythian, Anglo-Saxon, and Slavic) energy. Ivanov counted the impending rebirth of tragedy, the synthesis of the arts, and the revolutionary tumult of 1905 among the symptoms of a new organic era of mystical activity that would lead to a just society and a reinvigorated church.

By 1908 Ivanov had shifted his attention from tragic and ritual performance to its concretization in aesthetic symbols and religious dogma. His aesthetics became increasingly metaphysical, drawing especially on Plato and Vladimir Solov'ëv, from whom he took the term *theurgy* to denote the artist's transfiguration of phenomena into an ontologically higher reality (the symbol) that approximates the divine prototype. Ivanov described artistic creation and reception as an ascent *a realibus ad realiora* (from the real to the more real). Adopting linguistic terminology, and referring to neo-Kantian philosopher Heinrich Rickert, Ivanov claimed that any proposition is based on the verb "to be" and is a normative projection of being as value. In religious terms, any proposition imbues reality with an assertion of divine being. Therefore Ivanov posited that the statement "Thou art" actually elevates the being of both speaker and addressee through the energies of God contained in language itself.

Ivanov's concepts of catharsis and the linguistic symbol led to a communicative philosophy that took its final shape around the time of his move to Moscow in 1913. In

"On the Limits of Art" (1914), a major restatement of his aesthetics, Ivanov described the aesthetic process as a continuum of expressive and receptive acts, in which art stimulates individuals to further creativity, leading to the gradual transfiguration of reality through human agency (instead of through semimagical theurgy). Ivanov still attributed a central role to the artist in guiding the individual's transformation; however, he was now eager to describe how the transcendent revelation of the art work is transcribed into a narrative myth that communicates memory and projects future human action.

At this time Ivanov also integrated his aesthetics with an account of history. In a series of articles on the history of literature, Ivanov described how Byron's texts contributed to the development of individual consciousness in Russia, which in turn allowed Pushkin and then Dostoevsky to re-appropriate Russian history and spirituality from within modernity. Defining Dostoevsky's major works as "novel-tragedies" allowed Ivanov to explain both their cathartic grip on readers and their ideological influence. In his philosophical and artistic prose, Ivanov elaborated a new myth of Russian history, which he hoped would result in the country's transformation into a truly Christian empire.

In a 1909 essay "On the Russian Idea" Ivanov described the complex interaction of understanding and action in terms of an Aristotelian triad: catharsis (cleansing), mathesis (learning), and praxis (action). This hermeneutic standpoint received its most accomplished expression in *The Correspondence from Two Corners* (1920), an epistolary exchange between Ivanov and Mikhail Gershenzon. Surrounded by the ruins of their former world, both authors grappled with their own lives by inscribing their projected identities into a text, which is immediately read and answered by the other.

In his Italian exile Ivanov adjusted earlier ideas and constructs in the light of his Roman Catholicism. Like Solov'ëv, Ivanov explained his conversion to Catholicism as an affirmation of the Roman Catholic Church as a historical symbol of divine unity. He adopted some of Jacques Maritain's neo-Thomist vocabulary, for example defining art as *transparentia formae*.

In his heyday, Ivanov's intellectual constructs enjoyed broad renown and were key influences on such thinkers as Nikolai Berdyaev, Pavel Florenskii, Sergei Bulgakov, Aleksei Losev, and Mikhail Bakhtin. His views on tragic performance as a social panacea influenced the public celebrations in the early Soviet Union. His impact has also been felt in Orthodox theology, which has sometimes adopted his formulations of the symbol, the idea of

aesthetic ascent and descent, and the primacy of ritual experience in generating *sobornost'*. His conception of culture as a historical continuum of creative acts remains an underappreciated aspect of his work.

See also Hermeneutics; Russian Philosophy.

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JACOBI, FRIEDRICH HEINRICH
(1743–1819)

Friedrich Heinrich Jacobi was a leading representative, with Johann Georg Hamann, of the philosophy of feeling and a major critic of Immanuel Kant. He was born in Düsseldorf on the Rhine. Jacobi received an education preparing him for a business career, but an inner urge drove him to the pursuit of philosophical studies. He studied the works of Claude-Adrien Helvétius, Jean-Jacques Rousseau, Ferguson, and Benedict de Spinoza, the last of which had a negative influence on him, provoking opposition and criticism; he was also influenced by the English philosophers of feeling—the earl of Shaftesbury and others. His friend Hamann, a kindred spirit, lived in his home for a long period, and his influence on Jacobi cannot be overestimated. In 1804, Jacobi was appointed president of the Academy of Sciences in Munich. He was in literary contact with the prominent thinkers of his time—Moses Mendelssohn, Karl Leonhard Reinhold, Jakob Friedrich Fries, and Johann Wolfgang von Goethe. His discussions with his contemporaries are as important for the understanding of his philosophy as are his original works.

Jacobi developed a philosophy of feeling and faith. He was critical of speculations leading to the concept of the prevalence of necessary laws above freedom, hence Jacobi's rejection of Spinoza's pantheism and of the philosophy of Johann Gottlieb Fichte, Friedrich von Schelling, and G. W. F. Hegel, in which there are manifest pantheistic tendencies. Because of Jacobi's concept of the primacy of freedom, he found that the actions of man are not to be deduced from his thinking, for thinking is not the primary force in man. The history of man is not the result of his mode of thought; rather, the former determines the latter. Herein is anticipated the method of the historical school of law as it was later developed by Friedrich Karl von Savigny. For Jacobi the immediately given is the determining factor in our cognition of cultural phenomena. Objects have to be given to us through immediate feeling or faith before thought comes into play. The task of discursive thinking is to observe, analyze, compare, and order perceptions by reducing them to their fundamental principles. But unless something real is previously given through feeling, discursive thinking cannot take place.

Jacobi was a master of criticism. His strength lay in grasping a system of thought as a whole and detecting those elements in it that are incompatible. This capacity

of critical analysis is manifest in his appraisal of dogmatic rationalism and the critical philosophy. Jacobi subjected both Spinoza and Kant to severe criticism. He pointed to hidden contradictions and inconsistencies in both their systems. The dogmatic rationalism of Spinoza employs the mathematical method in the realm of metaphysics; it accepts as real only what can be proven and deduced mathematically. By this method, however, neither God nor freedom can be maintained. These ideas cannot be deduced by an absolute system of causality, which is the essence of Spinozism. Absolute necessity leads to atheism, and the denial of freedom leads to fatalism. To Jacobi, Spinozism and pantheism were synonymous terms, and pantheism was identical with dogmatic rational atheism. (He ignored the possibility of interpreting Spinoza's system as acosmism instead of as atheism—an interpretation that was first suggested by Salomon Maimon and then by Hegel.)

Jacobi's ethicoreligious worldview is the background of this criticism of Spinoza. While recognizing the dangers implied in Spinozism, Jacobi and Gotthold Ephraim Lessing were the first to acknowledge the philosophical genius of Spinoza. Through Jacobi's discussions with Mendelssohn about Spinozism and Lessing's relation to it, in the course of which the arguments for and against Spinoza were brought forth, Spinoza's philosophy became a force in the intellectual life of the time; it acquired a universal significance. Spinoza and Kant were two opposing poles of thought for Jacobi. For the former all being, including man, is determined by necessary laws; for the latter freedom and creativity are the essence of man. The whole period of the development of post-Kantian speculative idealism was determined by the two intellectual forces: the dogmatic rationalism of Spinoza and the critical philosophy of Kant. Jacobi was critical of the philosophy of speculative idealism (Fichte, Schelling, and Hegel) for its manifestation of Spinozistic tendencies.

JACOBI ON KANT

Jacobi's enthusiasm for Kant's precritical essay *Der einzig mögliche Beweisgrund zu einer Demonstration des Daseins Gottes* (The only possible ground for a demonstration of God's existence) is indicative of his conception of the method by which we can attain knowledge of reality. Kant had shown in this work that the absolute and unconditioned being must be grasped as existing in and through itself, not as a predicate or as a consequence of something else. The attainment of some reality that is simple, insoluble, and immediately given is the ultimate aim in our striving for certainty. Cognition by way of dis-

cursive thought cannot attain certainty. A method of deduction of consequences from premises is an endless process that can never attain the original unconditional and primary being. Certainty is acquired only in an immediate perception of a reality not requiring any deduction.

Jacobi admired Spinoza because he had reversed the whole process of philosophizing as it was known since Aristotle. Instead of proceeding from the phenomena of experience, leading gradually to being as such, Spinoza started with a definition of substance as something that is conceived in itself and through itself—that is, a simple and immediately given reality. This simple and indissoluble datum is, however, according to Jacobi, not free from contradiction. Spinoza's substance is not a free, independent, self-sufficient being, but a necessary and causally bound being. The God of Spinoza is nothing else but a manifestation of the logical-mathematical determination of being.

The critical philosophy can be maintained only if it consistently removes all traces of a dogmatic, realistic nature. The concept of a thing-in-itself has to be completely eliminated because it is incompatible with the system as a whole. The Kantian position is, according to Jacobi, pure idealism. As such it cannot retain the concept of things in themselves. The *Critique of Pure Reason* deduces the objects from the constitution of our cognitive capacity. It has therefore to deny objective reality existing independently of and beyond the conditions of cognition. The object has to be completely resolved in subjective presentations of our mind. Kantian philosophy is thus interpreted by Jacobi as pure subjective idealism. Since we perceive the objects through forms of sensibility (space and time) and concepts of understanding, constituting the human capacity of cognition, the "external" objects cannot be beyond us. According to Jacobi, René Descartes intended by the principle *cogito ergo sum* to deduce the totality of the inner subjective world from the consciousness of the self as a thinking subject. Self-consciousness of oneself as a thinking being is the primary condition of man's knowledge of the inner world. In a similar manner Kant tried to prove that external objects are likewise conditioned by and dependent on the subject with its forms of sensibility and understanding. Hence, the subjective idealism of Descartes was extended by Kant to encompass the world of objects, too. The Kantian position is thus, according to Jacobi, universal idealism, but since he took Kant to mean that the cognition of things is determined by the individual ego and not by the objective mind as it is presented in scientific thought, universal ide-

alism, according to Jacobi, is a system of absolute subjectivity, which implies a "nihilism" with reference to the objects. This system recognizes only the ego as real; it is thus speculative egoism. Jacobi found this position self-contradictory. Sensibility is a receptive function, according to Kant. But a consistent idealism excludes a receptive capacity in the process of cognition. It is incongruous with idealism to assume the reality of things-in-themselves existing independently of our mind, yet these things are supposed by Kant to supply the material of experience that affects our senses. The first part of the Kantian *Critique* deals with the forms of sensibility as a receptive capacity. Thus, things-in-themselves are assumed, by which our sensibility is affected. "Hence we cannot enter into the *Critique* without assuming things-in-themselves, but we cannot retain this assumption upon leaving the *Critique*."

Since Jacobi understood the Kantian position as subjective idealism, he did not consider the second edition of the *Critique of Pure Reason* an improvement on the first. The Kantian philosophy that Jacobi took to be a form of pure subjective idealism is presented in the first edition of the *Critique*, and this he took to be its genuine and adequate presentation. To Jacobi belongs the priority of recognizing the difference between the two editions, but he was wrong in its evaluation. He failed to grasp the essential characteristic of critical idealism, which is grounded in analysis of objective scientific cognition and not in analysis of the process of cognition of the individual subject. The problem posed by Kant was How are synthetic propositions a priori in mathematics and natural science possible?, not How is cognition of the individual subject as a psychological phenomenon possible? Whereas the Kantian inquiry constitutes the essence of the transcendental method, leading to objective idealism, the investigation of the individual process of cognition appertains to the psychological method, resulting in subjective idealism. The second edition of the *Critique*, which tries to eliminate the psychological sections of the first edition, is the preeminent presentation of the transcendental method.

FAITH—THE SENSE OF REALITY

In opposition to the critical philosophy, which is, according to Jacobi, absolute subjectivity, he proposed a thesis of absolute objectivity. The objective reality of things-in-themselves existing beyond man and independently of the human cognition is based for Jacobi on an original, immediate certainty that does not require any proof or demonstration. The certainty of the existence of things in themselves is based on faith.

Our consciousness presupposes the reality of things as a necessary correlate of cognition. The idealistic position contradicts an assumption that is inherent in every act of cognition of an object of experience. To be sure, the reality of the things cognized cannot be conclusively derived from the process of cognition as such, which is a subjective phenomenon, but only from the immediate sense of reality accompanying every act of cognition of an object. This sense of reality, which cannot be accounted for logically but is nonetheless present in our mind, is designated by Jacobi by such terms as *faith, feeling*, and, later, *revelation*.

With Kant Jacobi recognized that analysis of cognition cannot lead to things-in-themselves, since the validity of the categories is confined to the realm of experience and does not extend beyond it. But the Kantian *Critique* had also shown that reason leads to a realm of faith in addition to mere cognition. Hence, an object that cannot be proven as real on the basis of cognition may still be real on the basis of faith. Kant employed the concept of faith only with reference to the moral and religious realm, but Jacobi extended the scope of faith to include the knowledge of things-in-themselves. In recognizing the validity of faith for the theoretical realm, Jacobi followed David Hume, who designated the feeling of reality of the natural human consciousness as faith. The skepticism of Hume showed that the reality of things cannot be derived from sense perception. Analysis of perception cannot lead to cognition of substance and causality; only through faith can we know the reality of things. Hume thus ascribed to faith a positive theoretical function inasmuch as it is a source of knowledge of the reality of the things of experience. The belief in the reality of things, which accompanies our sensuous experience throughout our lives, is incomprehensible, but, according to Jacobi, it commands certainty just as if it were an act of revelation. He understood by revelation a certainty that we are aware of but which we cannot explain rationally. This conception of the belief in the reality of things is radically different from naive realism and commonsense philosophy. The latter does not realize the extraordinary nature and the problematic character of the concept of reality, of things-in-themselves. Naive realism takes for granted that we perceive things as they are. Jacobi, however, realized the miraculous nature of such a belief. The possibility of transition from consciousness to things, from the subject to objects, cannot be comprehended by our understanding. Jacobi was right to affirm the position of critical ide-

alism that we can know of things only what we ourselves put into them. While we cannot cognize things-in-themselves, our belief in their reality can be accounted for as something irrational that is an indispensable ingredient of human consciousness. Our rational thinking cannot lead us to cognition of reality of things-in-themselves. However, the necessary condition of the existence of man as a conscious being is grounded in an incomprehensible and irrational act of faith commanding certainty that is not subject to any doubt. In face of this belief as a necessary condition of human consciousness, the arguments of rationalism, of critical philosophy, and of skepticism are powerless.

RELIGION

Jacobi's philosophy of religion is grounded in the same principle on which his theory of cognition of reality is founded. The concept of faith as having a theoretical function is the ground of the certainty of real objects beyond us and of a supersensuous reality. This immediate certainty of reality is present in our consciousness of God as it is present in our perception of objects. Through belief man has the capacity of intuiting God. Dogmatic religionists maintain that through an act of faith God reveals himself to man by grace. For Jacobi faith is a mode of cognition or a form of intellectual intuition. And this is not an exclusively religious phenomenon, for through belief man likewise perceives the reality of things of experience. The distinction between the reality of the things and the transcendent, supersensuous reality is that the former reveals itself through an external perception, whereas the latter is intuited through an internal revelation. Both forms of revelation constitute the very essence of human existence as a conscious being.

For Kant, it is impossible through faith to transcend the sphere of the subject, but for Jacobi we are aware through faith of a reality that is not subjective, since in the act of faith the nature of the real thing reveals itself to us. Faith thus commands not only ethical certainty, as Kant held, but also theoretical certainty. To be sure, the transcendent reality cannot be known by the forms of understanding that are confined to the realm of experience. But faith as a function of reason (*Vernunft*) is capable of transcending experience and thus can perceive the supersensuous by an act of intellectual intuition.

Intellectual intuition, which is attained through faith, overcomes the Kantian dualism of sensibility and understanding, which is a necessary condition of cognition of objects of experience. Kant considered intellectual intuition an idea of knowledge of the infinite mind (*intel-*

lectus archetypus), which is not attainable by the finite, human mind. But for Jacobi intellectual intuition is attained through faith, or immediate feeling. Jacobi thus prepared the way for the post-Kantian speculative metaphysicians to consider intellectual intuition a capacity of human reason.

CRITICISM

By ascribing to belief the function of knowledge of things-in-themselves and of the existence of God and of freedom, Jacobi disregarded the essential difference between the theoretical and the ethical realms. Kant's concept of faith is a new principle of validity but not a mode of knowledge. In the *Critique of Practical Reason* Kant discovered an "unconditioned" in opposition to the conditioned reality of experience. God and freedom as ideas of practical reason are not metaphysical things but principles of ethical conduct. It is the unconditioned of freedom and the "ought to be," not the existence of transcendent reality, that is discovered through faith.

Jacobi is rightly critical of the dogmatic rationalism of the Enlightenment; he realized the limitations of rational thought in face of the endlessness of that which is problematic. But he was wrong in subordinating the realm of science, which is grounded in discursive thinking, to that of feeling and faith. He did not realize the problem involved in his concept of belief and immediate feeling as the highest means of attaining knowledge of reality. The appeal to feeling, belief, and immediate evidence opens up possibilities for abuse and willful arbitrariness. Feeling and immediate sense of reality are subjective, and whenever a capacity of the subject is elevated to a principle of knowledge, objective truth is in jeopardy. The rightful place of faith is therefore the ethical and the religious realm, which is concerned with the "ought," not with being as it is. Theoretical knowledge of reality can be attained only by discursive thinking, which is the scientific method.

Jacobi said of himself that he was a pagan in his mind but a Christian in his heart. He thus recognized the conflict between reason and faith that he caused by the extended role he ascribed to faith. His belief in the reality of things-in-themselves, of a supersensuous being, and of freedom not only claims ethical and religious validity but also pretends to possess the rank of theoretical knowledge; it is therefore in conscious disagreement with reason. The price we pay for extending the scope of faith is its clash with reason.

See also Pantheismusstreit.

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JAMES, HENRY
(1811–1882)

Henry James, an American philosophical theologian in the Swedenborgian tradition, is perhaps best known as the father of the novelist Henry James and the philosopher-psychologist William James. Although the elder James was physically handicapped from his early teens, an inheritance from his father, a dominant figure in upper New York State real estate provided him with a lifelong income. Henry James graduated from Union College in 1830 and studied for the Presbyterian ministry at Princeton Theological Seminary from 1835 to 1837. Dissatisfied with the ritual formality and absence of spirituality in what he called "professional religion," he left the seminary and traveled to England, where he came under the influence of the idiosyncratic theology of Robert Sandeman, author of *Letters on Theron and Aspasio,* which James edited for American publication in 1838. Soon afterward, through J. J. Garth Wilkinson, James discovered Emanuel Swedenborg. During the remainder of his life, he developed his own insights in the language of, and within the broad framework of, Swedenborgian ideas.

Central to James's view was the belief that selfhood (Swedenborg's *proprium*) is the sin of sins. Since the movement of creation is a move away from God, it is during this phase that selfhood flourishes. Religion and morality form, as it were, a reflecting surface from which the individual is "bounced back" toward God, thus initiating the movement of redemption, in which selfhood is replaced by "sociality" as a dominant motivation. Thus, as one of James's titles indicates, society is the redeemed form of man. Selfhood is destructive of the Divine intention with regard to created nature, whereas sociality is reconstructive. The ideal of redemptive society that James envisioned was largely derived from the social theories of

Charles Fourier and emphasized social solidarity and democracy.

Because of this double allegiance to Swedenborg and Fourier (an allegiance James shared with many of his contemporaries, including Parke Godwin, Horace Greeley, and Albert Brisbane), James was able to assert that the highest points of European life were reached in Protestantism and constitutional liberty, and that both of these had been raised to still higher levels in America. Beneath the sometimes crude externals of American democracy, he saw "the soul of fellowship that animates and redeems it." Thus, he conceived of democracy as the herald of moral perfection and the means of "preparing the way for the reign of infinite Love." In this way James linked his theology of redemptive society to American democratic practice and to its ideal theory.

See also Democracy; Fourier, François Marie Charles; James, William; Liberty; Swedenborg, Emanuel.

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JAMES, WILLIAM
(1842–1910)

William James, the American philosopher and psychologist, was born in New York City to Mary Robertson Walsh James and Henry James Sr., the eccentric Swedenborgian theologian. James's paternal grandfather and namesake was an Irishman of Calvinist persuasion who immigrated to the United States in 1798 and became very rich through felicitous investment in the Erie Canal. James had three brothers and a sister; one of them, the novelist Henry James, achieved equal fame.

James's early environment was propitious; his father's enthusiastic and unconventional scholarship, his personal and unorthodox religion, his literary association with men like Oliver Wendell Holmes Sr. and Ralph Waldo Emerson all stimulated free intellectual growth. Even more important was the rather extraordinary respect that the elder James lavished upon the youthful spontaneities of his children; each, he thought, must go his own way and become that most valuable of creatures, himself. There was no straitlaced dogmatism in the James household, and William James was free to accept or reject the ideas of his father and his father's friends. The thought and sympathies of these transcendentalists and romantic humanitarians of the New England tradition never seemed to James the ultimate answers to his own philosophical and personal problems, but they dealt with genuine issues that he did not evade in his later work.

James's primary education took place at his father's table; its main constituents were the spirited discourse that the family held on every topic and the example of the parents, loving and unworldly. Formal education took place irregularly in various private establishments. From 1855 to 1860 James (often in the company of his younger brother Henry) attended schools in England, France, Switzerland, and Germany. There, as his father said, he and his brother were able "to absorb French and German and get a better sensuous education than they are likely to get here" (Ralph Barton Perry, *The Thought and Character of William James,* p. 59). During this European sojourn James's interest was divided between natural science and art, especially painting.

In spite of his continuing enthusiasm and talent for scientific inquiry, James's interest in painting became so strong by 1860 that he resolved to spend a trial period learning to paint. The elder James was not anxious for his son to become a painter, thereby prematurely cutting himself off from the rest of life's possibilities; any definite vocation, according to the father, was sadly "narrowing"

(ibid., p. 171). It was nevertheless arranged that James should begin study with William M. Hunt in Newport. This experiment convinced James that he lacked the ability to be anything more than a mediocre artist, than which there was, he thought, nothing worse. The lesson at Newport permanently discouraged James's pursuit of an artistic vocation, but throughout his scientific and philosophical career he retained the artist's eye, his predilection for concrete sensuous detail, and his concern for style.

In 1861, James entered the Lawrence Scientific School, Harvard, studying first in the chemistry department under Charles W. Eliot, later in the department of comparative anatomy and physiology under Jeffries Wyman and Louis Agassiz. From Wyman he learned the importance of evolution; from Agassiz, an appreciation of "the world's concrete fulness" (William James, *Memories and Studies,* p. 14) and of acquaintance with empirical facts as against abstraction. In 1864, James transferred to the medical school, though without the intention of ever practicing medicine. His medical studies, although fruitful, were attenuated and sporadic.

While at medical school James joined Agassiz as an assistant on the Thayer expedition to Brazil during 1865/1866. In Brazil he contracted smallpox and suffered from sensitivity of the eyes. This was the first serious manifestation of that constitutional failure which was to recur throughout James's life, imposing upon it a pattern of interrupted work and of periodic flights to Europe which were always, at least in part, searches for health.

In 1867 ill health and the desire to study experimental physiology led James to Europe, to Germany in particular. While little formal study of physiology proved to be possible, James read widely and thoughtfully. His first professional literary effort, a revision of Herman Grimm's *Unüberwindliche Mächte,* published in the *Nation* (Vol. 5, 1867), dates from this period.

James returned to Cambridge in November 1868 and received his medical degree in June 1869. After a period of illness and retirement, he began teaching anatomy and physiology at Harvard in 1873, psychology in 1875, and philosophy in 1879. This order is very nearly accidental and gives no adequate indication of James's development. Philosophy was an early interest which grew with his scientific studies; for James the more narrowly scientific questions could never be separated, even theoretically, from the more general questions which philosophy considers.

It was indeed a specifically philosophical concern which precipitated James's profound emotional crisis of 1870. He had been suffering from a sense of moral impotence that only a philosophical justification of the belief in the freedom of the will could cure. In the *Essais de critique générale* of Charles Renouvier, James found the basis of the justification he sought. And throughout his life the problem of maintaining free will and the moral attitude in the face of either religious monism or scientific determinism, as well as the problem of legitimating belief despite various intellectual skepticisms, continued to engage James's attention and to influence his mature philosophy. That philosophy, growing out of personal need and agitation, has a strong eschatological flavor. It cannot, however, be reduced either to a scheme of personal salvation or to an apology for some special way of life. James offered a philosophical, not an emotional, defense of free will, moralism, and belief. These topics became important test cases for a general metaphysics that James sought to elaborate not for its own sake but to satisfy interests which were distinctly rational and theoretical.

Having settled into the career of philosopher and teacher, if one may speak of James's settling into anything, he maintained close but not constant association with Harvard until his final resignation in 1907. He married Alice Howe Gibbens in 1878; the marriage seems to have increased his sense of purpose and coincided with a noticeable improvement in James's health. Thenceforth, he led an intensely active life, teaching at Harvard, lecturing widely, and publishing a series of books which became undeniable classics of American philosophy. Three series of James's lectures deserve special mention. He gave the Gifford Lectures at Edinburgh in 1901/1902, published as *The Varieties of Religious Experience* (1902); lectures on pragmatism at the Lowell Institute and Columbia in 1906 and 1907, published as *Pragmatism* (1907); and the Hibbert Lectures at Oxford in 1908/1909, published as *A Pluralistic Universe* (1909).

CHARACTER OF JAMES'S PHILOSOPHY

This brief biography gives no indication of that range and richness of James's experience which so struck those who knew him and which entered into everything he wrote. James was a highly social man whose friends formed an intellectual community of great distinction. Chauncey Wright, C. S. Peirce, Shadworth Hodgson, Charles Renouvier, Josiah Royce, George Santayana, John Dewey, Henri Bergson, and F. H. Bradley were a few of those whom James knew as friends and fellow laborers.

From all of these men and others James drew philosophical nourishment, and the very number of sources and influences renders the search for antecedents otiose. James was essentially an original thinker, and he borrowed only what fitted his own design. This must be maintained in spite of James's habitual humility and his characteristic generosity of acknowledgment.

James impressed his friends with his vitality and strength of character, with his open-mindedness and sympathy. His spirit and attitude were admired even by those whose philosophical conclusions differed radically from his own. Santayana, for example, in his witty and condescending memoir *Character and Opinion in the United States* is forced to praise James, at least as an enthusiastic and explosive force. Because James wrote as he talked, much of his vividness and personal style is retained in his works. The majority of James's books are simply transcriptions of lectures; they have all the virtues and vices of spoken discourse, and the circumstances of their presentation must help to determine the kind of analysis to which they can be fruitfully subjected.

James addressed himself to the people, not especially to other philosophers, and he listened to the people to find out what life meant to them. He respected not so much their common sense as their common feelings and hopes and would not allow his philosophy to dismiss cavalierly that which figured largely in the experiences of men. The people listened to James, and his books sold well. By the end of his life he was nearly a legendary figure, and he was generally regarded as the chief representative of American philosophy. Nevertheless, professional philosophers, when they have discussed James at all, have tended to concentrate on those of his ideas that, separated from the body of his work and often distorted, have achieved currency. To this general picture there are important exceptions, such as Ralph Barton Perry, who has done more for James scholarship than anyone else.

To provide a proper perspective for the study of James, three corrective measures must be taken. First, attention must be diverted from his life, however interesting, to his published philosophy. For all its validity the biographical motive can be, and has been, pressed to the point where it precludes philosophical clarity. Second, James must be seen within the general philosophical tradition, in relation to the fundamental philosophical problems that he attempted to solve and not in relation to his position as a distinctly American thinker. To attempt to evaluate James's philosophy in terms of his American background is neither more nor less rewarding than to attempt to evaluate Immanuel Kant, say, in terms of his

German background. Third, the objective aspect of James's philosophy must be stressed. James himself thought that philosophy involved the subjective factors of temperament and personal vision. In the first chapter of *Pragmatism,* he drew a very plausible correlation between tough-minded and tender-minded temperaments and empirical and rationalist philosophical positions. Again, in the essay "The Sentiment of Rationality" James argued that there can be no adequate definition of reason which ignores the feeling of rationality, the ultimate sense of logical fit. James believed that the subjective (or what might better be called the aesthetic) dimension was a feature of philosophy as such. James's philosophy is subjective, therefore, because it is philosophy, not because it is James's philosophy. Objectivity, like truth and reality, was redefined, not abandoned, by James.

The remainder of this entry is divided into sections on James's psychology, philosophy of religion, pragmatism, and metaphysics. This arrangement is simply an expository device. If pragmatism is a theory of all belief, then religious philosophy is a subdivision of pragmatism. If pragmatism is a description of what actually happens when men seek truth, then it is part of psychology. If the dualism between human and natural processes is finally inadmissible, then psychology is a chapter of general metaphysics. The interdependence of the various parts of James's philosophy, suggested here, will be exhibited below.

PSYCHOLOGY

The *Principles of Psychology* (1890) is, according to James himself, "mainly a mass of descriptive details"; certainly, this work more than any other justifies Alfred North Whitehead's remark that James's primary task was philosophical assemblage. The *Principles* "assembles" in two senses. First, there is a brilliant gathering, through extensive quotation and reference as well as careful documentation, of relevant material from the Scottish, English, French, and German schools. Second, there is the exhibition of facts which may never have appeared prominently in any system, either of psychology or of philosophy.

It has become customary, and it is certainly legitimate, to praise the *Principles* for its sensitive evocation of the evanescent inner life. It is indeed a kind of generalized psychic autobiography by a master of introspection, but it is much more than a document of literary psychology. The concrete rendering of experience is an essential element in the development of James's mature philosophy, for when he spoke of the world as "a world of pure experience," he referred to experience as it is described in the

Principles. If experience had not the ramifications and possibilities so lovingly and exuberantly detailed by James in his "psychological" writings, it could never have become, as it did for James, the central image of complete reality. Moreover, James was not in his early days merely "collecting" facts whose subsequent careers happened to include the incident of being generalized into a total world view. James, as he said himself, "hated collecting" (Perry, op. cit., p. 225). The material of the *Principles* is already thrown into philosophical form, is already illuminated or stained (however one decides the matter) by the foundational metaphysical categories that recur, with greater generality, in the later works.

DESCRIPTION. If the *Principles* is to be regarded as primarily a descriptive work, one must be clear about what is involved in description as James understood it. He was convinced that pure description in the manner of phenomenology is impossible. Description cannot be other than conceptual; concepts, in turn, are tools of classification that have inexpugnable conventional and theoretical elements. Concepts do not passively mirror; they select according to human interests and purposes. Assumptions, James maintained, have a way of establishing themselves "in our very descriptions of the phenomenal facts" (*Principles,* Vol. I, p. 145). Naive phenomenology attempts to eliminate assumptions from descriptive statements. This is an impossible task if for no other reason than that every allegedly assumption-free phenomenology must itself make doubtful assumptions, including the assumption that there can be description without classification. James's own approach was to examine the assumptions involved in all descriptions, making those assumptions "give an articulate account of themselves before letting them pass" (loc. cit.). Pragmatism as it appears in the *Principles* consists simply in spelling out what claims our theories and assumptions make for us and in eliminating elements which are superfluous, elements, that is, which can be eliminated without changing the tenor of what we really want to say. Pragmatism here can be fruitfully regarded as a general theory of theory criticism, as an attempt to make clear what we are actually committed to by the theories we entertain. The chapters that criticize the conscious automaton theory (Vol. I, Ch. 5) and the mind-stuff theory (ibid., Ch. 6), respectively, are indeed the first extended exercises in pragmatic criticism.

SCIENCE AND METAPHYSICS. Purely phenomenological description being considered impossible by James, the question arises as to what is scientific about the *Principles.*

The standard interpretation—the interpretation upon which the judgment of its great historical importance is based—finds the work very nearly the first attempt to treat psychology from the standpoint of a natural science—that is, descriptively and apart from metaphysical theories. The sharp distinction which we are likely to draw between scientific theories and metaphysical theories is difficult to sustain from James's own point of view and therefore cannot be used to differentiate the *Principles* from metaphysical treatments of the same subject matter.

A much more pregnant distinction is that between a priori and a posteriori metaphysics. A priori metaphysics was, for James, a totally illegitimate enterprise consisting of vacuous abstractions excogitated apart from any experience of the world. Throughout his work James often referred to a priori metaphysics simply as "metaphysics," and his frequent criticisms of metaphysics must therefore be carefully interpreted in their contexts. The *Principles* is antimetaphysical where metaphysics means "scholastic rational psychology" or "philosophical pyschology."

The more interesting problem is defining the relation between the *Principles* and the kind of metaphysics of which James did approve, a posteriori metaphysics, which is continuous with science and, like science, is both descriptive and theoretical. Here the differentiation must be emphatic rather than absolute. The *Principles* may be regarded as a deliberate (and artificial) restriction of general metaphysical scope. Science, as James saw it, must grow into metaphysics. Explanation must become more complete and more comprehensive even if, as James certainly believed, it cannot become total and absolute. But science must *be* science before it can become metaphysics. In the *Principles* metaphysics is, necessarily, postponed; its positivism is provisional rather than dogmatic and final.

The relative autonomy that science is given in the *Principles* is "for the sake of practical effectiveness exclusively," as James said in his essay "A Plea for Psychology as a 'Natural Science'" (*Collected Essays and Reviews,* p. 317). Science left to itself, with its "convenient assumptions" unquestioned, is best able to accumulate a mass of factual details which lead to the subsequent enrichment and "thickening" of the content of metaphysics. The danger of premature metaphysical reconstruction is thinness, impoverishment of content, and abstraction.

MENTAL STATES. The basic assumption of the *Principles* and its "convenient" point of departure is the existence of mental states. The first task of psychology is to describe

the conditions of these mental states with as much detail and completeness as possible. Chapter 2 of the *Principles* is an extended examination of the ways in which various brain states condition various mental states. The search for conditions among bodily experiences generally and brain experiences particularly is the only alternative to treating mental states as frankly miraculous. James, the evolutionary naturalist, had to maintain that mental states grow out of physical states, in spite of whatever difficulties this view entails. Since mental states, in addition to arising from physical antecedents, themselves give rise in all cases to changes in the physical world, it seems utterly impossible to create any kind of dualistic ontological chasm between the two types of process, mental and physical. There is indeed a discriminable subject matter of psychology, which James referred to both as "mental states" and as "mental life." This subject matter must be treated autonomously, which means, in practice, guarding against the reduction of mental phenomena to nothing but physical phenomena in the interest of some schematic monism. In this context James at times spoke of "irreducible dualisms," but what he meant to emphasize might perhaps better be called "irreducible dualities," discriminations that remain what they are no matter what supervenient integrations may also be pointed out.

The whole question of the dualism between the physical and the mental is complicated by the fact that James was, even in the *Principles,* developing a view of physical nature at large which departed radically from the familiar deterministic, mechanical model. It is often maintained, for example, that James's treatment of the will as irreducible to antecedent mechanical factors creates a dualistic chasm between natural processes and characteristically human processes. This would be true only if James had retained the customary deterministic model of nature. James, however, did not retain this model; he would sooner have conceived of all nature as willful than of man's will as an exception to nature.

James believed that the borderline of the mental is vague. Mentality, as James defined it, exists wherever we find the choice of means for the attainment of future ends. Mental life is purposive in a way that involves the overcoming, through suitable invention and appropriation, of any obstacles lying in the way of its purpose. The mind is a tactical power that reveals itself in the struggle with its environment. The only kind of world in which minds can conceivably develop and be found is one in which success is neither automatic nor impossible. An interesting consequence of James's view is that an omnipotent God could not have a mind; neither could a

purely contemplative deity. The notion of mind as an instrument within the general economy of purpose and resistance to purpose, a notion which has justly been called "biological" and "Darwinian," is simply an ungeneralized expression of pragmatism.

Although it is necessary to consider mental states as "temporal events arising in the ordinary course of nature" (ibid., p. 319), with emphasis on their natural antecedents and results, it is also necessary to consider mental states in themselves as realities to be described as they are found with their generic particularity and variety intact. Here again, it must be emphasized that James was not attempting a phenomenology of mental life or consciousness. What he was attempting was the provision of adequate description that would not be guilty of gross oversimplification or distortion.

INTROSPECTION. Adequate description must, of course, be based somehow upon observation, and, James maintained, the principal method of psychology is introspective observation. Introspection, as an observational process, is similar to other kinds of observation. James could find in introspection no peculiar epistemological characteristic; it is neither more nor less fallible than other kinds of observation. Its frequently alleged infallibility, based on some notion of the immediate relation obtaining between a mind and its contents, is simply contradicted by experience. Even if feeling is unmistakably what it is, our "naming, classing, and knowing" (*Principles,* pp. 189–190) of every feeling share in the notorious general human fallibility. The truth of any observation, introspective or otherwise, is not to be found in the character of the source of observation but in the consequent service, especially theoretical service, which the observation and its correlative preservation in description can be made to render. There is therefore no simple and immediate verification of observations, no once and for all validation of descriptions. For James "the only safeguard [of truth] is the final *consensus* of our further knowledge about the thing in question, later views correcting earlier ones until at last the harmony of a consistent system is reached" (ibid., p. 192). James's own descriptions in the *Principles* must lend themselves to this kind of pragmatic corroboration.

THOUGHT. The famous "descriptive" chapter, "The Stream of Thought" (perhaps the heart of the *Principles*), cannot be evaluated from a simply empirical point of view. What is described and how it is described are determined by markedly theoretical affinities and avoidances. James singled out five traits of thought in that chapter: (1) Thought tends to be part of personal consciousness—

that is, thought is not experienced as simply *a* thought but as *my* thought; (2) thought is always changing; (3) within each personal consciousness thought is sensibly continuous; (4) thought deals with objects independent of itself; and (5) thought is selective and has interests. The metaphysical model that James had in mind here is of a process that is partially determined and partially self-determining—that is, centered or focused and essentially temporal. Although the analysis in the *Principles* is limited to one kind of process, consciousness, the structure of the analysis is similar to that Whitehead offers of all actual occasions. James himself came to believe that all of reality must be describable in terms like those used for human experience. This belief is elaborated in *Essays in Radical Empiricism* as the notion of a world of "pure experience."

Each of the five traits of thought which James distinguishes repudiates some important philosophical position. One dimension of James's work clearly apparent in the *Principles* is a sustained criticism of the "classic-academic" version of mind. No easy summary of what this meant to James is available, but its main features would seem to be the marshaling of instances of mental phenomena according to a priori canons of clarity and rationality, the overwhelming influence of the assertive paradigm (as opposed to the judgments implicit in making and doing) in construing the problems of belief and judgment, and allegiance to the spectator theory of knowledge with whatever passivity is therein involved. These attitudes James attacked in the name of a richer experience, encompassing all the concrete information we possess about the functions of mind. This is the information, so carefully assembled and considered in the *Principles,* which James urged the epistemologist to work into his official model and the philosopher generally to consider in making his pronouncements.

EXPERIENCE. The appeal to experience is not new in philosophy; James was solidly in the venerable tradition of empiricism. But empiricism in its classic British form is essentially an epistemological position that regards experience as an exclusive witness before a cognitive tribunal in which other sources of evidence are ruled out of court as uncertain or unreliable. The genius of James's empiricism lies precisely in ruling nothing out of court. His theory of experience, the object of so much of James's later labor, is perhaps the first such theory which is cosmological, rather than strictly epistemological, in intention and logical form. This shift of the total frame of reference within which experience is considered has, for better or worse, influenced a subsequent movement in philosophy typified by Whitehead and his disciples. It is this influence which points to the main philosophical significance of the *Principles.*

PHILOSOPHY OF RELIGION

Even in the introduction to *The Literary Remains of the Late Henry James* (1885), a relatively early work that might be thought no more than an act of filial devotion, James's own ideas about religion were quite clear. There is, of course, a sympathetic exposition of his father's superpersonal theological monism, for William James could honestly admire his father's "instinct and attitude" even if he could not condone the "cold accounts" and abstract formulations of the elder James's system. It is religious experience, rather than religious doctrine, that matters. Unless it is a part of vital experience, religion becomes "fossil conventionalism." Here James shared his father's attitude; his father wrote so much, according to James, because he was dissatisfied with every verbal encapsulation. Writing was a necessary evil and, like the labor of Sisyphus, self-stultifying.

That James could not accept in any unqualified way the religious vision of his father is evident. The difficulty is simply this: "Any absolute moralism is a pluralism; any absolute religion is a monism" (*The Literary Remains,* p. 118). The recognition of the essential opposition of morality and religion was clearly made by the elder James. The logic of his system required him to reject the finite moral agent with his frantic moral efforts. It is certain that James benefited from his father's insight even though he aligned himself with morality and pluralism. The working attitude of the healthy mind must always be, for James, a moral one which takes seriously the difference between good and evil and which commits itself to struggle for the first and against the second. To adopt the religious attitude is to step out of life's fight and to justify that withdrawal by some belief about the character of the world and either the ineffectiveness or superfluity of action within it. For James the character of the world, the nature of reality, does not justify, as a general attitude, the quietism that religion counsels. On the contrary, the world is the kind of place in which moral endeavor is, as a rule, supremely worthy. James neither denied the satisfaction that religion gives to many nor declared that satisfaction illusory. The very fact of pluralism allowed him to suppose at least some aspect, however fragmentary, of reality that justifies the religious option. Religious belief gives us, in James's famous phrase, a "moral holiday." Like any holiday it may be enjoyed for its own sake; more

important to James, however, holidays indirectly affect the work week.

EVOLUTIONARY THEORY. James was strongly influenced by the Darwinian theory of evolution and was therefore predisposed to find in all feelings, including religious feelings, clues about what the world is like. Feelings that evolved in the world must somehow reflect the world. The most eccentric fancy, for example, tells us that we have the kind of world in which such a fancy is possible.

Evolutionary theory, as James saw it, begins with the presupposition that each part of reality has a function, that each part is in some way or other good for something or other. The strictly useless, according to such a theory, cannot endure, and all flourishing realities command a certain minimal respect. Religious experience is not especially justified by evolution because nothing is *especially* justified. Religion and irreligion, insofar as they both exist, are exactly equal before the evolutionary tribunal. Belief in evolution, at least as James interpreted that belief, makes simple dismissal impossible; even that which is evil cannot be negligible. The questions must be asked of religion as it must be asked of everything. How is it that it came to be what it is? What is it for?

ANTECEDENTS AND VALUE OF RELIGION. In his major work on religion, *The Varieties of Religious Experience,* James attempted to account for the antecedents and value of religion. The question of how it came to be what it is, is a matter of classifying religious feelings and religious propensities with other kinds of human experience which are found to be similar to them. The initial task, therefore, of *The Varieties* is the provision of a "descriptive survey" beginning with as many and as varied examples of typically religious experience as possible. The emphasis, here as elsewhere, is on spontaneous religious emotions rather than theological interpretations or institutional prolongation and regularization.

James was scrupulously careful to explain religious phenomena by ordinary scientific laws and principles, if at all possible. Accordingly, religious visitations of all kinds are classed as sudden influxions from the subject's own subconsciousness. Conversion is seen as the radical rearrangement of psychic energy around some new center of interest. Examples of this kind of felicitous theorizing could be multiplied.

James, however, was equally concerned with promoting the thesis that nothing said about the history or genesis of religious phenomena can shed the slightest light on the spiritual worth and significance of those phenomena. The older dogmatists attempted to justify religion once and for all by pointing to its privileged origin in some kind of revelation; newer dogmatists—the "medical materialists"—attempted to discredit religion once and for all by pointing to its disreputable origin in some curious bodily state. Neither approach is acceptable. Religion must be judged in the same way that everything else is judged, by proving itself useful (in specifiable ways) in some possible future. Religion must "run the gauntlet of confrontation with the total context of experience" (*The Varieties,* p. 426). This context includes the collection of all our established truths as well as all the exigencies of our affective and intellectual natures. Therefore, the defense of religion that can be found in James is not based on appeals to either mere social utility or subjective feeling. The question of the truth of religion arises only when religion makes some concrete, specific prediction about the world's future. Religion having framed its hypotheses, these hypotheses are supported or refuted in terms set out by James's general theory of belief, known as pragmatism.

BELIEF. James's notorious defense of the right to believe in the widely read essay "The Will to Believe" and elsewhere, though generally given a limited religious interpretation, is, in fact, not primarily a defense of religious belief but of moral belief, belief in the efficacy of action, including, as an important instance, the active experimentalism of modern science. The point of James's doctrine is its repudiation of the methodological caution epitomized by the Baconian injunction not to "suffer the understanding to jump and fly from particulars to remote and most general axioms" or by the Cartesian rule "that the understanding should always know before the will makes a decision." James was making a general statement in support of the method of empirical science, with special emphasis upon the initially unwarranted character of every scientific hypothesis. We must at least believe our hypotheses sufficiently to bestir ourselves to test them; without our active interest in and partisanship of belief the enterprise of science would come to a silent, ghostly end. It is the theoretical daring of science that inspired James. His doctrine on the will to believe is no fuzzy ad hoc concession to self-indulgent piety but an integral part of his general theory of belief.

The doctrine of the will to believe, with all its genial encouragement of risking belief, is balanced, in James, by an unremitting fallibilism. Belief, however justified originally, is always conditional. Belief must continue to justify itself; there is no possibility of a definitive, once and for all certification. Both the options of practical life and the

tenets of religion may be justified as peculiar kinds of scientific hypotheses, the first sort peculiar because of their limitation to some particular matter or situation, the second because of their elusive generality. There seems to be no difficulty in interpreting the practical decisions of life, with their inherent predictions about relevant future events, as closely analogous to the predictive, if not to the explanatory, activity of science. Religious belief, on the contrary, may seem intrinsically isolated from the arena of confirmation and disconfirmation and, therefore, alien to the scientific pattern. For James all genuine belief, including religious belief, must address itself to the tribunal of experiment. If all possible procedures of verification are irrelevant to some religious doctrine, then that doctrine cannot rightly be the object of any belief; such a doctrine, having no positive content, would be meaningless.

James did, in fact, think that at least a few religious hypotheses were truly empirical, that they made a difference which somewhere could be noticed. James was careful not to prejudice the case against religion by adopting some single restrictive paradigm of verification. If religious belief makes a difference, it is not altogether surprising that we should have to look for that difference with greater sympathy, imagination, and patience than we are used to exercising in more straightforward cases.

JAMES'S RELIGIOUS BELIEF. James's own religious belief, expressed without dogmatism in the last chapter and the postscript of *The Varieties* and again in the last chapter of *Pragmatism,* consists essentially in the affirmation that the world is richer in realities than conventional science is willing to recognize. Religious experience at least suggests that there is what James called a "higher part of the universe" (ibid., p. 516) which, though beyond the immediate deliverance of the senses, is nevertheless effective in the world in a way that makes a noticeable difference. This assertion that the higher part makes concrete and local differences constitutes James's famous "piecemeal super-naturalism" (ibid., p. 520), really only a name for an enlarged and tolerant naturalism. The higher part is perhaps impossible to define given the present state of our knowledge. Certainly, for James it cannot be the infinite and omnipotent God of traditional theism who guarantees the successful outcome of the universe. The higher part is better conceived as a finite power (or perhaps even a polytheistic medley of powers) that, like men, works toward the good and helps achieve it. This is a theological notion compatible with the significance of moral choice in a way that the conventional notion is not.

The vagueness of much of James's treatment, a vagueness he frequently admitted to, has been amply noted by his critics. What must also be noted, however, is the forceful way in which a fundamental idea of our tradition, the idea of God, has been radically reconstructed by James in a manner that makes the idea more consonant with religious experience and that frees it from the congeries of paradoxes associated with the problems, among others, of free will and of evil.

PRAGMATISM

The chief locus for James's pragmatism is, of course, his immensely popular and influential work *Pragmatism: A New Name for Some Old Ways of Thinking.* The origin of pragmatism, however, as James always acknowledged, is found in C. S. Peirce's essay "How to Make Our Ideas Clear," published in 1878. This essay remained generally unnoticed until James's 1898 lecture on pragmatism, "Philosophical Conceptions and Practical Results," at the University of California (in *Collected Essays and Reviews*). This lecture may be taken as the beginning of pragmatism as an explicit, although never a unified, movement, but the essentials of the doctrine as developed by James are found earlier in the *Principles of Psychology* and even in the introduction to *The Literary Remains of the Late Henry James.* Indeed, James rarely wrote anything, early or late, which did not at least imply pragmatism.

Pragmatism may be approached as a mere method, an eristic device which vouchsafes hints as to either the meaning or truth of propositions or to both together; it may be taken as a theory of meaning or a theory of truth or, once again, as a theory of both meaning and truth. A. O. Lovejoy in "The Thirteen Pragmatisms" insisted upon distinctions such as these and chided James for neglecting them. In fact, though James erred in emphasizing the autonomy of the various aspects of pragmatism, he wished to persuade his readers of the truth of whichever part he was recommending at the moment, and he therefore tended to stress the self-contained plausibility of elements which, if plausible at all, are so only when taken together in the total view.

It is the contention of James's sympathetic commentators that his pragmatism is plausible as nothing less than a theory of reality. It is the descriptive naturalism central to James that saves pragmatism from being merely a convenient device for settling philosophical disputes. The fundamental assumption that generates pragmatism is the assumption that "knowledge," "truth," and "meaning," as well as any other possible object of discourse or any other possible subject matter for philosophical dis-

cussion, must be explicable as a natural process or as a functional medley or competition of natural processes. The world, for James, is a plurality of temporal processes related in so many specifiable and concrete ways that it cannot be accounted for by abstract speculation alone.

James believed that an individual's personal, peculiar vision counts most in philosophy; not surprisingly, it is vision, not method, which is primary in James. Reality dictates the method by which it may be known. The gross encounter with the world is primary in the determination of what character the world will have for us. Theories of knowledge and of method, existing at a high level of abstraction, are second to the ineluctable fact of experience breaking in upon us.

TRUTH AND MEANING. James's pragmatism is an attempt to formulate a metaphysics of truth and of meaning. Logically, such an attempt is exactly on a par with the metaphysical treatment of any discriminable subject matter. By metaphysics James meant the quest for adequate general descriptions either of reality as a whole or of some distinguishable part of it. The descriptions offered by metaphysics are, in principle, continuous with those offered by science, although their range and focus may differ. The distinction between science and metaphysics was not crucial for James; he saw the possibility of unrestricted intercourse and cooperation exactly where later thinkers are likely to see division and competition for cognitive respectability. It is therefore helpful from James's own point of view to regard pragmatism's description of truth in the same light, say, as geology's description of continental drift. Both are characterizations of natural processes, and both attempt to portray what actually happens.

The metaphysical perspective of *Pragmatism* itself (even apart from the context of James's total work) is so unmistakable that the prevailing interpretation of pragmatism as a set of newly devised rules that serve a certain practical purpose seems totally unjustified. If James was right, people have always unwittingly followed the "pragmatic method." A purely theoretical illumination like pragmatism will indeed clarify practice and improve it; for James no process—least of all, a process where human influence intervenes—is so canalized that modifications are utterly beyond hope. Metaphysics must recognize the plasticity of its subject matter as well as the limits of plasticity.

Pragmatism discusses truth without falling into the epistemological frame of mind habitually assumed by professional philosophers. James's description of actual processes rejects the usual question of what we ought to believe. If there is something we "ought" to believe, the authority of the "ought" itself must be explained concretely. There is no authority which is merely formal. Pragmatism therefore becomes the justification of truth's prestige in terms of the world's exigencies.

One factor discernible in the complex process called "believing truly" is the compulsion of fact or the unavoidability of a residual nonplastic pole in determination of what is true. It is here that we find truth's authority and importance.

Truth, for James, is what we must somehow take account of if we are not to perish. Men cannot in the long run believe what is false not because truth extracts from them a categorical imperative in its own behalf but because reality compels men in spite of themselves, and it is from this that the authority of truth is derived. "Agreement with reality" as a criterion of truth cannot be taken to indicate any fixed structural relation (such as the "copying" relation). The truth relation is characterized not by stasis but by the fluid resourcefulness of functional harmony. The character of the harmony itself may be anything that is compatible with survival. Even in the Darwinian world that James pictured, there is more than one way to survive as truth.

Raw compulsion may account for the authority of truth, but truth is hardly a mute registry of bruises received from the world. Indeed, people create truth, and truth is so exclusively the result of human activity that James's own view has been called "humanism." Central to this humanism is the distinction (so often insisted on by James, so often neglected by his critics) between ideas and objects, between what takes account and what is taken account of. The objects constitute what James referred to as the "unhumanized fringe," the yet to be conceptualized. What must be taken account of is presumably just what it is. Truth and falsity, however, apply not to objects but only to our ideas of objects. Our ideas of objects are mutable in the sense that we can modify ideas or replace one idea by another. In such a situation ideas are to be judged better or worse; such judgments fall between the ideal limits of complete good and complete bad. These are the same limits usually called "truth" and "falsity." Truth is viewed by James as one species of the good. The good is itself interpreted as a plurality of "good fors." In this view ideas are instruments for taking account theoretically, practically, aesthetically, and so on, of reality.

The point of James's view of truth, as Bergson suggests in *The Creative Mind* (p. 256), is that truth is to be described as an invention rather than a discovery. Truth,

or propositions which are true, might be compared to cleverly made maps or apt predictions. If they serve us as we expect them to serve us, we have no legitimate complaint. There are, of course, ontological relations between such inventions as maps, predictions, and propositions (as well as inventions such as light bulbs and cotton gins) and what, in summary fashion, is referred to as reality. Inventions are conventional but not arbitrary. They are not arbitrary because they must somehow take account of reality; they are conventional because they embody one way (among alternatives) for that taking account.

The relationship between two processes within experience constitutes truth—(1) the inventive process or activity of proposing, of framing propositions, and (2) the particular chain of natural processes with which the proposition in question is concerned. The emphasis on the truth relation as a relation within experience and totally construable in terms of "positive experienceable operation" (*Meaning of Truth,* p. x) is one instance of James's general metaphysical position that all relations are within experience. Experience, as it were, forms a cohesive, self-explanatory whole; it hangs together, as James liked to say, and needs no transcendental connectives or supports.

Since the truth relation was taken by James's contemporaries as transcending experience, the strategic function of pragmatism is apparent. It is an extension of radical empiricism, an attempt to place the particularly troublesome truth relation within the total perspective of metaphysical naturalism.

James spoke of true ideas as those which "work," which "lead" propitiously, which give various kinds of satisfaction, and which bring about various kinds of success. He also spoke approvingly of the "cash value" of ideas and thought that meaningful ideas are those which make "practical differences." These highly (and obviously) metaphorical expressions have confused many commentators.

There are those who have found James vague. He intended, however, that all these metaphors should be functionally specific and indeterminate only in respect to instances. "Working," "leading," "satisfying," and "succeeding" are generic terms as respectable and as precise as terms such as "copying" and "agreeing." They are, however, functional rather than static. For those who see functions as inherently insubstantial, shadowy, and vague, any functional definition of truth will be unacceptable, but this hardly seems to be an insurmountable objection.

Other commentators have seized upon the prominence of the "practical" in James's account of meaning and truth. Surely, this is a difficult term in James, if for no other reason than that he used it as it is used in ordinary language—that is, variously. His prevailing usage, however, cannot be equated with some narrow notion of commercial efficiency. Pragmatism is not a philosophical vindication of the businessperson's common sense or acumen. It was James, after all, who saw the tendency to worship "the bitch goddess, success," as the principal weakness in the American character. It is especially in our theoretical and moral practice that meaningful ideas, according to James, are to make a difference. Belief divorced from action may well be morally effete, and James set forth this point, though not in its crudely athletic form; his main thesis, however, was that belief divorced from action is *theoretically* inexplicable. James's quest was not for a formula that would rouse his fellows to civic virtue or efficiency of some peculiarly American sort but for criteria which would be descriptively adequate to belief. His philosophical purpose was to find out what it means to believe, what it means to entertain ideas which may be meaningful and true.

METAPHYSICS

Although frequently attempted, it is not possible to isolate a final "metaphysical" period in James. The theory of the various kinds of belief, which formed his philosophy of religion and of pragmatism, has as a conspicuous feature the assumption that anything which can be meaningfully said about belief must take into account the grounding of belief in natural processes, particularly human processes. It is possible to formulate a theory of belief apart from a general metaphysics only by adopting an assumption that James explicitly rejected. This is the epistemological assumption that an existentially neutral *logic* of belief can be constructed. In fact, on this assumption existential reference is regarded as the indication of a certain categorial confusion frequently labeled "psychologism." James insisted, even in his least metaphysical passages, that "knowledge," "belief," "truth," and "meaning" indicate discriminable natural existences in the same way that all terms do, or at least all terms that figure as possible subjects of philosophical discussion. This is simply the corrective application of the basic postulate of metaphysical naturalism to the recalcitrant subject matter of epistemology. James regarded the prominence accorded this subject matter since the time of Kant as a distortion of perspective that his own philosophy was intended to correct.

But for the development of James's metaphysics, the psychology—or the treatment of characteristically human processes—was even more important than the theory of belief. His metaphysics was simply the attempt to apply to all reality categories originally framed for human experience. The radical generalization of the concept of experience, so central in James, is necessitated by two ideas. First, James believed that metaphysical dualism is always unacceptable. Whatever dualities or pluralities are distinguished for certain purposes, ultimately the philosopher cannot operate with irreducible categories. Second, if one categorial set or one metaphysical model must be adopted, James believed that this categorial set or metaphysical model must arise from the consideration of our own experience. It is only of human experience that we have anything like "complete concrete data." Anthropocentrism is therefore thought to be a consequence of any genuine empiricism. For James even panpsychism is at least a possible and interesting empirical hypothesis.

In the seminal essay "Does Consciousness Exist?" (1904), James asks us to assume that there is just one "primal stuff" of which everything in the world is made. This stuff, called "pure experience," is not a single entity, like Thales' water; "pure experience" is a collective name for all sensible natures, for all the "that's" which anywhere appear. The monism implied in this concept of the *one* primal stuff is therefore merely formal. Explanatory monism must be accepted before specific metaphysical descriptions may be attempted. In the same essay James provided a sample of metaphysical description. Consciousness is there described as a certain relation of parts of experience to one another. Consciousness is not an unanalyzable substance but simply the name that is given to a certain discriminable function within experience, the knowing function. All other functions are to be explained in the same way as consciousness. Functional explanations in terms of related strands of experience allow the abrogation of traditional dualisms because the same isolable part of experience may enter into many and various relations. What is subject may also be object; what is object may be subject. The knower may also be the known and vice versa, depending on the "context of associates" within which the part of experience so labeled is considered.

James's frequent use of the expression "part of experience" was not meant to suggest that experience has an atomistic constitution. Indeed, James constantly argued against the "pulverization" of experience in British empiricism. We experience not isolated parts but continuities of indeterminate extension. Parts and the rela-

tions between parts, both directly experienced, form new functional wholes. The use of the word *part* indicates nothing more than the theoretical and practical need for emphatic focus.

James regarded the "concrete" data appealed to by British empiricism as abstract, intellectual products; he accused that empiricism of committing what Whitehead later called "the fallacy of misplaced concreteness." If James's philosophy is to be classified historically as a criticism of British empiricism, it must also be emphasized that it is self-consciously offered as an alternative to the criticism of empiricism by idealists from Kant to Royce.

If the facts pointed to by the usual empiricism are abstract in the sense of being incomplete, inadequate, or partial, it still cannot be said, as it is said by absolute idealism, that there are no facts at all or that there is just one fact, the immovable "block-universe," as James referred to this notion that he always found slightly ridiculous. There are no general grounds, according to James, for the rejection of the obvious particularity and individuality that characterize the plural parts of experience. James certainly held that any allegedly self-sufficient fact may turn out from some point of view or for some purpose, intellectual or practical, to be partial or abstract. But there are many points of view and many purposes with equal titles to rationality. There are therefore many levels of fact, and words such as "part," "whole," "unity," "concrete," "abstract," "particular," and "individual" do not qualify any reality simply or always. These words are definable only within purposive contexts. Absolute idealism, in contrast, sets up a single standard of rationality and develops a characteristic vocabulary which it applies *simpliciter.* This procedure yields a certain clarity and neatness but suffers from "vicious intellectualism" or *"the treating of a name as excluding from the fact named what the name's definition fails positively to include"* (*A Pluralistic Universe,* p. 60).

The notion of self-sufficient centers within experience emphasized by James as particulars or individuals is a generalization of that first trait of the stream of thought referred to in *Principles of Psychology.* Although made familiar by Whitehead, it was James who first used the concept of personal order to replace the traditional concept of some fundamental and thinglike substance.

Other traits of existence that impressed themselves on James are first annunciated in the *Principles* as traits of the stream of thought or of the central human process. So, for example, the doctrine that thought is always changing becomes the doctrine that reality is always changing. Again, human freedom is eventually inter-

preted as a special case of universal indeterminism. My future, though continuous with my past, is not determined by it. Just so the future of the world; although it grows out of the total past, it is not a mere result of that past. If I am creative—that is, if human freedom is effectual—then the world is creative, if for no other reason than that I am part of the world. What is constant in my behavior is the result of habits that never entirely lose their flexibility. In the same way the constancies charted by the laws of science are only more inveterate habits.

Objections can be raised against all these contentions, especially in the enthusiastic, unguarded form in which James made them. They do, however, add up to a serious philosophical position which has, in fact, borne fruit in the subsequent history of philosophy and is worthy of continuing serious study.

See also Bergson, Henri; Bradley, Francis Herbert; Determinism and Indeterminism; Dewey, John; Emerson, Ralph Waldo; Empiricism; Evolutionary Theory; Hodgson, Shadworth Holloway; Introspection; James, Henry; Kant, Immanuel; Panpsychism; Peirce, Charles Sanders; Perry, Ralph Barton; Philosophy of Religion; Pragmatism; Psychology; Rationality; Renouvier, Charles Bernard; Royce, Josiah; Santayana, George; Whitehead, Alfred North; Wright, Chauncey.

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Some Problems of Philosophy: A Beginning of an Introduction to Philosophy. New York: Longman, 1911. James's last project; it is incomplete. Valuable for its many very clear formulations; three chapters outline his theory of perception.

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William James Earle (1967)

JAMES, WILLIAM [ADDENDUM]

William James is to classical American philosophy as Plato was to Greek and Roman philosophy: an originating and inspirational fountainhead. Thinkers as diverse as C. S. Peirce, Josiah Royce, John Dewey and the late work of A. N. Whitehead took their point of departure from William James, especially his monumental *Principles of Psychology.* Influential philosophers elsewhere were also deeply influenced by James, for instance Henri Bergson, Edmund Husserl, Miguel de Unamuno, and Ludwig Wittgenstein.

With the completed publication of all of James's writings, including his manuscripts and notebooks, the full range and philosophical virtuosity of his work comes into focus. For too long the thought of William James was taken to be novel and intriguing but lacking in technical sophistication. In reading James the first response is one of elation at the apparent simplicity and obvious elegance of the literary style. After several careful and close readings, however, the philosophical depth and complexity emerge. The consequence of these more mature readings of James's thought are now found in many areas of contemporary philosophy—for example, the philosophy of mind, ethics, and the philosophy of religion. More significant still is that James represents a helpful philosophical stance, one that is wary of narrowness and rigid conceptual schematisms and affirms the messages of human experience no matter the source. William James believes that philosophy itself is "the habit of always seeing an alternative" ("Essays in Philosophy," *Works*, 1978, p. 4). He was convinced as well that no matter how recondite the issue in question—for example, the meaning of consciousness or his innovative doctrine of radically empiri-

cal relations—the kernel of the position taken could be articulated in prose accessible to the intelligent reader as well as to the philosopher.

The most salutary result of recent commentaries on the philosophy of William James has been the rescue of two of his most beleaguered positions, that of the pragmatic theory of truth and his doctrine of "The Will to Believe." In both areas James's thought was often subject to mocking dismissal and shallow interpretations. With the completion of James's *Works*, the girth and sophistication of his philosophy is now apparent. Witness, for example, the sterling introductory essays by H. Standish Thayer on James's theory of truth as found in "Pragmatism" (*Works*, 1975) and "The Meaning of Truth" (*Works*, 1975). Similarly, one finds an equivalently clarifying essay by Edward H. Madden in his introductory essay to "The Will to Believe" (*Works*, 1979).

The divide that has existed between mainstream analytic philosophy and pragmatism is no longer purposeful. Transformations of this conflict are now at hand. Hilary Putnam, for decades a major figure in contemporary philosophical thought, writes in his *Pragmatism* (1995):

> I believe that James was a powerful thinker, as powerful as any in the last century, and that his way of philosophizing contains possibilities which have been too long neglected, that it points to ways out of old philosophical "binds" that continue to afflict us. In short, I believe that it is high time we paid attention to Pragmatism, the movement of which James was arguably the greatest exponent.

Although in no way gainsaying the importance of specific philosophical contentions held by James, nonetheless it can be said that the most signal reason for paying serious attention to this work is found in his philosophical attitude, his approach to philosophical inquiry. William James was no stranger to philosophical debate or argument, as one finds in his brilliant and jousting correspondence with F. H. Bradley. Yet James was uneasy about closure, answers, and finality of any kind. In a "Notebook" entry of 1903 James writes of "bad taste," by which he means:

> All neat schematisms with permanent and absolute distinctions, classifications with absolute pretensions, systems with pigeon-holes, etc., have this character. All 'classic,' clean, cut and dried, 'noble,' fixed, 'eternal,' *Weltanschauungen* seem to me to violate the character with which life concretely comes and the expression

which it bears of being, or at least of involving, a muddle and a struggle, with an 'ever not quite' to all our formulas, and novelty and possibility forever leaking in.

For the thought and person of William James, the novel call of experience inevitably trumps categories of explanation. Consequently, possibility rather than solution becomes the philosophical watchword, especially in matters of profound human importance.

See also Bergson, Henri; Bradley, Francis Herbert; Dewey, John; Husserl, Edmund; Peirce, Charles Sanders; Philosophy of Mind; Philosophy of Religion; Pragmatism; Pragmatist Epistemology; Royce, Josiah; Unamuno y Jugo, Miguel de; Whitehead, Alfred North; Wittgenstein, Ludwig Josef Johann.

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Since the original publication of *The Encyclopedia of Philosophy*, virtually all of William James's writings have been published in a critical edition. Under the general editorship of Frederick Burkhardt, see *The Works of William James*, 19 volumes (Cambridge, MA: Harvard University Press, 1975–88). William James is widely admired for his brilliant style of writing, and nowhere is that more apparent than in his letters. To that end, with John J. McDermott as general editor and edited by Ignas Skrupskelis and Elizabeth Berkeley, a critical edition of *The Correspondence of William James* has been published in 12 volumes (Charlottesville, NC: University of Virginia Press, 1992–2004). Of commentaries, the finest and most thorough is that of Gerald Myers, *William James: His Life and Thought* (New Haven, CT: Yale University Press, 1986). Other recent studies of note include: Samuel Henry Levinson, *The Religious Investigations of William James* (Chapel Hill, NC: North Carolina University Press, 1981); George Cotkin, *William James: Public Philosopher* (Baltimore: Johns Hopkins University Press, 1990); Charlene Haddock Seigfried, *William James's Radical Reconstruction of Philosophy* (Albany, NY: State University of New York Press 1990); Ruth Anna Putnam, ed., *The Cambridge Companion to William James* (Cambridge, U.K.: Cambridge University Press, 1997); David C. Lamberth, *William James—The Metaphysics of Experience* (Cambridge, U.K.: Cambridge University Press, 1999); Eugene Fontinell, *Self, God, and Immortality: A Jamesian Investigation* (New York: Fordham University Press, 2000); and Phil Oliver, *William James's Springs of Delight* (Nashville: Vanderbilt University Press, 2001). For an "Annotated Bibliography of the Writings of William James" and complete selections from his major works, see John J. McDermott, ed., *The Writings of William James* (Chicago: University of Chicago Press, 1977). The entire family is chronicled by R. W. B. Lewis in *The Jameses: A Family Narrative* (New York: Farrar, Straus and Giroux, 1991). Biographically, see Linda Simon, *Genuine Reality—A Life of William James* (New York: Harcourt Brace and Co., 1998) and Robert Richardson, *William James* (Boston: Houghton Mifflin, 2006).

John J. McDermott (1996, 2005)

JANKÉLÉVITCH, VLADIMIR
(1903–1985)

Vladimir Jankélévitch, the French moral philosopher, was born in Bourges. He was educated at the Lycée Louis-le-Grand and the École Normale Supérieure. Having become an agrégé in philosophy in 1926, he took his doctorate in 1933. After teaching at the French Institute in Prague and at various *lycées*, he served as lecturer at Toulouse from 1936 to 1937 and at Lille from 1938 to 1939. He was dismissed by the Vichy government in 1940 but returned to academic life in 1945 as professor at Lille, going from there to the University of Paris as professor of morals and moral philosophy.

Jankélévitch's philosophy is highly individual, though it displays a sympathetic understanding of widely divergent philosophical traditions. In content it has affinities with Christian morality and with the philosophy of Søren Kierkegaard. In expression it is idiosyncratic and always lively.

Jankélévitch's first notable work was *Henri Bergson*. On its first appearance, in 1931, it bore a prefatory note by Henri Bergson himself, praising its "intellectual sympathy." Jankélévitch's own philosophy made its first appearance in his main doctoral thesis, on Friedrich von Schelling's later philosophy, and even more clearly in his secondary thesis, on bad conscience (*La mauvaise conscience*). Bad conscience is consciousness directed not unreflectingly forward but regretfully backward toward its own past, which is irremediable because time is irreversible. The problem posed is how to restore the flow of living that tends to be halted by retrospective brooding. How is consciousness freed and time unfrozen? Jankélévitch did not favor the detachment from one's predicament effected by irony, precisely because it intellectualizes and detemporalizes that predicament. Time alone, in its flow, frees us.

In two of his postwar works, *Philosophie première* and *Traité des vertus*, Jankélévitch was perhaps at his best. Just as he rejected intellectual recourse to irony or conceptualization as consolations for the discontent attendant upon self-consciousness, so he showed, in *Philosophie première*, that the concern of metaphysics is not with the world of ideas, eternal truths, or transcendent models, which are ultimately as contingent as the

reality that they rationalize, but with the "entirely other Order" of radical contingency. Here, in effect, Jankélévitch suggested that "sufficient reason" is never really sufficient. The instant always brings novelty over and above the schemata that demonstrate its "necessity."

The real importance of this fact is moral and leads to the treatise on the virtues. In this work virtues are classified according to either their intellectual quality of equity or their "non-natural" quality of goodness, to use the language of G. E. Moore. For Jankélévitch the virtues of consistent conduct—the "virtues of the interval," fidelity and justice—are inferior to the creative "virtues of the instant," courage and charity.

See also Bergson, Henri; Conscience; Ethics, History of; Kierkegaard, Søren Aabye; Moore, George Edward; Schelling, Friedrich Wilhelm Joseph von; Virtue and Vice.

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JANSENISM

Jansenism is a polemical term introduced by Jesuit critics to label those sympathetic to the theological views of Cornelius Jansen, the Louvain theologian and later bishop of Ypres. Supporters of Jansen protested that Jansenism is merely a "phantom" of the Jesuits and preferred to be called Augustinians. Jean Orcibal (1953) draws attention to the considerable difficulties in providing a precise definition of the term *jansénisme*. Even so, Jansenism can be understood in contrast to Jesuit theology, and the Jansenist movement did play a particularly significant political role in pre-revolutionary modern France. Moreover, Jansenism is of philosophical interest given its connections, both real and perceived, to Cartesianism.

JANSENIST THEOLOGY

Jansen's main theological work is his *Augustinus*, posthumously published in 1640. He called for a return to the emphasis in Augustine on the importance of the workings of grace in the salvation of the elect. He was explicit in rejecting the view of the Jesuits, defended in the sixteenth century by the Spanish Jesuit Luis de Molina, that though grace is needed for salvation, it is also necessary that the will freely cooperate with the working of grace. For Molina, such freedom requires an "indifference" that makes it possible for the will to reject divine assistance. In

response Jansen insisted that since the grace that heals the will is fully efficacious, it determines the will to meritorious action in a way that excludes indifference.

The Jesuit charge was that the theology of the *Augustinus* gives aid and comfort to a heretical Calvinist view that God determines one's salvation in complete independence of the works of one's free will. Jansen's defenders countered that the standard Molinist line supports the heretical doctrine of Pelagius, which Augustine and the early church had condemned as heretical, that one's salvation is due to one's free actions rather than to the workings of grace.

Pope Urban VIII initially condemned the *Augustinus* in the 1643 bull *In eminenti* on the technical grounds that it violated an earlier decree in Rome prohibiting inflammatory remarks concerning free will and grace. This decree was connected to a bitter dispute at the end of the sixteenth century that pitted Molina and the Jesuits against Domingo Bañez and other members of the Dominican order (of which St. Thomas Aquinas had been a member). To resolve the dispute, Pope Clement VIII established the Congregatio de Auxiliis (Congregation on Grace) in 1597 to determine whether Molina's views were heretical. At certain points there were rumors that the decision was about to go against Molina and the Jesuits. However, the congregation ended in a stalemate, and Pope Paul V closed it in 1607 with a decree forbidding either side of the dispute to charge the other with heresy. He further promised a resolution of the issue at "an opportune time," but the issue remains unresolved to this day.

In the case of Jansenism, however, the church took action. In 1653 Innocent X issued the bull *Cum occasione*, which condemned as heretical or temerarious the following five propositions that anti-Jansenist theologians in the Sorbonne had claimed to find in the *Augustinus*:

(1) Some of God's commandments are impossible for the just despite their desire and their effort [to keep them], given the forces that they have presently and also the lack of the grace that makes them possible.

(2) In the state of fallen nature, no one [can] ever resist interior grace.

(3) For merit or demerit in the state of fallen nature, it is not required that man be free from the necessity of willing and acting; it is sufficient for him to be free from constraint.

(4) The Semi-pelagians admitted the necessity of interior prevenient grace for all good works, even

for the beginning of faith; but they were heretical in claiming that this grace is such that the human will may either resist or obey it.

(5) To say that Jesus Christ died and shed his blood for all men, without a single exception, is to speak as a Semi-pelagian (Denzinger 1963, p. 445f).

In 1656 Alexander VII closed a loophole created by *Cum occasione*, which failed to mention the *Augustinus* explicitly, and issued *Ad sacram*, which claimed that the propositions are to be found in Jansen's text in their condemned sense. Thus did Jansenism become a formally defined heresy within the Catholic Church.

FRENCH JANSENISM

Jansen was a friend of the French religious figure Jean Duvergier de Hauranne, abbé de Saint-Cyran, who served as the spiritual advisor to the reformist convent of Port-Royal des Champs. Though Jansenism began in Louvain, several theologians associated with Saint-Cyran and attached to Port-Royal as solitaires came to be identified as the leaders of the Jansenist faction. These individuals were known for their opposition to a moral laxism that they found in the work of the Jesuits. This aspect of Jansenism is most evident in the *Lettres provincials* (1656–1657) of the Port-Royalist solitaire Blaise Pascal (the brother of Jacqueline Pascal, a member of Port-Royal). Another famous solitaire, the Sorbonne theologian Antoine Arnauld (the brother of Jacqueline-Marie-Angélique Arnauld, the prioress of Port-Royal), wrote a defense of Saint-Cyran's penitential theology in the 1643 *De la fréquente communion*, and later was an active supporter of Jansen and the *Augustinus*.

Saint-Cyran had been an opponent of Cardinal Richelieu, the French first minister, and Cardinal Mazarin, Richelieu's successor, inherited a suspicion of those associated with Port-Royal. As part of a campaign against Port-Royal, Mazarin lobbied for an official condemnation of Jansenism in Rome. The effort resulted in *Cum occasione*, but Arnauld argued that the five propositions have both heretical and nonheretical senses and that the *Augustinus* endorses them only in their nonheretical senses. When Rome answered with the explicit condemnation of Jansen's text in *Ad sacram*, Arnauld then insisted on the distinction between questions of faith (*questions de droit*), on which the pope's word is authoritative, and questions of fact (*questions de fait*), on which the pope has no special authority. He appealed to this distinction in claiming that whereas Catholics must accept the pope's claim that the propositions are heretical, they are entitled to retain a "respectful silence" with respect to

the claim that the propositions are to be found in the *Augustinus*. Arnauld was expelled from the Sorbonne in 1656 for writing in support of the Duc de Liancourt (Roger du Plessis-Liancourt), who was refused absolution due to his failure to affirm the presence of the condemned propositions in the *Augustinus*.

After Mazarin's death in 1661, Louis XIV followed his former first minister's policy of suppressing Jansenism and started to put considerable pressure on the nuns and solitaires at Port-Royal. His attempts during the 1660s to impose an anti-Jansenist formulary both on those associated with Port-Royal and on the clergy brought the French church to the brink of schism. However, with the help of Pope Clement IX, Louis was able to institute a Peace of the Church in 1669 that allowed for the respectful silence that Arnauld had advocated. This brought to an end the predominance of what Louis Cognet (1968) calls "First Jansenism," for which theological issues were most crucial. Cognet contrasts this sort of Jansenism with a "Second Jansenism" that started to emerge after the end of the Peace of the Church in 1679 and that was more concerned with political issues. During the 1680s Jansenists such as Arnauld, then in exile in the Spanish Netherlands, took the side of the pope in political disputes between Paris and Rome. After 1700 Louis attempted to ally himself with anti-Jansenist elements of the Roman curia to bring an end to what he took to be a politically subversive form of Jansenism in the work of Pasquier Quesnel. His efforts led Pope Clement XI to issue the bull *Unigenitus* (1713), which condemned Quesnel's views. The Parlement de Paris initially refused to register the bull due to Gallican concerns that the sanctioning there of unjust excommunication compromised French sovereignty. Though Louis succeeded in having the bull registered and approved through intimidation, there was significant parlementary opposition to *Unigenitus* throughout the eighteenth century. Port-Royal could no longer be a source of support for this opposition, however, since Louis, with the encouragement of his confessor, the Jesuit père de la Chaize (Jean Chastain), disbanded the convent in 1709 and had it destroyed the following year.

During the 1730s Jansenism became associated with the *convulsionnaires*, so called because they experienced uncontrollable convulsions at the grave of François de Paris in the cemetery of Saint-Médard. This group of individuals claimed that the grave was the site of miracles that confirmed divine support for Jansenism. In response the French government closed the cemetery and countered Jansenist political opposition by making *Unigenitus*

a law of state. After the 1650s, however, the Jansenist journal *Nouvelles Ecclésiastiques* played a prominent role in the parlementary campaign against the Jesuits, and this campaign ultimately resulted in the suppression of the Jesuit order in France in 1764 (see Van Kley 1975). Jansenist resistance to the French political establishment also arguably helped to set the stage for the French Revolution at the end of the eighteenth century, though the secularism that dominated the revolution was far removed from the Augustinian spiritualism that pervaded the Jansenist movement.

JANSENISM AND CARTESIANISM

Francisque Bouillier, the nineteenth-century historian of Cartesianism, claims that there is "a natural alliance of the doctrine of Jansenius with that of Descartes." His specific proposal is that this alliance derives from the fact that the Cartesians "make God the unique efficient cause, the only actor who acts in us," whereas the Jansenists "give everything to the grace that operates in us without us" (1868, vol. 1, p. 432f).

The association of Jansenism with Cartesianism goes back to the seventeenth century, as indicated by the remark in the 1690 *Voyage du Monde* of the Jesuit Gabriel Daniel that "there are very few Jansenists who are not Cartesians" (1690, p. 285). This association was due in no small part to the interest in Cartesianism at Port-Royal. Cartesianism infuses *La logique ou l'art de penser* (1662) of Arnauld and Pierre Nicole, a text that reflects the teaching in the *petite écoles* of the convent before their suppression in 1660. Moreover, issues involving Cartesianism were prominent at discussions among Port-Royalist sympathizers held at the hôtel of the Duc de Liancourt from 1669 to 1674.

Even so, it is important to keep in mind that René Descartes himself was never associated with Jansenism during his lifetime, although the *Augustinus* was published a decade before his death. The connection between Jansenism and Cartesianism is a genuinely post-Descartes phenomenon. It is also noteworthy that there was significant opposition to Cartesianism from within Port-Royal, as indicated in the record of the Liancourt discussions. Some of this opposition was due to a fear of the heretical implications of Cartesian natural philosophy, particularly with regard to the theology of the Eucharist. Another source of opposition was the belief, widespread among the Jansenists and arguably present in the *Augustinus* itself, that human reason can accomplish little on its own given the corrupted state of fallen human nature. Even Arnauld, who among the Port-Royalists was

the most supportive of Cartesianism and the use of reason in philosophy, criticized Descartes at one point for offering an account of human freedom in his correspondence that is "full of Pelagianism."

The historical realities are thus more complex than Bouillier's thesis suggests. There is need for caution even with respect to his proposal that the Cartesian claim that God is the only cause is naturally connected to the Jansenist emphasis that grace brings about one's meritorious action. Nicolas Malebranche was most responsible for the perception that Cartesianism leads to the occasionalist conclusion that God alone has causal power. But Malebranche insisted, against the Jansenists, that one has the freedom to reject divine grace. Arnauld in fact found such a view to be Pelagian, and he campaigned to have Malebranche's works placed on the *Index of Forbidden Books* in Rome, which they were in 1690. For his part, Malebranche noted the irony that he was being condemned because "I have refuted the opinions that the Church has condemned in Jansenius" (1958–1984, vol. 19, p. 548).

See also Arnauld, Antoine; Augustine, St.; Cartesianism; Descartes, René; Logic, History of; Malebranche, Nicolas; Molina, Luis de; Nicole, Pierre; Pascal, Blaise; Pelagius and Pelagianism; Thomas Aquinas, St.

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Tad M. Schmaltz (2005)

JAPANESE PHILOSOPHY

The first, and perhaps the most interesting, question regarding Japanese philosophy is whether there is such a thing. Or, to be more precise, whether there was any Japanese philosophy before Nishida Kitarō's 1911 *An Inquiry into the Good* (*Zen no kenkyō*). Some Japanese scholars today, such as Sakamoto Hyakudai, deny that there has ever been any Japanese philosophy. Others, like Nakamura Yōjirō, argue that there was none before Nishida. This is somewhat surprising in that since 1920 much of the same literature originating from China has been called Chinese philosophy by the Chinese, while a little later a Korean version was labeled Korean philosophy by the Koreans.

To understand why the Japanese have not followed suit, we need to examine how the notion of "philosophy," as it is known in the West, first took shape in the Japanese intellectual world during the Meiji period (1868–1911). At that time the Japanese government was encouraging the wholesale importation of Western intellectual culture, including something called "philosophy." To designate this newly introduced Western study, Nishi Amane introduced in 1874 a new word, *tetsugaku* (a shortened form of "*kitetsugaku,*" " *kitetsu*" itself abbreviated from *kikyō tetsuchi*), which he formed using two Chinese characters, or *kanji*, meaning the "science of seeking wisdom." The first philosophy instructors were foreigners, who began to arrive three years later, and it was not until 1893 that they began to be replaced by Western-trained Japanese professors of philosophy. This development fostered the idea that that thing called "philosophy" was a solely Western product standing alongside other Western disciplines such as chemistry, physics, and biology.

Since *tetsugaku* was formed of two Chinese characters, the Chinese themselves adopted the Japanese convention and began toward the end of the nineteenth century to refer to Western philosophy using these same two characters (pronounced in Chinese, zhu-shway, or, in pinyin, zhe xue). As in Japan, most Chinese scholars initially thought that *zhe xue* was one of the Western sciences and was therefore something previously nonexistent in either China or Japan except in very rudimentary form. However, as it gradually became clearer that Western philosophy was *not* a science but a metaphysical and speculative world view based largely on a sense of cultural values (partially through the efforts of John Dewey and Bertrand Russell, who visited China just after the World War), Chinese scholars began to see greater similarities between Western philosophy and ancient Confucianism, Mohism, Daoism, and Legalism.

The final shift in definition was achieved following the great debates on this issue in China during 1922–1923, led by Liang Shuming and Chang Chunmai (Carson Chang). Chinese intellectuals now reached the consensus that much ancient Chinese writing (Confucian, Daoist, and some Buddhist texts) should be considered *zhe xue* and that *zhe xue* must be divided into Western, Indian, and Chinese, each representing different value orientations or *Weltanschauungen* of these different cultures. Since philosophy was now deemed not a science but rather the expression of cultural values, Liang and his group successfully argued that the Chinese should embrace Western science but continue to espouse Chinese philosophy.

Shortly afterward Koreans began referring to their ancient literature derived from Chinese sources as "Korean philosophy," but the Japanese disagreed, refusing to designate Japanese versions of this same Chinese literature as Japanese philosophy. It is true, as Japanese intellectuals such as Nakae Tokusuke (pen name Nakae Chōmin 1901) argued, that anything one might want to designate as Japanese philosophy was borrowed and evolved from Chinese sources. But this is no more true of Japanese borrowing from external sources than of British, German, or French philosophy borrowing from Greek sources. A transplanted tradition often becomes culturally identified with its adopted country if and when it takes deep root and permanently transforms the original product into its own image. And this seems no less true of Japanese versions of Chinese philosophy than it is of Korean renditions of Chinese philosophy or of British transformations of Greek philosophy. The important issue, therefore, is not the origins of Japanese philosophy

but how Japanese philosophers interpreted, criticized, modified, developed, and used imported Chinese philosophical ideas and methods in accordance with Japanese predilections and needs, and how their writings contributed to a continuing, distinctively Japanese tradition of thought. Exactly the same criteria should be used to distinguish twentieth-century Japanese philosophy of a Western or international style from the earlier study of European philosophy in Japanese universities (in the late nineteenth and early twentieth centuries).

DISTINGUISHING JAPANESE FROM CHINESE PHILOSOPHY

One difference between Japanese and Chinese philosophy arises from the fact that Japanese philosophy is highly selective about the much larger range of philosophical schools that arose in China. This is partly due to the historical accident that by the time Chinese philosophy was imported to Japan in the seventh century, many earlier Chinese schools had already become obsolete or absorbed into other philosophical schools.

Part of the selection process, however, reflected Japanese political priorities and cultural preferences. In China philosophy had developed independently of government. In Japan, by contrast, philosophy was admitted by the government for the aid it could provide the government in the service of the state. Hence there never developed until quite late an independent class of literary specialists from which scholars could be selected for government service, as was the case in China with its famous meritocratic examination system. In Japan government positions tended to be hereditary.

For all these reasons Japanese tended to select only those aspects of Chinese philosophy best suited to the perceived needs of Japanese government leaders and advisers. So, for example, Japanese never developed (until the late Tokugawa era—eighteenth and nineteenth centuries) the idea, so prominent in China, of the role of philosophy as a tool for self-cultivation. Also, the Japanese were never very interested (again until late Tokugawa) in China's second most important and popular philosophy, philosophical Daoism (*Dao Jia*), which the Japanese government leaders thought encouraged anarchy, rebellion, and lack of loyalty to the government and devotion to the state.

For similar reasons, the Japanese tended to exclude Kongzi's (Confucius's) and, more so, Mengzi's (Mencius's) theory of the "mandate of heaven," the view that to be successful, governments must be acceptable to a moral order of heaven, without which they could be legitimately

overthrown (not a popular idea among government leaders anywhere). Where Mengzi and the Confucian tradition offered advice to governments on how they ought to rule in order to fulfill their moral obligations to their people and to heaven, this advisory function was largely excluded from Japanese Confucianism, at least until very late in the Tokugawa period. Also, Japanese Confucians emphasized loyalty to the state government over filial piety (family loyalty), whereas for the Chinese it was just the reverse.

Japanese Buddhism, in its early centuries, was similarly politically enmeshed, having been introduced into Japan by government leaders as a way to protect and bring good fortune to the state and not as a popular movement of personal faith among ordinary Japanese people. Whereas Chinese Buddhism spread among all classes of people in all parts of the country, the Japan variant was limited for several centuries to aristocratic families living in the capital. Moreover, whereas Chinese Buddhists tried and largely succeeded in staying out of government service, Japanese Buddhists were from the beginning heavily involved in the affairs of state.

The particular selection of texts the Japanese made from the Chinese and Korean traditions and the interpretations these texts received were also much affected by Japanese cultural predispositions. In the later neo-Confucianism of the Tokugawa period, for example, Japanese philosophers rejected the more abstract, transcendental, and rationalist elements of the philosophy of Zhu Xi (Shushi) in favor of material, phenomenal, sensual, immediate, intuitive principles. Japanese philosophers often explicitly criticized Chinese philosophers for being too intellectual, abstract, logical, and otherworldly.

JAPANESE BUDDHIST PHILOSOPHY

Although Confucianism and Buddhism arrived more or less simultaneously in Japan as part of a "package deal" of Chinese culture, for various reasons Buddhism played by far the greater role before Tokugawa (seventeenth century). One reason for this was the rising power of Buddhism over Confucianism in China at the time of significant contact with Japan. In the Sui dynasty (seventh century) Buddhism was at its peak in China and was strongly supported by the Sui rulers. A more practical reason inhibiting the spread of Confucianism was the enormous difficulty Japanese people had in reading Chinese. Although the characters are the same, the grammar of the two languages is completely different. Not until the Tokugawa period a thousand years later were these problems sorted out, affording Japanese greater access to Chinese sources.

Indeed, for nearly a thousand years Buddhism played much the same educational role in Japan as Confucianism had in China. Throughout most of this long period, the Buddhists ran the schools and educated most of the ruling and military elites. Ironically, it was the Zen Buddhists who introduced neo-Confucianism (Zhu Xi and Wang Yangming) to Japanese in the seventeenth century. Even in the early twenty-first century the most successful and distinctively Japanese philosophy is that of the Kyōto school, which combines Zen Buddhism with the European philosophies of Hegel and Heidegger.

In light of the Japanese traditional preference for the aesthetic surface of the world as it directly appears to us, the Japanese in general rejected any transcendent, otherworldly, metaphysical reality "behind" appearances and embraced instead the "here-now" phenomenal world sanctified and glorified as aesthetic ritual.

The philosophically most sophisticated Buddhism to emerge in China (Tien Tai, Hua Yen, and Chan Na [Japanese, Zen]) endorsed the profound and paradoxical idea that the changing, dependent phenomenal world is simply a false way of seeing the eternal, ultimate reality. This striking theory results from carrying to its logical conclusion the idea that there is nothing in the world but this one Buddha reality. There is therefore no dualism by which we might contrast the Buddha reality with the ordinary space-time physical world. What we experience as ordinary mundane existence is simply the one Buddha reality misunderstood. Because this outlook fit in very well with Japanese predispositions, Japanese Buddhist philosophers (Saichō [767–822], Kōkai [774–835], and Dōgen [1200–1253]) developed this aspect of Buddhism to the fullest.

JAPANESE CONFUCIAN PHILOSOPHY

As previously indicated, Confucianism did not have much immediate impact and was for a time hardly studied in any detail. In this early period, as can be seen in Prince Shōtoku's "Constitution" (604 CE), the main Japanese interest in Confucianism was its support for the ancient Chinese customs that Kongzi defended and systematized and that therefore became attached to his name. Many of these customs were similar to ancient Japanese practices—they were understood, that is, as a justification and theoretical support for hierarchy in society and cohesion within the family and more generally within society. The governing principle in both cultures was loyalty to the superior and loyalty to the group.

Neo-Confucianism was introduced at the beginning of the Tokugawa era through Zen Buddhists in whose monastery schools (Song dynasty [960–1279]) neo-Confucianism was studied as a sideline. What Western scholars call neo-Confucianism Chinese call *Dao Xue Jia*, the School of the Study of Dao. And this name indicates the new metaphysical and spiritual direction of Chinese Buddhism and late Daoism, beginning in the Tang dynasty (618–907) but coming to maturity in the Song dynasty. Although neo-Confucians rejected Buddhism because it was not Chinese either in origin or in tradition, they absorbed into Confucianism many elements of both Buddhism and Daoism. Neo-Confucians also selected those Confucian texts more in line with Song dynasty Buddhist-Daoist spiritualism and then interpreted those texts in the new way. Mencius is selected over Xunzi and interpreted spiritually and idealistically, emphasizing the idea in Mengzi that everything lies within us, that we share the goodness of human nature with heaven, that the direct, spontaneous feeling or intuitive thought is the best insight into reality. The key virtues during this period were not so much the social ones of propriety and benevolence but rather the self-cultivation of an inner quality of Buddhistlike mental tranquility and sincerity.

Cosmologically, the *ba gua*, or trigrams (and the sixty-four hexagrams of paired trigrams), were added to the older Daoist cosmology of *qi* in an effort to explain the evolution of the natural world from a single element into the multifaceted world we are familiar with. The original *qi* ether is said to divide into the *yin* and *yang* ethers (representing the passive and active forces in nature), which in turn evolve into the five elements (*wu xing*: earth, wood, metal, fire, and water), which finally produce the "ten thousand things." Philosophically the most important element added during this period is the notion of *li* in opposition to *qi*. *Qi* is the material stuff of the world, and *li* is the formative principle that shapes it into stable and predictable forms.

This idea probably comes from Buddhist Tien Tai and Hua Yen metaphysics (which may, in turn, have been influenced by Daoism, suggestions of which are found still earlier in the *I Jing*), where the root idea is that the inner nature of everything is the same, namely the Buddha nature. In neo-Confucianism the emphasis is more specific and somewhat more secular, each *kind* of thing being governed by its own principle, or *li*. The *li* of chickens makes their eggs hatch into chicks which then grow into chickens, and so on. But as in *Yogō cōra* Buddhism, an understanding of all the *li* lies innate within each person's mind. By quietly reflecting within our own minds, we can come to realize the inner *li* of all things.

Zhou Tunyi, Shao Yung, and Chang Cai (eleventh century), are all "fathers" of Chinese neo-Confucianism, but the tradition really begins with the Cheng brothers, Cheng Hao and Cheng Yi (eleventh century). Cheng Yi and Zhu Xi (late eleventh century) form the Cheng-Zhu *Li Xue* school (also called the Rationalist school), whereas Cheng Hao, along with Lu Jiuyuan (better known under his literary name Lu Xiangshan [twelfth century]) and Wang Yangming (fifteenth to sixteenth century) form the Lu-Wang *Xin Xue* school (also called the Idealist school).

Li Xue held that *li* exist independently of particular things and also independently of human consciousness (or minds). As Fung Yulan points out, this view is akin to Plato's theory of Forms. Xin Xue held that *li* do not exist independently of human consciousness (or particular things). So, for the Li Xue we discover *li* by examining things in the world, whereas for the Xin Xue we discover *li* by examining our own minds. Also, for the Li Xue human nature is *li*, whereas for the Xin Xue human nature is mind (human consciousness). That is, for Li Xue human consciousness is part of the *qi*, the material stuff, or body, whereas for Xin Xue it is the essential characteristic of human beings.

TOKUGAWA CONFUCIANISM

The first phase of Tokugawa Confucianism in Japan was basically a variation of the neo-Confucianism of Zhu Xi. Zhu Xi is clearly the most important neo-Confucian and the one who had the greatest influence outside of China (he is the central figure in Korean and Vietnamese Confucianism as well). Zhu Xi interprets the Supreme Ultimate (*tai qi*) as a metaprinciple, the superprinciple that governs the other principles just as they govern the formation of individual things. So Zhu Xi argues not only that every distinct kind of thing has its own principle but also that everything in the world has the *same* nature or principle (the *Tai Qi*, or Supreme Ultimate, sometimes referred to as the *Dao*), the superprinciple of principles, which governs other principles as they govern particular things in the world.

Unlike Buddhism, however, this inner nature of everything, according to Zhu Xi, is not Buddhahood but the central Confucian virtue of *ren* or human-heartedness. The difference between human beings and plants, rocks, or other animals, each of which has its own *li*, is that this nature (Supreme Ultimate, *tai qi*) is more clearly displayed, more prominent, and more accessible in human beings. Zhu Xi reasoned that in a profound sense

the Supreme Ultimate meta- *li* of *ren* (human-hearted-ness) was the controlling force of the world. No longer, then, is *ren* merely *one* of the human virtues; it has now become a metaphysical principle governing the entire universe.

Because neo-Confucianism was first presented to the Japanese by Buddhists within the context of Buddhism, the antagonism between Confucianism and Buddhism was not apparent at first, and the two coexisted peacefully for centuries. But the new political regime of Tokugawa shōguns, in their attempt to unite the many feudal principalities of Japan into one nation under the nominal head of the Emperor but controlled by the Shōgun, found the differences between Confucianism and Buddhism politically useful and therefore encouraged the development of a new Confucianism that was not only different from Buddhism but also antagonistic to it. Whereas Buddhism was perceived as otherworldly, spiritual, personal, and metaphysical, Confucianism came to be perceived as being this-worldly, humanistic, rational, and focused on social and political concerns. As a result, Buddhism declined as Confucianism rose, though not to such a great extent as in China. Buddhism was disparaged as superstitious, emotional, and socially useless, whereas Confucianism was praised as humanistic, rationalistic, and pragmatic.

Nonetheless, imported Chinese culture was always adjusted to Japanese sensibilities and needs, and neo-Confucianism was no exception. Almost immediately Japanese intellectuals, including Fujiwara Seika (1561–1617), Hayashi Razan (1583–1657), Gahō Razan (1618–1680), Hōkō Razan (1644–1732), Nakae Tōju (1608–1648), Yamazaki Ansai (1618–1682), Kumazawa (1619–1691), and Itō Jinsai (1627–1705) accepted that part of neo-Confucianism that suited their needs and rejected those parts they considered un-Japanese. Basically, they accepted the humanism and rejected the rationalism. The main criticism of Zhu Xi was his stress on rationality at the expense of emotion.

What is most interesting about Japanese followers of Zhu Xi (Shushi) is their complete rejection of his notion that the ultimate reality of the world is the abstract, immaterial, eternal, and unchanging *li*. Korean Confucians, by contrast, took this Platonic element in Zhu quite seriously, actively debating for centuries whether both *li* and *qi* exist (that is, whether the abstract *li* can exist independently of the material *qi*) and, if so, which of the two is primary.

Some 300 years after Zhu Xi, Wang Yangming (*ō yōmei*) rejected Zhu's "*li xue*" (the philosophy of princi-ple) in favor of " *xin xue*" (the philosophy of mind). And this, too, had its important counterpart in Japan, especially in the work of Oshio Heihachirō (1793–1837). Wang Yangming identified the ultimate nature or essence of things with mind, adopting a position similar to Western idealism; the ultimate reality is mind and ideas entertained by mind. For Wang human nature is mind, not *li*, and the Supreme Ultimate (the overarching *Dao* of everything) is Mind (*xin*), not *li*.

Other differences follow from Zhu's privileging of *li* and Wang's preference for *xin*. Whereas for Zhu we follow the *Da Xue* (the Han dynasty [third century BCE to the third century CE] Confucian classic, *The Great Learning*) in "extending learning by investigating things," Wang contends that, following the other Han dynasty Confucian classic, *Zhong Yong* (*Doctrine of the Mean*), one can best learn the ultimate principles of reality by simply reflecting within oneself. The ultimate *Dao* is Mind, and where better to study Mind than one's own mind? The other major difference between these leading neo-Confucians is that whereas Zhu (somewhat like Aristotle) sees a gap between knowledge and action (that one can know the right thing to do and not do it [Aristotle's "weakness of will"]), Wang argues (somewhat like Socrates and Plato) that if one truly understands what is right, one will do it. Of course, part of the disagreement between Zhu and Wang on this point has to do with different notions they have of knowledge, Zhu stressing something akin to ordinary common sense knowledge, and Wang, something closer to meditative quasi-Buddhist enlightenment. While it seems clear that Zhu Xi borrows from Hua Yen Buddhism the *li-qi* (in Hua Yen *li-ji*) distinction, Wang Yangming's indebtedness to Yogōcōra Buddhism is equally clear.

A major contribution to Chinese Mahōyōna Buddhism was Yogōcōra idealism, which held that everything is the Buddha Mind, that the phenomenal world is a mentally produced illusion. Yogōcōra joins with Nōgōrjuna's *Mōdhyamika,* or "middle way" (which holds that reality is empty, not mental) to form most of the leading schools of Chinese Buddhism, especially, when further combined with Daoism, Chan (Japanese Zen). For that reason Wang is often called a closet Chan Buddhist. Most Japanese Buddhist philosophers rejected Yogōcōra idealism as too remote from common-sense realism and too alien from the peculiarly Japanese celebration of the infinite aesthetic richness of the phenomenal world of everyday sense experience. For this reason most Japanese neo-Confucians rejected Wang's idealism, though many Japanese found great sympathy for the spiritual sincerity

of Wang's emphasis on inner reflection and self-cultivation. Nonetheless, Japanese followers of Wang rejected his main idea, just as followers of Zhu rejected *his* main idea. In both cases Japanese adopted Chinese neo-Confucianism in their own, peculiarly Japanese way.

MODERN NATIONALISTIC PHILOSOPHY

In the Qing dynasty (seventeenth through twentieth centuries), Chinese Confucians rejected all the Daoist and especially Buddhist elements with which Song (Zhu Xi) and Ming (Wang Yangming) dynasty neo-Confucianism had become embedded and urged a return to the original Confucianism of the Han and pre-Han period. In reaction to this Buddhistic (and hence Indian, ergo, non-Chinese) Confucianism, the Qing dynasty Confucians led a movement "back to the original (thoroughly Chinese) Confucianism." And this too was closely followed by Japanese Confucians.

More interesting was the Japanese adaptation of this "back to the (nationalistic) origins" as a "return" to *Japanese*, not Chinese, ancient writing. Of course, there is no Japanese writing of comparable antiquity to that of China, but there were the early "histories," such as the *Kojiki*, commissioned in the seventh and eighth centuries by Japanese rulers. These accounts were mostly collections of mythological prehistories of what later became known as Japanese Shintō. Like its Chinese counterpart, this trend represents the first dawning in Japan of a kind of "intellectual nationalism" that became increasingly important all over the world in the early twentieth century, especially in the period from 1920 to 1940.

Whereas Japanese Confucians rejected Confucian rationalism in favor of humanism, their embrace of Confucian humanism was itself qualified. On the whole, it was rejected politically but accepted morally; that is, Confucian humanism was rejected, at least initially (in the seventeenth century), as part of the political philosophy supporting the new Japanese Shōgunate "*bakufu*" government, whereas it was accepted as the foundation for a more general and widespread moral code throughout the country. In its military guise, Japanese government was less paternalistic and more rigidly duty-bound. Military leaders demanded and expected absolute obedience from their citizens. Here again Chinese thought was used to support, justify, and defend Japanese traditions rather than to modify them. On the other hand, Confucianism was a very important factor in the development of Japan's early modern (seventeenth and eighteenth century)

moral consciousness, especially among the rising middle class of wealthy, educated merchants in the cities.

At first Japanese Confucians sought to find this more humanistic side of Confucianism in the earlier Han and pre-Han Confucianism of the *Analects* and the *Mengzi*. But eventually Japanese Confucians turned away from Chinese sources altogether for this missing ingredient and began to look instead within their own ancient Japanese traditions. This opened the door for the focus on the more religious, nonrational ancient *Japanese* (i.e., Shinto) learning, which rejected both the humanism and the rationalism of neo-Confucianism. Japanese ancient learning portrayed the secular humanism of neo-Confucianism as a weakness, not a strength; it was bad because it ignored the ancient Japanese belief in the *kami*, a mysterious power that cannot be discovered by logical analysis or empirical investigation but only by the authority of ancient texts.

The most important of these "National Learning" philosophers was Motoori Norinaga (1730–1801). For more than thirty years Motoori struggled to have the *Kojiki* made the basis of accepted Shintō scripture. The problem was that the *Kojiki* is mainly a loose collection of ancient myths, legends, and genealogical records of the imperial family. It contains little abstract or profound philosophical thought. Motoori, nonetheless, tried to show that this was a strength and not a weakness. He argued that, like other sacred texts, the religious truths in the *Kojiki* are beyond ordinary sense perception, common sense, or reason. He also interpreted certain elements in the *Kojiki* as a purely Japanese sensibility of spontaneous sentiment privileging the emotional and aesthetic side of human nature over its more rational and moral side as favored by the Chinese.

Not surprisingly, Motoori was severely criticized by the neo-Confucian philosophers of his day for his naive and irrational theories. One objection Motoori tackles head-on is the criticism that instead of appealing to a universal human reason that could be appreciated by all people everywhere, as most philosophers try to do, Motoori *isolates* the Japanese people from everyone else in the world. According to Motoori's explanations, only the Japanese who follow the *Kojiki* know the truth and follow the true Way; only they are the chosen people. But that is just the way it is, Motoori responds. The gods favored Japan and more clearly revealed the Way of the gods to them, and the Japanese people have preserved this ancient, sacred tradition better than other people, who have abandoned what religious understanding they once

had in favor of new, man-made philosophical explanations.

Motoori tends to be theistically fatalistic: everything is decreed by the gods, whether for good or evil. How can we explain the existence of evil? Instead of looking for rational reasons to justify the fact of undeserved evil, Motoori simply says that we know from the *Kojiki* that this is what the gods decided and the way they acted. If you go on to ask *why* the gods did things in this way, you are asking a question that cannot be answered. The Way of the gods is not the Way of man.

Instead of constantly trying to control or restrain our emotions, as the rationalistic philosophers are always telling us to do, Motoori insists on a more frank acknowledgment of the power of emotion in our lives. Sometimes, it is true, emotion leads us into indiscretions which we later regret. But we cannot help ourselves. We should not be so judgmentally harsh on ourselves or on other people, Motoori urges us, but rather sympathetically recognize (with fatalistic resignation) the power of emotion to occasionally lead us astray.

Motoori forms the transition to the late-nineteenth-century Meiji rejection of Chinese in favor of Western learning as the only way to compete with the West and avoid Western domination. The central paradox of this early adjustment to the modern ways of the West is that the Japanese suffered no sense of inferiority in their need to emulate at least some aspects of the West. The general consensus among Japanese intellectuals of this period followed Motoori's conviction that the gods arose in Japan and therefore favored the Japanese people, giving them a natural and undeniable edge over all other peoples. By the early twentieth century, Japan had thoroughly mastered Western science and technology but was torn politically between liberal and more conservative Western thought—specifically between British empirical and neo-Kantian ideas on the one hand and German Hegelian and Heideggerian doctrines on the other. In the end the conservatives won the day.

Perhaps the most important thinker in this regard was Watsuji Tetsurō (1889–1960). His 1935 work *Fōdo* (*Climate and Culture*) replaces Heidegger's emphasis on time (in *Being and Time*) with a focus on space. Like other Japanese philosophers, Watsuji did not accept Heidegger's thought without reserve. Indeed, it was deemed by most Japanese to be too concerned with the individual at the expense of the social. In Watsuji's view, Heidegger's neglect of space precluded a description of human existence concrete enough to allow for a true depiction of history and (to cite Watsuji's chosen focus) of the role of

climate within it. Again, we see the Japanese predilection for the empirical and phenomenal over the abstract and transcendental.

In *Rinrigaku* (*Ethics,* 1937–1949) as in *Fōdo*, Watsuji again taxes Heidegger with having scanted space relative to time and thereby the social relative to the individual. The German philosopher, he complains, "stuck fast to an atomistic individuality"(*Rinrigaku*, 224). This Cartesian, Hobbesian notion of self, Watsuji declares, is artificial and must be replaced with a more communitarian view of authenticity. Watsuji's terminological lynchpin for this idea is *ningen,* the Japanese word for "human being," where *nin* means "person" and *gen* signifies "between or together," thus implying a communal relationship. Inseparable from their cultural and social context, humans are fixed in a tensed, contradictory relationship to society; each person is at once an individual and a member of a social order and never wholly one or the other.

In place of Heidegger's "nothingness," Watsuji substitutes the Buddhist notion of emptiness (*sunyata*), an "authentic" surrender of selfish ego out of which compassion may arise. The problem with this idea, of course, is that his "authentic individual" can easily be submerged in totalitarianism because the community of which he or she is a *selfless* member is, in practical terms, inseparable from the state.

THE TWENTIETH-CENTURY KYŌTO SCHOOL

Using our criteria for what constitutes "Japanese philosophy," the first clearly Japanese philosophy of the post-Meiji period is the 1911 publication of *Zen no kenkyō* (*An Inquiry into the Good*), by Nishida Kitarō (1870–1945). Nishida was the pioneer of the *Kyōto-ha*, the Kyōto School of philosophers, which included other notable thinkers such as Tanabe Hajime and Nishitani Keiji. On the one hand, all the school's major members were condemned in some quarters for having collaborated with, or at least having endorsed, ultranationalist objectives; on the other hand, there has been widespread admiration for the quality of their purely philosophical activity, the best of which has been deemed of worldwide significance.

The originality of *Zen no kenkyō* lay in its author's attempt to express the Zen ideal of "unity of thought" within a densely argued philosophical system applying Western methods and concepts. Like his contemporary readers, Nishida faced the problem of reconciling Japan's traditional values with those implicit in the Western-inspired technological revolution. Nishida saw Zen insight as a possible solution for the crisis facing Japan.

Nishida's solution centered on the Western notion of "pure experience." Western writers had used the term "pure experience" in a way that seemed to him fundamentally flawed. What dissatisfied him in Mach, James, and others was their dualistic analysis of pure experience. Nishida held that any theoretical representation of pure experience inevitably introduces falsification. Sense-datum psychologists and philosophers had tried to describe our experience prior to perceptual syntheses and conceptual classifications but had nonetheless presupposed a subject-object dichotomy in which the perceiver is aware of himself looking at a world beyond himself. What Nishida sought to describe was a still more elementary, "pure" experience prior to any subject-object distinction—the experience of a newborn child.

From the standpoint of Zen Buddhism, in which the self is perceived as an artificial construction that inhibits the Buddha vision and is therefore best "dissolved," such a position does not surprise. But expressed philosophically, it took on the power of subversive dialogue with established Western beliefs. If self precedes experience, universal principles posited on the basis of individual experience are suspect. To avoid solipsism, Western thinkers have traditionally had to make assertions *beyond* experience. "Higher" realms and "hidden" essences have become chimerical foci in the hopeful quest of a human commonality. If, however, pure experience precedes self, then such experience itself can be declared a universal principle. The problem for modern Western philosophy—How do I get my private individual self to a reality beyond, understood in terms of universal principles accessible to everyone?—is not a problem in Nishida's notion of "pure experience," for he presupposes no division between "me" and "reality" nor between me and others.

Nishida's "logic of place (*basho*)" or "logic of nothingness" was quite unlike the "objective" logic of Western rationalism. Just as he had criticized the dualistic opposition in the Western representation of pure experience, so he calls here for a regress from the standpoint of reason (ensconced in the constructed subject) to the very starting point of our awareness, prior to the construction of self with its constructions of categories of determinate being. Only after pure experience has been differentiated into self and world—and after world, in turn, has been classified into categories of conceptual thought—can reason and cognition begin their work. Nishida developed a logic prior to the confrontation of a knower confronting an object.

CONCLUSION

Whether there is a Japanese philosophy or not depends on how one defines the word *philosophy* and how one judges the efforts to indigenize, or nationalize, borrowed, alien philosophical sources. Since the early 1920s there has been a general if not unanimous consensus in the philosophical community that there are three independent (literate) philosophical traditions: Greek, Indian, and Chinese (of which Japanese philosophy is an offshoot). Throughout Japan's 1,300-year history, that nation's philosophers have borrowed freely from outside sources—first from Chinese and later from Western philosophical traditions. But the Japanese have always interpreted and used these foreign sources in their own distinctive way. What is perhaps most peculiar about Japanese philosophy is that whereas nearly every other literate (and nonliterate) non-Western tradition is eager to claim for some of its thought the honorific title of "philosophy," the Japanese have mostly been reluctant to do so—or indeed to identify themselves with other cultures in any way that might appear to detract from their cultural uniqueness.

See also Aristotle; Buddhism; Cheng Hao; Cheng Yi; Chinese Philosophy; Confucius; Hayashi Razan; Hegel, Georg Wilhelm Friedrich; Heidegger, Martin; Itō Jinsai; James, William; Korean Philosophy; Kumazawa Banzan; Lu Xiangshan; Mach, Ernst; Mencius; Nāgārjuna; Nakae Tōju; Nishi Amane; Nishida, Kitarō; Plato; Self; Socrates; Wang Yang-ming; Watsuji Tetsurō; Yamazaki Ansai; Zhu Xi (Chu Hsi).

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H. Gene Blocker (2005)

JASPERS, KARL
(1883–1969)

Karl Jaspers was one of the architects of contemporary existentialism and one of the first philosophers to use the term *existentialist*. He was a prolific writer with a prolix style that is often inelegant, superficial, sentimental, and unclear and that over the years showed itself to be repetitious. Yet careful and extensive reading of his works shows him to be a rigorous and responsible thinker. Appearances notwithstanding, he was perhaps the most systematic of all existentialist philosophers. His philosophy is neither linguistic analysis nor metaphysics. It can be best characterized as a disciplined and organized description of the critical fringes of human existence, such as impenetrable limits, unmitigated freedom, and the experienced indefinite expanse of space, time, and consciousness. Jaspers fulfilled the commonsense image of the philosopher through his vital concern with the contemporary political situation and his trenchant reflections on the threats to man's integrity and fulfillment posed by twentieth-century social, economic, and political institutions. He spoke with authority to the nonphilosophic mind because of his deep and successful roots in medicine and psychology. He was suspicious of contemporary overconfidence in science and, as an antidote, stresses the irrational in man. As Jaspers saw it, philosophy begins where reason has suffered shipwreck. Philosophy is an activity, a becoming, not a state of being or a body of facts. Philosophy is philosophizing. To appreciate philosophic insights we must—as Socrates and Sigmund Freud saw—arrive at them ourselves. We must live philosophy, since we cannot meaningfully paraphrase its conclusions. Genuine philosophy arises directly out of the problems confronting the individual philosopher in his existential, or historical, situation. General problems are mere derivatives. Philosophy need not be metaphysics; it can only illuminate some of the potentialities of an individual existence, an existence that is ineffable, unique, and free.

Jaspers was influenced especially by Immanuel Kant, but also by Søren Kierkegaard and Friedrich Nietzsche, whom he admired because they were prophets who articulated the structure of their existence, because they were not academic philosophers, because their thinking welled up directly from their personal existence, and because they illustrated the axiom that philosophic thinking begins in the attempt to communicate to another the nature of one's *Existenz*. The influence of Edmund Husserl is also apparent, although it is perhaps unconscious, since it is mostly unacknowledged. Jaspers used Husserl's method of descriptive phenomenology and adopted Husserl's concept of intentionality as a central function of the self. Furthermore, Husserl's ideas of the transcendental ego and transcendental consciousness conform to Jaspers's descriptions of the inner self (*Existenz*) and the outermost boundaries of the world (*das Umgreifende*). Jaspers's religious thought, although it ignored Aristotelianism and Scholasticism, was deeply influenced by Plotinus, Giordano Bruno, Benedict de Spinoza, and Friedrich von Schelling and gives a modern phenomenological restatement of many of the classical religious intuitions of humankind.

LIFE AND WORKS

Jaspers was born in 1883 in the East Frisian city of Oldenburg. His father was a banker, constable, and jurist. Jaspers studied law at the universities of Heidelberg and Munich, and medicine at Berlin, Göttingen, and Heidelberg. He received his MD from Heidelberg in 1909, upon

completion of his dissertation on *Heimweh und Verbrechen* (Nostalgia and crime). Immediately upon graduation he became a volunteer assistant in psychiatry at Heidelberg. His first major work, *Allgemeine Psychopathologie* (*General Psychopathology*, 1913), is a book on methodology showing the merits and limits of various psychological procedures and descriptions. In 1916 he became professor of psychology at Heidelberg. Shortly after World War I he published his *Psychologie der Weltanschauungen* (Psychology of world views; 1919), which consists of descriptions of many different attitudes toward life. It is based on Wilhelm Dilthey's *Typologie der Weltanschauungen* and marks Jaspers's transition from psychology to philosophy. He later called it the first genuinely existentialist work. Both of these early works were based on his medical experience.

He received a professorship in philosophy at Heidelberg in 1921, after declining similar offers from the universities of Kiel and Greifswald. In 1932 he published his magnum opus, the three-volume *Philosophie*, which is a detailed development of the notions of transcendence and *Existenz*. In 1937 he was relieved of his duties by the National Socialist regime, but was reinstated in 1945. In 1946 he was named honorary senator of Heidelberg University, and from 1948 on he taught at the University of Basel in Switzerland. In 1958 he was awarded the German Peace Prize at the Frankfurt Book Fair. The first volume of his *Philosophische Logik* appeared in 1947. Throughout his life, Jaspers was greatly concerned with communication. Personal relationships had great philosophic significance to him. In addition to his parents, particularly significant persons in his life were his teacher Max Weber, his friend Ernst Meyer, and Meyer's sister Gertrud, who became Jaspers's wife. Since she was Jewish, Jaspers lived, through her, the agony of the Jewish people during World War II, and this led him to publish in 1946 his reflections on the question of German guilt, *Die Schuldfrage, ein Beitrag zur deutschen Frage.*

Any classification of Jaspers's views into traditional philosophic disciplines is artificial. For purposes of exposition, however, such an expedient is necessary.

EPISTEMOLOGY

Jaspers's method is generally skeptical. It consists of the exploration, description, and analysis of first-person experiences. These form the basic data for philosophical generalizations and are for any person the sole source of his information about reality. Jaspers goes far beyond René Descartes in emphasizing the epistemological primacy of subjectivity: My thinking begins and ends with subjectivity, since awareness, as Kant saw, always consists partially of interpretations. Although the results of these descriptions do not form a universal ontology—they apply, strictly speaking, to my own self exclusively—they are nonetheless verifiable inasmuch as egos may compare experiences. Jaspers follows Kierkegaard in describing immediate experiences (which consist not only of sense data but also of love and anxiety, hope and despair) and examining their ontological import. Since he describes fringe states of consciousness, areas of experience that are difficult, perhaps even impossible, to focus sharply, his language necessarily becomes ambiguous.

There is no certainty either in philosophy or in science. I am forced to depend ultimately on the intuitions and decisions of my own ego. Science is not an ultimate form of knowledge because it excludes the observer, because it is replete with unexamined and often erroneous assumptions, and because one method of inquiry is insufficient for a complete world picture. Although the spirit of scientific inquiry is an antidote to dogma in religion, politics, and philosophy, it gives us only surface knowledge, which is, at best, a workable mythology.

PSYCHOLOGY

The nature of the self is discovered through illumination of existence (*Existenzerhellung*), which discloses the possibilities of man, that is, the possibilities of an entity seeking understanding of self and of being. *Existenzerhellung* yields access to the questioner himself. Ordinary modes of perception and cognition, which imply a subject apprehending an object, always bypass the real self (the *Ursprung*). The real and valuable, that is, the authentic, in man is called *Existenz*. *Existenz*, the genuine self, is nonobjective and unique. It is infinitely open to new possibilities and inaccessible to traditional philosophical investigations. Although *Existenz* is that crucial aspect of human existence that cannot be conceptually delimited, it is nonetheless clearly experienced: It can be lived; it is illuminated through philosophical reflection; it can be communicated. *Existenz* is the experience of the total freedom that defines man; it is the experience of the infinity of possibilities for styles of life; it is, finally, the experience of loneliness that cries in the wilderness. *Existenz* is the eternal in man, while *Dasein* (not to be confused with that which Martin Heidegger designates by the same word) is his temporal dimension. *Dasein* is that aspect of man that has describable characteristics and is accessible to theoretical reflection. To confuse mere *Dasein* with the authentic ground of my being, *Existenz*, is crass materialism and leads to shipwreck, while to

ignore *Dasein* altogether leads to nihilism. A tension (*Spannung*) between the two is the golden mean.

Man is alienated from his world. He comes from a dim past and goes into an indefinite future. Life is a flux in which he seeks anchor. Existence is rich in mysterious paradoxes and antinomies, such as those of freedom coexisting with dependence, communication with solitude, good with evil, truth with falsehood, happiness with grief, life with death, and progress with destruction. Authentic *Existenz* is disclosed through reason (*Vernunft*), while intellect (*Verstand*) concerns itself with the pragmatic management of existence. *Verstand* is satisfied with practical results, while *Vernunft* engages in endless searching. Man is both *Vernunft* and *Existenz*.

Existenz is limited by impenetrable boundaries (*Grenzsituationen*). To experience these and to exist are one and the same, since despair can be, in the last analysis, a cognitive and elevating emotion. A defining characteristic of man is his finitude, which he experiences as the limits to his existence. Jaspers's analysis of these boundary situations is the existential formulation of the problem of evil and has been most influential. Authentic existence will push back these limits as far as possible and then accept and bear them. Death is one of the most dramatic of these barriers. It is the source of anxiety, but it also elevates the spirit because it emphasizes the urgency of living authentically without postponement. Consciousness of the inevitable presence of death gives man courage and integrity: It gives him an authentic perspective on the things that matter most. Guilt is another important boundary situation. Man not only *feels* guilty but, because of his total freedom, is guilty. He always could have chosen otherwise. Ultimate guilt cannot be removed: It must be accepted and can thereby become constructive. Our guilt demonstrates the power that our freedom has over our destiny. The boundary of "situationality" is the fact that we are partially thrust and partially choose ourselves into a particular human condition. We can be inauthentic and inevitably fall into these situations or be authentic and make them happen. Other important boundaries are chance, suffering, and conflict.

Freedom is central to man; it leads to the overriding importance of choice, which becomes the problem of moral responsibility.

ETHICS

For Jaspers, ethics is the exploration of the experience and the potential of free will. Freedom is identified with choice, awareness, and selfhood. To choose means to be free, and man's freedom is his being. I am only to the extent that I choose freely. To be is to be conscious that one is free. I do not choose life's meanings; I do not "define" man, as Jean-Paul Sartre contends, since I am limited by my historicity—my past choices bind me. But within these confines my freedom is total. Freedom is experienced as both spontaneity and action; it is thus more important to act and be an *homme engagé* than to observe and be a theoretician. To know and use my freedom is the raison d'être of *Existenzerhellung*. Whenever I choose, I act, I am conscious of my action, I am aware of the values involved, I take chances (since the consequences of my choice are often uncertain), and I realize that commitment to some values is unavoidable.

The presence of anguish adumbrates the sacred nature of my freedom. Since each choice carries with it the accumulated weight of previous decisions, the first choice overshadows all others. Consequently, guilt is the inevitable concomitant of my freedom. My original choice (*Urentschluss*) bears down on my subsequent existence and assumes the role of original sin. I am accountable for that first choice, so that to be responsible means to have accepted that guilt. In addition, I am ceaselessly confronted with the choice between sacrificing my integrity for the sake of a longer life or surrendering myself to my authentic existential possibilities. The inherent difficulty of these choices leads to further guilt, which I may alleviate by imagining absolute standards and then approximating them. But in my heart I know there are no fixed standards and that absolutism is therefore a rationalization: the boundary of guilt is indeed impenetrable.

Anguish also appears when I realize I may lose the promise of my possibilities. But that same anguish gives me the urgency and courage to choose with my full being to implement the authentic potential of my *Existenz*. I reach this pedagogically expedient brink caused by anguish when 1 recognize the limits of scientific thought or when I am faced with critical decisions. Confronted with the abyss, I may accept a philosophic or religious orientation, I may act as if I did not recognize the existence of the abyss before which I stand, or I may adopt the nihilistic position that judges these problems to be meaningless.

Subjectivity is essentially intersubjective. I am only to the extent that another *Existenz* reflects me. Jaspers describes true communication as the feeling that men have known each other since eternity. My own freedom is in essence the search for the "loving strife" of communication with another *Existenz*. In fact, the search for *Existenz* cannot be accomplished in the abyss of absolute estrangement. Existential philosophy is self-disclosure

through communication, even being itself, although it can be represented only in ciphers as symbols, is made transparent solely through authentic communication (*Existenzursprung*). Existential communication is neither friendship nor psychotherapy; it is not fusion, esteem, or unanimity; it is, strictly speaking, as with *Existenz* itself, ineffable.

But in the end, human existence is a failure. There is no escape from man's limits (the limit of death in particular), yet man is condemned to endless striving. In this dreadful paradox between finite existence and striving for infinity, man finds the ultimate symbol of his salvation, which is transcendence.

METAPHYSICS AND THEOLOGY

Jaspers maintained that just as ethical considerations grow out of philosophical psychology, so religious answers emerge from metaphysical descriptions of being.

He follows Kant in criticizing the usual arguments for the existence of God. He rejects theism, pantheism, revealed religion, and atheism alike. All these are but symbols (ciphers), and we are in danger of taking them literally. Phenomenological descriptions of the fringes of inward and outer experiences give us the only accurate understanding of the intuitions that metaphysics and theology have traditionally attempted to articulate.

When man reflects on his freedom, he experiences it as a gift; he dimly knows that he does not stand alone. That gift, in turn, points vaguely to an ultimate horizon as its source and foundation. Awareness of transcendence also originates in the consciousness of our finitude: Through our boundaries we recognize the infinite possibilities within us. In general, the world itself points to a region beyond. Transcendence is thus experienced as the intimation of a power by virtue of which man himself exists. Confronted with these clues, man is free to pursue or to ignore them.

Jaspers uses the term *encompassing* (*das Umgreifende*) to designate the ultimate and indefinite limits of being as we experience it in all its fullness and richness, limits that surround, envelop, and suffuse all there is. It is the ultimate experienceable horizon. He uses the expression "being-as-such" to mean the encompassing or the totality of being as it is thought, conceived, or conceptualized, while he reserves the term *transcendence* to mean man's personal, devoted, and committed effort to reach the encompassing. In other words, the encompassing manifests itself in at least three modes: the total encompassing of the world, the encompassing that is the

empirical world of ordinary and scientific experience, and the encompassing that is one's own self. Although we are at a loss to describe its essence, we can say of the encompassing that it is. In a sense, I and the world are identical with the encompassing. In it, the severance between subject and object disappears, since both are manifestations of the same encompassing. On similar grounds, the encompassing (and this then applies to Jaspers's reinterpretation of God) can never be viewed as one object among many. It is all of being as well as all the differentiations within being. It is likewise beyond idealism, materialism, positivism, and naturalism, since all metaphysical positions are events within the encompassing but do not in any way delimit it. Therefore, in Jaspers's view, God, the unthinkable (*das Undenkbare*), becomes Rudolf Otto's "wholly other." I cannot grasp conceptually the encompassing that I am; similarly, the world is not exactly an illusion, since it is the only language through which the encompassing can reach me. The ultimate encompassing envelops both the I-pole and the object-pole of experience.

Man can search for transcendence by various means. He can explore the world, as science does. In that way he achieves a worldview. Or he can search for it by examining the relation between himself and the world, as we find it in epistemology, ethics, and psychology. He thereby achieves illumination of *Existenz*. Finally, he can search for God, in which case he deals directly with the problem of penetrating being itself. But he must never succumb to the error of identifying the encompassing with a particular substance or substratum of the world.

The encompassing manifests itself through the "footsteps of God," through analogical predication, through symbols, or, in Jaspers's own words, through ciphers (*Chiffren*), a notion borrowed from Pascal. The encompassing is like the horizon that is the perennial goal of the sailor: It always shows itself and yet is forever inaccessible. The major purpose of metaphysics is the disclosure of the ciphers that manifest encompassing, but in the end, metaphysical elucidation of the ciphers is a highly personal undertaking. Ciphers may appear suddenly and spontaneously in the presence of empirical facts, for example, an overwhelming mountain. They may appear in art forms, in religious myths and dogma, and in theological disputations; they may become manifest in the symbolism of the history of philosophy and its metaphysical systems; and finally, they may appear through reflection on the mystery of being as well as on the death that awaits every man.

Jaspers's religious prescription is called philosophic faith (*philosophische Glaube*). It consists of the convictions that man is open to transcendence and consequently wills infinity; that there is in fact a transcendence to the ordinary world; that personal freedom is to be maintained and respected; that man, as he finds himself, is inadequate; that man can rely on help from transcendence; and that the world is grounded and supported. To reject faith means to hold that the immediate world is all there is, that man's destiny is fully determined, that man is perfectible and alone, and that the world is self-supporting. Although there are significant similarities between Jaspers's philosophical faith and that of traditional Christianity, he rigidly opposed the absolutism of the latter to the openness and toleration of his philosophic faith. The Bible, for example, is a highly suggestive instrument for his philosophic faith, especially through its ciphers of one God and its emphasis on love, on choosing between good and evil, on the eternal in man, on the ordered and yet contingent universe, and on the image of God as the refuge. Nevertheless, transcendence is discovered through doubt, not reassurance: There can be no rational justification for the final leap of faith, even for a philosopher.

See also Bruno, Giordano; Descartes, René; Dilthey, Wilhelm; Doubt; Existentialism; Heidegger, Martin; Husserl, Edmund; Intentionality; Kant, Immanuel; Kierkegaard, Søren Aabye; Nietzsche, Friedrich; Phenomenology; Plotinus; Psychology; Schelling, Friedrich Wilhelm Joseph von; Spinoza, Benedict (Baruch) de; Subjectivity; Weber, Max.

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Peter Koestenbaum (1967)
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JEANS, JAMES HOPWOOD
(1877–1946)

James Hopwood Jeans, an English physicist and astronomer was educated at Merchant Taylor's School and Trinity College, Cambridge, where he received high honors in mathematics in 1898. He taught mathematics at Cambridge as university lecturer from 1904 to 1905, at Princeton as professor of applied mathematics from 1905 to 1909, and again at Cambridge as Stokes lecturer from 1909 to 1912. In 1912 he resigned all regular offices to live on a private income and later also on the sale of several popular books. He was honorary secretary of the Royal Society, president of the British Association for the Advancement of Science, and professor of astronomy at the Royal Institution.

Jeans was a man of undoubted ability and originality and early won a deservedly high reputation, being elected a fellow of the Royal Society at the age of twenty-eight. His main contributions to science were in two fields: the kinetic theory of gases, in particular the equipartition of energy and radiation; and cosmogony, in particular the forms of equilibrium of rotating gravitational masses and the kinetic theories of aggregates of stars. The last constitute perhaps his best and most enduring work.

During the early 1930s Jeans wrote a number of highly successful books popularizing science, and these, together with *Physics and Philosophy* (1942), contain his philosophical writings. His popular expositions of scientific theories are marked by their simplicity of expression and by the striking and illuminating examples and analogies they contain.

Although Jeans contributed nothing substantial to philosophy, his views gained attention because of his eminence in the scientific field and because of their being presented together with expositions of abstruse scientific theories widely agreed to be of philosophical interest. Jeans's writings on philosophy were slight in quantity as well as in quality; even *Physics and Philosophy* contained only about fifty pages of his own views.

His position was never consistently developed and is therefore unclear. Indeed, he seems almost to have felt that it would be against the spirit of philosophy to argue with rigor, clarity, and decent caution. His work is certainly characterized by loose reasoning, and not infrequently by plainly false or confused premises. Broadly, however, his views were that science must connect observables with observables by means of chains of mathematical equations. He held that mathematical formalization is the prime part of physical knowledge and that interpretative models of this formalism are outdated and confusing crutches in coming to know about the world. This was not because Jeans believed that only propositions about observables have a meaning. He was no positivist, despite his claim to be one. On the ground that physical measurement reveals only relations between instruments (including one's eyes and ears) and reality, he believed in a Lockean substratum that is forever hidden from us. He also held that modern science suggests that there is some room for the operation of free will, but it is unclear why he adopted this opinion. His attitude to the common fallacy that the uncertainty relations of quantum physics establish the possibility of free will is quite ambiguous.

The most striking and most widely discussed of Jeans's conclusions is that reality, the Lockean substratum, is mental, not material. This conclusion reaches its most startling form in the final chapter of *The Mysterious Universe*, where Jeans argued that the universe consists of the thoughts of a Pure Mathematician, God.

Jeans asserted—it is hardly an argument—that the universe is shown to be rational by the very fact that a mathematical description of it is possible. He argued that as physics has progressed it has discarded models as an aid to explanation and discovery. Post-Galilean physics discarded the biological model of Aristotle, and modern physics has now discarded mechanical theories and models, being content to present its theories as pieces of mathematical formalism. Jeans put the matter this way: We cannot interpret the multidimensional configuration spaces of quantum physics as material space because material space has but three dimensions. Nor can we interpret the axioms of non-Euclidean geometry, especially the geometry of finite spaces, in terms of the congruences of material rods in material space. (This last claim is simply unwarranted.) Consequently, argued Jeans, the formalism of modern physical theory must be given a pure mathematical interpretation. (However,

there is no sense in which we can speak of a pure mathematical *interpretation,* since "pure" here means "*un*interpreted.") Since the subject of pure mathematics is just thoughts, we may conclude, according to Jeans, that the stuff of the universe is mental. It is thought in the mind of God, the Pure Mathematician.

See also Aristotle; Cosmology; Geometry.

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G. C. Nerlich (1967)

JEFFERSON, THOMAS
(1743–1826)

"Here was Buried Thomas Jefferson
April 2, 1743 O.S. –July 4, 1826
Author of the Declaration of Independence
And of the Virginia Statue for Religious Freedom
and Father of the University of Virginia."

These are the words that Thomas Jefferson wrote for his epitaph. They indicate what he thought were his life achievements. What is notable here is that he does not mention that he was secretary of state, vice president, and president. These political accomplishments were not at the top of his list.

Jefferson was born in Shadwell, Virginia. His father, Peter Jefferson, was a self-taught surveyor and mapmaker. Thomas was sent to William and Mary College in the colony's capital, Williamsburg. Jefferson took to the law under the tutelage of George Wythe. It should be noted that Thomas Jefferson had wide-ranging intellectual interests (as evidenced by the personal libraries he assembled that included natural philosophy, history, and the fine arts). Jefferson was also a man of action and in 1769 was elected to the House of Burgesses. He became active in politics and published "A Summary View of the Rights of British America." This tract took a Whig-oriented republican view. In 1776 he wrote the Declaration of Independence from a Lockean standpoint. And in 1787 he completed his only full-length book, *Notes on the State of Virginia* (part encyclopedia and reflections on the same). Most of his other writings consist of speeches, legislation, and letters. He was the architect for his famous house, Monticello, and he founded the University of Virginia.

HIS PHILOSOPHY

Most commentators cite the influence of John Locke on Jefferson. Locke's *Second Treatise on Government* depicted the strong individual within a state of nature. This individual possessed natural rights that came into play in establishing the social contract. Government was created by the people and could be dissolved if it did not serve popular purposes. Locke's approach is so greatly in evidence within the Declaration of Independence that Carl Becker has said that "Jefferson copied Locke" (1945, p. 79).

This is probably most true of the Declaration but is less true of Jefferson's other works, which show a broad influence from the liberal Enlightenment. The argument for this can be illustrated by Jefferson's repudiation of the Church of England (which set out a default religious position modified by toleration of other religions—a position accepted by Locke). Jefferson, however, insisted upon the absolute separation of church and state. The result of this is the Virginia Statute for Religious Freedom, which Jefferson wrote.

J. G. A. Pocock (1969) has argued that Jefferson's thought reflects the thinking of nonliberal republican thinkers such as Cicero, Machiavelli, and James Harrington. This argument follows from humankind's nature as political beings and the political heritage from ancient Rome onwards. The argument for this interpretation lies largely in discursive passages of the *Notes* and in his correspondence.

The empiricism of Francis Bacon is also present in Jefferson's work on agriculture. In the end, it seems safe to conclude that though Jefferson was greatly influenced by

John Locke, there are many philosophical lights that guided him. What Jefferson did was to assimilate these various influences and apply them to practical problems that confronted him in his role as a prominent man of action.

A MAN OF CONTRADICTIONS

In the end, any evaluation of Thomas Jefferson must come to terms with his many contradictions. On the one hand, he was an agrarian, individualist, advocate for limited government, and yet on the other hand he served in three national offices (including the presidency) and expanded the country greatly—particularly through the Louisiana Purchase. He also stated in the Declaration that "all men are created equal." Slavery certainly flies in the face of equality. At times in both "The Rights of British America" and in his correspondence, Jefferson calls for various versions of ending slavery. And yet Jefferson continued to own slaves himself. This can probably be explained by the fact that Jefferson did not completely believe that nonwhite individuals were fully human. For example, Jefferson says in the *Notes* (query 14) that "Never yet could I find that a black had uttered a thought above the level of plain narration …" If blacks and Native Americans were not fully human, then they have no place in the new Republic. They must be exiled so that the "pure" fully human European Americans might appropriate the wilderness—viewed as the state of nature. In the Lockean state of nature, if one could work the land and make productive use of it, then it was his. Because the native peoples were not fully human, the fact that they were using the land first would be irrelevant.

However, once we set out the above position, we are again faced with a contradiction. In November 1998 the magazine *Nature* published an article that strongly suggested that Thomas Jefferson was the father of his slave Sally Hemmings's last son, Madison Hemmings (1805–1877). It was also possible that Jefferson and Hemmings had five other children: four daughters and one other son. Though the evidence for this is not conclusive (because the DNA tests could have also been the same if another Jefferson relative were the father), still these results raise questions of the relationship between the races in Colonial times. Why would Thomas Jefferson have children with someone he believed to be subhuman? Two possibilities present themselves: (a) either Jefferson thought that interracial sexuality was merely a way to satisfy desire without thought of outcome; or (b) Jefferson's private actions did not match his public writings. The first alternative makes Jefferson into the sort of animal

brute he publicly eschewed. The second alternative humanizes Jefferson and shows that he might fall in love with and honor a woman of color. Under this second hypothesis, he might personally believe in a realm of equality that he could never publicly express (even though it matched his words in the Declaration of Independence). Racism against native peoples and African slaves was the public dogma. Yet, perhaps he found a human with whom he could share and cherish true human love? The real truth may be a combination of (a) and (b). Such tortured reasoning is reminiscent of William Faulkner's *Absalom, Absalom!* The worldviews of the public and private are so riddled with contradictions that they often lead to bizarre and brutal results.

In the context of all these contradictions stands Thomas Jefferson, the third president of the United States—though (in his own mind) most to be honored as the author of the Declaration of Independence, the Virginia Statue for Religious Freedom, and founder of the University of Virginia.

See also Bacon, Francis; Cicero, Marcus Tullius; Deism; Enlightenment; Harrington, James; Locke, John; Machiavelli, Niccolò; Rights.

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JEVONS, WILLIAM STANLEY
(1835–1882)

The British economist and logician William Stanley Jevons was the son of Thomas Jevons, a Liverpool iron merchant, and Mary Anne Roscoe, a lady of some literary note. After early schooling at Liverpool, he attended University College School and University College, London, where he sat under Augustus De Morgan. In 1854 he left London to take up the post of assayer at the mint in Sydney, Australia, but returned five years later to complete his studies. Soon after, in 1863, he secured a junior teaching position at Owens College, Manchester. By this time he had already published various minor papers on meteorology and economics, a statistical study of commercial fluctuations, and a small work, titled *Pure Logic* (London, 1864, reprinted 1890), reflecting the influence of George Boole. His book on *The Coal Question* (London, 1865) attracted the attention of William Gladstone and was the first to make him known as an economist. In 1866 he was appointed professor of logic and political economy at Manchester, and in the following year married Harriet Taylor, daughter of the proprietor of the *Manchester Guardian.*

Jevons was a conscientious lecturer, but he neither enjoyed nor excelled at the work; and his laborious habits of study led to recurrent breakdowns of health, which had to be repaired by Continental travel, generally to Norway. In spite of this, he wrote prolifically, publishing *The Substitution of Similars* (London, 1869, reprinted 1890); *Elementary Lessons in Logic* (London, 1870), a widely used textbook introductory to J. S. Mill; and *The Principles of Science* (London, 1874; 2nd ed., 1877), his most important contribution to scientific methodology, containing, among much else, an account of his celebrated logical machine. *The Theory of Political Economy* (London, 1871; 2nd ed., 1879) was an equally important landmark in the development of mathematical economics and the theory of utility, followed soon after by a no less influential work of applied analysis and description, *Money and the Mechanism of Exchange* (London, 1875). The once-famous speculations on the relation of sunspot cycles to financial crises, posthumously published in *Investigations in Currency and Finance* (London, 1884), exhibit, more curiously, the range of his interests and the originality of his mind.

Wearying of his duties, Jevons resigned his chair at Manchester in 1876 to take up a similar but more congenial post as professor of political economy at University College, London. This he also resigned, however, in 1880. The main works of this later period were *Studies and Exercises in Deductive Logic* (London, 1880) and *The State in Relation to Labour* (London, 1882). In 1882 he accidentally drowned, probably as the result of a heart attack, while bathing off the coast of Kent. His *Letters and Journal,* edited by his wife (London, 1886), gives an interesting portrait of him. His last work, *The Principles of Economics,* appeared, unfinished, in 1905.

LOGIC

Although marked by no special distinction of style, the writings of Jevons are still worth reading, both for their logical penetration and for their wealth of factual information drawn from many sources of knowledge. His logic owes something to De Morgan and a good deal more to Boole. It represents in the main an attempt to simplify Boole's system by eliminating the more complex and uninterpretable of its mathematical operations and by reducing its procedures of calculation to a mechanical routine. Jevons's own claim to independence in developing his logic as a calculus of qualities, rather than of classes or propositions, is of no great significance; and his method of treating propositions as identities and inferring from them by substitution, though simple enough in

its way, is too lacking in subtlety to have become the "logic of the future" that he once hoped it would be. The most successful of his reforms of the Boolean algebra have been the removal of its inverse operations of subtraction and division and the proposal to read the disjunctive symbol ("either … or") as including the possibility "both"—a practice now universal and resisted at the time only by the conservative John Venn.

Jevons's most interesting adaptation of Boole is to be seen in his method of indirect inference—the principle underlying his "logical piano" and other mechanical aids to calculation—whereby premises are used to eliminate inconsistent combinations of terms from a matrix listing all the possibilities under which a given set of terms and their negatives can be associated. The machine itself, exhibited at the Royal Society in 1870 and described in the *Philosophical Transactions* for the same year, anticipates in its design a number of the features of modern logical computers, while its mode of operation has some fairly obvious affinities with the use of a truth table, though it can hardly be said that Jevons had much grasp of its applications in that respect.

INDUCTION

The logical machine gave its answers only by displaying the combinations compatible with the information fed to it, leaving to the operator the task of finding a compendious formula to express them. The difficulties of this "inverse process" resist mechanical solution and are comparable, in Jevons's view, to those of induction, which he represents accordingly as the inverse operation of deduction—the problem, that is, of deciphering from a given set of phenomena the hidden laws they obey. The treatment of this problem in *The Principles of Science* is in line with the work of William Whewell and De Morgan and in somewhat embittered opposition to the views of Francis Bacon and Mill. Jevons, in short, is an apostle of the hypothetico-deductive method in science, although, unlike Whewell at least, he does not believe it to be a demonstrative procedure or capable of extending knowledge beyond the range of present or past observation. We are necessarily ignorant of the long-term behavior of the universe at large, and when to this ignorance are added the inevitable deficiencies of observation and measurement, it is evident that inductive conclusions can never be more than probable.

PROBABILITY

Jevons was led by the above considerations to give detailed attention to the theories of measurement,

approximation, and error and also to bring the whole conception of inductive inference into closer association with the theory of probabilities than was usual with the writers who preceded him. Probability he holds, with De Morgan, to be essentially subjective, though it is a measure of appropriate, rather than of mere actual, belief. It determines "rational expectation, by measuring the comparative amounts of knowledge and ignorance," as represented by the evidence available. That evidence, as nature presents it in the inductive situation, consists of sets of phenomena in combination. Having previously ascertained them (and presumably selected them, somehow, for relevance), we proceed, by more or less intuitive methods (of which Jevons gives no satisfactory account), to erect a hypothesis to explain them. From this in turn we deduce the direct probability of various sets of possible consequences. We then compare these supposed consequences with the known facts in order to determine the probability of their having occurred under the hypothesis in question. This process being repeated for every conceivable hypothesis, we are thereby in a position to assign a probability to each of them by use of the inversion theorem derived, via De Morgan, from Pierre Simon de Laplace. There is no guarantee that by this method the right answers will be forthcoming; but it justifies the adoption of the most probable hypothesis as a matter of practical policy, and that is the best we can expect.

The mathematical theory of inverse probability is, unfortunately, not equal to the weight that Jevons here put upon it, and his conclusions are accordingly unsound. There is no means of knowing that the a priori probabilities of the rival hypotheses are equal, as the theory requires; and there is still less warrant for its extension, by the "rule of succession," to the prediction of new instances or for the employment, where ignorance is total, of the "principle of indifference" to confer a probability of ½ on a proposition merely because knowledge of its truth or falsity is the same (namely, nil) in either case. The fallacies that Jevons committed under this head have since become notorious; the measurement of ignorance is less simple—and nature less like a ballot box—than he was apt to suppose. Errors of conception apart, however, his general view of scientific method has in recent years met with increasing support and is probably his most enduring legacy to the history of thought.

See also Bacon, Francis; Boole, George; De Morgan, Augustus; Induction; Logic, History of; Logic Machines; Mill, John Stuart; Probability and Chance; Venn, John; Whewell, William.

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Jevons had no commentators. For a discussion of his logic, see references in the bibliography to the Logic, History of, entry. There is an early criticism of his theory of induction in Thomas Fowler, *Elements of Inductive Logic,* 3rd ed. (London: Clarendon Press, 1876), and scattered remarks of value occur in such general treatises as J. M. Keynes, *A Treatise of Probability* (London, 1921); William Kneale, *Probability and Induction* (Oxford: Clarendon Press, 1949); and G. H. von Wright, *The Logical Problem of Induction,* 2nd ed. (Oxford, 1949), and *A Treatise on Induction and Probability* (London: Routledge and Paul, 1951). See also the brief sketch in J. A. Passmore, *A Hundred Years of Philosophy* (London: Duckworth, 1957), pp. 132–136.

P. L. Heath (1967)

JEWISH AVERROISM

The thought of Averroes (Ibn Rushd) was popular in Jewish circles in the Middle Ages, as can be seen by the number of translations made into Hebrew. Some of his books survive only in Hebrew. Not all of these readers could be called Averroists, but some certainly did adhere to what they took to be the central ideas of Averroes himself. Jewish Averroism often included some degree of allegiance to Maimonides, who also developed a complex theory of how to link religion and philosophy. The major Averroists were Isaac Albalag, Joseph ibn Caspi, Moshe Narboni, Elijah Delmedigo, and many other more minor figures extending throughout the South of France and Italy.

One of the main features of Jewish Averroism was its way of distinguishing between rational and religious truths. Proving that religion is true by using reason is a mistake because religion and reason involve entirely different forms of argument. The Jewish Averroists nonetheless argued for the rational superiority of Judaism over against Christianity because the former, unlike the latter, does not call for the acceptance of logically self-contradictory beliefs such as those of transubstantiation, the Trinity, and the Virgin Birth.

THE MAJOR JEWISH AVERROISTS

Isaac Albalag came from the Pyrenees region during the second half of the thirteenth century. Albalag, like Averroes, regarded demonstrative argument to be the paradigmatic method of philosophy. Only philosophers can really use this sort of thought, Albalag claimed, and so only philosophers can really be allowed to say that they know what is true. He argues that when the literal sense of a religious text cannot be reconciled with its philosophical sense, both the literal sense and the philosophical understanding have to be accepted, but in different ways. The literal sense is accepted as something that one would understand completely if one were in the same position of the prophets who had originally transmitted the text. This takes him close to the so-called doctrine of double truth often ascribed to the Christian Averroists in their more radical moments.

Joseph ibn Caspi, born in 1279 in Provence, defended the literal sense of many passages in Scripture as accurate accounts of past events. He gives a naturalistic account of miracles and prophecy; the former are ill-understooood natural events, while prophets, according to Ibn Caspi, are people who understand the links between the present and the future.

Moses Narboni was born in Perpignan around 1300 and was critical of Maimonides' use of arguments drawn from Averroes. Narboni recognized that Averroes sought to challenge the Neoplatonic metaphysics of Ibn Sina (Avicenna), which formed an important part of Maimonides's thinking. Narboni also used Averroes's theory of the active intellect to provide an interest account of philosophical psychology. As human thinking becomes gradually perfected it moves from being largely imaginative to becoming more abstract and intellectual, and the material side comes under the control of thought. This is how religion and prophecy work: In themselves they are abstract but come to affect the material by inspiring and moving people to action. The prophets, according to Narboni, are provided for the majority who do not have the ability to use abstract thought because prophecy represents philosophical truths in imaginative language. There is one truth that is expressed in at least two different ways, one intellectually rigorous and the other practical and effective.

See also Averroes; Jewish Philosophy.

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JEWISH PHILOSOPHY

The works constituting the Old Testament touch upon various problems that are discussed in philosophical texts, and the literary forms of some of these works, for instance that of the dialogue in the book of Job and that of Ecclesiastes, bear some similarity to those found in certain philosophical writings. However, a conception of philosophy that included biblical wisdom would lose in clarity and definiteness of outline what it would gain in comprehensiveness. Accordingly, there seems to be a certain amount of justification for considering, as is often done, that the history of Jewish philosophy commences in Alexandria around the beginning of the Christian era, when the first noteworthy attempt was made to use Greek philosophical concepts and methods to come to terms with facts that in the philosophical view are most peculiar, namely, Jewish history as interpreted in religious tradition and biblical revelation.

HELLENISTIC PERIOD

PHILO. The attempt to apply Greek philosophical concepts to Jewish doctrines was made by Philo Judaeus (fl. 20 BCE–40 CE), a prominent member of the Jewish community of Alexandria—he was a member of a delegation sent by this community in the year 39/40, when he was in his own view an old man, to the Roman Emperor Caligula to complain of persecution. Philo, a scholar who combined Greek and Jewish learning, was a most elusive thinker. The immense difficulties that beset any inquiry into Philo's basic conception of the world spring from a variety of sources. Some of the difficulties result from our ignorance of the Greek philosophical authors belonging to Philo's time, for we have only secondhand knowledge of them. Also insufficient is our information about post-biblical Jewish beliefs and speculations, which may be supposed to have shaped Philo's outlook—at least in part and perhaps decisively. However, Philo seems to have had some acquaintance with the oral law, which was being evolved in his time, mainly by the Pharisees in Palestine, and which much later was set down in writing in the Mishnah and in other works belonging to the Talmudic literature. He also knew of the Essenes, whom he praised highly. Some of the sect's theological doctrines, its ethical lore, and its pseudepigraphic literature may have been adapted by Philo to his own purposes.

In a sense Philo's main life's work was hermeneutic. On the one hand, he provided Jewish conceptions with the hallmark of intellectual (or cultural) respectability by stating them in Greek philosophical terms; on the other,

he showed that from the point of view of Judaism many Greek notions were unexceptionable—they could be regarded as consonant with Philo's own Jewish doctrine and with the allegorical sense of biblical texts. The homiletic character of most of his writings gave him full scope for his labor of interpretation. He had two schemes of reference—Jewish religious tradition and Greek philosophy—and the fact that he took care to stress the primacy of the former may have been more than mere lip service. In many of Philo's religious speculations the Jewish tradition in the particular form he adopted was not interpreted and explained away—as it was by most of the medieval Aristotelians—as being a mere rehash of philosophical doctrines in a language suited to the limited intellectual capacity of most people. It may be argued with a certain amount of plausibility that in central points of his thought, such as his conception of the Logos, Philo used philosophical notions as trappings for an originally nonphilosophical belief.

A main function of the Logos as conceived by Philo is to serve as an intermediary between the transcendent, unknowable God and the world, a view that probably has a close connection with the view of his Jewish contemporaries concerning the Word (Logos) of God, by means of which he accomplishes his designs. It is significant that the Logos of God is said by Philo to be the place occupied by the world of Ideas: This world is also called by Philo the intelligible world (*kosmos noetos*). The conception of Idea intended here is clearly the Platonic one, conceived of as having been "thought out" by God. The expression used by Philo may indicate that in his time Platonistic philosophers already tended, as the Middle Platonists and the Neoplatonists later did—to place Ideas in the mind of God.

Above philosophical and theological speculations Philo placed mystic ecstasy, of which he may have had a personal experience, "when, … as at noon-tide God shines around the soul, and the light of the mind fills it through and through and the shadows are driven from it by the rays which pour all around it" ("On Abraham," in *Philo,* 10 vols., translated by F. H. Colson and G. H. Whitaker, Cambridge, MA, and London, 1929–1937; Vol. VI, p. 63).

Philo's approach, his method of interpretation, and his way of thinking, as well as some of his conceptions, primarily that of the Logos, exerted a considerable influence on early Christian thought, but not to any comparable extent upon Jewish thought. Later, in the Middle Ages, knowledge of Philo among Jews was either very slight or, in the majority of cases, nonexistent.

TALMUDIC LITERATURE. Most Hellenized Jews were no doubt absorbed into the Christian communities. On the other hand, such historical catastrophes as the destruction of the Temple and the crushing of the various Jewish insurrections by the Romans may have brought about a spiritual withdrawal of the Jews from the circumambient Greco-Roman civilization, a stressing of their separateness. Moreover, as a result of these disasters the spiritual center of Jewry shifted to Iraq, a country that was part of the Persian Empire and less permeated by Greek culture than the regions belonging to the Imperium Romanum.

Some traces of a knowledge of popular, mainly Stoic, philosophy may be found in the Mishnah, a codification of the oral law composed in Palestine in the second century of the Christian era, and in the subsequent Talmudic literature set down in writing in Palestine and Iraq. On the whole, these traces are rather slight. Nevertheless, some scholars believe that the influence of Greek philosophy on Palestinian Jewry was far-reaching, but the case, to say the least, is not proven.

Jewish theological and cosmological speculations occur in the Midrashim, which, under the guise of interpreting biblical verses, propound allegorical interpretations, legends, and myths, and in the *Book of Creation* (*Sefer ha-Yeṣīra*), a work attributed to Abraham, which is a combination of a cosmogony and a grammar. There is no clear evidence of the period in which it was written; both the third century and the sixth or seventh century have been suggested.

MIDDLE AGES

MEDIEVAL LITERATURE. Hayuye (usually called Hivi) al-Balkhī, who appears to have lived in the ninth century in Muslim central Asia, seems to have been a Jewish representative of a brand of free thought also known in Islam, one that under dualistic influence criticized the God of the Bible, who, in view of the prevalence of evil and the fact of his omnipotence, cannot be just. Al-Balkhī seems to have favored Manichaeism—which at that time had a number of adepts—or at least to have been suspected of this heresy; this inference can be made from a preserved fragment of a polemical work directed against him by Saadya in the tenth century. According to Saadya, "the Lord" of al-Balkhī is being eaten, drunk, burnt, and commingled (v. 54 of *Sa'adia Refutatum*), a description that fits the primeval man of Manichaean mythology and the elements belonging to him.

In the ninth and tenth centuries, after a very long hiatus, systematic philosophy and ideology reappeared among Jews, a phenomenon indicative of their accession to Islamic civilization. There is undoubtedly a correlation between this rebirth of philosophy and theology and the social trends of that period, which produced Jewish financiers—some of whom were patrons of learning and who in fact, although perhaps not in theory, were members of the ruling class of the Islamic state—and Jewish physicians who associated on equal terms with Muslim and Christian intellectuals. The evolution of Islam in the ninth and tenth centuries showed that Greek scientific and philosophic lore could be separated at least to some extent from its pagan associations, could be transposed into another language and another culture; it also tended to show—and many Jewish thinkers learned the lesson—that a culture of which the sciences and philosophy and/or theology were an indispensable part could be based upon a monotheistic, prophetic religion that in all relevant essentials was closely akin to Judaism. The question whether philosophy is compatible with religious law (the answer being sometimes negative) constituted the main theme of the foremost medieval Jewish thinkers.

Approximately from the ninth to the thirteenth centuries, Jewish philosophical and theological thought participated in the evolution of Islamic philosophy and theology and manifested only in a limited sense a continuity of its own. Jewish philosophers showed no particular preference for philosophic texts written by Jewish authors over those composed by Muslims, and in many cases the significant works of Jewish thinkers constitute a reply or a reaction to the ideas of non-Jewish predecessors. Arabic was the main language of Jewish philosophic and scientific writings.

There was little regular teaching of philosophy in the religious universities of Islam (though some taught a brand of Kalām approved by the government) and none in the Jewish schools. Many Jewish philosophers seem to have earned their living or a part of it by practicing medicine, a fact that sometimes influenced their thought. A certain number (among them some physicians) were teachers of and authorities in religious law and active in community matters.

Iraq, a very important center of Jewish thought in the ninth and tenth centuries, counted several Jews among its intellectuals steeped in Greek philosophy. However, by far the most productive and influential Jewish thinkers of this period represented a very different tendency, that of the Muʿtazilite Kalām. Kalām (literally, "speech") is an Arabic term used both in Islamic and in Jewish vocabulary to designate several theological schools that were ostensibly opposed to Greek, particularly to

Aristotelian, philosophy; the Aristotelians, both Islamic and Jewish, regarded Kalām theologians (called the Mutukallimūn) with a certain contempt, holding them to be mere apologists, watchdogs of religion, and indifferent to truth. Herein they did not do justice to their adversaries.

SAADYA. The Muʿtazilite school formed in the eighth century appears to have had, at certain periods, representatives actuated by a genuine theoretical impulse. Its theology, forged in disputes with the Zoroastrians, the Manichaeans, and the Christians, claimed to be based on reason. This belief in reason, as well as most of the tenets of Muʿtazilite theology, were taken over by Saadya ben Joseph (882–942). He prepared an Arabic translation of the books of the Bible provided with commentaries and composed a number of legal and polemical treatises.

Saadya's main theological work, whose Arabic title, *Kitāb al-Amānāt waʿl'i tiqādāt,* may be translated "The Book of Beliefs and Creeds," is modeled to a considerable extent on similar Muʿtazilite treatises and on a Muʿtazilite classification of theological subject matter known as the "Five Principles." Like many Muʿtazilite authors, Saadya starts out by setting forth in his introduction a list and theory of the various sources of knowledge. It may be noted that in beginning systematic theological treatises in this way the Jewish and Islamic adherents of Kalām approximated not Greek philosophical practice but the custom of Indian philosophical writings, which also normally begin by propounding a doctrine of the sources of knowledge (*pramānāh*). The Organon and the expositions of logical disciplines stemming from it that in the Corpus Aristotelicum and in the treatises of the medieval Aristotelians precede the disquisitions on the natural sciences and metaphysics are very different from these analyses of the sources of knowledge.

Knowledge. Saadya distinguished four sources of knowledge: (1) The five senses, (2) the intellect, or reason, (3) necessary inferences, and (4) reliable information given by trustworthy persons. Concerning the first source, he was aware of the doubts expressed by skeptics about the truth of the sense data but rejected these doubts. He held that as a rule a healthy man, one without disabilities, may trust his senses. Exceptional cases do not carry the weight attributed to them by the Skeptics. In Saadya's sense of the word, intellect or reason (*al-ʿaql*) means first and foremost an immediate a priori cognition. In "The Book of Beliefs and Creeds" the intellect is characterized as having immediate ethical cognitions, that is, as discerning what is good and what is evil. How-

ever, in his commentary on the book of Proverbs, Saadya also attributes to it the cognition of simple mathematical truths. The third source of knowledge concerns inferences that, if we may judge by the examples given by Saadya, are of the type "if there is smoke, there is fire." These inferences are based on data furnished by the first two sources of knowledge. The fourth source of knowledge is meant to validate the teachings of Scripture and of the religious tradition. Teachings of Scripture must be held to be true because of the trustworthiness of the men who propounded them. One of the main purposes of the work is to show that the knowledge deriving from the fourth source concords with that discovered by means of the other three, or, in other words, that religion and human reason agree.

Saadya's "intellect," postulated as the second source of knowledge, has a function quite different from that of the intellect of the medieval Aristotelians, who did not regard even the most general ethical rules as being a priori cognitions. According to them these rules are accepted as true in virtue of a universal consensus; because of this, validity, unlike that of a priori intellectual truths, can be questioned.

In discussing the third source of knowledge, Saadya does not refer to the Aristotelian theory of the syllogism, but this may be because of ignorance; such knowledge of Greek thought as he possessed was derived mainly from compendiums of doxographers translated into Arabic or adapted by Arabic authors. However, unlike the Muʿtazilites and the Karaites, who were atomists, Saadya adopted a number of doctrines resembling Aristotle's physical views. Nevertheless, he had no use for the conception of an eternal order of nature. This position does not necessarily deny all validity to the theory of genera and species, which is a main concern of the Aristotelian syllogistic, but it certainly tends to limit, or in some cases to negate, the relevance of this theory to the actually existing world.

Theology. Saadya did not merely deny the eternity of the world but held, in common with other, less eclectic partisans of the Muʿtazilite Kalām that the demonstration of the temporal creation of the world must precede and pave the way for the proof of the existence of God the Creator. Of the four arguments which he brought forward in favor of temporal creation, the last is the most noteworthy: Creation in time is an inference from the impossibility of supposing that the past (the whole of time which has elapsed up to the present moment) is of infinite duration—for its infinitude would preclude its coming to an end; the present would never arrive.

Given the demonstrated truth that the world has a beginning in time, it can be proved that it could have been produced only through the action of a Creator. It can further be proved that there can have been only one Creator. God's unity means that he is not a body. It also means, according to a conception taken over from the Muʿtazilites, that he has no attributes superadded to his essence. This applies also to the three attributes that Saadya singled out, perhaps rather inconsistently, as belonging to the Creator: He must be held to be living, possessed of power, and possessed of knowledge.

Justice and free will. The theology of Saadya, like that of the Muʿtazilites, hinges on two principles, of which the unity of God is one; the other is the principle of justice, whose formulation in Islam may have been influenced by attacks of dualists similar to those of Hayuye al-Balkhī (see above), who contended that in view of the existence of evil, an omnipotent God cannot be regarded as just.

This principle takes issue with the view (widespread in Islam and present also in Judaism) that the definition of what is just and what is good depends solely on God's will, to which none of the moral criteria found among men is applicable; according to this view a revelation from God can convert an action now generally recognized as evil into a good action. Against this way of thinking, Saadya and the Muʿtazilites believed that being good and just or evil and unjust are intrinsic characteristics of human actions and cannot be changed by divine decree. The notions of justice and of the good as conceived by man are binding on God himself. In the words of a later thinker, Gottfried Wilhelm Leibniz, he can act only *sub specie boni.* Since, according to Saadya, man has a priori knowledge of good and evil, just and unjust, the fact that human ethical judgments are valid for God means that man's ethical cognitions are also those of the Deity.

This point of view cannot be accorded with strict determinism if one believes, as Saadya professed to do, that men are rewarded for good and punished for evil deeds. It would be contrary to divine justice to condemn or to recompense them for something they cannot help doing; hence, man must be a free agent. For sharing this doctrine with Saadya, the Muʿtazilites were accused of being the dualists of Islam; because of it, they could not regard God as the sole Doer. In Judaism the doctrine of man's free will and free action had very respectable antecedents, and Saadya's position on this point does not seem to have aroused antagonism.

Saadya's simple solution to the problem of reconciling free will with divine prescience seems to be in accord with traditional religious formulas. God has foreknowl-edge of all the actions that men will perform in the future, but this knowledge does not interfere with human freedom, which enables men to do whatever they wish, both good and evil.

Religious law. The function of religious law is to impose on man the accomplishment of good actions and to prohibit bad ones. Because Saadya believed that man has a priori knowledge of good and evil and that this knowledge coincides with the principles underlying the most important portions of the revealed law, he was forced to ask the question whether this law is not supererogatory. He could, however, point out that whereas the human intellect recognizes that certain actions—for instance, murder or theft—are evil, it cannot by itself discover the best possible definition of what constitutes a particular transgression; nor can it, if it has no other guidance than its own reflections, determine the punishment appropriate for a transgression. On both points the commandments of religious law give the best possible answers.

The commandments of religious law that accord with the behests of the human intellect were designated by Saadya as the "intellectual," or "rational," commandments, According to him they include the duty of manifesting gratitude to the Creator for the benefits he has bestowed upon man. Saadya recognized that a considerable number of commandments, for instance those dealing with the prohibition of work on the Sabbath, do not belong to this category. He held, however, that the obligation to obey them may be derived from the "rational" commandment that makes it incumbent upon man to be grateful to God, for such gratitude entails obedience to his orders.

THE KARAITES. Saadya's adoption of the "rational" Muʿtazilite theology was a part of his overall activity, directed toward the consolidation of rabbinical Judaism, which was being attacked by the Karaites. This Jewish sect, which was founded by Anan ben David in the eighth century and which seems to have had some connection or some affinity with earlier Jewish sects of the period of the Second Temple, rejected the authority of the oral Law, that is, of the Mishnah and the Talmud. In the tenth century and after, the Karaites accepted as their guides the Bible and human reason in the Muʿtazilite sense of the word. Their professed freedom from any involvement with postbiblical Jewish religious tradition obviously facilitated a "rational" approach to theological doctrine. This approach led the Karaite authors to criticize their opponents, the rabbinical Jews, for holding anthropo-

morphic beliefs based, in part at least, on texts of the Talmudic period. In formulating his theology Saadya had in mind the need to disprove this enlightened criticism.

The Karaites themselves adopted wholesale Muʿtazilite Kalām, including its atomism. The atomism of the Karaite theologians has only a very slight similarity to what is known of the theories of Democritus and Epicurus, although Epicurus's hypothesis concerning *minima,* about which we are ill informed, does bear some resemblance to an important point in Islamic and Jewish doctrines. These doctrines appear to have a certain similarity to a Greek mathematical atomism, about which we possess very scanty information. It may derive from the theories of the Pythagoreans and of Xenocrates. Furthermore—and it is a significant point—Muʿtazilite and Karaite atomism in important points are reminiscent of Indian atomistic theories, those of Buddhism and that of the Nyāya-Vaiśeṣika; a historical connection is not wholly impossible.

The Muʿtazilite atomists, followed by the Karaites, held that everything that exists consists of discrete parts. This applies not only to bodies but also to space, to time, to motion, and to the "accidents"—that is, qualities—which the Islamic and Jewish atomists regarded as being joined to the corporeal atoms (but not determined by them, as had been believed by the Greek atomists). An instant of time or a unit of motion does not continue the preceding instant or unit. All apparent processes are discontinuous, and there is no causal connection between their successive units of change. The fact that cotton put into fire generally burns does not mean that fire is a cause of burning; rather, it may be explained as a "habit," signifying that this sequence of what is often wrongly held to be cause and effect has no character of necessity. God's free will, which is not bound by the nonexistent laws of nature, is the only agent of everything that occurs, with the exception of one category. Man's actions are causes that produce effects—for instance, a man who throws a stone at another man, who is then killed, directly brings about the latter's death. This inconsistency on the part of the theologians was necessitated by the principle of justice, for it would be unjust to punish a man for a murder that was a result not of his action but of God's. This grudging admission that causality exists in certain strictly defined and circumscribed cases was occasioned by moral, not physical, considerations. It may be added that because of the opposition it aroused, the Kalām's denial of the existence of a necessary succession of events seems to have strengthened the conviction of the Muslim and Jewish Aristotelians that such order exists and that it is immutable.

ISRAELI. Outside Iraq, philosophical studies were pursued by Jews in the ninth and tenth centuries in Egypt and in the Maghreb. Here the outstanding figure is Isaac ben Solomon Israeli, who died in the beginning of the second half of the tenth century—when he was over a hundred years old, if we are to believe his biographers.

Israeli, a famed physician, was the propagator of a type of philosophy that did not satisfy the exigencies of the strict Aristotelians of a later period; Maimonides denied his being a philosopher, saying that "he was only a physician."

In his philosophical works, such as the "Book of Elements" and the "Book of Five Substances," he drew largely upon the Muslim popularizer of Greek philosophy Abū-Yūsuf Yaʿqūb ibn al-Kindī and also in all probability upon a lost pseudo-Aristotelian text. The peculiar form of Neoplatonic doctrine that seems to have been set forth in this text had, directly and indirectly, a considerable influence on medieval Jewish philosophy.

According to Israeli, God creates through his will and power. This reference to two aspects of the Deity has been compared to certain passages in Plotinus and in Arabic texts that in a considerable measure derive from Plotinus. It may be noted in addition that power and will are singled out for mention as attributes of God in some Christian texts (see, for instance, Ignatius's *Epistle to the Smyrnaeans,* in *The Apostolic Fathers,* edited by Kirsopp Lake, Vol. I, London, 1959, p. 253, and "Isaac ex Judaeo, *Liber Fidei,* in *Patrologia Graeca,* edited by J. P. Migne, Paris, 1857–1866, Vol. XXXIII, Col. 1543). The two things that were created first are form, identified with wisdom, and matter, which is designated as the genus of genera and which is the substratum of everything, not only of bodies, as was the opinion of the Aristotelians, but also of incorporeal substances. This conception of matter seems to derive from the Greek Neoplatonists Plotinus and Proclus, particularly from the latter. In Proclus's opinion, generality was one of the main criteria for determining the ontological priority of an entity. Matter, because of its indeterminacy, obviously has a high degree of generality; consequently, it figures among the entities having ontological priority. According to the Neoplatonic view, which Israeli seems to have adopted, the conjunction of matter and form gives rise to the intellect. A light sent forth from the intellect produces the rational soul. The animal soul is an emanation of the rational soul, and in its turn it gives rise to the vegetative soul.

As far as Jewish philosophy is concerned, Israeli's doctrine of prophecy seems to be the earliest theory attributing prophecy to the influence of the intellect on the imaginative faculty. According to Israeli this faculty receives from the intellect spiritual forms that are intermediate between corporeality and spirituality. This explanation implies that these forms "with which the prophets armed themselves" are inferior to purely intellectual cognitions.

IBN GABIROL. In essentials the schema of creation and emanation propounded by Isaac Israeli and his Neoplatonic source or sources was taken over by Solomon Ben Judah ibn Gabirol, a celebrated Hebrew poet of the eleventh century, who seems to have been the earliest Jewish philosopher of Spain.

Ibn Gabirol's chief philosophical work, "The Source of Life" (or *The Fountain of Life*), written in Arabic, has been preserved in full only in a twelfth-century Latin translation titled *Fons Vitae*.

Fons Vitae makes no reference to Judaism or to specifically Jewish doctrines; it is a nonironical dialogue between a disciple and the master who teaches him true philosophical knowledge. In the Middle Ages it was criticized with some reason for its prolixity; it is also full of contradictions. Nevertheless, it is a strangely impressive work. Few medieval texts so effectively communicate the Neoplatonic conception of the existence of a number of planes of being that differ according to their ontological priority, the derivative and inferior ones constituting a reflection in a grosser mode of existence of those which are prior and superior.

A central conception in Ibn Gabirol's philosophy is concerned with the divine will, which appears to be both part of and separate from the divine essence. Infinite according to its essence, the will is finite in its action. It is described as pervading everything that exists and as being the intermediary between the divine essence and matter and form. Will was one of a number of traditional appellations applied in various, mainly negative, theologies to the entity intermediate between the transcendent Deity and the world or, according to another, not necessarily incompatible interpretation, to the aspect of the Deity involved in creation. According to a statement in *Fons Vitae,* matter derives from the divine essence, whereas form derives from the divine will. This suggests that the difference between matter and form has some counterpart in the godhead and also that universal matter is superior to universal form. Some of Ibn Gabirol's statements seem to bear out the latter impression; other pas-

sages, however, appear to imply a superiority of universal form. The apparent contradiction seems to result from two conflicting approaches: the Aristotelian, which assumes that form (which is held to be *in actu*) is superior to matter (which per se exists only potentially), and the Neoplatonic, which in at least one of its manifestations consistently professed the superiority of matter, which, being indeterminate, could be held to be of a more universal, all-encompassing nature than form.

Form and matter, whether they be universal or particular, exist only in conjunction. All things, with the sole exception of God, are constituted through the union of the two; the intellect no less than the corporeal substance. In fact, the intellect is the first being in which universal matter and form are conjoined. In other words, Ibn Gabirol considered—in accord with Israeli—that the intellect is not one simple substance, as was thought by the faithful disciples of Aristotle; in his view its unity proceeds from a duality. The intellect contains and encompasses all things. It is through the grasp of the various planes of being, through ascending in knowledge to the world of the intellect and cognizing what is above it—the divine will and the world of the Deity—that man may "escape death" and reach "the source of life."

In the twelfth century Ibn Gabirol's system seems to have enjoyed a certain vogue among Jewish intellectuals living in Spain. Thus, Joseph Ben Jacob ibn Zaddik (d. 1149) and Abraham ibn Ezra (c. 1092–1167) were at least to some extent disciples of his. Ibn Zaddik was the author of the *Microcosm,* a work written in Arabic but extant only in a Hebrew translation, which draws a parallel between man and the microcosm. However, Abraham ibn Da'ud (see below) criticized Ibn Gabirol at length, denouncing the feebleness of his argumentation and the incorrect (that is, non-Aristotelian) conception of matter.

HALEVI. Yehuda Halevi (c. 1075–1141), also of Spain, who, like Ibn Gabirol, was a Hebrew poet, has the distinction of being the earliest and the most outstanding medieval Jewish thinker whose theology or philosophy (he would have repudiated the latter term) does not merely take Judaism in its stride, as was largely true of Saadya and the Karaites, to mention only two, but is consciously and consistently based upon arguments drawn from Jewish history.

His views are set forth in an Arabic dialogue whose full title is translated as "The Book of Proof and Demonstration in Aid of the Despised Religion." According to a custom that finds some justification in one of Halevi's letters, this work is usually referred to as the "Kuzari," the

Hebrew name of the king of the Khazars who is one of the two protagonists of the dialogue.

Basing his narrative on the historical fact that the Khazars were converted to Judaism, Halevi relates that their king, a pious man who did not belong to any of the great monotheistic religions, dreamed of an angel who said to him, "Your intentions are pleasing to the Creator, but your works are not." To find the correct way of pleasing God, the king seeks the guidance of a philosopher, of a Christian, of a Muslim, and, finally, after hesitating to have recourse to a representative of a people degraded by its historical misfortune, of a Jewish scholar, who converts him to Judaism.

The words of the angel heard in a dream may, in accordance with both religious and philosophical doctrine, be regarded as an (inferior) species of revelation. The use of this element of the story enabled Halevi to suggest that it is not the spontaneous activity of human reason that impels man to undertake the quest for the true religion; for this one needs the gift of prophecy, or at least a touch of the prophetic faculty (or a knowledge of the revelations of the past).

The argument of the philosopher whose advice is sought by the king brings this point home. This disquisition is a brilliant piece of writing, for it lays bare the essential differences—which the medieval philosophers often endeavored to dissimulate by means of circumlocution and double talk—between the Aristotelian God, who is totally ignorant of and consequently wholly indifferent to human individuals, and the God of religion.

Within the framework of philosophical doctrine, the angel's words are quite meaningless. Not only is the God of the philosophers, who is a pure intellect, not concerned with man's works, but the (cultural) activities, involving both mind and body, to which the angel clearly referred, cannot from the philosophical point of view either help or hinder man in the pursuance of the philosophers' supreme goal, the attainment of union with the Active Intellect. This union was supposed to confer knowledge of all the intelligibles. Thus, man's supreme goal was supposed to be of a purely intellectual nature.

In opposition to the philosopher's faith, the religion of Halevi's Jewish scholar is based upon the fact that God may have a close, direct relationship with man, who is not conceived primarily as a being endowed with intellect. The postulate that God can have intercourse with a creature made of the disgusting materials that go into the composition of the human body is scandalous to the king and prevents his acceptance of the doctrine concerning

prophecy expounded by the Muslim sage (just as the extraordinary nature of the Christological dogmas deters him from adopting Christianity). It may be noted that the opposition on this point between the king and the philosopher on the one hand and the Jew and the Muslim on the other reflects one of the main points of controversy between pagan authors and the Church Fathers (and some Gnostics in the first centuries of the Christian era). The moot point is whether a superior kind of man or, as many pagans believed, the souls or spirits ruling the heavenly bodies are the proper intermediaries between God, humankind, and the teachers of the arts and sciences. An echo of this controversy is found in Arabic literature, and Halevi, in developing his point of view, had probably adapted to some extent an older, non-Jewish source, at the same time making extensive use of Jewish religious tradition.

His position is that it is contemplation not of the cosmos but of Jewish history that procures knowledge of God. Halevi was aware of the odium attaching to the doctrine of the superiority of one particular nation; he held, however, that only this doctrine explains God's dealing with humankind, which like many other things, reason is unable to grasp. The controversies of the philosophers serve as proof of the failure of human intelligence to find valid solutions to the most important problems. Halevi's description of the specific Jewish position has also exercised a certain fascination upon several modern Jewish philosophers, such as Franz Rosenzweig.

HALEVI'S CONTEMPORARIES. As a speculative author Halevi was by no means an isolated phenomenon. During the period comprising the second half of the eleventh century and the first half of the twelfth century a number of Jewish thinkers appeared in Spain.

Bahya. In this period Bahya ben Joseph ibn Paquda (second half of the eleventh century) wrote one of the most popular books of Jewish "spiritual" literature, the "Commandments of the Heart," which combines a theology influenced by although not identical with that of Saadya with a moderate mysticism inspired by the teachings of the Muslim Sufis. The commandments of the heart—that is, those relating to men's thoughts and sentiments—are contrasted with the commandments of the limbs—that is, the Mosaic commandments enjoining or prohibiting certain actions. Bahya maintained that both sets of commandments should be observed, thus rejecting the antinomistic position. However, he made clear that first and foremost he was interested in the commandments of the heart.

Bar Hiyya. Abraham bar Hiyya (first half of the twelfth century), an outstanding mathematician, an astrologer, and a philosopher, outlined in *Megillat ha-Megalleh* a view of Jewish history which in some particulars is rather reminiscent of that of Yehuda Halevi but which does not emphasize to the same degree the uniqueness of that history and is set forth in much less impressive fashion. Living in Barcelona under Christian rule, bar Hiyya wrote his scientific and philosophical treatises not in Arabic but in Hebrew.

Ibn Ezra. Hebrew was also used by Abraham ibn Ezra, a native of Spain, who traveled extensively in Christian Europe. His commentaries on the Bible contributed to the diffusion among the Jews of Greek philosophical thought, to which Ibn Ezra made many, although as a rule disjointed, references.

Abu'l-Barakāt al-Baghdādī. The last outstanding Jewish philosopher of the Islamic East, Abu'l-Barakāt al-Baghdādī (died as a very old man after 1164), sometimes called Abu'l-Barakāt ibn Malkā, also belongs to this period. Being a borderline case he illustrates a certain indeterminacy in the definition of a Jewish thinker.

Abu'l-Barakāt al-Baghdādī, an inhabitant of Iraq, was converted to Islam in his old age (for reasons of expediency, according to his biographers). His philosophy appears to have had a very strong impact on Islamic thought, whereas its influence upon Jewish philosophy and theology is very hard to pin down and may be practically nonexistent. His chief philosophical work, *Kitāb al-Muʿtabar,* a title that according to Abu'l-Barakāt's own interpretation means "The Book of That Which Has Been Established by Personal Reflection," has very few references to Jewish texts or topics. His theory appears mainly to represent a kind of dialectic development of Avicenna's doctrine concerning the existence of the soul; it is a radicalization that plays havoc with the greater part of Avicenna's psychology and theology. On the other hand, another important work of his, a philosophical commentary on Ecclesiastes, attests his knowledge of and interest in Jewish tradition.

Ibn Kammūna. Ibn Kammūna, who lived in the second half of the thirteenth century, may be regarded as the last Jewish philosopher of the Islamic East. There is a possibility that he too was converted to Islam. He wrote a curious treatise, *Tanqīh al-abhāth bi'l-mabhath ʿan al-milal al-thalāth,* dealing, ostensibly impartially, with the three monotheistic religions—Judaism, Islam, and Christianity. His philosophical doctrine seems to derive from Avicenna and his thirteenth-century disciple Naṣīr al-Dīn al-Ṭūsī.

IBN DAʾUD. With regard to the adoption of Aristotelianism (including such systems as that of Avicenna, which in many essentials stems from, but profoundly modifies, the pure Peripatetic doctrine) there is a considerable time lag between the Islamic East in the one hand and Muslim Spain and the Maghreb on the other.

Abraham ibn Daʾud (died in the second half of the twelfth century), who is regarded as the first Jewish Aristotelian of Spain, was primarily a disciple of Avicenna. According to a not unlikely hypothesis, he may have translated or helped to translate some of Avicenna's works into Latin, for Ibn Daʾud lived under Christian rule in Toledo, a town that in the twelfth century was a center for translators. His historical treatises, written in Hebrew, manifest his desire to familiarize his coreligionists with the historical tradition of the Latin world, which at that time was alien to most of them. But his philosophical work, *Sefer ha-Emunah ha-Ramah* (The book of sublime religion), written in 1161 in Arabic, shows few, if any, signs of Christian influence.

The doctrine of emanation set forth in *Sefer ha-Emunah ha-Ramah* describes in the manner of Avicenna the procession of the ten incorporeal intellects, the first of which derives from God. This intellect produces the second intellect, and so on. Ibn Daʾud questioned in a fairly explicit manner Avicenna's views on the way the second intellect is produced; his discipleship did not by any means spell total adherence.

Ibn Daʾud's psychology was also, and more distinctively, derived from Avicenna. The argumentation leading to a proof that the rational faculty is not corporeal attempts to derive the nature of the soul from the fact of immediate self-awareness. Like Avicenna, Ibn Daʾud tended to found psychology on a theory of consciousness.

Concerning "practical" philosophy, that is, ethics and political theory, Ibn Daʾud was of the opinion that all that Aristotle discovered in this field of inquiry can be found in the Torah in a more perfect manner.

Sefer ha-Emunah ha-Ramah was said by its author to have been written in response to a question concerning free will and determinism. Obviously, this problem is closely bound up with the problem of God's knowledge. According to Ibn Daʾud events in this world are in part predetermined by necessity and in part contingent. Insofar as they are contingent, their occurrence or failure to occur may depend on man's actions. The necessary events are known by God as necessary, and the contingent as contingent. With regard to contingent events, he has no

certain knowledge of whether they will come about in the future.

Ibn Da'ud often referred to the accord that, in his view, existed between philosophy and religious tradition. As he remarked, *Sefer ha-Emunah ha-Ramah* was not meant to be read either by readers who, in their simplicity, are satisfied with what they know of religious tradition or by those who have a thorough knowledge of philosophy. It was intended for readers of one type only, those who, being on the one hand acquainted with the religious tradition and having on the other some rudiments of philosophy, are "perplexed." It was for the same kind of people that Maimonides wrote his *Guide of the Perplexed.*

MAIMONIDES. Maimonides (Moses ben Maimon, 1135–1204), a native of Spain, is incontestably the greatest name in Jewish medieval philosophy, but it is not because of outstanding originality in philosophical thought, in the proper sense of the term, that his reputation is deserved. Rather, the distinction of Maimonides, who is also the most eminent codifier of Jewish religious law, is to be found in the vast scope of his attempt in the *Guide of the Perplexed* to safeguard both the religious law and philosophy (whose divulgation is, as he was aware, destructive of the law), without suppressing the issues and without trying to impose, on the theoretical plane, a final, universally binding solution of the conflict.

As Maimonides made clear in his introduction to the *Guide,* he regarded his self-imposed task as perilous, and he therefore had recourse to a whole system of precautions destined to conceal his true meaning from the people who, lacking the necessary qualifications, were liable to misread the book and abandon observance of the law. According to Maimonides' explicit statement, these precautions include deliberately contradictory statements meant to mislead the undiscerning reader. It clearly follows that there is no possibility of propounding an interpretation of Maimonides' doctrine which would not be disproved or seem to be disproved by some passage or other of the *Guide.* Nevertheless, a consideration of the system as a coherent whole and of certain indications found in this work appears to suggest that Maimonides' true opinions on certain capital points are not beyond conjecture.

Conception of God. The apparent or real contradictions that may be encountered in the *Guide* are perhaps most flagrant in Maimonides' doctrine concerning God. There seems to be no plausible hypothesis capable of explaining away the differences between the following three views:

(1) God has an eternal will that is not bound by natural laws. Through an act of his will he created the world in time and imposed on it the order of nature. This creation is the greatest of miracles; if and only if it is admitted can other miracles, such as God's interventions, which interfere with the causally determined concatenation of events, be regarded as possible. The philosophers' God who is not free to cut the wings of a fly is to be rejected. This conception is in keeping with the traditional religious view of God and is adopted by Maimonides, if a statement of his is to be taken at its face value, because failure to do so would undermine religion.

(2) Man is incapable of having any positive knowledge concerning God. The ascription to God of the so-called divine attributes—wisdom or life, for instance—should not be regarded as an assertion that God is endowed with a positive quality designated as wisdom or life because it is similar to the corresponding quality found in created beings, for the fact is that their being homonyms is the only resemblance between human and divine wisdom or, for that matter, between man's and God's existence. Contrary to the attributes predicated of created beings, the divine attributes are strictly negative; they state what God is *not*; for instance, he is not *not-wise,* which, as Maimonides believed, is not a positive assertion.

Negative theology of a similar kind may be found in the writings of Islamic philosophers, such as Avicenna, who are known to have had some influence on Maimonides, but they put much less emphasis on this aspect of their doctrine concerning God. Maimonides used it, inter alia, to justify the statement that the only positive knowledge of God possible is that which is known through his acts, identified in the *Guide* as the sometimes beneficent and sometimes destructive operations of the natural order. In other words, human knowledge of God is assimilated into the knowledge of the two sciences that treat of this order, physics and metaphysics.

(3) In accordance with the doctrine of Aristotle, God is an intellect. The formula current among medieval philosophers which maintains that in him the cognizing subject, the cognized object, and the act of intellectual cognition are identical derives from Aristotle's thesis that God cognizes only himself. Maimonides, however, in adopting the formula interpreted it in the light of human psychology and epistemology, pointing out that according to a theory of Aristotle the act of human (not only of divine) cognition brings about an identity of the cogniz-

ing subject and cognized object. The parallel drawn by Maimonides between the human and the divine intellect quite evidently implies a certain similarity between the two; in other words, it is incompatible with the negative theology of other passages of the *Guide.* Maimonides' interpretation also implies that God knows not only himself (if the reflexive pronoun is taken to refer to his transcendent essence only) but also objects of cognition, that is, intelligibles held to be outside himself; however, in virtue of the eternal act of cognition, the objects of cognition—which should perhaps be assimilated into the intelligible structure of the world—are identical with God himself.

In view of the relation that it implies between God and the world, the conception of God as an intellect can scarcely be reconciled with Maimonides' negative theology; nor can it be reconciled with his theological doctrine, which is centered on God's will and which asserts that the structure of the world (created in time) came into being through the action of his will.

Prophecy. The enigma of the *Guide* would be nonexistent if Maimonides could be held to have believed that truth can be discovered in a suprarational way, through revelations vouchsafed to the prophets. This, however, is not the case. Maimonides held that the prophets (with the exception of Moses) combine great intellectual abilities, which qualify them to be philosophers, with a powerful imagination. As he put it, the intellectual faculty of the philosophers and the prophets receives an "overflow" from the Active Intellect. In the case of the prophets this "overflow" not only brings about intellectual activity but also passes over into the imaginative faculty, giving rise to visions and dreams. The fact that prophets have a strong imagination gives them no superiority in knowledge over philosophers, who do not have it. Moses, who belonged to a higher category than the other prophets, did not have recourse to imagination. According to another text of Maimonides, his commentary on the Mishnah, the prophets achieve union with the Active Intellect; hence, they are the supreme philosophers.

The laws and religion as instituted by Moses are intended not only to ensure the bodily welfare and safety of the members of the community but also to facilitate the attainment of intellectual truths by individuals gifted enough to uncover the various hints embodied in religious laws and practices. This does not mean that all the beliefs inculcated by Judaism are true. Some indeed express philosophical truths, although in an inaccurate way, in a language suited to the intellectual capacity of the common people, who in general cannot grasp the import

of the dogmas they are required to profess. Other beliefs, however, are false, but "necessary" for the preservation of a public order upholding justice. Such is the belief that God is angry with wrongdoers.

Religious law. As far as the law—that is, the religious commandments—is concerned, two aspects of Maimonides' position may be distinguished. On the one hand, he had to maintain that it is unique in its excellence; there is no basis of comparison between Moses, who promulgated this law, and any other prophet (or any other man) who existed in the past or who may appear in the future and, consequently, the law is valid for all time. This profession of faith, at least with regard to its assumptions about the future, lacked philosophical justification; however, in view of the Muslim polemics and perhaps also in view of incipient tendencies among the "perplexed" to neglect the observance of the commandments, it could be regarded as necessary for the survival of Judaism.

In its second aspect Maimonides' position is characterized by his awareness of the role of historical contingencies in the institution of the commandments. He insisted time and again that Moses had to fulfill two requirements: His law had to be different, but it could not be too different from the customs and ordinances of the pagans among whom the children of Israel lived. The people could not have borne too sharp a break with the way of life to which they were accustomed. For instance, the commandments concerning sacrifice arise from this awareness of the necessities of a specific historic situation. Like nature, which uses many complicated devices in forming a viable organism, the political leader, who must fashion his community, is sometimes compelled to have recourse to a "ruse" or a roundabout method.

Like Aristotle, Maimonides held that the "theoretical life" constitutes the highest perfection possible to man. But he believed (partly under the influence of the Platonic political doctrine adopted by al-Farabi and others) that certain individuals, for example, the Patriarchs and Moses, are capable of combining contemplation with a life of action. In its supreme manifestation the activity of the prophet-lawgiver imitates that of God or nature.

THE THIRTEENTH CENTURY. For four or five centuries (and in certain regions for an even longer time), the *Guide of the Perplexed* exercised a very strong influence in the European centers of Jewish thought; in the thirteenth century, when the *Guide* was twice translated into Hebrew, these centers were Spain, the south of France, and Italy. Rather paradoxically, in view of the unsystem-

atic character of Maimonides' exposition, it was used as a standard textbook of philosophy—and condemned as such when the teaching of philosophy came under attack. The performance of this function by the *Guide* was rendered possible or at least facilitated by the fact that from the thirteenth century onward the history of Jewish philosophy in European countries acquired a continuity it had never had before. First and foremost, this development seems to have resulted from a linguistic factor: In Spain, where the Christian reconquest was destroying piecemeal the power of Islam, Jewish philosophers abandoned the use of Arabic as the language of philosophical exposition. The Jews did not, however, switch to Latin, the language of Christian philosophy. They and their coreligionists in other European countries wrote in Hebrew, and they read original and translated texts extant in Hebrew, which were much less numerous and less diverse than those found in Arabic philosophical literature. Owing to the existence of a common and relatively homogeneous philosophical background and to the fact that Jewish philosophers reading and writing in Hebrew naturally read the works of their contemporaries and immediate predecessors, something like a dialogue can be discerned. In striking contrast to the immediately preceding period, European Jewish philosophers in the thirteenth century and after frequently devoted a very considerable part of their treatises to discussions of the opinions of other Jewish philosophers. That many of the Jewish philosophers in question wrote commentaries on the *Guide* undoubtedly furthered this tendency.

The influence of Maimonides' contemporary Averroes, many of whose commentaries and treatises were translated into Hebrew, was second only to that of Maimonides. Indeed, it may be argued that for philosophers, as distinct from the general reading public, it often came first. In certain cases, commentators on the *Guide* tend, in spite of the frequent divergences between the two philosophers, to quote Averroes's opinions in order to clarify those of Maimonides.

The influence of Christian scholastic thought on Jewish philosophy was in very many cases not openly acknowledged in the period beginning with the thirteenth century, but it seems to have been of great significance. Samuel ibn Tibbon, one of the translators of the *Guide* into Hebrew and a philosopher in his own right, remarked on the fact that the philosophical sciences were more widely known among Christians than among Muslims. Somewhat later, at the end of the thirteenth century and after, Jewish scholars in Italy (Hillel of Verona and others) translated into Hebrew texts of Thomas Aquinas

and other Scholastics; not infrequently, although by no means always, some of them acknowledged the debt they owed their Christian masters.

In Spain and in the south of France a different convention seems to have prevailed up to the second half of the fifteenth century. Whereas Jewish philosophers of these countries felt no reluctance about referring by name to Greek, Arabic, and of course other Jewish philosophers, as a rule they refrained from citing Christian thinkers whose views had, in all probability, influenced them. In the case of certain Jewish thinkers this absence of reference to the Christian Scholastics served to disguise the fact that in many essentials they were representative of the philosophical trends, such as Latin Averroism, that were current among the Christian Scholastics of their time.

Albalag. Quite evident is the resemblance between certain views professed by the Latin Averroists and the parallel opinions of Isaac Albalag, a Jewish philosopher who lived in the second half of the thirteenth century, probably in Catalonia, Spain, and who wrote a commentary in Hebrew on the "Intentions of the Philosophers," an exposition of Avicenna's doctrine written by the Muslim philosopher Mohammad al-Ghazali. No serious attempt at interpreting Albalag's assertion that both the teachings of the Bible and the truths demonstrated by reason must be believed even if they are contradictory can fail to pose the question whether some historical connections exists between this view and the Latin Averroist doctrine that there are two sets of truths, the religious and the philosophical, and that these are not necessarily in accord.

In most other points Albalag was a consistent follower of the system of Averroes himself (although a few of Albalag's doctrines appear to be in closer accord with Ibn Sīnā). This philosophical position may be exemplified by his rejection of the view that the world was created in time. He professed, it is true, to believe in what he called "absolute creation in time." However, this expression merely signifies that at any given moment the continued existence of the world depends on God's existence, an opinion which is essentially in harmony with Averroes.

Bedersi. Yeda'ya Hapnini Bedersi, of Béziers in the south of France, who lived from the end of the thirteenth century to the beginning of the fourteenth century, appears to have been influenced by the teaching of John Duns Scotus, for he believed in the existence of what he called individual forms, which seem by and large to correspond to the *haecceitas* of the Scotists.

Kaspi. One of Bedersi's contemporaries, Joseph Kaspi, a prolific philosopher and exegetical commentator, maintained a somewhat unsystematic philosophical position that seems to have been influenced by Averroes. He expressed the opinion that knowledge of the future, with that of God himself, is like that possessed by experienced people concerning the way in which business transactions or marriages may be expected to turn out—that is, such knowledge is of a probabilistic nature. The prescience of the prophets is of the same nature. It is more than likely that Kaspi's interest in this problem had some connection with the debate about future contingents in which Christian Scholastics were engaged at that time.

Kaspi also held that in view of the vicissitudes of history the return of the Jews to Palestine may on probabilistic grounds be considered likely. As a result he rejected the distinction—which for Yehuda Halevi, for instance, had been a basic one—between sacred and profane history, the first being the history of the people of Israel and the second that of other nations.

LATE MEDIEVAL PERIOD

KABBALAH. One of the most urgent problems with which Jewish philosophers were faced in the fourteenth and fifteenth centuries was that of the attitude to be adopted toward the Kabbalah (literally, "tradition"), a body of mystic and Gnostic doctrines, part of which was being elaborated in that period in the countries in which the philosophers lived.

Many of the Kabbalists incorporated philosophical doctrines in their writings and claimed Maimonides as a Kabbalist but at the same time regarded philosophy as such as an inferior kind of science. This disdainful attitude was reciprocated by some philosophers. Nonetheless, attempts were made to effect a reconciliation between philosophy and Kabbalah. Such an attempt was made by Joseph ibn Wāqār, a fourteenth-century philosopher of Toledo, who wrote "The Treatise Which Reconciles Philosophy and Religious Law" in Arabic (which in that period and country was atypical for a Jewish philosopher). According to Ibn Wāqār, the opinions of the philosophers are founded on reason, whereas those of the Kabbalists owe their validity solely to their having been transmitted by a tradition whose authority guarantees their truth. Although recognizing in theory the superiority of the Kabbalistic doctrine to the teachings of philosophy, Ibn Wāqār endeavored to show the basic similarity, masked by a difference of terminology, of the two systems of thought. He also affirmed that knowledge of philosophy increases the aptitude to apprehend the mystic doctrine of the Kabbalah.

NARBONI. Moses of Narbonne, or Moses Narboni, who lived in the south of France in the fourteenth century, was, like many other Jewish writers of this period, mainly a writer of commentaries. He wrote commentaries on biblical books, on treatises of Averroes, apocryphal treatises, and on Maimonides' *Guide.* In his commentary on the *Guide,* Narboni often interprets the earlier Jewish philosopher's opinions by recourse to Averroes's views. Narboni also expounded and gave radical interpretations to certain conceptions that he understood as implied in the *Guide.*

According to Narboni, God participates in all things because he is the measure of all substances. From another point of view all things exist in God, "the Agent being the essence of the patient." God is the form of the world. In Narboni's interpretation (which, not quite correctly, he opposed to that of Maimonides) this formula means that God is a form which, although it is not in a body, is "with a body": God's existence appears to be bound up with that of the world, to which he has a relation analogous to that existing between a soul and its body (a comparison already made in the *Guide*). As the form of the world, God also determines the fact that the extension of the world is limited. It may be added that, according to a conception of Narboni that runs counter to the views of many Aristotelian philosophers, prime matter has its place in the thought of God. Narboni seems to have been a consistent (and on the whole unusually outspoken) adherent of the Aristotelian tradition that crystallized in the Arabic period of Jewish philosophy.

GERSONIDES. Gersonides (Levi ben Gerson, 1288–1344), another fourteenth-century Jewish philosopher born in the south of France, wrote the systematic philosophical work *Milhamot Adonai* (The wars of the Lord) as well as many philosophical commentaries. As an astronomer he enjoyed a certain fame among Christian scholars. Gersonides apparently never explicitly mentioned Christian scholastic philosophers; he cited Greek, Arabic, and Jewish thinkers only, and in many ways his system appears to have stemmed from the doctrines of Maimonides or Averroes, regardless of whether he agreed with them. For example, he explicitly rejected Maimonides' doctrine of negative theology. However, a comparison of his opinions and of the particular problems that engaged his attention with the views and debates found in scholastic writings of his period suggest that he was also influenced by the Latins on certain points.

Creation. Gersonides disagreed both with the Aristotelian philosophers who maintained the eternity of the world and with the partisans of the religious who believed in the creation of the world in time out of nothing. He maintained that God created the world in time out of a preexistent body lacking all form. As conceived by Gersonides this body seems to be similar to primal matter. According to the Aristotelian conception, the "now" separates the past from the future; because of this function its existence at any moment of time entails the existence of a past. Hence, an absolute beginning is impossible, which means that the world is eternal. Gersonides rejected this argument because he believed that it is possible for a "now" to be restricted to the function of beginning or terminating an interval of time. Hence, there is no difficulty in supposing that the existence of a "now" at the instant of the creation of the world in time did not entail the existence of a past. This argument was discussed prior to Gersonides in a Latin Averroistic treatise whose author is unknown, and Gersonides may have been influenced by Latin Scholasticism on this point.

Free will and divine omniscience. The problem of human freedom of action and a particular version of the problem of God's knowledge of future contingents form an important part of Gersonides' doctrine. Gersonides—who, unlike the great Jewish and Muslim Aristotelians, believed in astrology—held that all happenings in the world except human actions are governed by a strict determinism. God's knowledge does not, however, extend to the individual human acts that actually occur. It embraces the general order of things that exist; it grasps the laws of the universal determinism but is incapable of apprehending events resulting from man's freedom. Thus, the object of God's knowledge is an ideal world order, which differs from the "real" world insofar as the latter is in some measure formed according to man's free will.

Political philosophy. In political and social doctrine there is a fundamental difference between Maimonides and Gersonides. Gersonides does not appear to have assigned to the prophets any political function; according to him their role consists in the prediction of future events. The providence exercised by the heavenly bodies ensures the existence in a given political society of men having an aptitude for and exercising the handicrafts and professions necessary for the survival of the community. He remarked that in this way the various human activities are distributed in a manner superior to that outlined in Plato's *Republic.* Thus, he rejected explicitly Plato's political philosophy, which, having been adapted to a society ruled through the laws promulgated by a prophet, had been an important element of Jewish philosophy in the Arabic period.

Gersonides' deviations from this philosophical tradition may have involved various factors, such as the influence of Thomas Aquinas (whose conception of human freedom, to mention but this example, resembles that of Gersonides) or Gersonides' belief in astrology or his pronounced predilection for personal speculation. These deviations did not, however, affect his fundamental allegiance to medieval Aristotelianism.

CRESCAS. Both Hasdai Crescas (1340–1410), a Spanish Jewish thinker, and Gersonides had thorough knowledge of Jewish philosophy and partial knowledge of Islamic philosophy, and both seem to have been influenced by scholastic thought; moreover, in certain important respects Crescas was influenced by Gersonides himself. However, in Crescas's main work, *Or Adonai* (The light of the Lord), one of his objectives, quite contrary to Gersonides, was to expose the weakness and insufficiency of Aristotelian philosophy. This attitude may be placed in the wider context of the return to religion itself as opposed to the Aristotelian rationalization of religion and the vogue of Kabbalah, characteristic features of Spanish Jewry in Crescas's time. This change in attitude has been regarded as a reaction to the increasing precariousness of the position of the Jewish community in Spain.

The low estimation of the certainties and the rationalistic arrogance of the medieval Aristotelians coincided chronologically with a certain disintegration of and disaffection toward what may be called the classical Aristotelian Scholasticism. Relevant to this decline were the so-called voluntarism of Duns Scotus, the nominalism of William of Ockham and other Scholastics, and the development, in the fourteenth century and after, of the anti-Aristotelian terminist physics at the University of Paris and elsewhere. It is significant that there is a pronounced resemblance between Crescas's views and two of these trends, Scotism and the "new" physics.

Divine attributes. Crescas accepted Gersonides' view that divine attributes cannot be negative, but unlike his predecessor he centered his explanation of the difference between the attributes of God and those of created existents on the antithesis between an infinite being and finite beings. It is through infinitude that God's essential attributes—wisdom, for instance—differ from the corresponding and otherwise similar attributes found in created beings. In Crescas's as in Benedict Spinoza's

doctrine, God's attributes are also infinite in number. The central place assigned to the thesis of God's infinity in Crescas's system suggests the influence of Duns Scotus's theology, which is similarly founded upon the concept of divine infinity.

Physics. The problem of the infinite approached from an altogether different angle was one of the main themes of Crescas's critique of Maimonides' twenty-five propositions; these propositions, concerned mainly with Aristotelian physical doctrines, had been set forth in the *Guide* as the basis of Maimonides' proofs for the existence of God. Crescas's declared purpose in criticizing and rejecting several of these propositions was to show that the traditional Aristotelian proofs (founded in the first place on physical doctrines) were not valid.

In the course of his critique Crescas attempted to disprove the Aristotelian thesis that the existence of an actual infinite is impossible. He held that space is not a limit but a tridimensional extension, that it is infinite, and that, contrary to Aristotle, the existence of a vacuum and of more worlds than one is possible. He also criticized as being impossible the thesis of the Aristotelian philosophers that there exists an infinite number of causes and effects, which have order and gradation. This thesis refers not to a temporal succession of causes and effects which have a similar ontological status but to a vertical series, descending from God to the lowest rung in creation. His attacks were likewise directed against the Aristotelians' conception of time and of matter.

The physical doctrines that emerged in Crescas's critique resemble the "new," mainly "terminist" physics, which was being worked out in the fourteenth century at the University of Paris and other Christian seats of learning and which had a considerable influence on the classical physical theories of Galileo Galilei and others. There is no difficulty in supposing that Crescas was acquainted with some of the terminist theses. Crescas may on the whole be regarded as an outstanding representative of the medieval "new physics."

Ascendancy of soul over intellect. Crescas's fundamental opposition to Aristotelianism is perhaps most evident in his rejection of the conception of intellectual activity as the supreme state of being for man and for God. Crescas's God is not first and foremost an intellect, and the supreme goal to which man can aspire is to love God with a love corresponding as far as possible to the infinite greatness of its object and to rejoice in the observance of his commandments. God too loves man, and his love, in spite of the lowliness of its object, is proportionate to his infinity.

Crescas attacked the separation of the intellect from the soul as conceived by the Aristotelians and attempted, perhaps under the influence of Yehuda Halevi, to refute the Peripatetic doctrine that the actualized intellect, in contradistinction to the soul, survives the death of the body. According to Crescas the soul is a substance in its own right and can be separated from the body; it continues to subsist after the body's death.

Crescas's depreciation of the intellect did not lead to an emphasis on man's freedom of action. Crescas's view concords with that of Avicenna: There is no such freedom; everything in the world is subject to a strict determinism. Man's actions are as predetermined as all other happenings; they depend on his makeup and conditioning and on his reactions to stimuli from the external world. Crescas did not deny man's freedom only with regard to the domain of external action, for he pointed out that a man's beliefs and knowledge are not within his power.

ALBO. Whereas Crescas unmistakably regarded the Aristotelian philosophers as adversaries to be criticized or combated, the attitude of Joseph Albo (c. 1380–1444), who regarded Crescas as his teacher, is much less clearly defined. Albo did not eschew self-contradiction, apparently considering it a legitimate precaution on the part of a philosophical or theological author; indeed, he indulged in it in a much more obvious way than did Maimonides. But whereas the latter's fundamental philosophical position is fairly clear, the problem being how far he was prepared to deviate from Aristotelian doctrine in the interests of religion, there may be valid doubt whether Crescas and the Jewish religious tradition or Maimonides and Averroes were Albo's true masters. Mainly because of this perhaps deliberate failure to explain to the reader where he really stood, Albo has often been dismissed as an eclectic. He was strongly influenced not only by the authors just mentioned but also by Saadya. He seems to have had a considerable knowledge of Christian theology, even adopting for his own purposes certain scholastic doctrines. He differs from Crescas and to some extent resembles Maimonides in having had a marked interest in political theory.

The proclaimed theme of Albo's magnum opus, *Sefer ha-Ikkarim* (*The Book of Principles*), is the investigation of the theory of Jewish religious dogmas, whose number Maimonides, in a nonphilosophical work, had set at thirteen, whereas Albo, following a doctrine that in the last analysis seems to go back to Averroes, would limit them to three: existence of God, providence in reward and pun-

ishment, and the Torah as a divine revelation. One section, usually including the philosophical and the traditional religious interpretations side by side, is devoted to each of these dogmas. However, as far as Jewish philosophy is concerned, Albo's principal relatively novel (although in view of the likelihood of a Christian influence, probably not original) contribution to doctrinal evolution is the classification, in his introduction, of natural, conventional, and divine law. Natural law is necessary because man, being political by nature, must belong to a community, which may be restricted in size to one town or may extend over the whole earth. Natural law preserves society by promoting right and repressing injustice; thus, it restrains men from stealing, robbing, and murdering. The concept of "natural law" may have been taken over by Albo from the Christian Scholastics; the term is rarely used in philosophical works written in Arabic, and when it occurs it has an altogether different meaning. Albo did not mention whether natural law accords with human nature; he accounted for the need for and acceptance of natural law on purely utilitarian grounds. He did, however, believe that natural law is the same among all people, at all times, and in all places.

The positive laws instituted by wise men take into account the particular nature of the people for whose benefit they are instituted, as well as other circumstances. This means that they differ from the natural law in not being universally applicable. However, neither natural law nor the more elaborate conventional laws lead men toward true spiritual happiness; this is the function of divine laws instituted by a prophet, which teach men true theoretical opinions.

Contrary to Maimonides, but in agreement with the Scholastics and to some extent with Saadya, Albo believed that men are capable of establishing an orderly society by their own efforts, without the help of prophets.

Whereas Maimonides maintained that Judaism was the only divine law promulgated by a true prophet, Albo considered that the commandments given to Noah also constitute divine law, which ensures, although to a lesser degree than does Judaism, the happiness of its adherents. This position justifies a certain universalism; in accordance with a Talmudic saying, Albo believed that the pious among the non-Jews—that is, those who observe Noah's laws—have a share in the world to come. But he rejected the pretensions of Christianity and Islam to be divine laws.

RENAISSANCE. In the last few decades before their expulsion (1492), the Spanish Jews seem to have freely acknowledged the influence of the Christian Scholastics. A tribute to Christian thought was made not only by Habilla, a translator of several scholastic texts into Hebrew, but also by Isaac Arama and Isaac Abravanel, both of whom immigrated to Italy after the expulsion. Both are critical in various degrees of Aristotelians. Some of the views of Arama (who seems to have influenced Abravanel) mark a return to Yehuda Halevi. Abravanel's political doctrine is of some interest because it refers to and bestows praise on the regimes of the Italian republics of the period.

The son of Isaac Abravanel, Judah Abravanel, better known as Leone Ebreo (1460–c. 1521), was the author of *Dialoghi d'amore* and as such is one of the outstanding representatives of Platonism in Italy. He is perhaps the first example in postmedieval times of an important Jewish thinker who does not belong primarily to the history of Jewish philosophy (for the conception of Jewish philosophy presupposed in this assertion, see below).

Elijah del Medigo (c. 1460–1493), who was born in Crete, was a Jewish Averroist and a companion of Giovanni Pico della Mirandola. In his Hebrew treatise *Beḥinat Hadat* (The testing of religion) he opposed the trend among Jewish philosophers to read philosophical meanings into biblical texts by means of allegorical interpretations. Del Medigo, like Averroes, did not countenance any attempt to amalgamate religious law and philosophy. The Jewish philosophers who had such an amalgam in mind—it is pretty clear that Maimonides is the foremost object of these strictures—are neither (true) philosophers nor (true) professors of religious law.

MODERN AND CONTEMPORARY PERIODS

The expulsion of the Jews from Spain and Portugal produced a new center of Jewish thought, Holland, where many of the exiled Jews found a new and safer domicile; the tolerance of the regime seemed to provide guarantees against external persecution. This did not prevent, and indeed may have furthered, the establishment of an oppressive orthodoxy that was prepared to chastise rebellious members of its community.

DA COSTA. Both Uriel da Costa, or Acosta (1585–1640), and Spinoza (1632–1677) rebelled against Jewish orthodoxy. Uriel da Costa came to Amsterdam from Portugal, where, belonging to a family of Marranos (Jews who had converted to escape the Spanish Inquisition), he had been brought up in the Catholic faith; his philosophical position was to a great extent determined by his antagonism

to the orthodox Judaism (the Judaism of "the Pharisees," to use his term) that he encountered in Amsterdam. He was struck by the fact that the commandments as interpreted by his contemporaries did not conform to the text of the Torah, and he formulated a number of theses to prove his point. His growing estrangement from generally accepted Jewish doctrine is attested by his Portuguese treatise *Sobre a Mortalidade da Alma* (On the mortality of the soul). Apparently under the influence of Michael Servetus, he came to the conclusion that the soul is the vital spirit located in the blood and that it dies with the death of the body, there being no difference in this respect between the human and the animal soul. He considered that the belief in the immortality of the soul has had many evil effects, for it impels men to choose an ascetic way of life and even to seek death. According to him nothing has tormented men more than the belief in an eternal good and evil. God tolerates this opinion merely to torture the conscience of those who have abandoned his truth. At this stage da Costa affirmed the authority of the Bible from which, according to him, the mortality of the soul can be proved.

In his autobiography, written in Latin and titled *Exemplar Humanae Vitae* (An example of human life), he takes a more radical position. He proclaims the supreme excellency of the natural moral law (which, when arguing before the Jews, he seems to identify with the divine commandments to Noah—a comparison may be made with the view of Albo). Accordingly, he denies the validity of the argument that natural law is inferior to Judaism and Christianity, because he believes that both these religions teach the love of one's enemies, a precept which is not a part of natural law. According to da Costa, no good can come of demanding a manifest impossibility.

SPINOZA. Although medieval philosophers of Jewish origin for whom Judaism does not constitute a primary philosophical theme are thought of as belonging to the history of Jewish philosophy, a classification of this kind applied to such modern philosophers of Jewish origin as Salomon Maimon, Henri Bergson, Edmund Husserl, and L. I. Shestov might lead to some significant conclusions but would nevertheless seem inappropriate. It would certainly not be in keeping with the intentions of the philosophers themselves, and their views would be taken out of their natural contexts.

These considerations, however, may not, for the following reasons, be quite so valid with respect to Spinoza: (1) It was through the study of Jewish philosophical texts that Spinoza was first initiated into philosophy. (2) It may

be argued with some reason that at least in part (if one abstracts the influence of René Descartes and of seventeenth-century physics and certain other constitutive elements), Spinoza's system is a radicalization or perhaps a logical corollary to medieval doctrines; although its importance may be contested, the impact of Maimonides and of Crescas is evident. (3) A considerable portion of Spinoza's *Tractatus Theologico-politicus* deals with problems related to Judaism. Reference to some of the views set forth in the *Tractatus* and to their connection with medieval Jewish doctrines may not be out of place here.

Prophecy. As the first chapters of the *Tractatus* show, the doctrine of prophecy is of central importance to Spinoza's explanation of Judaism. These chapters can also provide proof that, as far as this subject is concerned, Spinoza to a large extent used Maimonides' categories, although he applied them to different people or groups of people. In fact, the relationship of Spinoza to Maimonides—although antagonistic—is much closer than that of most of the fifteenth-century Jewish philosophers who did not break with Judaism.

Maimonides held that the prophets combined intellectual perfection, which made them philosophers, with perfection of the imaginative faculty. He also referred to a category of people endowed with a strong imagination but possessing no extraordinary intellectual gifts; this category includes, for example, lawgivers and statesmen. Spinoza took over this last category but applied it to the prophets, whom he described as possessing vivid imaginations but as not necessarily having outstanding intellectual capacities. He denied that the biblical prophets were philosophers and used a philosophical and historical approach to the Scriptures to show that the contrary assertion is not borne out by the texts.

Spinoza also denied Maimonides' assertion that the prophecy of Moses was essentially different from that of the other prophets and that this was largely because Moses, in prophesying, had no recourse to the imaginative faculty. According to Spinoza the distinctive fact about Moses' prophecy was that he heard the voice of God in a prophetic vision—that is, in a state in which his imagination was active. In this assertion Spinoza employed one of Maimonides' categories of prophecy, differentiated in the *Guide* according to certain characteristics of prophetic dreams and visions. However, Maimonides thought it improbable that the voice of God was ever heard in prophetic vision; he held that this category is purely hypothetical. It seems evident that in his classification of Moses, Spinoza was concerned not with what

really happened in history but with pigeonholing the evidence culled from the Bible into Maimonides' theoretical framework in such a way that it fit in with his theologicopolitical purpose.

This purpose made it imperative to propound in the *Tractatus* a theory concerning Jesus, whom Spinoza designates as Christus. The category and the status assigned to Jesus are by and large similar to those that Maimonides attributed to Moses. Thus, Jesus is referred to in the *Tractatus* as a religious teacher who makes recourse not to the imaginative faculty but solely to the intellect. However, in following up this hypothesis Spinoza was guilty of an inconsistency. Whereas in the case of the Old Testament prophets he rejected allegorical interpretations predicated on the supposition that the prophets adapted their discourses to the understanding of the general public, in the case of Jesus he adopted this interpretation because he wished to explain away those of Jesus' sayings that he regarded as incompatible with true philosophical doctrine. Both Maimonides' Moses and Spinoza's Jesus are absolutely unique personalities; there is, however, an important difference between them. In the opinion both of Maimonides and of Spinoza, Moses' legislation created the Jewish community and state, whereas Jesus as conceived by Spinoza was not a lawgiver and, as far as his direct activity was concerned, not a statesman, though within Spinoza's blueprint for an ideal State, he is assigned a political function: His authority may be used to institute and strengthen the religion Spinoza called *religio catholica,* which has little or nothing in common with any of the major manifestations of historic Christianity.

Critique of Judaism. The difference between Judaism and Spinoza's *religio catholica* corresponds to the difference between Moses and Jesus. After leaving Egypt the Jews found themselves, in Spinoza's view, in the position of people who had no allegiance to any positive law; they had, as it were, reverted to a state of nature and were faced with the need to enter into a social pact. They were also an ignorant people and very prone to superstition. Moses, a man of outstanding ability, made use of the situation and characteristics of the people in order to make them accept a social pact and a state founded upon it, which, contrary to Spinoza's schema for his ideal communities, were not based first and foremost upon utilitarian—that is, reasonable—consideration of the advantages of life in society over the state of nature.

The social pact concluded by the children of Israel in the desert was based upon a superstitious view of God as "King" and "Judge," to whom the children of Israel owed whatever political and military successes they obtained. It was to God rather than to the representatives of the popular will that the children of Israel transferred political sovereignty. In due course political sovereignty was vested in Moses, God's representative, and in his successors. It should be added that in spite of Spinoza's insistence on the superstitious foundations of the state of the children of Israel in ancient times, his account of its regime was not wholly unsympathetic. He did, however, believe that it contained the seeds of its own destruction and that with the extinction of this state the social pact devised by Moses had lapsed and all the political and religious obligations incumbent upon the Jews become null and void.

"Religio catholica." It could be argued that because the state conceived by Spinoza is based not on superstitious faith but on a social contract originating in rational, utilitarian considerations it does not necessarily need to have its authority safeguarded and stabilized by means of religion. However, Spinoza appears to have held the view—perhaps derived from a purely empirical knowledge of the behavior of the common run of men—that there is a need for religion. In order to fulfill the need for some religion and to obviate the danger of harmful religions, he devised his *religio catholica,* the universal religion, which has the following distinctive traits: (1) Its main purpose, a practical one (which is furthered by recourse to the authority of Jesus), is to impel men to act in accordance with justice and charity. Such conduct is tantamount to obedience to the laws of the state and to the orders of the magistrates, in whom sovereignty is vested. For disobedience—even if it springs from compassionate motives—weakens the social pact, which safeguards the welfare of all the members of the community; in consequence, its evil effects outweigh whatever good it may produce. (2) Although religion, according to Spinoza, is not concerned with theoretical truth, in order to be effective the *religio catholica* requires dogmas, which he set forth in the *Tractatus.* These dogmas are formulated there in terms that can be interpreted in accordance both with the philosophical conception of God that Spinoza regarded as true and with the superstitious ideas of ordinary people. It follows that if they are accepted as constituting by themselves the only creed that everybody is obliged to profess, people cannot be persecuted on account of their beliefs; Spinoza held that such a persecution is liable to lead to civil war and may thus destroy the state. Philosophers are free to engage in the pursuit of truth and to attain, if they can, the supreme goal of man, freedom grounded in knowledge. There can be little doubt that the furtherance of the cause of tolerance for

philosophical opinions was one of Spinoza's main objects in writing the *Tractatus.*

MENDELSSOHN. Moses Mendelssohn (1729–1786) opens what may be called the German period of Jewish philosophy. This period, in which a considerable number of works on Jewish philosophy were written in German and often under the influence of German philosophy, is also marked by the emancipation of the Jews (that is, by the abrogation of discriminatory laws directed against them) and by their partial or complete assimilation. In this period in particular, it appears indicated to apply the term "Jewish philosophy" first and foremost to works whose main purpose or one of whose main purposes consists in proposing a definition of Judaism and a justification of its existence. The second task is often conceived as necessitating a confrontation of Judaism with Christianity rather than with philosophy, which served as a point of comparison for many medieval philosophers. This change seems to have been a result of the demarcation of the sphere of religion in such a way that, at least in the opinion of the philosophers, possible points of collision no longer existed between it and philosophy.

This demarcation was largely furthered by the doctrine of Spinoza—from whom Mendelssohn and others took over and adopted for their own purposes certain fundamental ideas concerning Judaism. Like Spinoza, Mendelssohn held (according to his treatise *Jerusalem* and other writings) that it is not the task of Judaism to teach rational truths, although they may be referred to in the Bible. Contrary to what he called Athanasian Christianity (that is, the doctrine set forth in the Athanasian creed), Judaism has no binding dogmas; it is centered on inculcating belief in certain historical events and on action—that is, observance of religious law (including the ceremonial commandments). Such observance is supposed to lead to happiness in this world and in the afterlife. Mendelssohn did not reject this view offhand, as Spinoza would have done; indeed, he seems to have been prepared to accept it—God's mysteries being inscrutable, and the radicalism and what may be called the consistency of Spinoza being the complete antithesis of Mendelssohn's apologetics. Non-Jews were supposed by Mendelssohn to owe allegiance to the law of nature. He did not affirm the superiority of Judaism over this law and was prepared to regard Jesus as a great prophet. He declared his belief that the differences between the various religions are not eternal and that when the whole earth is united in the knowledge of God, the Jews will be permitted to abandon their peculiar rites and ceremonies. But that time has not yet arrived.

Mendelssohn was well grounded in medieval Jewish philosophy and referred quite frequently to the writings of Maimonides and of other Jewish thinkers of the Middle Ages. The three principles on which he held Judaism to be based call to mind those propounded by Albo. They are God, providence, and the divine law.

FORMSTECHER. Whereas Mendelssohn continued the medieval tradition, at least to some extent, or adopted Spinoza's doctrine for his purposes, the Jewish philosophers of the first half of the nineteenth century (except, at least in a certain measure, Solomon Steinheim) may be regarded as disciples of the philosophers of their own time. In *Die Religion des Geistes* (The religion of the spirit), Solomon Formstecher (1808–1889) was greatly influenced by Friedrich Schelling in his conception of nature and spirit as manifestations of the divine. There are types of religions that correspond to these manifestations: (1) the religion of nature in which God is conceived as the principle of nature or as the world soul, and (2) the religion of the Spirit which conceives of God as an ethical being. According to the religion of the Spirit, God has produced the world as his manifestation in full freedom and not, as the religion of nature tends to profess, because the world was necessary for his own existence.

The religion of the Spirit, which corresponds to absolute religious truth, was first manifested in the Jewish people. The religious history of the world may be understood as a process of universalization of the Jewish religion. Thus, Christianity propagated Jewish conceptions among the nations; however, it combined them with pagan ideas. The pagan element is gradually being eliminated—Protestantism, for instance, in this respect marks considerable progress. When at long last the Jewish element in Christianity is victorious, the Jews will be right to give up their isolation. The process that will bring about this final religious union is already under way.

HIRSCH. The main philosophical work of Samuel Hirsch (1815–1889), titled *Die Religionsphilosophie der Juden* (The philosophy of religion of the Jews) was decisively influenced by G. W. F. Hegel. This influence is most evident in Hirsch's method and in the task that he assigned to the philosophy of religion—the transformation of religious consciousness into conceptual truth. However, contrary to Hegel, he did not consider religious truth to be inadequate as compared to philosophical truth.

Hirsch believed that man's awareness of himself as an ego is identical with his awareness of his freedom. This freedom is, however, abstract; it became concrete in the

various historical religions. Man may renounce this freedom and believe that he is dominated by his senses. This means recognizing the absolute sovereignty of nature regarded as a divine principle, which is the point of departure of the pagan passive religions. If, however, he subordinates his nature to his freedom, his freedom becomes concrete. God is conceived not only as the giver of abstract freedom but as willing man's concrete freedom. This is the principle of Judaism. Christianity, was conceived by Hirsch as it was by Formstecher, as being intermediate between Judaism and paganism.

God revealed himself in the first stages of Jewish history by means of miracles and of prophecy. At present he manifests himself in the miracle that is constituted by the existence of the Jewish people. At its beginning in the time of Jesus, Christianity was identical with Judaism. The decisive break between the two religions was caused by Paul. According to Hirsch, when the Pauline elements are eliminated from Christianity, it will be in all essentials in agreement with Judaism, which, however, will preserve its separate existence.

KROCHMAL. Nachman Krochmal (1785–1840), a native of Galicia (at that time part of Austria), was the author of *Moreh Nebukhei ha-Zman* (Guide of the perplexed for our time), a treatise in Hebrew on philosophy of history and on Jewish history, which had a considerable influence.

Krochmal, like Hirsch, was influenced by Hegel and perhaps also by other German philosophers approximately of Hegel's period, such as Johann Gottlieb Fichte. Krochmal's philosophical thought was centered on the notion of "spirit," Krochmal being mainly concerned with the "national spirit," the particular "spirit" that is proper to each people and that accounts for the peculiar characteristics differentiating one people from another in every domain of human activity.

The national "spirits" of all peoples except the Jewish are, according to Krochmal, essentially particular. Hence, the national spirit either becomes extinct with the extinction of the nation or, if it is a powerful spirit, is assimilated by some other nation. The Jewish people has a special relation to the Universal Spirit, who is the God of Israel. This relation accounts for the perpetuity of the Jewish people.

STEINHEIM. Solomon Ludwig Steinheim (1789–1866), the author of *Die Offenbarung nach dem Lehrbegriff der Synagoge,* (Revelation according to the doctrine of the synagogue), was apparently influenced by the antirationalism of Friedrich Jacobi.

His criticism of science is based on Jacobi's criticism, but he did not agree with Jacobi in opposing discursive reason to our intuitive knowledge of God—Steinheim contrasted human reason to divine revelation. The main point on which the revelation vouchsafed to the prophets of Israel is opposed to reason is to be found in the fact that the God posited by reason is subject to necessity, that he can act only in accordance with laws. Moreover, reason affirms that nothing can come from nothing. Accordingly, God is free to create not a good world but only the best possible world. Revealed religion, on the other hand, affirms the freedom of God and the creation of the world out of nothing.

COHEN. There seems to be little connection between the Jewish philosophers of the first half or two-thirds of the nineteenth century and Hermann Cohen (1842–1918), the head of the Marburg Neo-Kantian school. In a certain sense Cohen may be regarded as a rather unusual case among the philosophers of Judaism of his and the preceding generations, because of the two aspects of his philosophical thought—the general and the Jewish—and the uneasy equilibrium between them. Judaism was by no means the only important theme of his philosophical system; it was one of several and not even his point of departure. There is no doubt that for most of his life Cohen was wholly committed to his brand of Kantianism, in the elaboration of which he displayed considerable originality—it has been maintained with some justification that his doctrine manifests a certain (unintentional) kinship with Hegel's. However, Cohen's idea of God derives from an analysis and a development of certain conceptions of Immanuel Kant.

In Cohen's view, reason requires that nature be conceived of as conforming to *one* rational plan and that harmony exist between the domains of natural and of moral teleology. These two requirements in turn necessitate the adoption of the idea of God—the word *idea* being used in the Kantian sense, which means that no assertion is made about the metaphysical reality of God. Cohen's theory of ethics stemmed to a considerable extent from Kant's, but he held that the most important ethical principles were discovered by the prophets of Israel, who freed religion from its entanglement with mythology. A harmony also exists between the Messianic notion of the Jewish prophets and the exigency of ethics that the task of coming ever closer to moral perfection be pursued unceas-

ingly. This goal will never be wholly attained. Messianism, too, is an idea in the Kantian sense of the word.

Cohen seems to have changed his attitude in the last years of his life; at least, although he did not explicitly renounce his previous positions, a considerable shift of emphasis can be discerned in his doctrines. The notion of the human individual—an individual who is weak and full of sin—comes to the fore, as well as the conception of a *correlation,* a relationship between God and the individual. This relationship is one of love, the love of God for man and the love of man for God. It is difficult to reconcile the conception of God expounded in Cohen's works of his last period with his Kantian or Neo-Kantian attitude toward metaphysics.

The conceptions of God and the individual and cognate conceptions are set forth in Cohen's posthumously published book *Die Religion der Vernunft aus den Quellen des Judentums* (Religion of reason from the sources of Judaism) and in a series of articles reprinted in his *Jüdische Schriften.*

ROSENZWEIG. Franz Rosenzweig (1886–1929) published his main philosophical work, *Der Stern der Erlösung* (The star of redemption), in 1921. This work begins with a rejection of the traditional philosophical attitude that denies the fear of death, maintaining, instead, that this fear is the beginning of the cognition of the All. Man should continue to fear death, despite the indifference of philosophy and its predilection for accepting death. Traditional philosophy is interested exclusively in the universal, and it is monistic—its aim is to discover one principle from which everything can be derived. However, this tendency of philosophy denatures human experience, which knows not one but three separate domains (which Kant had referred to in a different context), namely, God, the world, and man.

According to Rosenzweig, God (like the world and like man) is known through experience (the experience of revelation). In Greek paganism, the most perfect manifestation of paganism in general, every one of these domains subsists by itself: the gods, the cosmos, and man as the tragic, solitary, silent hero. The biblical religion is concerned with the relation between the three: the relation between God and the world, which is creation; the relation between God and man, which is revelation; and the relation between man and the world, which leads to salvation. The philosophy that renounces the ambition to find one principle for everything that exists and that follows biblical religion in centering on the connections between the three domains and between the words and

acts that bring about and develop these connections Rosenzweig termed the "narrative" philosophy; the term and the concept were taken over from Schelling, whose influence Rosenzweig repeatedly emphasized.

The biblical faith brought forth two valid religions, Christianity and Judaism. The first is described by Rosenzweig as the eternal way: The Christian peoples seek in the vicissitudes of time and history the way to salvation. In contradistinction to them the existence of the stateless Jewish people is not concerned with time and history; it is—notwithstanding the hope for final salvation—*already* an eternal life, renewed again and again according to the rhythm of the liturgical Jewish year. Thus, Rosenzweig did not, like Yehuda Halevi (many of whose poems he had translated and who was very much in his thoughts) oppose the sacred history of the Jewish people to the profane history of the rest of the world but rather to what he considered as the historical existence of the Jews, their involvement in the history of the other nations.

BUBER. Since the early years of the twentieth century, Martin Buber (1878–1965) has exercised a powerful influence on both Jews and non-Jews. His theology, centered on the I and Thou relationship, on the conception of a dialogical life, and on the primal importance of the category of "encounter" are discussed in the entry on Buber.

In recent years new works dealing with the history of Jewish thought in one of its aspects or in one of its periods appear on the whole to have been more significant than purely philosophical or purely theological Jewish works; in certain cases scholarly works give expression to a personal attitude toward Judaism or toward religion in general. These remarks apply to the two main centers of Jewish philosophical, theological, and scholarly activities, the United States and Israel, as well as to such other countries as France and England. However, it may be too early to attempt to give a definitive summing-up of the tendencies and achievements of a period that verges upon the present.

See also Albo, Joseph; al-Ghazālī, Muhammad; al-Kindī, Abū-Yūsuf Yaʿqūb ibn Isḥā; Aristotelianism; Averroes; Avicenna; Baḥya ben Joseph ibn Paquda; Bergson, Henri; Buber, Martin; Cohen, Hermann; Costa, Uriel da; Crescas, Hasdai; Descartes, René; Duns Scotus, John; Enlightenment, Jewish; Epicurus; Galileo Galilei; Gersonides; Halevi, Yehuda; Hegel, Georg Wilhelm Friedrich; Husserl, Edmund; Ibn Gabirol, Solomon ben Judah; Ibn Zaddik, Joseph ben Jacob; Israeli, Isaac ben

Solomon; Jacobi, Friedrich Heinrich; Jewish Averroism; Kabbalah; Kant, Immanuel; Logic, Traditional; Maimon, Salomon; Maimonides; Mendelssohn, Moses; Naṣīr al-Dīn al-Ṭūsī; Neo-Kantianism; Philo Judaeus; Pico della Mirandola, Count Giovanni; Renaissance; Rosenzweig, Franz; Saadya; Servetus, Michael; Shestov, Lev Isaakovich; Spinoza, Benedict (Baruch) de; Thomas Aquinas, St.

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Shlomo Pines (1967)

JEWISH PHILOSOPHY [ADDENDUM]

Levinas's earlier work seemed to have nothing to do with religion, whereas after the Holocaust his writings often touched on religious and specifically Jewish themes. These latter works are often described as his translations of Judaism into Greek, his explanations of the universal significance of the Torah and all that goes with it in the living experience of the Jewish people. The central problem here is that philosophy is a universal and theoretical enterprise, whereas religion is often practical and its obligations are limited to a particular group of people.

It might be thought even harder to identify Judaism with philosophy because most Jews are Jews because of birth, not through a choice to accept particular doctrines or practices. As human beings we all share certain characteristics, and as members of smaller and more limited groups we share features with others in the same group that we do not share with everyone else. The universal role of philosophy is stressed throughout Levinas's thought. He starts by replacing the usual starting point in metaphysics of ontology with ethics. The obvious place to start philosophically is to ask the question: What is a human being? Once we know the answer to that question, which includes other questions such as what can we know, we can then start to work out our duties and responsibilities for others.

Yet Levinas turns this starting point entirely the other way around. The first question we need to ask is not who we are, but what our responsibilities to others are. Only once we can answer the question who is the other are we in a position to know who we are. Again, the normal way to start constructing a metaphysics is to build up

a model from the self to the other, and then suggest that I have certain responsibilities for others, as they have for me. But these responsibilities for others are limited, because it is unreasonable for them to be otherwise. Levinas transforms this to argue that our responsibilities for others are not limited, but are infinite. The idea is that if one starts with the self and then moves to the concept of the other one is always in the position of trying to demarcate between the roles of different selves in ways that limit, perhaps too severely, the links between these selves. In saying that we have infinite responsibility for the other, Levinas means that we must always be able to respond to the other, because unless we do, we lose our identity as a subject. As he says: "The word *I* means *here I am*, having to answer for everything and everyone" (1981 [1974], p. 145).

This radical turn in philosophy has interesting implications for all the familiar philosophical problems, but one implication that one might assume it would have is to direct attention away from the individual and toward groups of individuals, or indeed the whole of humanity, because it is to the whole of humanity for which the self is answerable. This implication is certainly there, and Levinas seems to have a horror of the solitary life, in marked contrast to his mentor Heidegger who appears to value above all retreating from the world into oneself and being alone with nature. For Levinas the more one tries to retreat into oneself, the less self there is to retreat to. Yet there is a problem in accounting for the treatment of groups larger than the individual self and less than the whole of humanity. If one gives one's attention primarily to a limited group, is this not to take it away from the whole of humanity, and thus deny one's full selfhood? Hence on the one hand Levinas's criticisms of love between people, which he sometimes sees as limiting the links of responsibility that we establish between each other. On the other hand, the way in which love can be embodied in an institution that gives rise both to the possibility of new life and also to new structured links between individuals is positive in the sense that it cements and furthers the ethical links between people. We need to point out here an important feature of such links, because for Levinas they are not reciprocal. We have responsibilities for the other, but they have none for us. The idea is that our responsibility is not based on their appropriate behavior or response; rather, we are responsible, and never stop being responsible however much others ignore, deny, or are unworthy of our concern. Our responsibility even extends further than our lives, into the infinite.

Here we have a system of philosophy that came to be greatly elaborated, and that appears to apply to every human being, if it applies to anyone. What is Jewish about it? Here we get into difficult territory. Judaism is profoundly ethical; it emphasizes the practical as against the theoretical, the group as compared to the individual; it compares speech with prophecy, has a messianic future in prospect for humanity, and is generally suspicious of the capacity of the state to embody ethical life appropriately. In his Jewish writings Levinas examines a wide variety of biblical and other literature that he interprets as bringing out some of the key aspects of his philosophy. What Levinas is doing in these works is using his philosophy to bring out what he thinks are the meanings of Jewish texts, and in this he is following in a long and distinguished tradition in Jewish philosophy.

Levinas is interested in those parts of the Bible that refer to the individual as responsible for others. When God asks Cain "Where is Abel your brother?" (Gen. 4:8) the response that Cain is not his brother's keeper is entirely inappropriate. Nor is the question only directed at Cain, but at everyone. Everyone is responsible for those who are murdered even if they are not directly involved in the crime. Levinas picks out those parts of the Torah in which individuals respond to God by saying "*hineni*" or "I am here." What is meant by that is that the individual recognizes the claim of God to be heard, he accepts that he is the person to whom the divine question is to be put and acknowledges responsibility for the task that God may have in mind. But is this not just the individual responding to God? What is specifically ethical about it? For Levinas references to God are not references only to a being. The point of religion is to bring out to the individual the significance of her links with others, so that when she is involved with others God is available to her, but when she is thinking only of how to come close to God, he is distant. There are plenty of passages in the Torah and other Jewish writings that emphasize the presence of God as contingent on a certain way of human acting. Buber, for example, was impressed with Hasidic stories of ordinary actions being imbued with spirituality when those actions were carried out for the sake of others.

Is Judaism then specifically directed toward practice, toward the ethical? It certainly looks like it, and its legal structure, the integration of the life of the Jew within a ritualistic system, is evidence of the significance of behavior, in particular behavior that is linked with the behavior of others. Levinas describes the move from the particularity of Judaism to the universalism of philosophy as part of a process of liberation that needs to be continued.

This means that we have not yet finished translating the Bible, in the sense that we have only just started bringing out its universalist message. We tend to get it the wrong way around, he suggests, in that we often try to invest a biblical idea with a universalist notion already specified in European or Greek thought, whereas what we should do is bring out the universalist idea that is already there in the Hebrew, and explain it in Greek. So the apparent clash between Athens and Jerusalem, between reason and revelation, comes out as a pseudo-conflict after all, because revelation contains everything that reason does, albeit in a different form.

This is also a familiar solution to the apparent conflict between the Torah and philosophical thought within the tradition of Jewish philosophy. Levinas is thus moving through familiar territory here, although the ways in which he characterizes his theoretical environment differs from his predecessors. One difference lies in the sort of philosophy that Levinas argues runs through the Bible and Talmud, and that is of course his philosophy in a much wider sense than one would expect given the above definition.

When we examine the detailed defense of *halakhah* (Jewish law) that Levinas produces, a number of questions arise. He tends not to defend the practices of halakhah as a whole, but the principle of there being a halakhah. We are supposed to accept that once the principle of there being a halakhah is understood, the details of what to do will be in accordance with the legal texts. Perhaps it does not matter so much exactly which understanding of the precise nature of the law one follows, so long as one adheres to an appropriate legal rule that determines the nature of the law. The general point that Levinas makes is certainly appropriate, that Jews seeking to find a way of embodying their ethical behavior in a practice need look no further than halakhah, which is a form of practice specifically designed to replicate the truths of faith. Yet because Levinas often says that when he talks about Jews he means humanity at large, we are still left not knowing how most people ought to behave. He relishes the prospect of Jews being obliged to follow 613 commandments, whereas the rest of humanity only needs follow the seven Noahide laws (the basic laws of humanity by tradition given by God to Noah), because this exemplifies the idea of owing more to the other than one asks in return. But is the only route to such an ethical life for the Jew the halakhic route? It is one thing to defend the acceptability of such a route, but another to demonstrate its inevitability. Because Levinas is firmly part of the demythological tendency in modern theology,

he cannot argue that one should follow halakhah because God had commanded us to act thus in the Torah. Such appeals to what Levinas rather scathingly calls the numinous are ruled out from the start.

Then we have the problem of knowing how gentiles are to live. Are they to follow the laws of their faith? Are they to consider conversion to Judaism? Are they limited to the seven Noahide laws? They too may wish to be in a position to say *me voici* even if they cannot say *hineni*. Their route to reaching that position is presumably through Greek, because they cannot go through Hebrew, but if they can attain their end along the Greek route, there seems no reason to deny such a route to assimilated Jews. It would be invidious to suggest that a particular ethnic group is especially advantaged in knowing how to live as compared with others, unless one can appeal to some supernatural rationale, which Levinas rejects. Even if my ancestors opened themselves to God in a way different from other ethnic groups, it is difficult to see how that elevates my consciousness above those of members of other ethnic groups.

In a celebrated discussion Levinas argues that what made the Jews unique was that they undertook to obey God's law even before they heard what that law was, and in this way acknowledged the priority of the ethical over the ontological. That is, they accepted that the first question to be answered is where our responsibilities lie, and the second question follows from that, and concerns who we are. But what is the link between that event and the nature of halakhah as it has come down to us today? There is obviously some sort of link in terms of tradition, yet it is the case that for many Jews the ties of tradition no longer have any emotional resonance. The only way for them to find that resonance again is through the Greek, and that is why Levinas seeks to reinvigorate tradition by exploring its universal values in language that is accessible to those who have lost the ability to understand the Hebrew. When he talks of them no longer understanding Hebrew he does not refer to technical mastery of the language, but the ability to link the Hebrew to present-day ethical and political issues. What needs to be brought out is the universalist message of the Hebrew, so that it is not seen as the repository of a small and remote community, but as implicit within the rules of behavior everywhere and at all times.

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JINUL
(1158–1210)

Jinul (whose name is spelled Chinul under the McCune Reischauer Romanization system), a Korean Buddhist monk of the Goryeo period, is considered by many scholars to be the most influential figure in the formation of Korean Seon Buddhism. Deeply disturbed at the degree of corruption that had crept into the Buddhist monastic system, he sought to establish a new movement that he called the *samādhi* and *prajñā* society. The goal of this organization was the establishment of a new community of disciplined, pure-minded practitioners deep in the mountains. Jinul eventually brought this mission to fruition with the founding of the Seonggwangsa monastery at Mount Jogye, which still serves as an center for Korean Seon practice.

A major issue that received special attention from Jinul was the relationship between so-called gradual and sudden approaches to Buddhist practice and enlightenment. Drawing on various Chinese treatments of this topic, most importantly those established by Zongmi (780–841) and Dahui (1089–1163), Jinul came up with his "sudden enlightenment followed by gradual practice" approach. Jinul believed that for religious practice—especially meditative practice—to have efficacy, the practitioner must first have a deep and transformative experience of insight into the emptiness of things, to see their nature of innate enlightenment. He believed that if one tries to practice without such an experience, all of one's practice will be based on the dualistic thinking habits that are the causes of delusion, and thus, no matter how hard one might try, progress cannot be made. One metaphor that Jinul used to express this idea was that of the morning dew and the sunshine. Before the sun rises, the cool morning grass is wet with dew. Try as one may to wipe away the dew, it will continue to reappear. Once the sun rises, however, the dew can be wiped away and will be less apt to return. In the same way, once one has had an awakening experience, efforts toward the eradication of bad cognitive and emotive habits will have enhanced efficacy.

Jinul's approach to Buddhist practice ended up becoming an interesting blend of *gongan* (in Japanese *kōan*) meditation, coupled with scriptural study, incorporating a Hwaeom (in Chinese *Huayan*) approach that tended to see the mutual containment of ostensive opposites. While incorporating the *gongan* method into his system of practice, Jinul also believed that scriptural study was a vitally important component of Buddhist cultivation. This approach is enunciated in the oft-repeated story that Jinul did not undergo his enlightenment experiences as the result of the classical so-called personal mind-to-mind transmission between teacher and student as characterized in the Seon school. Rather, each of his three enlightenment experiences came in connection with the contemplation of a passage in a Buddhist text.

Jinul's philosophical resolution of this issue brought a deep and lasting impact on Korean Buddhism and can be seen as a repeated theme in the works of many subsequent Seon masters, including such famous figures as Gihwa (1376–1433) and Hyujeong (1520–1604), who followed Jinul's way of thinking in addressing the issue of practice and study in their own writings. Jinul produced a number of important disciples who passed on his teaching and continued to work within his discourse.

See also Buddhism—Schools: Chan and Zen.

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JOACHIM OF FIORE
(c. 1135–1202)

Joachim of Fiore, the Christian mystical philosopher of history, lived in Calabria, Italy, a region characterized by the remote hermit life, yet close to Sicily, the hub of the Mediterranean. This combination of withdrawal from and encounter with the world also characterized Joachim's life. Becoming a Cistercian, by 1177 he was abbot of Curazzo, but he obtained papal permission to retire from monastic administration to a more remote mountainous region, where he founded the order of San Giovanni in Fiore about 1192. Yet he descended to dramatic encounters—in which he prophesied on contemporary events and the advent of Antichrist—with Pope Lucius III (1184), King Richard I of England (1190–1191), and the Holy Roman Emperor Henry VI (1191), and he meditated deeply on contemporary history, especially the two great menaces to Christianity: the infidel and the heretic.

Joachim recorded two mystical experiences: one at Easter, when he was given understanding of the inner concords between the two testaments, and one at Whitsuntide, when he received illumination on the doctrine of the Trinity. Disclaiming the title of prophet, he believed that through the gift of spiritual intelligence he understood the inner spiritual meaning of history.

With papal encouragement, Joachim set out to expound this belief in his three main works, the *Liber Concordiae*, the *Expositio in Apocalypsim*, and the *Psalterium Decem Chordarum*. His exposition turns chiefly on an interwoven double pattern of twos and threes. The two testaments represent history in two eras, culminating, respectively, in the First and Second Advents and marked continually by concords—for example, twelve Tribes and twelve Churches, seven Seals and seven Openings. History is also trinitarian, growing treelike from the Age (*status*) of the Father (Law) to that of the Son (Grace) to that of the Spirit (Spiritual Understanding), yet in a double "procession" of the third *status* from both the first and the second. This third *status* represents an apotheosis of history, which Joachim equated with the Seventh, Sabbath Age of the traditional Seven Ages, placing it between the worst Antichrist and the end of history. He saw himself on the threshold of the last two generations of the Sixth Age, into which will be crowded the greatest tribulations before the church "crosses Jordan" into the Sabbath of the third *status*.

His strong visual imagination led him to embody this philosophy of history in the remarkable *Liber Figurarum*, through which it was widely disseminated. This doctrine contained revolutionary seeds. Joachim avoided dangerous implications by using his pattern of twos to proclaim that the authority of the Scriptures and church would endure until history ended. His pattern of threes culminated in a spiritual state rather than a historic era. Nonetheless, he almost gave it a starting date—1260—and expected its *Ecclesia Spiritualis*, symbolized in John, to "outlast" the church designated in Peter. This inspired fanatical groups to proclaim the Third Age, the overthrow of existing ecclesiastical institutions, and the transfer of authority to the Eternal Evangel. Joachim's prophecies of two new spiritual orders to lead the church into the Third Age were claimed first by Franciscans and then by Dominicans, Augustinian friars, and even Jesuits.

Condemned as a heretic, revered as a saint, Joachim seldom met with indifference to his views. From the thirteenth to the sixteenth century, when an optimistic expectation of history was proclaimed, it usually drew inspiration from Joachimism.

See also Mysticism, History of; Philosophy of History.

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JODL, FRIEDRICH

(1849–1914)

Friedrich Jodl ranks as one of the most significant representatives of German positivism, although this designation by no means adequately characterizes the full scope of his ideas. Jodl was born in Munich, where in 1880 he qualified as a *Privatdozent* in philosophy. Five years later he was named professor of philosophy at the German University in Prague. In 1896 he accepted a call to the University of Vienna. His many publications ranged over the fields of philosophy and the history of philosophy and ethics, as well as psychology and aesthetics.

Jodl categorically rejected metaphysical speculation. For him, the boundaries of experience were at the same time the boundaries of knowledge; hence, there could be no a priori knowledge, nor any metaphysical cognition of the transcendental. The task of philosophy, he maintained, is to order scientific knowledge systematically and to comprehend it in a unified view of the world. The basis of philosophy, like that of science, can only be experience.

As a consistent empiricist, Jodl criticized phenomenalism, preferring critical realism. The factual existence of a transsubjective reality is guaranteed by the thou-experience, by the existence of one's fellow men. Moreover, without the assumption of an objective external world and without the assurance that we know it as such, natural science would be impossible. Hence, the forms of our intuition and of our thought are not subjective in the sense meant by extreme epistemological idealism; rather, they are also conditioned by the relationships of things. Our knowledge of the world is not subject to a theoretical limit beyond which our consciousness is unable to grasp reality; there is only a frontier that can always be pushed further back, with the result that the world in its totality constitutes an endless problem, a task for knowledge that can never be definitively solved.

Jodl sought a naturalistic conception of the world, free of religion and metaphysics, such as that of the monistic movement, which he energetically promoted. "We need no other mediator between us and nature except our understanding and a courageous will, nor any mystery behind nature to console us for her; we are alone with nature, and we feel secure because we possess intellect and she behaves according to laws" (*Vom wahren und vom falschen Idealismus,* p. 40).

Jodl treated the problem of God on the basis of this naturalistic monism. Somewhat like John Dewey after him, Jodl, while denying the existence of God in any traditional sense, retained the term *God* as a designation for the highest ideals to which human beings aspire.

In his psychology too Jodl confined himself to the clearest possible presentation of the empirically given facts of mental life, renouncing all metaphysical assumptions. His psychological investigations are unusually rich in acute analyses and genetic explanations. Consciousness is not a substance but an act; it is the inwardness of a living creature. The bearer of consciousness is not an immaterial soul but the living organism; the soul is nothing other than the unified coherence of experience. "Mental" and "physical" are simply two expressions in different languages for one and the same occurrence. Body and consciousness are one; the psychical is the internal, subjective experiencing of neurological processes. An individual experiences as subject the whole complex of his brain processes in internal perception.

In ethics, Jodl was a convinced evolutionist. Ethical values have been subject to continuous transformation; morality is an evolutionary product of the interaction between the individual and society. Jodl made a sharp distinction between the subjective, psychological basis of morality and the objective, axiological criterion for it, although the two, in his view, were most intimately connected. The basis of morality is the will, which rests on

social instincts, is influenced by reason, and is aimed at the welfare of the whole. A different question is the establishment of moral norms by which to measure the worth of human attributes and deeds. This requires that one take into account both the motivation and the utilitarian value of an action. In his penetrating studies in the history of ethics, Jodl showed that this discipline has, in the course of its development, increasingly freed itself from metaphysics and has replaced the theocentric foundation with an anthropocentric one.

Jodl, characteristically, was not content with theoretical (historical and systematic) studies in ethics, but sought beyond that to carry out in life a practical, ethical idealism. Imbued with a faith in the value of life and a vigorous optimism in regard to culture and progress, he was an "enlightener" advocating the humanization of culture; an ethically based social life in the spirit of a purely secular, humane morality and freedom of thought. He strongly supported and promoted the system of free popular education and the Ethical Culture movement.

See also Dewey, John; Evolutionary Ethics; History and Historiography of Philosophy; Positivism.

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JOHN DUNS SCOTUS

See *Duns Scotus, John*

JOHN OF DAMASCUS
(c. 675–c. 750)

John, whose secular name was Mansur, was born in Damascus probably in the third quarter of the seventh century. His father and grandfather had been prominent in the fiscal administration of Syria, and it is believed that his father was in charge of the fiscal administration of the Umayyad Empire, with its capital in Damascus, in the latter decades of the seventh century. John received a good Hellenistic education and probably entered the service of the Caliph at Damascus in his father's footsteps. At some point—probably at the beginning of the eighth century, when the administration of the Umayyad Empire was put in the hands of Muslim officials—John resigned his post and became a monk in the Holy Land, according to a late tradition at the monastery of Mar Saba in the Judaean Desert (though it is more likely that he was associated with the church of the Anastasis in Jerusalem itself). In any event, he was close to John V, patriarch of Jerusalem from 706 to 735, who ordained John of Damascus to the priesthood. It is believed that he died around 750, because at the Iconoclast Synod of Hiereia (754) he was anathematized under his name Mansur as if he was already dead.

John possessed genuine literary gifts, knowledge both theological and philosophical, and considerable intellectual acumen. In his lifetime he achieved fame as a preacher (evident from the references to him in the *Chronicle* of Theophanes); his liturgical poetry still forms the core of the Byzantine liturgical office; through his works of theology he came to exercise an unparalleled influence, not only throughout the Byzantine world, but on theology in the West from the period of Scholasticism (for which he provided the principal access to the developed theology of the Byzantine East) up to at least the time of Friedrich Daniel Ernst Schleiermacher. Many of his theological works are polemical; he wrote a treatise against Manichaeism, as well as treatises against the

Christological heresies of monophysitism, monothelitism, and Nestorianism and is the first Christian theologian explicitly to attack the new religion of Islam, on which he was impressively informed.

John was the most notable defender of icons against the iconoclasm of the Emperor Leo III. His best-known work is a three-part treatise known as *The Fountain Head of Knowledge* (in Greek: *Pēgē gnōseōs*), consisting of an introduction to logic (*Dialectica*), a summary account of heresies (*De haeresibus*) and an epitome of the principal themes of the Christian faith (*Expositio fidei*, or *De orthodoxa fide*). The critical edition published by the Benedictine Dom Boniface Kotter in the last decades of the twentieth century reveals that each of these sections was intended to be a century (or half-century)—that is, a collection of one hundred chapters or paragraphs. The century was a genre of monastic literature, popular in Byzantine circles, and John's choice of this genre makes clear that his purpose in this work was essentially monastic: the intellectual training and learning it provides was ultimately to help monks in their life of prayer. His principal purpose was not to provide a systematic theology, as was suggested by the division of the *Expositio fidei* into four books, corresponding to the four books of Peter Lombard's *Sentences*, a division introduced into the Latin translations in the thirteenth century (and thence into the older editions and translations), but unknown in the Greek manuscript tradition. In fact, although John intended a final version of the work in three parts as indicated above, the most popular form in the Byzantine world was a combination of the *Dialectica* and the *Expositio*, usually known as *Philosophical and Theological Chapters*, usually consisting of 150 chapters.

The *Dialectica* is a compilation—belonging to a tradition of Christian introductions to logic, popular in the seventh and eighth centuries—that provided an introduction to basic philosophical terminology as an aid to understanding the issues raised by Christological controversy in the East, which had raged since the fifth century, and concerned concepts such as being, nature, person, and latterly activity and will. The *Dialectica* in the earlier form (the only one that survives complete; John probably died while revising it) seems to lead up to the notion of *hypostasis* or person, and "hypostatic union," key terms in the Christological orthodoxy to which John belonged. Those who contributed to this tradition of Christian introductions to logic drew their material from the sixth-century Alexandrian commentaries on Aristotle and Porphyry; unlike the sixth-century commentators, however, the compilers of these textbooks (including John himself) were not concerned to advance an understanding of logic, but simply to provide the basic tools for engaging in the theological arguments of the day.

The *Expositio Fidei* is also a work of compilation, drawing, often word for word, on earlier theologians in its presentation of the fundamental concepts of the Christian faith. It concerns the doctrine of God and the Trinity; creation and the nature of the created order, especially human nature; the doctrine of Christ (to which most space is devoted); and various questions of religious practice, especially those that marked off Christians from Jews and Muslims (though there is no explicit reference to the latter). John expressly sets aside any claim to originality; even the selection of authorities is probably not original to John, but represents an established tradition, much influenced by Maximos the Confessor (580–662). The only doctrines where some originality could be claimed for John are the doctrines of the will and its freedom, which had become central to the controversy over the heresy that Christ had only one will (monothelitism), and possibly his treatment of the infinity of God. In both cases, however, John's contribution is not much more than a refinement of the tradition that had reached him. Some aspects of the tradition he had received are ignored, possibly felt to be too daring: for example, his dependence on Maximos (and through him on the fourth-century Nemesios of Emesa) for his understanding of creation and human nature is particularly marked, but he ignores completely Maximos's developed doctrine of the principles (or *logoi*) of creation. It is doubtless the clarity of John's exposition that is the reason for his immense influence.

See also Aristotle; Byzantine Philosophy; Mani and Manichaeism; Medieval Philosophy; Porphyry; Schleiermacher, Friedrich Daniel Ernst.

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Andrew Louth (2005)

JOHN OF JANDUN

(c. 1286–c. 1328)

John of Jandun, also known as Jean de Jandun and Johannes de Janduno, was foremost among the Averroists at Paris in the fourteenth century. He was born in the village of Jandun in the French province of Champagne. The estimate of his date of birth is based on the year 1310, the earliest date found on any writing definitely attributable to him; at the time of this first or very early publication, John would have been a recent master of arts, and reckoning by the age and curricular requirements in effect at the University of Paris in the early fourteenth century, he could not have been much more than twenty-four years of age. John was active throughout the next decade and a half as master of arts at the Collège de Navarre, in Paris, although he was nominally canon at Senlis—the kind of preferment awarded a practicing teacher and scholar during the Middle Ages. At Paris he lectured on the standard curriculum of the Faculty of Arts: Aristotle's *Physics, De Coelo et Mundo, De Anima, Metaphysics, Parva Naturalia,* and *Rhetoric* and Averroes's *De Substantia Orbis.* John's commentaries on these works date from 1310 to 1323. Additional writings from this period attest to his interest in particular problems arising in his lectures and commentaries; there still survive many independent *quaestiones* and *disputationes,* which, in the medieval tradition, supplemented the normal course of studies with special studies and advanced seminars.

By 1324 he was closely associated with Marsilius of Padua, also a master of arts at Paris, in connection with Marsilius's famous and controversial *Defensor Pacis,* published that year. Although John does not seem to have shared in the actual composition of the work, he was apparently an intellectual intimate of Marsilius. The *Defensor Pacis,* a powerful affirmation of the temporal and civil authority over the spiritual and papal, occasioned enough ecclesiastical outrage for John and Marsilius to deem it prudent to leave Paris and seek the protection of Louis IV of Bavaria. Louis was himself embroiled with Pope John XXII on matters of political and spiritual authority and was soon to harbor another intellectual fugitive from Paris, William of Ockham. In 1326 and 1327 a series of papal bulls appeared specifically attacking John and Marsilius, and the final one, dated October 23, 1327, excommunicated them as "heretics and heresiarchs."

The remainder of John's life was brief. He followed Louis in the invasion of Italy and was rewarded with the episcopate of Ferrara. Probably en route to assume his new duties, he died at Todi, not later than August 31, 1328.

THOUGHT

To treat John of Jandun's philosophy, as many historians have done, as a blind recapitulation of the Commentator (the title by which Averroes was referred to throughout the Middle Ages and the Renaissance) and his special views on Aristotle would be an oversimplification. It is true that John did, at one point in his commentaries, call himself the "ape of Averroes," but this was in the context of a particular passage of Aristotle's *Metaphysics,* where John considered Averroes's remarks perfectly adequate. It is also true that John preferred, generally, Averroes's rendering of Aristotle, but it is not illuminating to call him "Averroist" without severe qualifications. Other medieval philosophers (for example, Siger of Brabant) can be termed Averroist, but their speculative positions were sometimes methodologically quite distinct from those of John. It is probably most accurate to place him in the philosophical tradition and method sometimes exemplified in Christian Augustinianism, always recognizing, however, that he was oriented intellectually within the traditions of the Faculty of Arts rather than those of the Faculty of Theology.

John's espousal of a *sensus agens* (active principle in the process of sensation), of a plurality of substantial forms in the individual (one for each of the three functions of living: vegetating, sensing, and thinking), of the soul's ability to grasp separate substances (that is, forms) directly, of form as the immanent and essential cause of natural activity, and of other kindred doctrines can be found in the thinking of many Augustinian theologians close to his time, such as Bonaventure, Peter John Olivi,

Roger Marston, John Duns Scotus, and Peter Aureol. John's own advocacy of these views arose, however, out of the use of Averroes in the analysis of Aristotle for the Faculty of Arts curriculum. Although John's version of Averroism and the tradition called Christian Augustinianism had much in common methodologically, they sprang from different institutional contexts.

John's interpretations of Averroes's commentaries on Aristotle were both acute and influential (as late as the seventeenth century his writings were still used alongside those of Averroes by the Paduan pedagogue Cesare Cremonini), but his place in intellectual history is due less to the conspicuous originality of his thought than to his unusually explicit delineation of the respective domains of faith and reason. Whenever confronted, in his analysis of Aristotle, with a conclusion severely at variance with some doctrine of Christian faith, John appended an apologia of the following kind: "It must be noted that, although the *dicta* are … according to the principles of Aristotle and the Commentator, it must be replied firmly according to faith and truth that the world is not eternal." Similar passages abound in John's commentaries; whenever conclusions of reason arrived at in the logic of Aristotle and Averroes differed from the dictates of Christian dogma, John introduced statements proclaiming the consistency of the reasoning but immediately ceding truth itself to the preeminent demands of faith.

Such remarks have had two interpretations. First, John has been indicted, with other so-called Averroists; as holding a theory of "double truth"—that is, that statements of faith, on the one hand, and conclusions of reason, on the other, can be simultaneously true, yet contradictory. This charge has been discounted effectively by Étienne Gilson; no medieval writings maintaining such a self-inconsistent view have yet been found. Medieval thinkers never stated more than the position that although reason can systematically reach certain conclusions, Christian faith is nevertheless the final arbiter of truth when such conclusions conflict with matters of doctrine.

Second, certain of John's disclamatory passages have been interpreted as actually revealing a fundamental religious insincerity. For example, he said:

> This is not known *per se,* nor is it demonstrable by any human proof, but we believe this to be so solely by divine authority and by the Sacred Scriptures. And to the credulity toward things of this kind and similar things, the habit of listening to this sort of thing from childhood adds a good deal.

Or again:

> If anyone knows how to prove this and to make it accord with the principles of philosophy, let him rejoice in this possession, and I will not grudge him, but declare that he surpasses my ability.

And finally:

> although every form inherent in matter is corruptible I say, however, that God can perpetuate it and preserve it eternally from corruption. I do not know the manner of this; God knows it.

Such statements have been interpreted as indicating a radical insincerity in John's thinking, a covert mocking of Christian faith. Thus, some historians have suggested that John was not merely maintaining a "double truth" but actually affirming the superior reliability of the conclusions of unaided reasoning in the mode of Aristotle and could therefore stand as an early precursor of seventeenth-century rationalism and libertarianism.

On close examination, however, John's position on the relation between the claims of faith and claims of reason does not seem to have been distinctively more radical than the thinking of many other medievals. (Similar disclaimers of reason in favor of faith can be found in many commentaries on Aristotle, including those of Thomas Aquinas.) Such discrepancies and apparent conflicts reflect, in small part, a strong institutional rivalry between the faculties of arts and theology and, in large part, a fundamental intellectual crisis occasioned by the confrontation between Greek rationalism and Christian dogma.

See also Aristotle; Augustinianism; Averroes; Averroism; Duns Scotus, John; Marsilius of Padua; Marston, Roger; Olivi, Peter John; Peter Aureol; Sensa; Siger of Brabant; Thomas Aquinas, St.

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Quaestiones in Duodecim Libros Metaphysicae. Four printings in Venice between 1525 and 1586.

John's most influential writings, the commentaries on Aristotle—including those listed above—can be found only in Renaissance editions. Some lesser writings exist in printed editions published in the fifteenth and sixteenth centuries.

All of John's works can be found in manuscript form in various European libraries.

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Stuart MacClintock (1967)

JOHN OF LA ROCHELLE
(c. 1190–1245)

John of La Rochelle, or de Rupella, was a Franciscan philosopher, theologian, and preacher at the University of Paris. The first clear reference to him (in Thomas of Cantimpré) indicates that in 1238 he was already a friar and a master in theology. From John's own writings, as well as from his knowledge of and interest in philosophy, we may deduce that he had studied and perhaps taught in the faculty of arts before becoming a theologian. His *Summa de Vitiis* (Summa on vices and sins), which manifests his penchant for ethical questions, is directly dependent on William of Auxerre, Prevostinus, and Stephen Langton, who apparently were John's teachers in the faculty of theology. It seems that only after Alexander of Hales entered the order, in 1236, did John become acquainted with that famous theologian; thereafter John was Alexander's faithful companion and collaborator. Both seem to have taught at Paris until their deaths in 1245.

Though a famous preacher and biblical commentator, John is known primarily as a "summist" interested in questions of psychology and morals. Both topics are combined in his early *Tractatus de Anima et de Virtutibus* (Tract on the soul and the virtues), a kind of rambling compilation of definitions of the soul, the divisions of the soul's powers according to the philosophers, and the division of the virtues according to Plotinus, Cicero, Aristotle, and Augustine. Ethical questions predominate in John's proposed *Summa Theologicae Disciplinae* (Summa of theological learning). As set forth in the prologue to the *Summa De Articulis Fidei* (Summa on the articles of faith), the larger summa of theology was to include both doctrines and morals. "Morals is divided into two parts: on sins and the remedies of sins. These remedies are four in number: commandments, virtues, the gifts of the Holy Spirit, and the sacraments" (ms. Milan, *Brera A.D. IX. 7,* fol. 75a). Only parts of such a summa seem to have been completed: the "Summa on Vices and Sins," *De Praeceptis et Consiliis* (On precepts and counsels; a tract), *De Virtutibus* (On virtues), and the *Summa de Donis* (On the gifts of the holy spirit). The same interest is reflected in the lengthy and influential tract *De Legibus et Praeceptis* (On laws and precepts), which is probably John's work, and in such Disputed Questions as "The Fall of Human Nature," "On Negligence, Hypocrisy, the Seven Capital Sins," "On Usury," and "On the Just War," all as yet unpublished.

His early "Tract on the Soul" was developed into the more mature *Summa de Anima* (Summa on the soul), which is rightly regarded as the first scholastic textbook of psychology. Beginning with proofs (from Avicenna and Augustine) for the existence of the soul, the first part examines the essence, causes, and properties of the soul and its union with the body (giving a none too clear, yet basically Aristotelian, solution of this latter problem), with a final section on immortality and the status of the soul after death. In the second half John considered at length the problem of the powers of the soul: their relation to the essence and their division according to Pseudo-Augustine (*De Spiritu et Anima*), John of Damascus, and Avicenna. The classification of the external and internal senses, the cognitive and motive powers, follows closely the *De Anima* of Avicenna, with some slight additional material. A comparison with the earlier "Tract" leads us to conclude that the *Summa de Anima* is incomplete. It ends abruptly in the midst of a discussion on the will. The large number of extant manuscripts attests to its popularity in the Middle Ages. If not strikingly original, the summa is of interest also for its use of the philosophers at a time when theologians were inclined to reject their help. John pointedly rejected such an attitude in a university sermon:

> If philosophy is neglected, one may fear lest "there be found no smiths in Israel" (I Samuel 13:19), that is, philosophers who will sharpen our wits like "swords" and with shining "lances" attack the enemy at a distance. The devil himself seeks to stamp out the study of philosophy because he does not want Christians to have sharp minds. (*Collectanea Franciscana,* Vol. 28 [1958], 50)

Last, John is to be considered the primary author or compiler of the first and third books of the so-called "Summa of Alexander of Hales."

See also Alexander of Hales; Aristotle; Augustine, St.; Avicenna; Cicero, Marcus Tullius; John of Damascus; Plotinus; Psychology; Virtue and Vice.

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Ignatius Brady, O.F.M. (1967)

JOHN OF MIRECOURT
(fourteenth century)

John of Mirecourt belongs to a generation of philosopher-theologians discussing the nature of knowledge and especially the varieties of evidence for human knowledge. Biographical information on him is scarce, but he lectured on the *Sentences* of Peter Lombard (c. 1095–1160) at the University of Paris in 1344–1345. Propositions taken from his work were condemned by the chancellor in 1347. His two apologies are the best-known writings by him, although his commentary on Lombard's *Sentences* has also survived. Traditionally, Mirecourt has been described as a skeptic associated with Nicholas of Autrecourt (c. 1300–after 1350). Research in the last decades of the twentieth century gave a somewhat more accurate picture of his epistemology, but other areas of his philosophy, like his theory of ethics and the will, have not been examined.

In his epistemology Mirecourt distinguishes between abstractive and intuitive cognition, following William of Ockham (c. 1285–?1349), John Duns Scotus (1266?–1308), and some earlier scholars. *Abstractive cognition* can be defined as a cognition that can be had without its object being present, while *intuitive cognition* is dependent of the presence of its object and allows (or even produces) evident knowledge that the object exists. For example, when one sees Peter, one gains an intuitive cognition with Peter as the object of the cognition and is able to give evident assent to the proposition "Peter exists." In abstractive cognition the object need not be present, and thus the examples are often of a conceptual or mathematical nature.

According to Mirecourt's classification, suspicion, opinion, and conjecture constitute *inevident assent*. In contrast, *evident assent* is firm belief, which, as he sees it, can be either supranatural or grounded in natural causes. Mirecourt concentrates more on the latter. There are cases where it is impossible that evident assent is wrong, and Mirecourt talks in this context of *special evidence*. Evidence reducible to the certainty of first principles is like this. Mirecourt's examples include: "If it is a man, it is an animal" and "God is God." The latter is a logical truth, but the former shows that he has in mind also conceptual necessities. Surpassing the border of what may be called analytic truth, there is also special evidence that something exists. Mirecourt proves this by saying, "If one doubts whether something exists or whether one exists, one has to concede that it follows evidently: One doubts whether something exists, therefore one exists, since if one did not exist, one would not doubt. So it follows: one exists, therefore something exists" (*In I librum Sententiarum*, q. 6). Here, knowledge of one's own existence is shown to have special evidence. Mirecourt continues by pointing out that nothing else is known to exist with infallible evidence.

Not all natural evidence is special. Mirecourt faces the skeptical challenge that any belief without special evidence could be false by God's absolute power. Our ordinary experiences could thus be like dreams or hallucinations. Just like René Descartes (1596–1649) some centuries later, Mirecourt accepts that this is in some sense possible. Nevertheless, Mirecourt thinks that ordinary experiences can constitute genuine knowledge and thus he is not really a skeptic in the classical sense.

See also Descartes, René; Duns Scotus, John; Nicolas of Autrecourt; Peter Lombard; William of Ockham.

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Mikko Yrjönsuuri (2005)

JOHN OF PARIS
(c. 1255–1306)

John of Paris, or John Quidort, also known as Surdus or Monoculus, was a Dominican scholastic philosopher and theologian, priest, and author. A native of Paris, John studied and taught philosophy at the University of Paris before entering the Dominican order at St. Jacques prior to 1279. As bachelor in theology he lectured on the *Sentences* of Peter Lombard (1284–1286) and energetically defended the then suspect doctrines of Thomas Aquinas in a famous refutation, *Correctorium "Circa,"* of the *Correctorium* of William de la Mare, which had been officially adopted by the Franciscans. Certain unknown adversaries managed to twist or misinterpret sixteen statements delivered in class, and in 1286 they had John denounced to the authorities. Although he ably explained the true meaning of his innocent statements, his academic career was temporarily suspended. In his defense of Thomas, John showed a clear understanding of the Thomistic distinction between essence and existence in creatures, the unicity of substantial form in material substance, the individuation of material substances by matter alone, and the pure potentiality of first matter.

From 1300 on John was again active in Paris, teaching, preaching, and writing. His sermons and treatises testify to the political and social unrest of the times. During the struggle between Pope Boniface VIII and Philip the Fair, John wrote the important treatise *De Potestate Regia et Papali* (On royal and papal power; 1302), in which, following Thomas Aquinas, he defended a middle position between the papalist and imperialist extremes. He clearly distinguished between two autonomous societies in Christendom—church and state—each of which has its independent, legitimate source of authority and its rightful area of concern. For him the source of royal power was not delegation from the pope but the nature of humankind acting reasonably and freely for the common good of society.

In 1304, John was given license to incept in theology, succeeding Raymond Romani as master. In 1305, John presided over a solemn disputation before the bishop of Paris and the faculty of theology, in which he maintained that since the church had not yet defined the doctrine of transsubstantiation, one could hold as equally probable the doctrine that later became known as "impanation"—that is, the continued existence of bread after consecration, now assumed in Christ. This novel view was examined by a number of bishops and theologians, who considered it heretical. John was suspended from all teaching and preaching, perpetual silence being imposed upon him under pain of excommunication. John appealed his case to the papal *curia* at Bordeaux, where he died on September 22, 1306, while awaiting a decision. At the very beginning of the Eucharistic controversy he had publicly expressed his willingness to retract his view should it prove contrary to the teaching of the church.

John was a gifted speculative thinker who, while accepting the basic principles of Thomas Aquinas, was eager to deal with new problems in philosophy and theology.

See also Essence and Existence; Medieval Philosophy; Peter Lombard; Thomas Aquinas, St.; Thomism.

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James A. Weisheipl, O.P. (1967)

JOHN OF ST. THOMAS
(1589–1644)

John of St. Thomas, the Spanish theologian and philosopher, was born John Poinsot, the son of an Austrian, at Lisbon, Portugal, and died at Fraga, Spain. When he entered the Dominican order he took his name from St. Thomas Aquinas. John studied philosophy at Coimbra, Portugal, and theology at Louvain, taught philosophy and theology in Dominican houses of study, at Alcalá de Henares (1613–1630), and from 1630 to 1643 was a professor at the University of Alcalá. Apart from certain Latin and vernacular works of devotion, his writings consist of two series of textbooks, one in philosophy, the *Cursus Philosophicus* (which comprises "Ars Logica," covering logic, and "Philosophia Naturalis," on natural philosophy), the other in theology, the *Cursus Theologicus* (a systematic commentary on Thomas's *Summa of Theology*).

The "Ars Logica" is fundamentally Aristotelian logic, but John developed the content of the course in two directions: toward a formal theory of correct reasoning and toward a material logic that attends to the meaning of the actual terms of a proposition and thus anticipates some of the problems of epistemology and semantics. John's terminology differs from that of modern logic (*propositio copulativa* is the modern conjunctive proposition; *propositio disiunctiva* the alternative proposition; *bona consequentia* means *implication*). However, it has been claimed, by J. J. Doyle, that the "Ars Logica" and Alfred North Whitehead and Bertrand Russell's *Principia Mathematica* are fundamentally similar as formal systems. Concerning material implication, John taught that one may infer from the particular proposition ("Some man is rational") to the universal proposition ("Every man is rational") in cases where the matter is necessary. To some extent he anticipated problems in the philosophy of science and the metasciences and also the theory of induction.

His philosophy of nature is a systematic exposition of a type of Thomism much influenced by the commentaries of Cajetan. Nature is the world of bodies, of being that is subject to change (*ens mobile*), explained in terms of the four Aristotelian causes, substance and accidents, act and potency, matter and form.

John treated certain questions in a novel way—for example, immanent action, the sort of activity that begins and ends within one agent and is typical of psychic functions (see *Cursus Philosophicus*, "Philosophia Naturalis," I, q. 14, a. 3). John had no separate treatise on metaphysics, but his views on the ultimate character of reality were fre-quently presented in his explanation of parallel problems (substance, causality, potency) in the "Philosophia Naturalis." The "Theological Course" also contains explanations of problems in speculative philosophy. Cognition, on the sensory and intellectual levels, is explained in terms of a metaphysics of causality (I, q. 1, disp. II, a. 12, n. 4). John was one source of the theory of the distinction between three degrees of knowledge—physical, mathematical, and metaphysical—popularized in the twentieth century by Jacques Maritain.

In his discussion of the gifts of the Holy Ghost (*Cursus Theologicus*, IV, disp. XVII), John had much to say on the relation of knowledge to wisdom. He viewed ethics and political philosophy as speculative sciences and did not write much on practical philosophy. On moral questions he adopted the position called "probabilism"; that is, in moral situations where a person is really in doubt about what he should do, he may solve his doubt by adopting any judgment that has been made by a prudent moralist concerning the proposed action (*Cursus Theologicus*, IV, disp. XII, a. 3, n. 4).

John's writings are useful for their historical information on later scholasticism. He influenced many recent Thomists, notably Maritain, J. M. Ramírez, Joseph Gredt, and Yves Simon.

See also Aristotelianism; Cajetan, Cardinal; Induction; Logic, History of; Maritain, Jacques; Philosophy of Science, History of; Russell, Bertrand Arthur William; Thomas Aquinas, St.; Whitehead, Alfred North.

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JOHN OF SALISBURY
(c. 1115–1180)

John of Salisbury, the scholar, humanist, and bishop, was born at Old Sarum (Wiltshire), England. After primary instruction from a rural priest he went to France to study in 1136. He read dialectic first under Peter Abelard, during the latter's last period at Paris, then under Alberic and Robert of Melun. In 1138 he began the study of grammar under Richard of Arranches, probably at Chartres, where he also studied under William of Conches; at Chartres too he studied rhetoric and part of the quadrivium. In 1141 he took up theology at Paris under Gilbert of Poitiers and Robert Pullen and made the acquaintance of other masters. He was then probably secretary for a short time to Abbot Peter of Celle (1147–1148). He was a member of the Roman Curia, and in 1148 attended the Council of Rheims, where he knew well both Bernard of Clairvaux and Gilbert of Poitiers. That year he was introduced by St. Bernard to Theobald, archbishop of Canterbury, with whom he spent a short time. Between 1149 and 1153 John was a member of the Roman Curia in Apulia and elsewhere and was on terms of intimacy with Pope Adrian IV (Nicholas Breakspear). From 1153/1154 to 1161 he was the trusted secretary of Archbishop Theobald and was one of a distinguished household that included Thomas Becket, Roger of Pont l'Évêque, later archbishop of York, and the Italian lawyer Vacarius. He advised and represented the archbishop and wrote his letters, many of which dealt with business of the Curia.

After Theobald's death, John entered the service of Thomas Becket, to whom he remained a loyal, although not blind, supporter during Thomas's later controversy with King Henry. Accused by King Henry II of encouraging appeals to Rome, John preceded his patron into exile in 1163 and spent some years in Rheims living with Peter of Celle, then abbot of St. Rémy, and working in Thomas's interest with King Louis VII of France. He rejoined Thomas shortly before the latter's return to England in December 1170 and preceded him to Canterbury.

John was at dinner with the archbishop when the knights arrived and was present, although perhaps in concealment, at Thomas's murder in the cathedral. He subsequently worked for Thomas's canonization and, in return, was invited by King Louis in July 1176 to become bishop of Chartres. He attended the third Lateran Council in 1179 and died the following year at Chartres, where he was buried.

John was author of a multitude of letters as well as short lives of Anselm and Thomas Becket, the latter a jejune work that is doubly disappointing in view of the writer's literary skill and intimate knowledge of his subject. His *Historia Pontificalis* is a continuation of the *Chronicle* of Sigebert of Gembloux and covers the years 1148–1152. As a scholar he composed the versified *Entheticus de Dog-mate Philosophorum* (1155), a rehearsal of his knowledge of ancient philosophy, as well as the two works on which his medieval reputation rested: the *Policraticus* (The statesman) and *Metalogicon.*

The *Policraticus,* subtitled *De Nugis Curialium et Vestigiis Philosophorum* (Concerning the vain purposes of courtiers and the traditions of philosophers), is a disorderly, rambling work without detailed plan. Dealing in part with such faults and follies of the great as hunting, gaming, dreams, and astrology and with witchcraft, it contains a variety of anecdotes and personal experiences. Books 6–10 deal with the character and duties of a prince, and the work has consequently been called—somewhat misleadingly—the first medieval treatise on political thought. It is, in fact, a sociological study, but it contains a well-known passage on the ministerial function of the prince, who holds the sword in order to perform duties beneath the dignity of the priesthood, which John always considers the superior power, even when emphasizing the virtue of patriotism. The passage shows no clear indication of acquaintance with the almost contemporary teaching of St. Bernard on the possession of two swords by the papacy. In the last book John proclaims the right and duty of citizens to kill a tyrant. The passage has often been quoted in later centuries as authoritative, but it is probably merely an echo of Roman republican rhetoric without any practical application to the world of the twelfth century.

The *Metalogicon* (1159–1160) was written at almost the same time as the *Policraticus.* It is an apologia for true logic, or rather for philosophical training as an introduction to a civilized way of life, contrasted with the technical logic of the schools, which was fit only for sciolists or such careerists as Cornificius, whose name recurs as an unidentified opponent of humane learning. John

recounts his own educational experiences (*Metalogicon* II, 10), with a tribute to Bernard of Chartres and a sketch of his methods, and sets out several current opinions on the nature of universals (ibid., II, 17–20). There are the pure nominalists, such as Roscelin, who held universals to be mere words (*voces*), and Abelard (as John understood—or misunderstood—him), who substituted the term *sermones.* There are those who, like Bernard of Chartres, regarded universals as the Ideas of Plato, and with these may be reckoned Gilbert of Poitiers with his "original forms" (*nativae formae*), while others regarded them merely as a group (*collectio*). John himself adopts an Aristotelian position: Universals are not independent realities, but mental images (*figmenta rationis*) of real kinds (*genera, species*) into which things can be grouped and from which the intellect can abstract those qualities that resemble those of other members of the group. John wrote no systematic philosophical work and declared himself a tolerant skeptic of the Academy, or of what is now known as Late Platonism. Nevertheless, he had great admiration for Aristotle, whom he called "the Philosopher" par excellence; without his New Logic, John maintained, and especially without the *Topics,* dialectic is doomed to be a hit-or-miss affair (*sine eo non disputatur arte sed casu*). Both these considerable works, the *Policraticus* and the *Metalogicon,* and probably also the *Entheticus,* were dedicated to Thomas Becket.

The *Historia Pontificalis,* written over a period of years and finally revised in 1164, is not professedly concerned with thought, although the controversy between St. Bernard and Gilbert of Poitiers is the most important episode contained in it. John gives the theological position of the bishop of Poitiers at considerable length, although he does not clarify the real point at issue.

John was neither a theologian nor an original thinker. He was rather, in the words of Bishop William Stubbs, "the central figure of English learning," or, perhaps more accurately, the writer of the twelfth century who came nearest to the modern critical attitude toward men and their ideas. His celebrated comparison of St. Bernard and Gilbert is the keenest analysis of character and style to appear between the days of Augustine and those of Petrarch, and this is not the only section of his writing that attains such a high level. Moreover, he is the only writer of the twelfth century to pass in review the schools of the day. He read widely, and his style was perhaps the most classical and idiomatic of all medieval attempts to write in imitation of classical models. He lacks the virtuosity and the emotional appeal of Bernard, and his vocabulary and constructions are at times diffi-

cult. He is unable to plan or to discard. But his cool judgment and unemphatic language always satisfy the reader. Similarly, his letters, especially those written during the denouement of the Becket affair, display a caustic wit that does not appear in his longer works. He knew on terms of equality almost all the distinguished men of his day. This width of acquaintance he shared with St. Bernard, but whereas the abbot of Clairvaux saw them as figures in black and white, the objects of his emotion and rhetoric, John saw them with a detached, slightly cynical eye that could observe their foibles as well as their gifts. He has won his reward: We speak of his age and society as the age of John of Salisbury.

See also Abelard, Peter; Anselm, St.; Aristotle; Augustine, St.; Bernard of Chartres; Bernard of Clairvaux, St.; Gilbert of Poitiers; Greek Academy; Medieval Philosophy; Petrarch; Plato; Political Philosophy, History of; Roscelin; William of Conches.

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David Knowles (1967)

JOHN OF THE CROSS, ST.
(1542–1591)

St. John of the Cross, or Juan de la Cruz, the Spanish mystic and poet, was born at Fontiveros, near Ávila. His family was poor, and as a child he worked in a hospital at Medina del Campo in return for training at the Jesuit school. In 1563 he entered the Carmelite order in Medina, and in the following years he studied at the University of Salamanca. In 1567, the year he was ordained priest, he met St. Teresa of Ávila and planned to start a monastic community in line with the kind of reform she had effected among nuns. Such a community was started in 1568, under the original Carmelite rule and in conditions of great poverty and austerity. This was a prelude to energetic reforming work by St. John and growing opposition on the part of his superiors. In 1577 he was imprisoned at Toledo for eight months and was maltreated. In 1591 he was banished to a lonely monastic house at Úbeda, where he died near the end of that year. His chief prose writings were *The Ascent of Mount Carmel, The Dark Night of the Soul, The Spiritual Canticle*, and *The Living Flame of Love*. His poems have given him a secure place in the history of Spanish literature.

The best-known feature of St. John's mystical writings is his description of the dark night of the soul (or spirit—*noche oscura del espíritu*). The imagery of night is indeed very prominent in his works and was used by him in a variety of senses. By "the dark night" he principally meant the extreme sense of desolation and despair that overcomes the soul after its first illumination by God. This illumination is not the highest state, for eventually the soul will achieve a perfect, lasting union with God—the Spiritual Marriage. The earlier illumination, which St. John called the Spiritual Betrothal, is a "high state of union and love." It thus appears that the dark night is brought on by the deprivation felt when the mystical state of illumination ceases.

St. John saw this dark night in relation to what he called the dark night of sense. This is the purgation of the body and of sense experience, in which the contemplative turns inward from the world. This self-discipline, which involves great asceticism and which constitutes the preliminary training needed for contemplation, culminates in the emptying of the mind of discursive thought and mental images. It is in this state that the Spiritual Betrothal can take place. The dark night of the soul that follows this was explained by St. John as follows.

The soul, despite the Betrothal, still has to endure further purgation, which is psychologically rather than physically painful. This is not due to a change of attitude on the part of God but results from the continued impurity of the soul, which is not able to withstand the glory of the divine illumination. In this situation the theological virtues of faith, hope, and love are essential. Faith enables the contemplative to continue undismayed through the "night"; hope turns the soul toward the future rather than to the memory of deprivation; love turns the soul toward God and men. Ultimately, then, the soul will gain the full union of the Spiritual Marriage. This is described as a complete transformation of the soul in God; and St. John tended to use language identifying the soul with God at this stage, which is contrary to theistic orthodoxy. It is interesting that in his commentary on the poem *The Living Flame of Love* he expressed great unwillingness to write about this, the loftiest state he had experienced. He also said, like other mystics, that the communication of God to the soul is ineffable. However, his use of the imagery of marriage and love indicated that he affirmed the essential distinction between the soul and its Lover.

The attainment of the highest state, according to St. John, is limited to very few persons. Such mystics long for death, after which they may enjoy the Beatific Vision in perpetuity in the next life.

St. John of the Cross and St. Teresa influenced each other, and they are the two most important figures in the history of Christian mysticism in Spain.

See also Asceticism; Illumination; Mysticism, History of; Teresa of Ávila, St.

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JOHN SCOTUS ERIGENA

See *Erigena, John Scotus*

JOHNSON, ALEXANDER BRYAN
(1786–1867)

Alexander Bryan Johnson, an American philosopher and semanticist, was born in Gosport, England, of Dutch-Jewish ancestry. He immigrated to the United States in 1801 and settled in Utica, New York, where he achieved wealth and prominence as a banker. His main interests were intellectual, primarily in theory of knowledge and the problem of linguistic meaning. He published works on the politics of his day, on economics and banking, and moralistic tales for the young, as well as a series of philosophical works.

LANGUAGE AND NATURE

Johnson's preoccupation with language derived from his view that "our misapprehension of the nature of language has occasioned a greater waste of time, effort, and genius than all the other mistakes and delusions with which humanity has been afflicted" (*A Treatise on Language,* p. 300; except where otherwise noted, page references are to the 1959 edition of this work). He found its source in our tendency to interpret nature by language. "My lectures," he wrote, "will endeavor to subordinate language to nature—to make nature the expositor of words, instead of making words the expositor of nature. If I succeed, the success will ultimately accomplish a great revolution in every branch of learning" (p. 40). A rich harvest of philosophically important insights arose from the detailed application of this principle to a wide variety of topics.

Nature, or reality as it appears to us in objects apprehended, is divisible, according to Johnson, into three irreducible classes—the physical (that is, the sensible), the emotional, and the intellectual (thoughts and concepts, which Johnson called "intellections"). Each class includes several subclasses. Sights, sounds, tastes, (tactile) feels, and smells constitute the physical class; the emotions of joy, pain, fear, awe fall into the second class; and concepts (intellections) such as cause, identity, and infinity fall into the third. Words occurring in discourse constitute a subclass of the physical; insofar as they occur in thinking, they are intellectual in nature. The inevitable discrepancy between the practical infinity of natural existences and the necessarily limited number of words of a language results in a one-many relation between words and things (objects of reference). This ambiguity, along with carelessness and ignorance, accounts for the intellectual confusions whose elimination, or at least marking, was the aim of Johnson's lessons on the nature of language.

The terms *physical, emotional,* and *intellectual* throw no light on the nature of the realities they name, but simply refer to them. Only sensing, feeling, and conceiving can inform us what is so referred to. And as the objects, even within each category, are themselves different, acquaintance with some objects of a given kind will not give knowledge of others not confronted. This is not to deny that distinct elements within a given domain resemble one another sufficiently to justify referring to them by a common term. But we err if we suppose that the word *resembles* refers unambiguously to a unique relation. To know that *A* resembles *B* is not to know how it resembles *B*; this can be learned only by specific experience. The elements—the sights, emotions, intellections—that constitute the ultimate referents of significant words are not thought of as mental in the sense of, say, René Descartes or George Berkeley. They are precisely what we find when we confront them, and no words or theories can enlighten us as to their natures. Ultimate meanings can only be *shown* or *had,* never *said.* To understand language we must pass beyond it to the world. Language does not explain the world; the world explains language.

WORDS AND THE MULTIPLICITY OF NATURE

Johnson used his theory to throw light on practically the whole body of traditional philosophical puzzles, most of which are the result of projecting upon nature our misunderstandings of our language about it. For example, we impute to nature a oneness corresponding to the unitary words used to refer to it. Finding nature not always in

agreement with our verbal predications or imputations, we deem this to be ground for impugning our knowledge of its character. The term *gravity* is a verbal unit, but its referents constitute a multiplicity of diverse phenomena. The discrepancy between verbal unity and phenomenal multiplicity leads us to distinguish between gravity and its appearances or manifestations and finally to the view that what gravity is in itself is a mystery, or unknowable. Similar considerations apply to truth, magnetism, cholera, death, the self, and other concepts. "The word gravity names many interesting and important phenomena; but if, in addition to these, we look for gravity itself, we act as ignorantly as the child at the opera, who, after listening with impatience to the musick, singing, and dancing, said, 'I am tired of these; I want the opera'" (p. 77).

In the same vein Johnson criticized Berkeley's view that distance is invisible, by pointing out the obvious fact that "distance" names feels as well as sights. The theory that we cannot see distance derives from our often unconscious restriction of the term to the feel.

Similarly, the question "whether seeing can or not inform us of an external universe, depends on the meaning which we attach to the word external. The question relates to language, not to nature" (p. 63). If *external* is used to refer to what can be tactually felt only, then seeing cannot inform us of an external universe. A sight is not a feel. If we use *external* as referring to a sight, as we frequently and properly do, then seeing can inform us of such a universe.

The origin of theories, according to Johnson, is frequently simply our desire to reconcile these incongruities between what we suppose our language implies and what in fact nature discloses. We invent theories to reconcile the multiplicity of nature to the oneness of language, to supply the unit we suppose must exist but which we fail to find in nature.

KINDS OF MEANING

In his early writings Johnson assumed that if a word had no sensible meaning (referent) it must refer to some inner feeling, or to some other word; otherwise it would be void of meaning, "an empty salvo." Such words as *love* and *hope,* insofar as they do not refer to anything accessible to our senses, would mean other words, their synonyms or definitions, except insofar as they referred to inner feelings. For a person lacking these feelings the word *love* would have only verbal meaning. However, such a person could engage in meaningful discourse involving the word *love* by virtue of being able to explain it by means of other words. He could even have verbal knowledge about love, in the sense that he could make correct verbal deductions from statements containing the term to others entailed by them. In this sense a blind man might have much knowledge of optics, making correct deductions from given premises, even though the sensible meanings, if any, would be beyond his comprehension.

SENSIBLE AND VERBAL SPACE

The distinction between sensible and verbal meaning led Johnson to the difference between physical (sensible) and mathematical (verbal) space, and to the distinction between pure and applied mathematics. The infinite divisibility of space (or matter), not being ascertainable by any of our senses that are cognizant of sensible space, must therefore, he argued, be verbal in nature, since the theory obviously does not refer to any of our inner feelings. Verbal or mathematical space *is* infinitely divisible, our common notion of space entailing such divisibility. The paradox of Achilles and the tortoise is to be explained in terms of this distinction between sensible and mathematical space. In the visual space in which the race is run, Achilles overtakes the tortoise at precisely the moment no light is visible between the two by an observer standing on a line at right angles to the just-touching racers. In mathematical space the process of increasing the denominator of the fraction expressing the "distance" separating them can go on forever. The puzzle is due to our failure to understand that the one-to-one correspondence between the sensible distance and the mathematical distance separating Achilles and the tortoise during the early moments of the race no longer exists at the later stages. When calculation shows that Achilles is one yard behind the tortoise there exists a sensible gap separating them, but when calculation tells us that Achilles is behind the tortoise a distance of one-billionth of an inch nothing in visible space corresponds to this quantity. Hence while still separated in mathematical space they are no longer so in sensible space. The calculations are not faulty. We err in supposing that there must always be a correspondence between the calculated and the observed distance separating them simply because there once was. What is true of mathematical space need not be true of sensible space.

SENSIBLE SPACES

Johnson was aware that there are many different sensible spaces having different properties. Visual space is not identical with tactile space. This fact is important in dealing with certain epistemological puzzles, such as the dis-

crepancy between seen distance and felt distance, seen and felt size or shape, seen location and felt location. The well-known skeptical conclusions derive largely if not entirely from a failure to realize or draw the correct conclusions from the fact that what kind of correlations are found to hold between the diverse referents of such ambiguous terms as *size, shape,* and *location* is a matter purely of experiences—experiences a sensible man will adjust his theories to, but which do not require that he invoke the two-world theory of appearance and reality.

QUALITIES

The question whether secondary qualities are located in things in the external, or physical, world or are subjective representations of objective primary qualities is, according to Johnson, the unhappy result of our failure to realize the ambiguity of spatial prepositions. When we ask for the location of something—whether, for example, the green we see is in the leaf, in our minds, or in the brain—we fail to appreciate that there are several different sensible spaces and that visual, tactile, and olfactory space have each their peculiar properties. In the sense appropriate to visual space the term *in* is correctly used when we say that the (seen) color is in the visual leaf. If we speak of the tangible leaf, the color is neither in the leaf nor not in it. All that can sensibly be said to be in it or not in it is a feel. Colors not being feels, there is no sense to the question if it is based on the presupposition that a sight is a feel or can be felt.

MEANING

Johnson thus understood that in some cases it makes no sense either to assert or deny that a certain object has a certain property, and hence that the law of excluded middle breaks down in certain ways. He made this insight the key to his treatment of many philosophical puzzles.

Since our questions and answers involve sentences, not isolated words or phrases, the meaning of such expressions is of fundamental importance. Declarative sentences, possibly expressing theories, such as "Air has weight," invoked to explain the phenomenon of water rising in a vacuum, gain their referential meaning from the facts, if any, to which they refer. To determine which facts these are, we must ascertain to what phenomena the sentences are attached by a given speaker.

> Pressure, like every other word, possesses no invariable signification, nor any inherent signification. Its signification is governed by the existence to which we attach it. When it refers to the effort of my hand against this table, it names a

feel; and when applied to the ascent of water in a vacuum, it names the ascent. If we suppose it names also some insensible operation of the air on the water, this is merely our theory, which signifies nothing; or rather it signifies all to which we refer in proof of the pressure. (p. 227)

The last clause expresses Johnson's view of statement or propositional meaning. A statement means, for a speaker, whatever evidence he adduces or can adduce in support of it. Speaking of Earth's sphericity, Johnson advises us to pay attention to the evidence given in support of it by an astronomer, such as Earth's shadow in an eclipse of the moon or various calculations, and concludes: "After hearing all that he can adduce in proof of the earth's sphericity, consider the proposition significant of these proofs. If you deem it significant beyond them, you are deceived by the forms of language" (p. 129).

This principle of the meaning of propositions is of the type now called the "operational" theory of meaning. Johnson's version, by virtue of his concentration on the referential function of language, implies that propositions change their meaning with every accretion of evidence in support of them. Propositions purportedly about the future must in fact refer to what has already occurred, since one cannot refer to what is not, nor can a speaker refer to what he has not experienced. False propositions must be devoid of (sensible) meaning, since they are false precisely because what they purport to refer to does not exist. Since, however, one is rarely—if ever—unable to adduce some kind of evidence in support of one's assertions, genuinely meaningless or false propositions are extremely rare. In fact, Johnson held that "nearly every proposition is true when interpreted as the speaker interprets it" (p. 133).

Despite the obvious difficulties of this conception of propositional meaning, which needs emendation to allow for what is called "sense" as well as "reference," Johnson was able to suggest some very interesting interpretations of statements that anticipate views now in the center of philosophical controversy.

He held that a theory is a tool whose value is determined by its utility in correlating phenomena already known and enabling us to make true predictions.

He claimed that psychological statements, especially those about other minds, feelings, and thoughts, exhibit duality of meaning. They refer in one interpretation to expressive, that is, external, manifestations; in another to what is supposedly expressed or manifested. This, he

held, explains the dispute concerning the possibility of knowing other minds.

He said that true unrestricted universal propositions are such not because they hold in an infinite number of cases, but because the evidence offered in their support is our failure to find an exception. The statement asserting an exception refers to nothing and lacks sensible meaning—hence the unrestricted scope of the universal.

Typical religious or theological propositions have meaning by virtue of their reference to sacred texts or to inner feelings. It is sensibly, but not verbally, meaningless to assert that the universe either had or did not have a creator.

In his later writings Johnson allowed conceptual as well as verbal meaning to propositions. He came to believe that there are certain "predestinate ideas," concepts or intellections, that express man's intellectual nature. For example, in certain senses of the term, causal connections cannot be sensed, but all men nevertheless think causally. Men likewise impute personal identity to themselves and others, although what is sensibly or emotionally given does not exhibit the implied unity or connection. The verbal meaning that remains when sensible and emotional meanings are eliminated seemed no longer adequate in such cases, and he invoked intellectual meanings, which however are not objective or external; the intellectual words standing in relation to their referents, according to Johnson, as imprecations do to the feelings that give rise to them: "as therefore, the internal organic feeling which prompts an imprecation is the unverbal meaning of the imprecation; so the organism of the intellect that conceives any given words is the unverbal meaning of the verbal conception" (*The Meaning of Words,* p. 202). He thus treated them as expressing certain tendencies of our intellectual nature, though using the language of referential meaning.

THE MEANING OF QUESTIONS

Johnson's anticipation of a form of the operational theory of propositional meaning was accompanied by a detailed discussion of the topic of the meaning of questions. Like Ludwig Wittgenstein he arrived at the view that "the riddle does not exist," that there are no unanswerable questions. Corresponding to the verbal meanings of statements are the verbal questions to which the statements are answers. In every interrogation we must make clear the nature of the answer desired, whether verbal, emotional, sensible, or intellectual. For example, the question, "What is life?" may be answered by a definition

or a theory, by an inner experience, or by indicating certain forms of overt observable behavior.

NECESSARY TRUTHS

Concerning necessary, analytical, logical truths, Johnson held to a twofold doctrine. These truths express verbal necessities based on meanings assigned to their constituent words, but these definitions or verbal necessities are themselves based on physical, nonverbal necessities.

> Why cannot the same spot be, at the same time, both white and black? Because the word white implies that the spot is not black. But how came white by this implication? Was it arbitrarily imposed by the framers of language? No. The incompatibility of the two colours is a result of experience. If I assert that the same spot cannot be both white and hard, the proposition will be untrue. Why? Because my senses can discover such a coincidence. No other reason exists. (*A Treatise on Language,* p. 195)

The same reasoning applies to the axioms of geometry. For instance, the transitivity of the relations of equality is ultimately based not on verbal but on physical facts. Nothing will explain why two sticks equal in length to a third are necessarily equal in length to each other except what one finds when one tries to construct two sticks equal in length to a third but not to each other.

APHORISMS

Johnson's works are studded with striking and revealing aphorisms:

> The heathen make graven images—we make verbal ones; and the heathen worship not more ardently the work of their hands, than we the work of our pens. (*A Treatise on Language,* p. 205)

> Though we deem any mental phenomenon inexplicable unless we can show it to be analogous to physical operations, we deem the operations of Deity well explained when we can show them to be analogous to mental operations. (p. 263)

> We employ words as though they possess, like specie, an intrinsick and natural value; rather than as though they possess, like banknotes, a merely conventional, artificial, and representative value; … We must convert our words into the natural realities which the words represent, if

we would understand accurately their value. (p. 174)

We can no more exemplify with words that there is a limit to their applicability, than a painter can demonstrate with colours, that there are phenomena that colours cannot delineate. (p. 246)

See also Language; Semantics.

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WORKS ON JOHNSON

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David Rynin (1967)

JOHNSON, SAMUEL
(1696–1772)

Samuel Johnson, the American philosopher, was born in Guilford, Connecticut. He studied and taught at the college at New Haven, later called Yale. One of the first colonials to read Francis Bacon, John Locke, and Isaac Newton, he introduced their thought into the college program. In 1722, having abandoned the Calvinism in which he had been raised, he went to England to receive orders in the Anglican Church. On George Berkeley's arrival in Rhode Island in 1729, Johnson paid him several visits, corresponded with him, and became one of his disciples. At the invitation of Benjamin Franklin, Johnson collaborated in the founding of the University of Pennsylvania. In 1754 he helped found King's College, later called Columbia University; he was its first president (until 1763).

Johnson wrote an autobiography and numerous letters, including correspondence with Cadwallader Colden as well as with Berkeley. His philosophical works include *Synopsis Philosophiae Naturalis*, written about 1714; *Logic*, written in 1714; *Encyclopedia of Philosophy*, written in 1714 and revised in 1716; and *Elementa Philosophica*, published by Benjamin Franklin. The *Elementa* was the first textbook in philosophy published in America. It has two parts, "Noetica" and "Ethica"; the "Ethica" had been published alone under the title *A New System of Morality* (Philadelphia, 1746).

Johnson's early works reflect the scholastic Platonism and Calvinistic theology in vogue in the New England colonies during the seventeenth century. The *Encyclopedia*, also called *Technologia sive Technometria*, was a product of his school days and shows the influence of the method and ideas of Peter Ramus. While using Aristotle's physics, it criticizes his metaphysics and ethics as secular and irreligious. Johnson held that there should be no secular science but that all learning should enter into religion and foster it.

Johnson's reading of Bacon, Locke, and Newton broadened and liberalized his thinking. He became an enthusiastic follower of Berkeley's immaterialism, blending with it elements of Puritan Platonism. The English divines, especially Samuel Clarke, influenced him to give up Calvinism and to join the Church of England.

His mature philosophy is contained in his *Elementa Philosophica*. The first part, "Noetica," contains his views on reality and mind; the second, "Ethica," concerns moral behavior. Mind or spirit is defined as intelligent, active being. The objects of mind are ideas or notions. There are no material substances corresponding to our ideas; sensible reality is a system of ideas communicated to us by God as copies of the archetypal ideas in the divine mind.

Arguing against Cadwallader Colden, Johnson maintained that minds are the only agents or active causes; matter is purely passive. Bodies, which are a set of ideas impressed on our minds by God, are entirely inactive and powerless. In Johnson's view, the *vis inertiae*, which Newton attributed to matter, is not a power at all; it is simply

resistance, and resistance is the direct action of God on the human mind.

The existence of God is proved by the presence of eternal truths in our minds. Since these truths do not depend on our minds or on the actual existence of things, they must be communications of an eternally existing and necessary mind or God. We know these truths when our minds are illuminated by the divine mind. God is the fullness of being, and consequently he has the positive perfection of infinity.

Johnson defended the freedom of the will on moral grounds. If human actions are not free, then moral laws, rewards, and punishments are meaningless. God is not the only active cause; human minds are also genuine agents, endowed with freedom to choose or to reject, to act or not to act. Johnson accepted Newton's laws as regulating the movement of inanimate nature, but he insisted that the human spirit is not bound by necessary laws. In opposition to his former pupil Jonathan Edwards, he upheld the freedom of the human will and rejected the Calvinist doctrine of predestination as incompatible with genuine human freedom and as destructive of morality.

Johnson's writings are an important source for the condition of philosophy in pre-Revolution America and for the changes it underwent owing to the impact of eighteenth-century English thought.

See also Aristotle; Bacon, Francis; Berkeley, George; Clarke, Samuel; Determinism, A Historical Survey; Edwards, Jonathan; Franklin, Benjamin; Locke, John; Newton, Isaac; Platonism and the Platonic Tradition; Ramus, Peter.

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JOHNSON, SAMUEL
(1709–1784)

Samuel Johnson, the English man of letters, poet, lexicographer, moralist, and humanist, was born in Lichfield, the son of an indigent bookseller. After his early education at Lichfield Grammar School, he tried schoolmastering for a brief period. In 1728 he entered Pembroke College, Oxford, but was compelled to leave the following year because of lack of funds. As a child he had suffered from scrofula and later from melancholia, a mental illness that plagued him throughout life, at times pushing him to the brink of insanity. In 1735 he married Mrs. Henry Porter, a widow who was twenty years his senior. After more futile attempts at schoolmastering, Johnson set out for London on horseback in 1737, taking with him one of his pupils, David Garrick. A journalist and hack writer par excellence, Johnson wrote for the *Gentleman's Magazine* and in addition produced poetry, essays, biographies, translations, a play, a proposal for a new edition of William Shakespeare, and a proposal for a new dictionary. As a "harmless drudge" he labored from 1746 to 1755 on the *Dictionary of the English Language,* a work that established the practice of elucidating definition of words by quotations from leading authors. Its appearance brought him fame and belated honorary doctorates from Dublin (1765) and Oxford (1775), but little money. Johnson's famous letter of 1755 to Lord Chesterfield repudiated the system of personal patronage. In 1762, however, despite the fact that he had defined "pension" as "pay given to a state hireling for treason to his country," he set aside his scruples to accept a pension from George III.

The Rambler (1750–1752) and *The Idler* (1758–1760) essays, although acclaimed as literature and as statements on morality, were hardly successful financially. The novel *Rasselas* (1759) was well received, as were the edition of Shakespeare (1765), *A Journey to the Western Islands of Scotland* (1775), and finally, *The Lives of the English Poets* (1779–1781). Johnson's political publications, *The False Alarm* (1770), *Thoughts on The Late Transactions Respecting The Falkland Islands* (1771), and *Taxation No Tyranny* (1775), were, on the contrary, mere diatribes and did him no credit. Yet the charge that they were written as repayment for his pension has no foundation in fact. His general theory of politics was close to that of Edmund Burke: conservative, traditional, and distrustful of all popular upheavals.

With a royal pension of £300 a year, poverty and Grubstreeting were over, and Johnson was able to indulge more freely his social proclivities and his desire to travel. The meetings with James Boswell in 1763, and with the wealthy Mr. and Mrs. Henry Thrale in 1764, and the founding of "The Club" in the same year, were happy omens of the new life. Charter members of "The Club" included Joshua Reynolds (who originated the idea), Edmund Burke, and Oliver Goldsmith. Later members of note included Boswell, Garrick, Thomas Warton, Bishop Percy, Sheridan, Fox, Edward Gibbon, and Adam Smith.

Johnson has been immortalized by his great biographer Boswell in *The Journal of a Tour to the Hebrides with Samuel Johnson* (1791), *The Life of Samuel Johnson* (1785), and in present times in the ever increasing number of volumes based upon Boswell's private journals and papers now in the archives of Yale University. Boswell's ability to draw Johnson out in conversation has presented posterity with a wide panorama of the latter's opinions and beliefs. Indeed, it is no exaggeration to say that more intimate details are known about both Johnson and Boswell than about any other persons of that or any previous age. As he grew older Johnson mellowed considerably; he was no longer the irascible, bitter, and not infrequently rude man of earlier years. Although he loved life, he feared death—despite (or perhaps because of) a deep religious faith. As he once put it, life is everywhere "supported with impatience and quitted with reluctance." He died in 1784 after a prolonged and painful siege of the dropsy. His last words are said to have been, *Iam moriturus*, "I who am about to die." He was buried in Westminster Abbey.

RELIGION AND MORALITY

Johnson acknowledged an early predilection for becoming a metaphysician, but instead he became a philosopher, in the wider sense of a thinking man struggling with the problems of life, death, and immortality. A notable excursion into the realm of metaphysics, however, is his 10,000-word critical review of Soame Jenyns's *Free Inquiry into the Nature and Origin of Evil* (1757). The rationalistic optimism inherent in the Great Chain of Being—an optimism wherein whatever is conceivable must exist (a concept justifying the necessity of evil)—was to Johnson morally monstrous as well as metaphysically illogical. It is illogical because however many links there may be in the Chain, from the Godhead at the one extreme to the lowliest atom at the other, it is always possible to conceive of gaps between the links ad infinitum. The morality of justifying poverty and pain as cosmologically necessary was monstrous to a humanist who had personally suffered both poverty and pain. Although God may move in a mysterious way his wonders to perform, it is idle to be told by a metaphysician that in some mysterious way evil in reality is good. It is small comfort to be complacently informed that poverty is merely the want of riches, and that, just as man has animals for food and diversion, so beings superior to man may be privileged to deceive, torment, or destroy man simply for the sake of utility or pleasure. In short, it was Johnson's belief that "life must be seen, before it can be known." His philosophical novel *Rasselas*, a fictional assault on metaphysical optimism, again exemplifies Johnson's favorite admonition, "Clear your mind of cant."

Johnson never systematized his thinking on morality and religion and consequently exhibits many inconsistencies. An ardent Christian and Anglican high-churchman, although not a regular churchgoer, he was forever seeking further evidence and reasons that would bolster his will to believe. He held that every man is entitled to liberty of conscience, but not necessarily the liberty of talking, preaching, or publishing. It is the prerogative of the magistrate to prohibit what he deems politically injurious to the society over which he presides. If the magistrate is morally or theologically wrong in his prohibitions, then truth may suffer. Consequently, the only way in which religious truth can be established is by martyrdom. In the persecution of a martyr, the magistrate is right politically and the martyr is right morally and religiously.

Johnson was afraid of death not only because he was fond of life (even though he held a tragic sense of life), but also because he was acutely aware of the wages of sin. The occasional sermons that Johnson composed for cler-

ical friends and acquaintances (frequently for a fee) are revealing as expressions of his views on specific theological issues. On a deeply intimate level, the "Prayers and Meditations" (begun in 1729 while he was still at Oxford and continued until a few days before his death) provide poignant evidence of repeated resolutions to reform his mode of living (that is, his habitual indolence), to steel himself against religious doubts, scruples, and fear of damnation, and to purge his mind of morbidity and the dread of recurring insanity.

Johnson claimed that we know the distinction between right and wrong by reason; from experience he also knew the difficulties that man encounters in trying to live the life of virtue. Accordingly, he felt the necessity of a mandate from Christian revelation—but never, to be sure, in the sense of the personal "enthusiasm" of seventeenth-century Puritans or eighteenth-century evangelists. He was thus both a rationalist and fideist, but the former tempered by a healthy empiricism and the latter by the requirement of "works." On the one hand, he had unbounded admiration for the Anglican rationalist theologian, Samuel Clarke (1675–1729), and on the other, for the nonjuring pietist and mystic, William Law (1686–1761), neither of whom qualify as orthodox. The sermons of Clarke provided Johnson with rational treatment of thorny theological problems; for example, Law's *Serious Call to a Devout and Holy Life* (1728) augmented faith through a reason that provides spiritual light. Johnson was sufficiently the ethical rationalist (with the qualifications mentioned above) to oppose the nonrational moralists of sentiment or moral sense, such as the earl of Shaftesbury, Francis Hutcheson, Joseph Butler, David Hume, and Adam Smith. Johnson, like Thomas Hobbes, did not consider benevolence or the will to do good to others a natural instinct. Charity, however, as a requisite Christian virtue, Johnson practiced religiously throughout his life. The desire for fame, he maintained in a *Rambler* essay, is basically the desire of "filling" the minds of others. Johnson achieved fame as a didactic writer and moralist who regarded the end and the rites of religion as divinely instituted for "the perpetual renovation of the motives to virtue." This concept of religious need and Christian stoicism received its most memorable poetical statement in one of Johnson's earliest works, *The Vanity of Human Wishes* (1749); it was a statement that was to be reaffirmed countless times throughout his life.

See also Burke, Edmund; Butler, Joseph; Clarke, Samuel; Fideism; Gibbon, Edward; Hobbes, Thomas; Hume, David; Hutcheson, Francis; Law, William; Rationalism; Shaftesbury, Third Earl of (Anthony Ashley Cooper); Smith, Adam.

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JOUFFROY, THÉODORE SIMON
(1796–1842)

Théodore Simon Jouffroy, a French commonsense and spiritualist philosopher, was born at Pontets, near Pontarlier, in the department of Doubs. After his preliminary schooling he entered the École Normale in Paris in 1814 and began teaching there three years later. He was attracted to the study of philosophy by Pierre Paul Royer-Collard and Victor Cousin, who were lecturing on the Scottish school. In 1826, Jouffroy published a translation of Dugald Stewart's *Outlines of Moral Philosophy,* and in 1828 he prepared a six-volume translation of the works of Thomas Reid. Jouffroy's rise in the academic hierarchy was rapid; by 1828 he was lecturing at both the École Normale and the Collège de France, where he was appointed professor of Greek and Roman philosophy in 1833. In the same year he was made a member of the Academy of Science.

Jouffroy's interests were varied, covering psychology, aesthetics, legal philosophy, and epistemology, yet he published very little. He is best known for two volumes of miscellaneous essays, *Mélanges philosophiques,* published in 1833, and *Nouveaux Mélanges philosophiques,* which appeared the year of his death.

Jouffroy's ambition was to found a science of psychology based on Scottish philosophy. A survey of the soul's activity revealed to him six different faculties; basic to each of these is a fusion of love of power, curiosity, and sympathy. Upon this foundation rest sensitivity to pleasure and pain, intelligence, "expression," movement, and volition. The soul is thus a community of faculties, all of which must cooperate if the truth is ever to be discovered. It reproduces in the individual that fusion of human souls which is known in the Scottish philosophy as common sense.

It is common sense that alone possesses absolute truth, access to which is denied individuals. Each of us, Jouffroy believed, should attempt to reach the truth by the use of reasoning, but we must accept its conclusions by "a blind act of faith." For none of our faculties is capable of acting in the name of the collective wisdom of the race. Jouffroy held so strongly to this idea that he regarded individual philosophers as mere mouthpieces for the societies and cultures in which they live. As early as 1827 he showed an interest in society as a being having its peculiar influence on the individuals who compose it, but he was never clear about the nature of this being. Jouffroy maintained that if people understood their

dependence on the totality of individuals, they would cease to fight with one another and would form a unified fraternal community. This community would be the explicit embodiment of common sense, which already exists implicitly in all human beings.

Common sense expresses itself in self-evident principles that appear in logic and in the dictates of the moral conscience. They are the source of an all-inclusive philosophy illustrated in natural law, which is that system of moral and political principles that underlies the statutes of all nations. Since this system is always consistent, it can act as a test for all truths. What William James, in his *Varieties of Religious Experience,* called Jouffroy's conversion to skepticism stemmed from this idea. For what man other than a mystic could transcend the limits of his individuality to grasp ideas that were overindividual?

In spite of this, Jouffroy maintained that intelligence can apprehend these self-evident principles, just as conscience can apprehend the difference between right and wrong. Here he departed from his theory that men express the ideas of periods and societies and insisted instead that each man's conscience is his sole guide to the good. For the good turns out to be the accomplishment of a man's destiny and evil the failure to accomplish it. A man's destiny is incorporated in his individuality, no two men having precisely the same goals. In general, however, pleasure and pain indicate to a man whether he is fulfilling his destiny, which is apparently the reason men are pleased by different experiences. Unfortunately, Jouffroy's conclusions on this point are lost. And, indeed, he may not have drawn any conclusions, for he was more given to preparatory analyses than to inferences.

Aesthetics, according to Jouffroy, deals exclusively with the nature of beauty. Just as truth is not the possession of any individual, neither is beauty. Beauty does not reflect the character of our life; it is the sublime that takes beauty's place in experience. "The ideas of our present life," Jouffroy said in his *Cours d'esthétique,* "are more familiar to us than the ideas of a more perfect life, and we are consequently less sensitive to beauty than to the sublime." Though the *Cours d'esthétique* consists of notes taken by his pupils and hence cannot be regarded as wholly his, it is clear that the metaphor of the whole of which we know but limited parts dominated Jouffroy's thought. Whether the problem was that of truth, goodness, or beauty, he believed it is the nature of the whole that contains the answer and men are condemned never to possess the answer.

See also Beauty; Common Sense; Cousin, Victor; James, William; Psychology; Reid, Thomas; Royer-Collard, Pierre Paul; Skepticism, History of; Stewart, Dugald.

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JOURNALS, PHILOSOPHICAL

JUNG, CARL GUSTAV
(1875–1961)

Carl Gustav Jung, the originator of analytical psychology, was born in Kesswil, Switzerland, studied medicine in Basel, and then became an assistant in psychiatry at Zürich, interrupting his stay there to visit and study under Pierre Janet in Paris. He was a pupil of Eugen Bleuler, and he became Sigmund Freud's friend and collaborator for a few years, after having been influenced by his writings. He became the first president of the International Psychoanalytic Society in 1911. In 1914 he broke with Freud, founding his own school of analytical psychology. His earlier studies of association tests and of dementia praecox were followed by an attempt to classify types of personality and by the gradual development not only of a theory of the collective unconscious but also of the implications of that theory for the study of culture and especially for the study of mythology and religion.

Jung traveled widely in Africa, America, and India and collaborated with Richard Wilhelm in Chinese stud-ies and with Kárly Kerényi in the study of mythology. In June 1933 the German Society for Psychotherapy came under Nazi control. Ernst Kretschmer at once resigned from the office of president, and it is regrettable and noteworthy that Jung took his place. Among many other distinctions, he received honorary degrees from Harvard (1936), Oxford (1938), and Geneva (1945).

THEORY OF PSYCHOLOGICAL TYPES

Jung, like Kretschmer, distinguished initially between the extraverted type of personality—sociable, outgoing, and optimistic—and the introverted type—more apt to withdraw from external reality, less sociable, more absorbed in his own inner life. This initial distinction was accompanied by a distinction between four functions of personality—sensation, thinking, feeling, and intuition. By "sensation" Jung meant all that we acquire through sense perception. "Thinking" was used in its familiar meanings. "Feeling" was the capacity for making evaluations of oneself and of others. "Intuition" was the perception of realities that are not consciously perceived; it worked spontaneously for the solution of problems that cannot be grasped rationally.

Types of personality were discriminated in terms of which function is dominant and whether the person is extraverted or introverted. For example, the extravert in whom thinking is dominant will be fascinated by facts and concerned to order them rationally, will tend to underrate the emotions and thus be subject from time to time to uncontrolled and perhaps unrecognized bursts of emotion. The introverted thinking type is one in which facts are never of value for their own sake but only in relation to the creative inner theorizing of the thinker. Both types of thinking are accompanied by an undeveloped feeling function, for thinking and feeling are essentially opposite and even inimical. Sensation and intuition are paired in the same way.

On Jung's view one very rarely finds a person who is a pure example of one of these categories. Most often one function is dominant, although modified by the presence of one of the others. In more complex personalities two functions may coexist in dominance, and very occasionally three, but there will always be at least one function neglected and unacknowledged. Jung's classification into types is, of course, a classification in terms of types of conscious response to the world; however, the notion of parts of the self that are unacknowledged requires some reference to the unconscious.

PERSONAL AND COLLECTIVE UNCONSCIOUS

The personal unconscious consists of those associated webs of ideas and emotions that Jung named complexes, which have been repressed from consciousness because it found them too painful to acknowledge, and also of those perceptions of reality that have never forced their way into consciousness. Each individual's personal unconscious is thus to some extent explicable in terms of his own life history. Even the personal unconscious, however, has features that are common to every individual and do not derive from his personal history.

Consider the contrast between what Jung termed the "persona" and the "shadow." The persona is the socially accepted and socially imposed mask behind which dwells the true ego. The existence of such a mask is an unavoidable necessity, but the ego can fail to achieve self-realization either by identifying itself too strongly with its persona or by not developing an adequate persona at all. The counterpoint to this accepted and exposed part of the personality is the shadow, the rejected and usually imprisoned set of desires, emotions, and attitudes that we personify in dreams as an unpleasant or hostile figure. The shadow is essentially infantile, for it is untouched by the process of maturation or education. The inability to acknowledge one's shadow is always a potential danger to the personality, for the shadow unacknowledged and unrecognized is stronger and more wayward than the shadow recognized and accepted.

Although every individual has a shadow, since the shadow is the product of what his particular consciousness has repressed, it belongs to the personal unconscious. However, beside it in the personal unconscious is found another major force, the image, the image that constitutes the feminine in a man or the masculine in a woman, termed by Jung "anima" and "animus," respectively. The character of the anima is not determined by a man's private history in the way the character of the shadow is; rather, the anima determines how the opposite sex is perceived or misperceived. The anima is an inherited collective image of woman as such. Thus, what matters to the child is not merely how his mother treats him; his experience of the mother is produced both by the mother's actual behavior and by the way his anima determines his view of and feelings about her. Jung connected the anima especially with the function of feeling, the animus with that of thinking, supposing that thinking is more likely to be dominant in the man, feeling in the woman.

The animus and anima belong to the collective unconscious of humankind, along with persona and shadow. They are among the "archetypes," inherited tendencies of psychic functioning contained in the collective unconscious. Other key archetypes are those of the old wise man, the earth mother, and the self. An archetype plays a variety of roles: Not only does it condition the ways in which our conscious experience is formed but also it can appear directly in a number of guises in dreams and fantasies, and the individual may even unconsciously come to be so dominated by one of these images that he might be said to be possessed by it or to identify himself with it. When this happens the personality is itself in danger; it has been taken over and magnified into something that expresses not the individual person but the collective image. This Jung called inflation.

Jung contrasted the self with the ego. The ego is the actual center of consciousness; the self is spoken of by Jung as the center of the unconscious, but clearly it is potentially rather than actually so. Religious visions, dreams, and the magic diagram that Buddhists call the mandala are all images of a possible unity in which the self is at the center. The achievement of this unity by any given individual is a task that belongs especially to the second half of life. In the first half of life the individual is necessarily largely preoccupied with work, marriage, and the bringing up of children; it is when these tasks are mostly accomplished that the individual has to come to terms with himself. Hence the psychological crisis period that occurs in the late forties. At this point the nature of Jungian psychotherapy becomes important.

PSYCHOTHERAPY

According to Jung a neurotic symptom is never to be explained solely in terms of the patient's past. It always represents something positive in the present, an attempt to solve the problems that confront the patient. Jung was prepared to accept that Freud was correct in ascribing many neuroses to the problems arising out of repressed sexuality and that Alfred Adler was correct in ascribing many others to an unrecognized will to power. However, he felt that behind sexuality and the will to power lie other more fundamental causes. Sexuality, for example, is important because it represents the chthonic element in man, an element represented in pre-Olympian Greek religion and in other mythologies. Moreover, the type of neurosis that can be understood correctly, within limits, in Freudian or Adlerian terms belongs characteristically

to the earlier part of life. It arises from the inability to carry through the practical tasks of life.

In psychotherapy the patient comes to acknowledge hitherto unrecognized parts of his personality. Jung believed that free association, as practiced by Freudian analysts, leads not toward but away from the complexes of which we need to become aware. However, more is involved in the therapeutic process that ridding oneself of symptoms, as the patient discovers when he brings what was repressed into view, for example through a new awareness of the significance of his dreams, which function, according to Jung, as compensations for deficiencies in the dreamer's waking life. To rid oneself of symptoms, one has to become aware of the process of individuation, of the need for the creation of a harmonious synthesis of the functions in which the nature of the shadow and the power of the archetypes of the collective unconscious have been reconciled with the demands of the conscious personality.

MYTHOLOGY AND RELIGION

Jung used his central theoretical concept, that of the collective unconscious, to explain not only the occurrence in dreams and the awareness in analysis of contents of the unconscious that could not have been repressed into it by the individual psyche but also the widespread recurrence of the same symbols and themes in widely different times and places in mythologies and religions. Thus, Jung found in the dreams and paintings of patients material that closely resembles that in Eastern religious writings, and in literature and art the archetypal images continually recur. Modern man stands, however, in a peculiar relationship to the contents of the collective unconscious.

Jung held that the increase in scientific understanding has led to a dehumanization of the natural and social worlds. A former unconscious acceptance of natural phenomena, which involved endowing them with symbolic power, has disappeared. To treat thunder, for example, not as the voice of a god but as an explicable phenomenon is to have become alienated from external nature. A loss of belief in gods and demons has produced a lack of awareness of the powers within human nature. Modern man is thus specially a prey to psychological disorders.

It follows that men have a strong need for religious beliefs and experiences, since in religious form they are able to encounter and accept the contents of the collective unconscious. Religious beliefs, Jung conceded, cannot be shown to be true; but he held that they cannot be shown to be false, either. Whether to believe or not is thus a matter of choice, on purely pragmatic grounds. Jung regarded

with deep suspicion, as essentially one-sided and distorting, the rationalist traditions of scientific thought. Indeed, he dated the disorientation of modern man partly from the original Christian break with paganism, but more importantly from the Enlightenment.

CRITICISM

Of all Jung's work his classification of types of personality as extravert or introvert has won the widest acceptance. H. J. Eysenck has developed this distinction for use in experimental psychology, and it may well be that other Jungian concepts and theories can also be tested experimentally. However, the linchpin of Jung's theorizing, the concept of the collective unconscious, is so formed that it appears that whereas the existence of the collective unconscious was advanced as an explanatory hypothesis, the question of whether the collective unconscious exists cannot be answered by any possible observation or experiment. That the existence of the collective unconscious is intended as a hypothesis seems clear from the fact that it is avowedly introduced to explain why the same symbols keep recurring in dreams, mythologies, and works of art. However, there are no predictions that we can deduce from this hypothesis other than the vague generalization that such symbols do and will recur—and this, after all, is what the hypothesis was originally intended to explain. Moreover, Jung is open to criticism for treating the collective unconscious not as a theoretical entity to which reference is made in an as yet untested hypothesis but as something whose existence is an established fact. Jung actually asserted that although the facts about personality and the unconscious are undeniable, they cannot, by their very nature, be formulated in such a way as to satisfy the demands of either science or logic.

At the root of the problem lies an ambiguous set of ontological claims. Jung insisted that the contents of the psyche are as real as what exists in the external world. He clearly meant by this more than the obvious, which nobody would be disposed to deny, for example, that there are recurrent patterns of symbolism. But what he meant beyond this remains unclear. Sometimes he seems to have treated the archetypal images as autonomous agents and the collective unconscious as a realm where they dwell. However, his insistence on the inapplicability of the ordinary canons of logic in these matters makes it difficult to press the questions that this seems to raise.

Finally, it is worth noting that we possess no statistical evidence of a worthwhile kind about the efficacy of Jungian psychotherapy. Lacking this evidence, we are forced to conclude that although Jung established a psy-

chological system of some complexity, there are as yet no grounds for believing any of its propositions that go beyond recording empirical data, either as to the nature of personality or as to the process of cure.

See also Adler, Alfred; Freud, Sigmund; Myth; Psychoanalytic Theories, Logical Status of; Psychology; Religion, Psychological Explanations of; Unconscious.

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JÜNGER, ERNST
(1895–1998)

Ernst Jünger was a German novelist and cultural critic who, by embracing total war as an exemplary pattern of life, helped to prepare the ideology of the National Socialist revolution of 1933. He was born in Heidelberg and educated in Hanover. In 1913 he joined the French Foreign Legion in north Africa in search of "the extraordinary beyond the social and moral sphere … a zone in which the war of the forces of nature found its pure and aimless expression." This quest for an exotic life in artificially heightened experience revealed Jünger's metaphysical attitudes and anticipated his later pattern of life. Jünger joined the German army at the outbreak of World War I. He fought on the western front and was commissioned, repeatedly wounded, and highly decorated. To him the war appeared "a means for self-realization, a wild upsurge of life … a splendid bloody play which makes the gods rejoice" that offered the key to all essential experience: "ecstasy, sleep and death." After the war Jünger developed his views in a series of brilliant war descriptions: *In Stahlgewittern* (1920); *Der Kampf als inneres Erlebnis* (1922); *Das Wäldchen 125* (1925); *Feuer und Blut* (1925; Adolf Hitler annotated his gift copy); culminating in *Totale Mobilmachung* (1930) and *Der Arbeiter* (1932).

Jünger was also fascinated by modern technology, which had transformed the character of warfare and was creating a new form of industrial society. He envisioned the emergence of a new type of technical elite: the worker-soldier in the nationalized, socialist, militarist-imperialist, and dictatorial state of the future. He also discerned a "new consciousness of reality," nihilist in its relations to traditional values. But although he welcomed the rise of technology as a triumph of man, Jünger deplored its mechanization and dehumanization of life. In the Marxian solution of this problem, the common existential experience of the proletariat leads to class solidarity; its mastery of the tools of production leads to the liberation and human autonomy of the proletariat, which represents humankind. Similarly, Jünger's worker-soldier, simultaneously savior and saved, was to achieve the collective salvation of the rotting democratic-humanist society.

Technology, however, was inseparably bound up with war, "a fiery marriage between the spirit of chivalry and the severe coldness of our forms of work." The world of factories and calculated organization, of production, and of transport finds its true measure in battle. "The battle is a tremendous touchstone of industry, and victory marks the success of a competitive effort which knows how to work more quickly and ruthlessly." The individual worker-soldier finds his liberty in accepting the necessity to be part of "the greater force. Here one can only drift and be formed under the grip of the *Weltgeist.*" The worker-soldier type thus replaced the individualist personality of the nineteenth century. Technology became both the means and the end of human endeavor—the means because it procured mastery over others, the end because the old values were dead, and collective power, the product of technology, was equated with value: "Technology and ethos have become synonymous."

Jünger's "national-Bolshevist" conception of technology provided a scintillating and heady approach to totalitarianism, an approach based also on his belief in inexorable historical trends and his romantic conviction that the individual finds fulfillment only by sacrificial immersion of himself in the whole. Jünger promised redemption for the sacrifice of the obedient soldier but showed scant sympathy for that of the Socratic nonconformist. His *Der Arbeiter* is thus less a sociological interpretation of his times than the revelation of a political myth, a clarion call that exerted a wide influence in Germany among the bewildered generation of the 1920s.

Jünger's misinterpretation and rejection of liberalism prevented his playing a constructive part as a citizen and caused him to be a destructive intellectual force. An anarchic pride in his own independence, however, saved him from effective collaboration with National Socialism. Jünger first parted ways with the Nazi Party in 1929, when he backed a terrorist peasant movement opposed by Hitler. Between the lines of his novel *Auf den Marmorklippen* (1939) he criticized the prevailing tyranny, but he took no part in active resistance to the regime. He again fought in the German army in 1940, although he suffered misgivings as a member of the army of occupation in France and Russia. These feelings found expression in *Strahlungen* (1949), Jünger's journals from 1939 to 1949, in which he corrected certain of his former tenets and, in a fashion, held out a hand to Western values and to the Christian religion. In his novel *Heliopolis* (1949) he took up once more the problems raised in *Auf den Marmorklippen. Heliopolis* contained an indictment of a closely knit totalitarian order but, at the same time, preserved Jünger's distance from Western rationalism and liberalism. The same theme recurred in *Der Waldgang* (1951); *Gläserne Bienen* (1957), which again expressed Jünger's fascination with technology; and *Der Weltstaat* (1960), which called for international political unity as a historically determined necessity.

Jünger conceived of the writer as a seer and pathfinder. His diagnosis of his times was, however, based on an untrained and intuitive sociological and economic knowledge, poetical and pretentious rather than scholarly. His widely acclaimed concept of the Gestalt, or Typus, of the worker offered no methodological advance and in substance was merely ideological. Jünger's significance was as a spokesman of the powerful romantic strand in the German intellectual tradition that unites elements of *Naturphilosophie,* Neoplatonic mysticism, and a Protagorean theory of knowledge with the negative aspects of Jean-Jacques Rousseau's and Edmund Burke's critiques of society and the Enlightenment. In its modern representatives, such as Jünger and Oswald Spengler, such thinking leads to a rejection of the rational, abstract, and mechanical achievements of civilization, the "high-treason of the intellect against life," and to the extolling of the instinctive, oceanic "night side" of life. Although not original, Jünger's philosophy was presented in a highly personal manner and in an evocative style, drawn from military language and a minute observation of nature. As a novelist, however, he did not succeed in creating concrete character.

See also Burke, Edmund; Enlightenment; Fascism; Gestalt Theory; Liberalism; Philosophy of Technology; Rousseau, Jean-Jacques; Spengler, Oswald.

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JUNGIUS, JOACHIM

(1587–1656)

Joachim Jungius, of Lübeck, represents the German counterpart to Galileo Galilei in Italy, René Descartes in France, and Francis Bacon in England as an innovator in science and philosophy. Unlike these men, Jungius did not achieve an international reputation; even among scholars, interest in him has been largely confined to Germans, whose curiosity has been whetted by Gottfried Wilhelm Leibniz's enthusiastic praise of his merits as a philosopher. But Jungius exercised a wide personal influence in Germany as an active teacher. Furthermore, like Bacon, he envisaged a scientific society that would promote the welfare of humankind: Jungius actually organized a group called the Societas Ereunetica, whose stated objective was to promote sound science and combat false opinions. This group, with its stress on mathematics and logic as an antidote to metaphysical and mystical speculation, invites comparison with the Vienna circle of the twentieth century as well as with the Royal Society. Although Jungius has been linked by legend with the Rosicrucians, there is no evidence whatsoever to support this conjecture, according to G. C. Guhrauer.

Jungius studied at Rostock and Giessen before traveling to Italy to take a medical degree from Padua in 1618. During the early seventeenth century, philosophy in the German schools relied to a large extent on Aristotelian compendia drawn up by Philipp Melanchthon or by Peter Ramus, supplemented by metaphysics of the Suarezian type. Both traditions were diligently studied by Jungius before he rejected them. Jungius had taught mathematics at Rostock; hence, he must have found the atmosphere of Padua congenial, because of the school's emphasis on a research-oriented natural philosophy, medical training, and mathematics.

On his return to Germany, Jungius resumed his teaching duties, presiding over disputations in which Aristotelian views in physics were mercilessly criticized. He was dissatisfied with the doctrine of the four elements and wished to substitute for it an atomism that, he believed, would be confirmed by future research but which, in any event, offered a more promising hypothesis. Jungius considered atomism more sound from the methodological point of view since it did not require the postulating of entities ("forms") to explain the rise of all sorts of new qualities in things. "Democritus was an Ockhamist," he remarked.

In 1625 Jungius began teaching medicine at Helmstedt, stressing the value of Galen, whose logical empiricism he found congenial. In 1628 Jungius took an unusual step—he left university teaching to assume charge of a secondary school in Hamburg. Jungius rescued the school from the decline into which it had fallen, sending out from it students trained to a high level of critical analysis. For them Jungius composed the famous "Hamburg Logic" (1638), called by Heinrich Scholz "the most significant logic of the seventeenth century," eclipsing the better-known Port-Royal logic. Jungius's critical presentation of traditional logic shows what the more sophisticated neo-Aristotelian contemporaries of Descartes were thinking about causation, induction, and the nature of scientific demonstration. Jungius was also interested in natural history; he and his students collected plants, minerals, and fossils. His botanical views attracted the attention of Johann Wolfgang von Goethe, who planned a monograph about him.

Most of Jungius's writings in manuscript were destroyed by fire in 1691. The works posthumously published under his name, such as the *Doxoscopiae Physicae Minores* (Hamburg, 1662), were compilations made by students. Such writings as we do have bear the stamp of an active and critical mind, free from any mystical leanings and directed toward a scientific reconstruction of philosophy.

See also Atomism; Bacon, Francis; Descartes, René; Galen; Galileo Galilei; Goethe, Johann Wolfgang von; Leibniz, Gottfried Wilhelm; Logic, History of; Logical

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JURISPRUDENCE

See *Analytical Jurisprudence*; *Historical School of Jurisprudence*; *Legal Positivism*; *Philosophy of Law, History of*; *Philosophy of Law, Problems of*

JUSTICE

Justice names not a thing, but a property of things. It makes sense therefore to focus the explication on the adjective "just"—or, better still, "unjust." Doing so facilitates clarification of how justice judgments are distinctive within the larger realm of moral judgments, and the even larger universe of evaluative judgments.

The application of ordinary empirical predicates, such as "tree" or "hard," is two-tiered: based on a definition and empirical facts. Any dispute about whether such a predicate applies thus reduces to linguistic and empirical differences. Such a dispute can be resolved by agreeing on a definition and settling the empirical disagreement.

Evaluative predicates, by contrast, have this special feature that their application is only conditioned, not determined, by their definition and the empirical facts. Thus, people can disagree about whether a painting is beautiful, even if they use this predicate in exactly the same sense and also agree about all empirical features of the painting. In such cases it may be said that they have different conceptions of beauty.

The same holds for moral predicates. Despite agreement on all relevant empirical facts, people disagree about whether something is praiseworthy or not. Such a disagreement could stem from one party's failure to understand the meaning of the word; but more typically the disputants know what the word means, and their disagreement shows then that the empirical facts and the meaning of the word together do not determine its correct application. Those who judge it praiseworthy to teach children through beatings are morally mistaken; they need not linguistic instruction to improve their understanding of "praiseworthy," but a good discussion about how children should be educated.

A dispute over the application of an evaluative predicate such as "just" may thus be due to differences of three kinds: *linguistic* differences about its meaning; *theoretical* differences about which substantive conception or criterion of justice should guide its application; and *empirical* differences about the evaluated object.

The boundaries between these three kinds of differences is not sharp and may shift over time, as Wittgenstein memorably describes:

> It might be imagined that some propositions, of the form of empirical propositions, were hardened and functioned as channels for such empirical propositions as were not hardened but fluid; and that this relation altered with time, in that fluid propositions hardened, and hard ones became fluid. The mythology may change back into a state of flux, the riverbed of thoughts may shift. But I distinguish between the movement of the waters on the riverbed and the shift of the bed itself; though there is not a sharp division of the one from the other.… And the bank of that river consists partly of hard rock, subject to no alteration or only to an imperceptible one, partly of sand, which now in one place now in another gets washed away, or deposited. (Wittgenstein 1969, §§ 96, 97, 99)

Not discussed by Wittgenstein, the boundary between linguistic and theoretical differences (in the case of evaluative predicates) is fuzzy and fluid in part because the controversies among competing conceptions reflect back upon the concept. Each conception seeks to introduce a certain order and unity. And sometimes elements of such a conception are widely found to be so convincing that they harden into an element of the concept.

CONDUCT-GUIDING FUNCTION

The predicates "just" and "unjust" have not merely an evaluative but also a normative—hence conduct-guiding—function. Calling a possible action or law unjust is to oppose its implementation. To be sure, people do make justice judgments about the distant past, about hypotheticals and fiction. But even these judgments imply oughts—for example: that the Athenians ought not to have attacked neutral Melos; that it would have been all right for them to attack a Melos allied with Sparta; or that Angelo (in Shakespeare's *Measure for Measure*) ought not to have demanded Isabella's virginity for the life of her brother.

The words "rational" and "irrational" are also conduct-guiding in this sense. Yet there is a difference. Whether an action is rational or irrational depends on the ends of the actor. Whether it is just or unjust is independent of these ends. Insofar as even an agent's ultimate ends can be criticized as irrational (Parfit), this difference becomes less deep. Like morality, rationality can then deliver unconditional judgments: an action is irrational if it was performed in pursuit of an irrational end.

Generally, claims of injustice are meant to evoke emotional rejection: condemnation, outrage, resentment. But this may be part not of the meaning of the word but of the usual pragmatic context of its employment.

JUDICANDA

The meaning of predicates is partly determined by their domain of application. Anyone who understands the meaning of "beautiful" and "just" knows how the domains of these predicates differ—knows, for instance, that a painting can be (un)beautiful but not (un)just whereas a patent regime can be (un)just but not (un)beautiful.

Things to which evaluative predicates are applicable can thus be called judicanda, from the Latin *judicandum*: that which is to be judged. The judicanda of justice may be categorized under four headings:

(a) individual and collective actors; that is, individuals as well as organized and unorganized groups such as a family, firm, state, or mob;

(b) the conduct of such actors, their actions and omissions;

(c) social rules, such as laws, social institutions, and conventions;

(d) states of affairs and events, such as the fact that some are much worse off than others or that some

good persons suffer while some bad ones enjoy good fortune.

Because of the normativity of justice assessments, judicanda of the first two categories have a certain primacy. It is ultimately actors—and their conduct—who bear responsibility for the justice of social rules and, in part through these rules, for the justice of states of affairs. To be sure, sometimes people complain of injustice in states of affairs beyond human control. Such complaints may have a religious context; but they may also, where religion has faded, constitute a purely evaluative (non-normative) use of "unjust."

One may think that this list is underinclusive, that human feelings constitute a fifth judicandum as exemplified by the anger of Achilles and its critique as unjust. But such locutions are better understood as meaning to assess the person and her or his conduct. It is Achilles whose justice is in question—on account of his tendency to get angry allegedly without good reason. Thus, talk of unjust feelings is imprecise, meant to call into question the justice of the person who feels this way.

One may think that the first category reduces to the second in a similar way: that justice assessments of actors really mean to judge these actors' conduct, and that the list is therefore overinclusive. But the nature of such a reduction would be controversial: Do assessments of actors refer to their actual conduct, to their conduct dispositions, to their intentions (toward conduct)? Such controversy shows that the proposed reduction does not hold as a matter of meaning. It can be a substantive element in a conception of justice. But, to state it as such, actors must be shall be a separate category of judicanda.

The same holds for the possible reduction of the third category to the second. One may think, for instance, that social rules are unjust if and only if it would be unjust to (help) impose them. But here, too, there are various other ways of formulating the reduction; and it is a substantive moral question which of these formulations, if any, is correct.

In view of the diversity of judicanda, one may dispair of Plato's grand ambition in the *Republic* and conclude that it is impossible to give a general characterization of the concept—let alone a general conception—of justice that plausibly covers all four categories of judicanda. Such doubt can only be dispelled by setting forth a plausible general structure for the concept (building on the general points already made) and some main hypotheses toward a unified conception of justice. This attempt is made in what follows.

A UNIFIED CONCEPT OF JUSTICE

In contrast to many one-place evaluative predicates (beautiful, good, conscientious, modest), "unjust" has an essential second place. It is indeed often used as a one-place predicate (as in "this man is unjust"). But reference to a second place is always implicit. In this respect, "unjust" is like the predicate "mother." To say that she is a mother is to say that she is the mother of someone. One cannot understand what it is to be a mother without understanding what it is to be the mother of someone. Likewise here: To call a man unjust is to say that he is unjust to others. One cannot understand what it is for a judicandum to be unjust without understanding what it is for it to be unjust to someone. Injustice conceptually requires *recipients*: those who receive unjust treatment from the judicandum.

To be sure, one may call a proposed law unjust even if it fails to pass and thus never treats anyone unjustly, and one may call a woman unjust, even if she treats no one unjustly, on account of her intentions or dispositions. But even in such cases an implicit reference to recipients is essential: one implies that the proposed law, if adopted, would treat some persons unjustly, and that the woman intends, or is disposed, to treat others unjustly.

Recipients need not necessarily be victims. It is possible that the injustice of an action or rule entails that some are treated better than they should be. In such cases, there may be other victims—people who, because of the action or rule in question, are unjustly treated worse than those who were treated too well. But when there are no such victims, can one then still speak of (victimless) injustice? To use an example from Kant's *Metaphysics of Morals* (p. 333): Would it be unjust if a society about to dissolve itself were to set free a convicted murderer from its jail? (Kant suggests that this would be unjust—but not because his execution is owed to the murderer himself, but because it is owed to his victim(s) and to all of humankind.) The concept of justice does not settle this question; different conceptions of justice will answer it differently.

The concept of justice involves an essential third place in that the notion of recipients, of those who receive just or unjust treatment, presupposes benefits and burdens that these recipients either should but do not have or do but should not have. What sorts of benefits and burdens these are, and whether they are understood in absolute terms or relative to what other recipients have, varies with judicandum and context.

Various aspects of justice have traditionally been distinguished. These distinctions can be displayed in three dimensions.

DIMENSION ONE: FIRST-ORDER AND PROCEDURAL (IN)JUSTICE. In a first dimension, one can distinguish assessments of a particular allocation of benefits and burdens (*first-order* justice) from assessments of the way in which such an allocation comes about (*higher-order* or *procedural* justice, sometimes also called *fairness*). Thus a judicial divorce may be unjust on account of the ordered division of marital property, and it may also, and independently, be unjust because avoidably only one of the two parties was allowed to speak. The latter injustice—a violation of the classical precept *audiatur et altera pars*—involves (relative) second-order benefits and burdens: the advantaging of one party and the disadvantaging of the other in the decision-making process. In other cases, violations of procedural justice may involve absolute higher-order benefits or burdens, as when exculpatory or incriminating evidence or witnesses are arbitrarily excluded from a criminal trial.

Procedural justice plays an important role even outside jurisprudence. Rules and decisions about the awarding of honors, contracts, jobs, promotions, and university admissions may violate procedural justice. There are blatant cases, as when a coveted job goes to an insider's spouse without advertisement or search. In other cases it is controversial what the requirements of procedural justice are, exactly. The most important such controversies in recent decades have centered around the question of whether certain selection processes may or should favor people of a particular color, gender, or ethnicity so as to compensate for, or to help overcome, group disadvantages due to past or present discrimination.

In the realm of politics, especially, there may be third-order and fourth-order judgments of justice. This is the case when the rules or the participants for some procedure are selected through a metaprocedure. Thus, the electoral law of a country may be unjust independently of whether this has any effect on the composition of its legislature and, thereby, on its legislative output.

Even in private life one may find violations of procedural justice. It may be unjust if on the basis of a nasty rumor one discriminates against a person, or perhaps even repeats the rumor to third parties, without giving this person an opportunity to respond to the allegation. Insofar as the injustice of such conduct is independent of the truth of the rumor in question, it involves once more a higher-order burden.

DIMENSION TWO: FORMAL AND MATERIAL (IN)JUS-TICE. Perpendicular to this first dimension is the common distinction between formal and material (in)justice. *Formal* justice requires that relevantly similar cases be treated similarly. There is much room for controversy about whether particular cases are relevantly similar and about what is to count as similar treatment. The requirement of formal justice is therefore primarily a demand for justification. The complaint that relevantly similar cases are being treated in a dissimilar way demands a justification, showing that the treatment was not dissimilar or else was appropriately responsive to dissimilarity among cases. This requirement of justification holds across the first dimension: The procedures through which benefits and burdens are allocated to recipients as well as these allocations themselves must satisfy formal justice. It must be justifiable that one accused was acquitted and another convicted (first-order justice), say, and also that one accused but not another was provided an attorney at public expense (procedural justice).

Judicanda can be gravely unjust even when they clearly do treat similar cases alike. Thus, parents who beat all their children without cause violate material justice, as do judicial systems that deny all accused rights to speak, to appeal, and to consult legal counsel.

One might think that justice reduces to material justice: When dissimilar treatment of cases cannot be justified, this merely shows that the treatment of some of these cases is materially unjust, independently of how the others are treated. But this view is surely not implicit in the concept of justice. And it is substantively implausible. In many cases, justice is comparative. To illustrate, there are indefinitely many schedules according to which individuals and businesses might be taxed. While the demands of material justice disqualify a wide range of these options, they do not mandate one uniquely just tax code. Still, it would clearly be unjust to impose diverse materially just tax codes—some more advantageous than others—upon the various households or businesses of a single jurisdiction. Unjust is here the unequal treatment of taxpayers, which is a violation of formal justice.

DIMENSION THREE: VARIOUS DOMAINS OF MATE-RIAL (IN)JUSTICE. *Material* justice imposes various requirements whose content is controversial. This multiplicity can be ordered in a third dimension by distinguishing various domains. Thus *distributive* justice deals with access to scarce resources—from the division of a pie to the structure of an economic order that regulates access to raw materials and the distribution of the jointly created social product. *Commutative* justice governs exchanges, which may be faulted for first-order flaws, as when the items exchanged are not equivalent, or for higher-order (procedural) flaws, such as excessive inequalities in information or bargaining power. *Corrective* or *restitutive* justice is concerned with how to make up for violations of social and moral rules and how to deal with the costs such violations cause. *Retributive* justice, finally, deals with the ascertainment and punishment of such violations.

In each of these four domains there are procedures, which may be formally or materially unjust, as well as particular allocations of benefits and burdens, which also may be formally or materially unjust. The traditional three-dimensional schema, as here reconstructed, thus contains sixteen boxes for sorting particular justice assessments. In the first dimension, the assessment is either first-order or higher-order. In the second dimension, it concerns either formal or material justice. And in the third dimension, it falls into the domain of distributive, commutative, corrective, or retributive justice.

This conceptual structure leaves open the possibility that some of these boxes may contain no substantive constraints. For example, there may be no first-order material demands of commutative justice if any exchange, no matter how lopsided, is morally acceptable so long as it has been performed freely by the exchanging parties without unfair inequalities in bargaining power or information. But this is not a conceptual point, but rather a substantive claim, affirmed by some (especially modern) and denied by other (especially medieval) conceptions of justice.

This complexity can be increased to sixty-four because—perpendicular to the three dimensions in which the character of diverse justice assessments can be differentiated—there is still the distinction between four categories of judicanda (introduced earlier) to which any such justice assessments can be applied: namely, individual and collective actors, their actions and omissions, social rules and institutions, and states of affairs and events.

In some accounts, *international* justice is given as a separate domain that, traditionally, is heavily focused on the use of force and, in particular, on just and unjust causes for going to war (*ius ad bellum*), and on just and unjust ways of fighting a war (*ius in bello*). (In his *Metaphysics of Morals* [pp. 343, 347–349], Kant adds a third theme: the just way of concluding a war so as to lay the foundation for a stable peace [*ius post bellum*]) It seems more appropriate, however, to think of states as one class

of collective actors among others. It may indeed be claimed that states are a special class of actors and that their conduct and relations are subject to distinctive justice requirements. But this is a substantive moral claim that should not be prejudged in the conceptual explication.

A state is understood not merely as a collective actor, but also as a comprehensive system of social rules and institutions enforced in a particular territory. A state can therefore be criticized as unjust not merely on account of its conduct toward or institutional relations with outsiders, but also on account of its internal institutional order—for instance, on account of how it distributes rights and duties, regulates and taxes economic cooperation, and enforces its laws against its members. So understood, states exemplify one kind of institutional scheme among others, whose special status once again should not be prejudged in the conceptual explication.

TOWARD A UNIFIED CONCEPTION OF JUSTICE

The preceding sections were meant to sketch the structure of the contemporary concept of justice and thereby to characterize the linguistic consensus that underlies current debates about questions of justice. Even these general thoughts may not be wholly uncontroversial. But they are much less controversial than the thoughts to follow, which are meant to describe plausible elements of a conception of justice. Should these elements be found convincing, they might gradually become elements of a clearer and more unified concept of justice. But they do not now fully accord with the various understandings of this concept that are dominant in contemporary public and academic discussions.

It is possible to begin once more from the question, briefly raised in (1): What is specific about justice, how justice judgments are distinctive within the larger realm of moral judgments; what is being said with the complaint that some judicandum is unjust, over and above the claim that this judicandum is immoral (morally flawed)? What follows are four hypotheses toward answering this question.

FIRST HYPOTHESIS: INJUSTICE INVOLVES ABUSE OF MORALITY ITSELF.
Morally flawed judicanda are unjust only if they involve an abuse of morality itself—that is, only if they appear with a moral pretension they do not live up to. Unjust is someone who is prepared to violate moral principles she herself likes to appeal to. Unjust is someone who allows his official conduct to be influenced

by bribes even while he pretends to be an impartial judge, umpire, or mediator. Unjust is a beating falsely presented as deserved punishment. And unjust is legislation designed for the benefit of a small minority and yet claimed to impose moral obligations on the oppressed population. In all these cases, the injustice comes about through the false moral claim: Without the pretense of deserved punishment, the beating is wrong but not unjust. Without the claim of moral authority (that compliance is morally required), coercive rules can be wrong, but not unjust.

According to this first hypothesis, then, justice is a part of morality that defends the authority and dignity of morality itself. This would explain the central place justice is thought to occupy within morality. Unjust are only those judicanda that do not merely—openly or covertly—violate morality, but also appear under color of morality.

SECOND HYPOTHESIS: JUSTICE MAY IN PRINCIPLE BE ENFORCED.
A second essential mark of injustice may be that it involves a violation of a right and, more precisely, of a moral right. (Injustice need not violate positive law. To the contrary, because positive law may be unjust or otherwise immoral, conduct it permits or even requires may still be unjust.) Violations of rights are those moral infractions that may in principle be averted through the use or threat of coercive force. The main implication of the second hypothesis therefore is that any injustice may in principle be forcibly averted. Justice may be enforced.

The expression "in principle" flags two qualifications. First, it is not meant that anyone is permitted forcibly to avert any rights violations. In a well-ordered society, for instance, only the police and the courts are permitted to use force in response to rights violations—ordinary citizens may use or threaten force only in urgent emergencies. Second, there is no permission to use force regardless of the morally significant costs of doing so. Defensive force may be grossly disproportionate and therefore impermissible. And efforts forcibly to avert a rights violation may also be impermissible when they carry the risk of triggering much graver violations of the rights of third parties (a point well illustrated in Heinrich von Kleist's story "Michael Kohlhaas"). That any rights violation may in principle be forcibly averted thus means only that those responsible for it and those profiting from it have no moral right against having this violation blocked by force. Here justice contrasts with other moral qualities. No moral rights are violated by judicanda lack-

ing in generosity, civility, charity, humanity, decency, kindness, courtesy, mercy, or beneficence. Enforcing these virtues is wrong in principle and violates moral rights of those against whom they are enforced.

THIRD HYPOTHESIS: INJUSTICE HARMS IN VIOLATION OF NEGATIVE DUTIES. Related to the preceding, another essential mark of injustice may be that it always involves a violation of negative duties on the part of those who are responsible for the moral quality of the judicandum in question. What is at issue here, roughly speaking, is the traditional distinction between moral infractions that harm recipients and those that merely fail to help them. However this distinction may be made precise, the third hypothesis is simply that a claim of injustice always involves a claim of undue harm.

This hypothesis is related to the second hypothesis insofar as the two distinctions may wholly or largely coincide. That they coincide precisely would mean that people in every case have a right not to be harmed but in no case a right to be helped. Therefore, only harmings may be forcibly averted, refusals of help must not be.

It is doubtful that the two distinctions coincide precisely. Many civil-law countries have "Good Samaritan" laws proscribing failure to render assistance. These statutes presuppose, as seems plausible, that there are cases in which morally mandatory assistance may be compelled through threat of criminal sanctions. Conversely, there may also be harmings that are so trivial that in principle they must not be forcibly averted.

Still, the two distinctions largely coincide, and some moral predicates fall entirely on one side or the other. Judicanda lacking in morally required or recommended generosity, civility, charity, humanity, decency, kindness, courtesy, mercy, or beneficence fail to help people without harming them. Such infractions may not be forcibly averted. Any injustice in a judicandum, however, does harm people and thus may in principle be forcibly averted.

The last two hypotheses differ in their informative value for the investigation of justice. The second hypothesis is illuminating: something important is learned about justice, if one finds that in principle every injustice may be forcibly averted. The third hypothesis would be similarly informative if it started out with a clear justice-independent notion of harm. The claim would then be that a judicandum is unjust only if it harms persons (in this independent sense). But the connection postulated by the third hypothesis can also be taken in the opposite way: Any unjust treatment is to count as a harming. So

understood, this claim would be using a harm-independent notion of injustice to illuminate the notion of harm—rather than the other way around. Still, although the latter definitional sequencing seems more adequate, it is moderated by the need to preserve the core meaning of harm. Coming back to Kant's example, failure to give a criminal his deserved punishment cannot plausibly be presented as an instance of harming him. If one wants to call such an act of grace unjust (while maintaining the third hypothesis), then one must identify another harmed party—other criminals arbitrarily excluded from the amnesty, perhaps, or future victims of crimes that would not have occurred but for this failure to punish. Given this constraint imposed by the core meaning of harm, the third hypothesis is not then entirely uninformative.

FOURTH HYPOTHESIS: JUSTICE IS NOT PURELY RECIPIENT-ORIENTED. The last hypothesis is negative in character. It merely rejects a hypothesis that has come to dominate Anglophone academic discussions of justice. The refutation of this approach eliminates only one of many possibilities and may thus seem to make little progress. But because the rejected approach is so elegant and influential, it is interesting nonetheless to explore how it fails.

The approach to be criticized has developed out of utilitarianism, which holds that the moral assessment of actors, conduct, and social rules should be based solely on each such judicandum's relative impact on the world, and on human happiness in particular.

If such a view is accepted, the ordinary distinctions among moral predicates lose much of their significance. Whatever moral predicate may be used to criticize a rule, action, or person—cowardly, unjust, evil, indecent, and so on—the complaint always boils down to the judicandum's failure to be optimally happiness-promoting. Utilitarians have little use for the received panoply of moral predicates because it ultimately does not matter how a suboptimal judicandum is squandering potential human happiness.

Those who reduce the traditional multiplicity of moral defects in this way may simply want to do away with the surplus predicates. Alternatively, they may prefer to redeploy these predicates—using them not (as traditionally) for different defects of the same judicanda, but instead for defects in different kinds of judicanda. In this way, justice has come to name the specific moral virtue of social rules.

In his famous *A Theory of Justice* (1999 [1971]), John Rawls adopts this redeployment. His theory is focused exclusively on social institutions and, even more narrowly, on a society's basic institutional design. And, presenting justice as the first virtue of social institutions, he recognizes no further moral predicates by means of which such institutions might be subjected to potentially competing moral judgments.

Rawls further follows the utilitarians by adopting a broadly consequentialist mode of moral assessment, and one that focuses specifically on the well-being of individuals. Thus he shares with utilitarianism the purely recipient-oriented mode of moral assessment. The unique characteristic of this approach can be expressed as the assumption that the only information needed in the moral assessment of any judicandum is information about its relative impact on persons, that is, information about how persons fare with the judicandum as it is versus how they would fare if the judicandum were different.

Unlike the utilitarians, Rawls employs the purely recipient-oriented approach on two distinct levels and moreover rejects, on both levels, utilitarian conceptions of well-being as happiness or desire fulfillment. Central to his theory is a criterion ("the two principles") of justice that assesses alternative institutional designs on the basis of the distribution of social primary goods each would produce. The just design is the one that would produce the best feasible distribution among citizens of basic rights and liberties, income and wealth, powers and responsibilities of office, and other social bases of self-respect. This proposed criterion of justice is justified, again in a purely recipient-oriented manner, on the ground that its public adoption would lead to a better fulfillment of citizens' three higher-order interests than the public adoption of any alternative criterion of justice. The argument on this second level is presented in terms of a contractualist thought experiment ("original position") in which representatives of citizens, informed only that their clients have the three higher-order interests but given no further specific information about them, come to agree on a particular public criterion of justice.

Rawls's theory, with its particular assessment standards on the two levels, has received much lively critique. Under the *Equality of What?* label, academics debate whether human well-being should be conceived in terms of happiness, welfare, desire fulfillment, Rawlsian social primary goods, Dworkinian resources, or capabilities à la Sen or Nussbaum. And academics also debate how such well-being information about individuals should be aggregated: Should well-being simply be averaged or

should special weight be given to equality, sufficiency, or the worse off? Yet, beneath all this disagreement, the purely recipient-oriented approach is largely taken for granted in the Anglophone countries.

The fourth hypothesis is that any such purely recipient-oriented conceptions of justice are untenable.

DEFENSE OF THE FOURTH HYPOTHESIS. When it comes to actors and their conduct, the fourth hypothesis is—at least outside academic philosophy—hardly controversial. Here any conception of the form "to be just is to promote a good distribution among one's recipients" is bound to be unacceptable because it disregards morally relevant information about how a judicandum has its effects. It is widely taken to make a great moral difference whether some conduct brings about the death of an innocent person or merely fails to prevent such a death. The world at large may be worse, perhaps even less just, if two good persons die prematurely than if a single less deserving person dies in their stead. And yet, it is not morally required, nor even permitted, to save the former by killing the latter.

An analogous point applies to social institutions. This is clearest when one reflects on the criminal law. Here Rawls's first priority rule (*A Theory of Justice* 1999 [1971], p. 266) holds that basic liberties may be restricted whenever such restriction, by making the remaining basic liberties more secure, is a gain on balance for the basic liberties of the representative citizen. This claim fits well with his purely recipient-oriented approach as enshrined in the contractualist thought experiment of the original position. But it is inconsistent with the considered judgments his theory was meant to accommodate and to unify. One of the examples Rawls gives (*A Theory of Justice* 1999 [1971], pp. 212–213) involves a strict-liability criminal statute that permits conviction without a showing of mens rea. Although it violates citizens' basic liberties, this law is nonetheless said to be permissible as "the lesser of two evils" if it is necessary to block even greater dangers to citizens' basic liberties (a danger of civil war, in his example).

Similar arguments could plausibly be made in regard to other aspects of the criminal law. Constraints on searches, seizures, and interrogations should be relaxed if this would entail, through more effective crime fighting, a net gain for citizen's basic liberties. Standards of evidence ("beyond a reasonable doubt") should be lowered, and less than unanimity be required for a jury conviction, if this would, through increased deterrence and through disabling more repeat offenders, produce a net gain for

citizen's basic liberties. And draconian punishments (e.g., execution) should be imposed for high-elasticity crimes (e.g., drunk driving) if citizens' overall risk of a premature violent death can thereby be reduced.

These theory-produced judgments collide with people's intuitive sense of justice, which is responsive not merely to the magnitudes, probabilities, and distribution of morally significant goods and ills, but also to the attitude social rules manifest and to the causal pathways on which they affect their recipients. Even if these recipients themselves have no reason to care whether burdens falling on them (such as hunger or risks of premature death) are imposed by social rules or merely not averted by them, this difference is nonetheless morally significant. The purely recipient-oriented approach cannot then fulfill Rawls's stated ambition of accommodating and unifying his compatriots' considered judgments.

The reason is that judgments of justice take account not only of the passive perspective of recipients, of citizens as governed by social rules, but also of the active perspective of authors, of citizens as co-responsible for these rules. For citizens as recipients, all threats to their basic liberties are indeed on a par—whether they arise from criminal or crime-fighting activities. But for citizens as co-legislators it makes a considerable difference whether people are roughed up by criminals or by police interrogators, are killed prematurely by a drunk driver or through execution for drunk driving. As co-legislators, people take greater moral responsibility for harms they mandate or authorize through their institutional order than for equal harms they could prevent through it. That some institutional arrangements would be better for citizens as recipients is not sufficient to show that they are morally permitted—let alone required. Purely recipient-oriented conceptions of justice are bound to fail because they systematically ignore the active perspective of those who bear responsibility for a particular judicandum.

Plausible justice assessments of social rules must be sensitive to both citizen perspectives. What matters in the moral assessment of social rules is not merely how these rules affect, but how they treat their recipients. The importance of this point extends well beyond the criminal law. A rule under which those suffering from some genetic defect are not entitled to life-saving treatment may be exactly as bad for them as a rule mandating execution for those with certain physical features is for the executed. Though comparable in their relative impact on recipients, these two rules are nonetheless worlds apart in how they treat such recipients.

Once such differences in attitude and causal pathways have been restored their proper moral significance, people may well find that justice is not the only moral virtue of social institutions. If a society's institutional order provides little funding for public health services, more citizens will avoidably die or suffer. And yet, such an order is surely less unjust than one under which equal suffering and deaths are explicitly imposed by the rules, perhaps on members of a certain ethnic or religious minority. In fact, in a poor society with other urgent needs, low funding for public health services may not be unjust at all. And even in an affluent society, such low funding may not be unjust, so long as society helps treat the medical conditions it causes (e.g., through pollution). Still, if the institutional order of an affluent society ignores the plight of citizens with congenital medical conditions, say, it may well be morally flawed in other ways: be ungenerous, mean, or inhumane.

This result supports the fourth hypothesis by showing it to be a step toward a conception of justice that covers all judicanda in a unified way: In regard to actors and their conduct people are already familiar with the possibility of actors being beyond reproach in terms of justice and yet morally flawed in other ways.

See also Affirmative Action; Civil Disobedience; Distant Peoples and Future Generations; Feminist Social and Political Philosophy; Just War Theory; Natural Law; Punishment; Racism; Rawls, John; Reflective Equilibrium; Rights; Social Contract; Terrorism; Utilitarianism.

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Thomas Pogge (2005)

JUSTIFICATION OF MORAL PRINCIPLES

See *Moral Principles: Their Justification*

JUST WAR THEORY

In traditional just war theory there are two basic elements: an account of just cause and an account of just means. Just cause is usually specified as follows:

(1) There must be substantial aggression.

(2) Nonbelligerent correctives must be either hopeless or too costly.

(3) Belligerent correctives must be neither hopeless nor too costly.

Needless to say, the notion of substantial aggression is a bit fuzzy, but it is generally understood to be the type of aggression that violates people's most fundamental rights. To suggest some specific examples of what is and is not substantial aggression, usually the taking of

hostages is regarded as substantial aggression while the nationalization of particular firms owned by foreigners is not so regarded. But even when substantial aggression occurs, frequently nonbelligerent correctives are neither hopeless nor too costly. And even when nonbelligerent correctives are either hopeless or too costly, in order for there to be a just cause, belligerent correctives must be neither hopeless nor too costly.

Traditional just war theory assumes, however, that there are just causes and goes on to specify just means as imposing two requirements:

(1) Harm to innocents should not be directly intended as an end or a means.

(2) The harm resulting from the belligerent means should not be disproportionate to the particular defensive objective to be attained.

While the just means conditions apply to each defensive action, the just cause conditions must be met by the conflict as a whole.

It is important to note that these requirements of just cause and just means are not necessarily about war at all. Essentially, they constitute a theory of just defense that can apply to war but can also apply to a wide range of defensive actions short of war.

THE INTENDED/FORESEEN DISTINCTION

Just war theory presupposes that we can, in practice, distinguish between what is foreseen and what is intended, and some have challenged whether this can be done. So first one needs to address this challenge.

The practical test that is frequently appealed to in order to distinguish between foreseen and intended elements of an action is the Counterfactual Test, according to which two questions are relevant:

(1) Would you have performed the action if only the good consequences would have resulted and not the evil consequences?

(2) Would you have performed the action if only the evil consequences resulted and not the good consequences?

If an agent answers "yes" to the first question and "no" to the second, some would conclude that (1) the action is an intended means to the good consequences, (2) the good consequences are an intended end, and (3) the evil consequences are merely foreseen.

But how well does this Counterfactual Test work? Douglas P. Lackey argues that the test gives the wrong result in any case where the "act that produces an evil effect produces a larger good effect" (1987, p. 260). He cites the bombing of Hiroshima, Japan, as an example. That bombing is generally thought to have had two effects: the killing of Japanese civilians and the shortening of World War II. Now suppose we were to asked:

(1) Would Harry S. Truman have dropped the bomb if only the shortening of the war would have resulted but not the killing of the Japanese civilians?

(2) Would Truman have dropped the bomb if only the Japanese civilians would have been killed and the war not shortened?

And suppose that the answer to the first question is that Truman would have dropped the bomb if only the shortening of the war would have resulted but not the killing of Japanese civilians, and that the answer to the second question is that Truman would not have dropped the bomb if only the Japanese civilians would have been killed and the war not shortened. Lackey concludes from this that the killing of civilians at Hiroshima, self-evidently a means for shortening the war, is by the Counterfactual Test classified not as a means but as a mere foreseen consequence. On these grounds Lackey rejects the Counterfactual Test as an effective device for distinguishing between the foreseen and the intended consequences of an action.

Unfortunately, this is to reject the Counterfactual Test only because one expects too much from it. It is to expect the test to determine all the following:

(1) Whether the action is an intended means to the good consequences.

(2) Whether the good consequences are an intended end of the action.

(3) Whether the evil consequences are simply foreseen consequences.

In fact, this test is capable of meeting only the first two of these expectations. And the test clearly succeeds in doing this for Lackey's own example, where the test shows the bombing of Hiroshima to be an intended means to shortening the war, and shortening the war an intended consequence of the action.

To determine whether the evil consequences are simply foreseen, however, an additional test is needed, which can be called the Nonexplanation Test. According to this test the relevant question is: Does the bringing about of

the evil consequences help explain why the agent undertook the action as a means to the good consequences? If the answer is "no," that is, if the bringing about of the evil consequences does not help explain why the agent undertook the action as a means to the good consequences, the evil consequences are merely foreseen. But if the answer is "yes," the evil consequences are an intended means to the good consequences.

Of course, there is no guaranteed procedure for arriving at an answer to the Nonexplanation Test. Nevertheless, when we are in doubt concerning whether the evil consequences of an act are simply foreseen, seeking an answer to the Nonexplanation Test will tend to be the best way of reasonably resolving that doubt. For example, when applied to Lackey's example, the Nonexplanation Test comes up with a "yes," since the evil consequences in this example do help explain why the bombing was undertaken to shorten the war. For, according to the usual account, Truman ordered the bombing to bring about the civilian deaths, which by their impact on Japanese morale were expected to shorten the war. So, by the Nonexplanation Test, the civilian deaths were an intended means to the good consequences of shortening the war.

Just war theory has been challenged in various ways. Three of the most important are a conventionalist challenge to just means, a collectivist challenge to just means, and a feminist objection to just cause and just means.

A CONVENTIONALIST CHALLENGE TO JUST MEANS

The criteria of just means have been incorporated to some degree into the military codes of different nations and adopted as international law. George Mavrodes (1984) contends that the criteria of just means ought to be met simply because they have been incorporated into military codes or adopted as international law. Mavrodes arrives at this conclusion largely because he finds the standard attempts to specify the convention-independent basis for condition (2) of just means to be so totally unsuccessful. All such attempts, Mavrodes claims, are based on an identification of innocents with noncombatants. But by any plausible standard of guilt and innocence with moral content, Mavrodes contends, noncombatants can be guilty and combatants innocent. For example, noncombatants who are doing everything in their power to support an unjust war financially would be morally guilty, and combatants who were forced into military service and intended never to fire their weapons at anyone would be morally innocent. Consequently, the guilt-

innocence distinction will not support the combatant-noncombatant distinction.

Hoping to support the combatant-noncombatant distinction, Mavrodes suggests that the distinction might be grounded on a convention to observe it. This would mean that our moral obligation to abide by condition (2) of just means would be a convention-dependent obligation. Nevertheless, Mavrodes does not deny that we have some convention-independent obligations. Our obligation to refrain from wantonly murdering our neighbors is given as an example of a convention-independent obligation, as is our obligation to reduce the pain and death involved in combat. But to refrain from harming noncombatants when harming them would be the most effective way of pursuing a just cause is not included among our convention-independent obligations.

Still, Mavrodes does not claim that our obligation to refrain from harming noncombatants is purely convention-dependent. He allows that, in circumstances in which the convention of refraining from harming noncombatants does not exist, we might still have an obligation to unilaterally refrain from harming noncombatants, provided that our action will help give rise to a convention prohibiting such harm with its associated good consequences. According to Mavrodes, our primary obligation is to maximize good consequences, and this obligation requires that we refrain from harming noncombatants when that will help bring about a convention prohibiting such harm. By contrast, someone who held that our obligation to refrain from harming noncombatants was purely convention-dependent would never recognize an obligation to unilaterally refrain from harming noncombatants. On a purely convention-dependent account, obligations can only be derived from existing conventions; the expected consequences from establishing a particular convention could never ground a purely convention-dependent obligation. But while Mavrodes does not claim that our obligation to refrain from harming noncombatants is purely convention-dependent, he does claim that this obligation generally arises only when there exists a convention prohibiting such harm. According to Mavrodes, the reason for this is that, generally, only when there exists a convention prohibiting harm to noncombatants will our refraining from harming them, while pursuing a just cause, actually maximize good consequences.

But is there no other way to support our obligation to refrain from harming noncombatants? Mavrodes would deny that there is. Consider, however, Mavrodes's own example of the convention-independent obligation

not to wantonly kill our neighbors. There are at least two ways to understand how this obligation is supported. Some would claim that we ought not to wantonly kill our neighbors because this would not maximize good consequences. This appears to be Mavrodes's view. Others would claim that we ought not to wantonly kill our neighbors, even if doing so would maximize good consequences, simply because it is not reasonable to believe that our neighbors are engaged in an attempt on our lives. Both of these ways of understanding how the obligation is supported account for the convention-independent character of the obligation, but the second approach can also be used to show how our obligation to refrain from harming noncombatants is convention-independent. According to this approach, since it is not reasonable to believe that noncombatants are engaged in an attempt on our lives, we have an obligation to refrain from harming them. So interpreted, our obligation to refrain from harming noncombatants is itself convention-independent, although it will give rise to conventions.

Of course, some may argue that whenever it is not reasonable to believe that persons are engaged in an attempt on our lives, an obligation to refrain from harming such persons will also be supported by the maximization of good consequences. Still, even if this were true, which seems doubtful, all it would show is that there exists a utilitarian or forward-looking justification for a convention-independent obligation to refrain from harming noncombatants; it would not show that such an obligation is a convention-dependent obligation, as Mavrodes claims.

A COLLECTIVIST CHALLENGE TO JUST MEANS

According to a collectivist challenge to just means, more people should be included under the category of combatants than the standard interpretation of just means allows. Just means, as noted earlier, imposes two requirements:

(1) Harm to innocents should not be directly intended as an end or a means.

(2) The harm resulting from the belligerent means should not be disproportionate to the particular defensive objective to be attained.

According to advocates of this challenge to just means, the problem is that the standard interpretation of (1) does not assume that the members of a society are collectively responsible for the actions of their leaders unless they have taken radical steps to oppose or disassociate themselves from those actions, for example, by engaging in civil disobedience or by emigrating. Of course, those who are unable to take such steps, particularly children, would not be responsible in any case; but for the rest, advocates of this collectivist challenge contend that failure to take the necessary radical steps, when one's leaders are acting aggressively, has the consequence that one is no longer entitled to full protection as a noncombatant. Some of those who press this objection against the just means criteria of just war theory, like Gregory Kavka (1985), contend that the members of a society can be directly threatened with nuclear attack to secure deterrence, and so reject noncombatant immunity, but then deny that carrying out such an attack could ever be morally justified. Others, like James W. Child (1986), reject both noncombatant immunity and proportionality by contending that the members of a society who fail to take the necessary radical steps can be both indirectly threatened and indirectly attacked with what would otherwise be a disproportionate attack.

In response to this collectivist challenge the first thing to note is that people are more responsible for disassociating themselves from the unjust acts of their leaders than they are for opposing those same acts. For there is no general obligation to oppose all unjust acts, even all unjust acts of one's leaders, because this would impose an unreasonable demand on individuals, and we are not morally required to be saints. Nevertheless, there is a general obligation to disassociate oneself from unjust acts and to minimize one's contribution to them, because this is not an unreasonable demand to impose on each of us. Of course, how far one is required to disassociate oneself from the unjust acts of one's leaders depends on how much one is contributing to those actions. If one's contribution is insignificant, as presumably a farmer's or a teacher's would be, only a minimal effort to disassociate oneself would be required, unless one's action could somehow be reasonably expected, in cooperation with the actions of others, to put a stop to the unjust actions of one's leaders. However, if one's contribution is significant, as presumably a soldier's or a munitions worker's would be, a maximal effort at disassociating oneself would be required immediately, unless by delaying one could reasonably expect to put a stop to the unjust actions of one's leaders.

In support of this collectivist challenge to just war theory Child (1986) offers the example of a member of a board of directors of a company that is engaging in the immoral and illegal activity of pouring large quantities of arsenic into the public water supply as a matter of ongo-

ing operations. When the policy is before the board, she votes no but does nothing else. Later, when sued in tort (or charged in crime) with these transgressions of duty, she pleads that she voted no. Child argues that mere formal dissent in this case does almost nothing to relieve her liability, legal or moral.

But while one might agree with Child that in this case the member of the board of directors had at least the responsibility to disassociate herself from the actions of the board by resigning, this does not show that farmers and teachers are similarly responsible for disassociating themselves from the unjust action of their leaders either by engaging in civil disobedience or by emigrating. This is because neither their contributions to the unjust actions of their leaders nor the effect of their disassociation on those unjust actions would typically be significant enough to require such a response.

This is not to deny that some other response (e.g., political protest or remunerations at the end of the war) would not be morally required. However, to meet this collectivist challenge, it suffices to show that not just any contribution to the unjust actions of one's leaders renders the contributor subject to attack or threat of attack; one's contribution must be significant enough to morally justify such a response.

A FEMINIST CHALLENGE TO JUST CAUSE AND JUST MEANS

A formidable challenge to both the just cause and just means criteria of just war theory comes from feminism. According to the feminist challenge to just war theory, sexism and militarism are inextricably linked in society. They are linked, according to Betty Reardon (1985), because sexism is essentially a prejudice against all manifestations of the feminine, and militarism is a policy of excessive military preparedness and eagerness to go to war that is rooted in a view of human nature as limited to masculine characteristics. Seen from a militarist perspective, other nations are competitive, aggressive, and averse to cooperation, the same traits that tend to be fostered primarily in men in a sexist society. By contrast, the traits of openness, cooperativeness, and nurturance that promote peaceful solutions to conflicts tend to be fostered primarily in women, who are then effectively excluded from positions of power and decision making in a sexist society. Consequently, if people are to rid society of militarism, Reardon argues, they need to rid society of sexism as well.

But even granting that sexism and militarism are inextricably linked in society in just the way Reardon maintains, how does this effect the validity of just war theory? As just war theory expresses the values of proportionality and respect for the rights of innocents, how can it be linked to militarism and sexism? The answer is that the linkage is practical rather than theoretical. If the leaders in militarist-sexist society have been socialized to be competitive, aggressive, and averse to cooperation, then they will tend to misapply just war theory when making military decisions. This represents an important practical challenge to just war theory. And the only way of meeting this challenge seems to be to rid society of its sexist and militarist attitudes and practices so as to increase the chances that just war theory will be correctly applied in the future.

Of course, still other challenges could be raised to just war theory but, in large measure, just war theory has stood the test of time. Moreover, if the theory can be reconciled with the most morally defensible form of pacifism, such that the only wars and large-scale conflicts that definitely satisfy the requirements of just war theory are the only wars and large-scale conflicts to which antiwar pacifists cannot reasonably object, then it is really hard to see how the theory could be displaced.

See also Civil Disobedience; Cosmopolitanism; Multiculturalism; Postcolonialism; Republicanism.

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