

Andrea De Pascalis

ALCHEMY

THE GOLDEN ART

The Secrets
of the Oldest Enigma



GREMSE
INTERNATIONAL

*"Scholastica with its subtle argumentation,
Theology with its ambiguous phraseology,
Astrology, so vast and so complex,
are all children's games when compared to Alchemy"*

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TABLE OF CONTENTS

Introduction • 7

CHAPTER I

Origins • 11

CHAPTER II

Graeco-Egyptian Alchemy • 23

CHAPTER III

From Antiquity to the Middle Ages • 41

CHAPTER IV

Within the Monastery Walls • 57

CHAPTER V

Books and Language • 73

CHAPTER VI

The Great Work • 89

CHAPTER VII

Some Famous Alchemists • 107

CHAPTER VIII

The Century of the Rosicrucians • 129

CHAPTER IX

Decline and Resurgence • 147

CHAPTER X

The Alchemists in European Society • 169

Index • 189

The history of alchemy stretches back for more than two thousand years. It is steeped in mystery and ambiguity, rich in strange symbols, obscure theories and apparent absurdities. *Divine art* for its practitioners, *fraudulent* or even *satanic art* for its adversaries, alchemy has nonetheless been a magnificent adventure of the human intellect, giving birth to many profound philosophical and technical intuitions, nurtured by a quest for knowledge so insatiable, so vital that it was to influence the arts and literature, the law and customs of every age.

Alchemy has always been interpreted according to two different points of view. The first is the realm of the historians of science, for whom alchemy was merely the inept and superstitious forerunner of chemistry, a covert practice performed by artful swindlers and misguided fools who sought to achieve the *Elixir of Life* and the wondrous *Philosopher's Stone* which could turn base metals into gold. The second is the view taken by the mystics, for whom alchemy was a magico-esoteric discipline the apparent chemical overtones of which were no more than allegories of the inner search for transcendental knowledge.

In reality it is impossible to understand alchemy unless each one of its multifold aspects is examined to the full and envisaged as an integral part of the same tradition. Such is the approach taken by this book. Drawing from major studies on the subject and from the ancient texts themselves, it explores the history of alchemy from its origins before the birth of Christ to the present day. It gives an objective account of the vicissitudes of this fascinating quest, of the historical figures who have marked its progress, and the theories on which it has been built over the centuries.

It is a long and enthralling journey, which begins in the mists of primitive cultures, where superstition deemed the smiths and metal-workers to be the instigators of a sacred task, takes us to the Middle and Far East, to Hellenistic Egypt and Medieval Europe, concluding on the

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An anonymous alchemist at his window. His left hand is resting on a closed book, while with the index finger of his right hand he indicates to his readers the invisible goal. He warns: the book that contains the secrets of alchemy is sealed, and may be opened and understood by initiates alone (15th century miniature).

INTRODUCTION

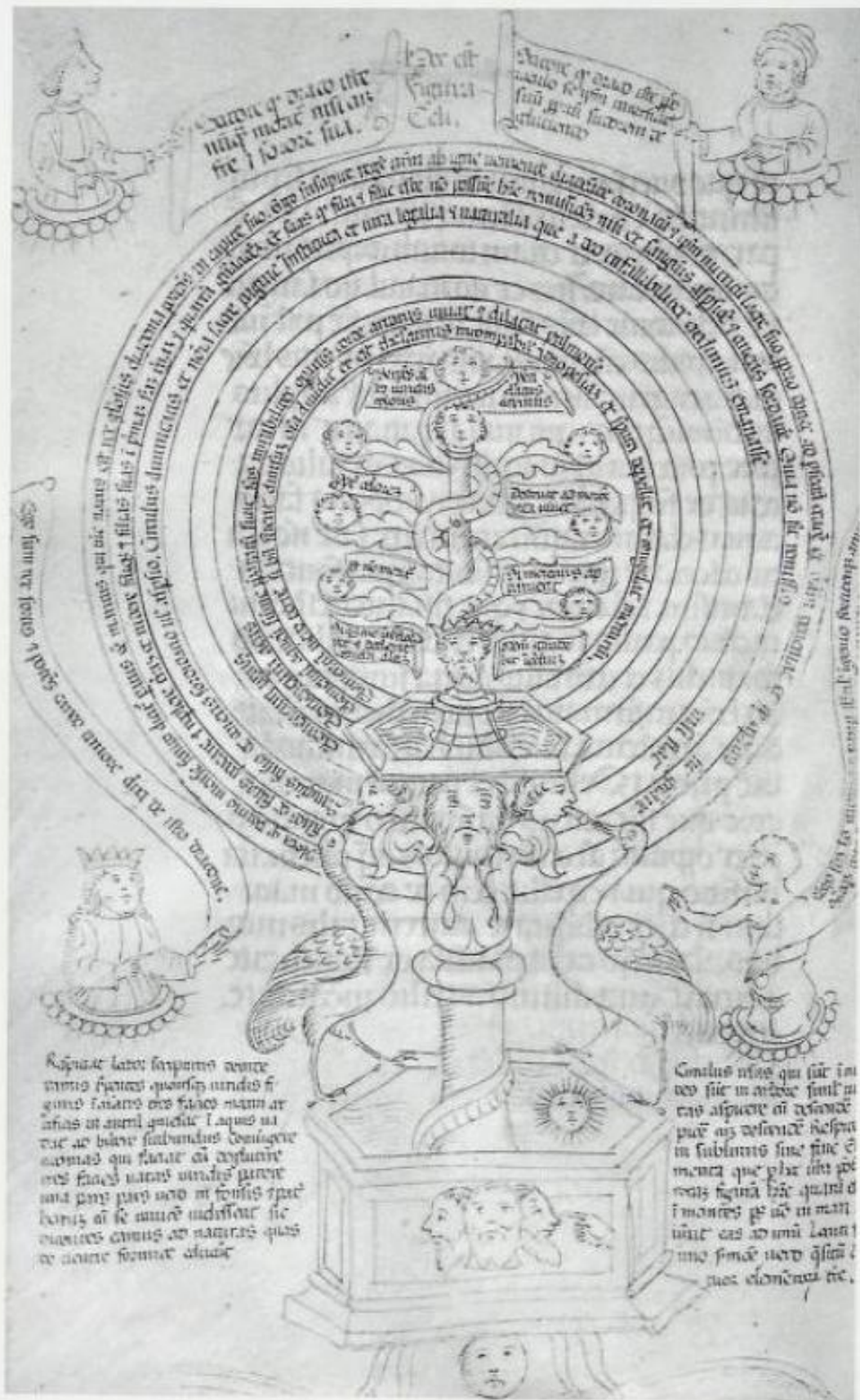
“**A**lchemy: the chemistry of the Middle Ages and the 16th century, limited to the pursuit of the transmutation of baser metals into gold, and the search for the alkahest and the panacea”.¹ This, in brief, is alchemy. Other similarly concise definitions include: a cultural relic of the past; a bizarre system of occult theories devised by people greedy for unlimited wealth and equally unlimited longevity; a primitive and naïve form of chemistry by which men sought to transmute base metals (lead, tin, iron) into precious metals (gold and silver); the medieval forerunner of chemistry, primarily the attempt to transmute base metals into gold and silver.

Written in a deliberately obscure style, ornamented by countless enigmas and cryptograms, embellished by pictures as fascinating as they are incomprehensible, the original alchemical manuscripts appear at first glance to confirm this general view. Essentially they describe alchemy as *Ars Transmutatoria*, or the art of transmutation. According to the 9th century Islamic philosopher, Al-Farabi: “The science of alchemy is the science of the transformation of certain things into other species”.² Or more precisely, alchemy is *Ars transmutatoria metallorum*, the art of transmuting metals, for: “Alchemy is the science that instructs one on how to transform one metal into another”.³ The transmuting of a base metal virtually means removing from it all its original imperfections, thus making it pure and indestructible: “By means of this art, metals which are found in the mine in an imperfect state are brought from imperfection to perfection, from impurity to purity”.⁴ Transmutation was supposedly achieved by the *Philosopher's Stone* or *Elixir*, the quest for which forms the basis of the *Great Work* (the body of alchemical knowledge and ideas). The *SPECULUM ALCHEMIAE* (MIRROR OF ALCHEMY) a medieval text attributed to the English philosopher Roger Bacon, gives a very explicit description of alchemy, similar to the definition

adopted by most modern dictionaries: “Alchemy is the science of preparing a certain medicine or Elixir which, when cast onto base metals, will turn them into precious metals the moment it touches them”.⁵ Apart from this miraculous transformation of metals, the Elixir will also renew the human body, restoring lost youth and prolonging life, at least according to the 14th century Franciscan monk John of Rupescissa, who extols the virtues of a “wonderful medicine, which not only heals our bodies of all illness, as if by a miracle, but also transmutes base metals into gold and silver in less than the twinkling of an eye”.⁶

Even though the writings of the alchemists abound in peremptory statements, we realize today that alchemy was not simply the quest for gold or the search for a life-prolonging medicine. We also know that the alchemists, in producing this apparently bizarre picture of their *Art*, were deliberately and cleverly concealing other more significant aspects. Studies conducted over recent years have, in fact, provided us with a more accurate perspective and proved that the alchemy was far more than meets the eye: it was an attempt to understand man's relationship with nature; a code of conduct; the search for transcendental experiences; a complex scientific system revealing an unsuspected capacity for intuition, considering the age in which it was practised; a cultural phenomenon of such intensity that during its golden age it was to influence the arts, literature, law, politics and customs in general.

With the advent of modern chemistry, founded by Antoine Laurent Lavoisier (1743-1794), alchemy was confined to the realms of the absurd and deemed unworthy of further investigation. It was not until the second half of the last century that alchemy began to elicit renewed attention. Paradoxically, this rehabilitation process was initiated by a group of exponents of the new science born from Lavoisier's chemical revolution.



A complex allegorical illustration from a 15th century alchemical code. The two half-length figures top left and right are holding scrolls which read respectively: "I tell you, this is the dragon that kills itself with its own dart swallowing its own sweat"; "I tell you, this dragon dieth not, except with his brother and his sister". The illustration, originally entitled: "This is the picture of the Heavens", refers to the purification of Mercury. Much of alchemy's magnetism arises from the intricate symbolism of its illustrations.

They saw alchemy as the forerunner of chemistry and for this reason began to study the ancient manuscripts.

The French chemist Marcelin Berthelot (1827-1907) was one of the first scholars to recognise the importance of a new approach alchemy. In his introduction to *LES ORIGINES DE L'ALCHIMIE (THE HISTORY OF ALCHEMY)* he writes: "The origins of alchemy are indeed vague. It is a science that would appear to have no roots, and is first discerned during the fall of the Roman empire. It developed throughout the Middle Ages, in a haze of mystery and symbolism, but was never to become much more than a mystic doctrine. It is often hard to distinguish the adepts and philosophers from the tricksters and the charlatans, and even from the villains. This science has every right to be examined from beginning to end in the light of modern critique."⁷

Berthelot would not have been disappointed, for he was succeeded by an ever-growing number of experts who were to dedicate much time and effort to the scientific evaluation of the vast quantity of literature left by the ancient alchemists. Though conducted with many different methods and aims, this research proceeded primarily in four specific directions.

(A) Alchemy as a scientific system. This is the approach adopted by historians of the sciences and was the direction followed by Berthelot himself. Through a systematic study of alchemy they sought to shed light on the development of the scientific spirit and method of experimentation of what they considered to be the forerunner of modern chemistry. They centered their attention on the material and chemical aspects of the manuscripts and ignored the magical and religious connotations which they dismissed as the rather irritating heritage of an age in which science unfortunately went hand in hand with superstition.

(B) Alchemy as a philosophical and religious system. Wherever in the world it was practised, alchemy has always been intimately linked with philosophy and religion, from which it gleaned both symbolism and fundamental beliefs. In fact, the relationship between the *Art* and Taoism, yoga, Hermeticism, Sufism and Christianity has been the subject of many interesting studies, including those of Mircea Eliade, André-Jean Festugière and Henry Corbin. Here, the chemical value of the alchemical manuscripts, while not totally ignored, is of secondary importance. Mircea Eliade writes: "These alchemical operations were certainly not symbolic; they were material operations carried out in the laboratory, but they pursued an objective different

from that of chemistry... It would be rash indeed to relate the originality of alchemy to its impact on the origins and triumph of chemistry. From the alchemists' point of view, chemistry was a 'step backwards', being, as they saw it, the secularization of a sacred science".⁸

(C) Alchemy as a magico-esoteric system. According to the esoterics, the one and only true aim of alchemy was not the transmutation of metals, but the transmutation of the adept himself. The alchemist was a *magus*, who strove to attain higher levels of spiritual perception at the same time achieving certain special powers. The chemical operations described in the manuscripts are merely a diversion, by means of which adepts sought to hide the true scope of the *Art* from the eyes of the indiscreet. They either have no value at all, or else are to be seen as an allegory of a psycho-physical discipline of self-realization. Though with somewhat differing personal outlooks, this basic theory is clearly upheld in writings such as those of Julius Evola, René Alleau and Titus Burckhardt.

(D) Alchemy as a realm of the imagination. It was the more irrational aspects of alchemy that were to capture the attention of the psychoanalysts, from Herbert Silberer to Carl Gustav Jung and Marie-Louise Von Franz. The vast quantity of alchemical literature was for them the starting point for a deep analysis of the human psyche. Jung's theories are particularly interesting. He began to notice that alchemical symbolism bore a close resemblance to the subject matter of his patients' dreams and hallucinations, and concluded that the practice of alchemy was a means by which to explore in the mind of the individual the archetypes of the collective unconscious. Jung did not doubt that the work of the alchemists included authentic chemical experiments, but the Great Work was to be read above all as the quest for psychic experiences that enabled the adept to achieve *individuation*, that is to say the discovery and conquest — by means of the progressive manifestation of the archetypes of the conscious mental world — of his true identity as a human being.

Despite the vast quantity of literature provided by these scholars, the age-old stereotyped idea still persists that alchemy is nothing more than the foolish pretension to transform lead into gold and the quest for the elixir of life. On the other hand it is a far from easy task to interpret such a complex subject to the full and it would be a mistake to analyse it from any one viewpoint alone. If we are to better understand every aspect of this fascinating science our only hope is to diligently pursue each single path that the *Divine Art* has taken over the centuries.

¹ *The Shorter Oxford Dictionary*, Oxford 1973, see "Alchemy".

² R. Halleux, *Les textes alchimiques*, Turnhout 1979, p. 43.

³ R. Bacon, *Speculum alchemiae*, in: J.J. Manget, *Bibliotheca Chemica Curiosa*, Geneva 1702, Vol. I, p. 613.

⁴ Khalid, *Liber trium verborum*, in: J.J. Manget, *op. cit.*,

Vol. II, p. 189.

⁵ R. Bacon, *op. cit.*, p. 613.

⁶ J. de Rupescissa, *De consideratione quintae essentiae*, Basle 1561, p. 117.

⁷ M. Berthelot, *Les origines de l'alchimie*, Paris 1885.

⁸ M. Eliade, *The Forge and the Crucible*, London 1971.



Egyptian demon dominating the flaming heavens. (Papyrus of a later age, probably originating from Heliopolis). According to ancient tradition, the secrets of alchemy were revealed to Isis, in Egypt, by an angel-demon.

CHAPTER I

ORIGINS

The origin of alchemy is an unsolved problem. This *Sacred Art* or *Divine Art*, as it was called by the Greek alchemists, can first be discerned in the early centuries of Christianity, in Graeco-Roman Egypt, but it is hard to believe that such a complex tradition stemmed from one moment in time or from one culture alone. The roots of alchemy most surely extend back into the mists of time and have been slowly nourished behind a veil of secrecy by multifarious magico-religious systems from different ages and places. Traces of pre-alchemical ideas and practices have been found in both the East and West dating from the 1st millennium B.C., confirming the theory that alchemy reached the banks of the Nile from far away and could be likened to a river winding its way through time and a bewildering variety of landscapes, most of which are unknown to us.

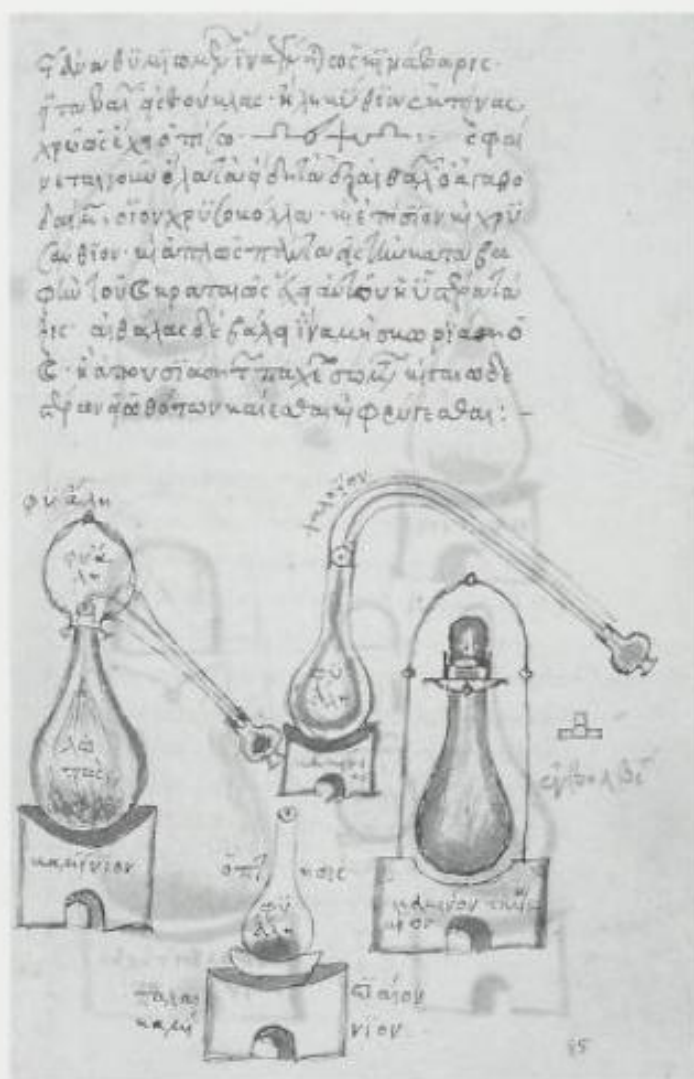
The alchemists of Hellenistic Egypt give no concrete information on the origins of their *Art*; at most, they give the vague explanation that it stemmed from some primitive, mythical notions according to which divine knowledge was revealed to adepts by a divine or semi-divine being, or at least by a symbolic figure. In later tradition the historical founder of alchemy was thought to be the prophet Hermes Trismegistus, or Hermes the Thrice Great god, a figure identified with both Hermes, the Greek messenger of the Gods, and Thoth, an ibis-headed Egyptian moon-god, patron of science and literature, wisdom and inventions, spokesman of the gods and keeper of the records. In earlier texts, however, the revealer of alchemical secrets was not a god at all but an angelic creature.

One such text is the brief account *ISIS THE PROPHETESS TO HER SON HORUS*, in which Isis reveals to her son the mysteries of alchemy and explains to him how she came to possess them. Isis tells how she went to a place called Hormanouthi, where the *Sacred Art* was

practised in secret. One day she was visited by an angel of the first firmament, who was seized by an overwhelming desire for her. She agreed to satisfy his passion on the condition that he disclose the mysteries of the preparation of gold and silver, but, fearful of the consequences of revealing so great a secret, the angel refused. The following day a higher angel named Amnael appeared to Isis, to whom the goddess made the same request. Amnael at first refused, but his lust was so strong that in the end he succumbed to temptation and confessed the mysteries of alchemy in exchange for the goddess's favors.¹

This story, of unknown origin, has been handed down to us by one of the fathers of Hellenistic alchemy, Zosimos of Panopolis, who lived in Egypt around the year 300 A.D. In his many works Zosimos often refers to the angel who revealed to men the concept of *tinging* metals, in other words of transmuting metals, hinting that the tradition was very old indeed. In the only remaining fragment of a long-lost book by Zosimos, preserved for posterity by Syncellus, the angels are portrayed as demons. Zosimos claims to know "ancient and divine Scriptures" in which it is said that "all the arts of nature", and therefore the secret of tinctures for the tinging of metals, were revealed by the fallen angels to the daughters of men for whom they lusted. He adds that Hermes Trismegistus had dedicated to this event almost all of his book, *PHYSIKA*.²

Zosimos's account of the angelic origins of alchemy with its fallen, lusting angels, would seem to be inspired by the *BOOKS OF ENOCH*, an apocrypha of the *OLD TESTAMENT* written in the first two centuries B.C. or even earlier.³ In the angeological section of *ENOCH* reference is made to the episode narrated in *GENESIS* (IV, 1-5), which tells of the fallen angels who lusted for the daughters of men and desired to have children by them. Each chose for himself a wife and began to teach her spells and magic and how to cut plants and roots.



Greek alchemical manuscripts have few symbolic images, but are rich in drawings of laboratory apparatus. Here we see: on the left, an alembic on the fire; on the right, a second alembic; center top, a flask fastened by means of a delivery spout to a globular vessel that receives the distillate; center bottom, a digestion flask (11th century manuscript).

Azazel taught the men to make swords, knives, shields, breastplates and showed them metals and how to make bracelets, ornaments, how to tinge and beautify eyelashes, cut stones, especially precious stones, he showed them tinctures and the changing of the world. There was much wickedness and fornication. They fell victim to these errors and their way of life was corrupted. Amezarek taught the spell-makers and the root-cutters, Armaros, how to resolve spells. Baraqal taught the astrologers, Kobabel, the signs of the stars. Temel taught astrology and Asradel the course of the moon.⁴ The Lord punished this evil by sending the Flood.

In this passage from the BOOKS OF ENOCH the secrets of magic, herbal lore, metallurgical crafts, the processing of precious stones and the preparation of tinctures

are all referred to as cursed knowledge: revealed to man by the fallen angels, it led to the spread of sin and wickedness, and those who made use of it would incur divine punishment. The writings of ENOCH suggest that even in very distant times a common origin was attributed to the multitude of techniques for the manipulation of minerals (metals and precious stones) and that these techniques were regarded with suspicion, as though they were indeed the work of demons.

It certainly was not the intention of Zosimos of Panopolis to paint the *Sacred Art* as a cursed or forbidden doctrine, quite the contrary. All becomes clear, in fact, in the last of Zosimos's books FINAL ACCOUNT. In this book he quotes an even earlier work by Hermes Trismegistus the BOOK OF NATURAL TINCTURES, in which the fallen angels are again implicated in another, more detailed version of the origin of tinctures. This story affirms that the use of *natural tinctures*, that is to say the methods of transmuting one substance into another according to nature existed on the Earth long before the days of Hermes Trismegistus. The fallen angels, or demons, conspired together so that mankind forgot these procedures. The secret of *natural tinctures* was then entrusted to the Egyptians alone, who closely guarded them in their temples, concealed behind a veil of symbolism that could only be deciphered by means of a special code. In the meantime the demons had craftily diffused the art of *opportune tinctures*, similar to the methods used for dyeing material, which could only be accomplished in certain favorable planetary conjunctions and with the complicity of the fallen angels themselves.⁵

This version seems to point to a distinction between the true *Sacred Art* (*natural tinctures*), arising in the dawn of time long before the Flood, and later imitations (*opportune tinctures*), reputedly the work of demons and possible only with their cooperation. In comparison with the age old *Divine Art*, whose origins were above suspicion, this grotesque imitation, having been propounded by demons, was indeed an *accursed art*. When Zosimos, who believed explicitly in *natural tinctures*, upholds this distinction, he is evidently moved by a desire to oppose any ideas different from his own. But it is also possible that he felt the need to disperse any doubts that the *Sacred Art* had to do with devilry, and to distinguish quite clearly between *good* and *bad* alchemy.

A divine art and yet a cursed one. This apparent contradiction was to accompany alchemy throughout its evolution, and in a number of ancient cultures the craft of the metalworker was seen with the same ambivalence. According to biblical tradition the first metalworker was Cain, whose Jewish name, Qayn, is generally held to derive from the verb *qanah* (to get), because of the words spoken by his mother Eve when she bore him: "I have gotten a man from the Lord."⁶ But it is equally possible, and perhaps more probable,

that *Qayn* comes from the term which in Semitic languages means *blacksmith*. In the story of GENESIS, Cain, cursed by God and driven from his homeland to lead a fugitive and vagabond life, becomes a craftsman and builder of cities. The figure of Cain well exemplifies the ambiguity of the ancient smiths and metalworkers, venerated yet feared, much sought-after yet outcasts, respected yet scorned.⁷ Again according to GENESIS one of Cain's descendants was Tubal-cain "an instructor of every artificer in brass and iron" whose name literally means "blacksmith from the country of Tubal", a place famous for its metalwork.⁸ The Latin alchemists believed Tubal-cain to be one of their mythical ancestors and the keeper of the greatest secrets of the Art.⁹

As in the myth of Cain, a similar fate was reserved for Hephaestus, the personification of terrestrial fire and master in the art of working metals. His limping gait was a permanent sign of the punishment inflicted on him by Zeus. He was therefore a *cursed* god. Ill-made and bad-tempered, he spent his time concealed in grottoes deep within the belly of volcanoes, forging Zeus's terrible lightning and other ingenuous objects of great beauty. Hephaestus's ambiguity is also expressed in a collusion between the destructive force of the fire he incarnated and the subtle and inventive spirit which enabled him to create delicate works of art.

Cain, Hephaestus and many other *divine blacksmiths* from myths the world over are probably the survivors of a time long forgotten in which the blacksmith was a sort of magus-shaman, who was believed to be in contact with occult powers which imparted to him the secret techniques and mysterious rituals of his trade.¹⁰

The ancient blacksmith and metalworker, forerunners of the alchemist, were always regarded as carrying out a sacred task, not only because of their supposed contact with the supernatural, but also because of the tools of their trade and the element with which they forged metals. This element was, of course, fire which had always embodied a spiritual quality, being considered a manifestation of the gods and not only in the form of lightning. The blacksmith was a *Master of Fire*, a man who could control and direct a flame according to his will.

Similarly, metals too had their own myths and magical theories. In Mesopotamia and Egypt and probably many other areas, one of the first metals to be forged was meteoric iron. Understandably, meteorites were held to be sacred as they fell from the sacred sky. Much later man developed mining techniques, but his beliefs about the mystic significance did not change, for the earth, like the sky, was sacred and alive; not for nothing was it known as *Mother Earth*, and the mines were the bowels of the gods. Metals were believed to grow organically within the earth, like an embryo developing within its mother's womb.

The miner, drawing forth metals from the mine, was rather like a mystical obstetrician delivering a sacred

foetus. All organic embryos require a certain length of time to develop, according to the characteristics of the species to which they belong. Likewise, it was thought that the seeds of metals needed time to *mature*. Lying within the womb of the earth were metals that had reached maturity and other that had not. The metalworkers, whose craft was to smelt and mould the ores drawn from the mine, earned the reputation of magus-priest, exercised in the skill of intervening in Nature's course and helping her to *give birth* more rapidly. So at a certain point, the *Master of Fire* became also a *Master of Time*, because he was capable of reproducing the work of Time.

It was from these primitive beliefs about mining and metallurgy that the alchemical myth arose, according to which it was believed that the *womb of the earth* could be created artificially in the laboratory, enabling the natural growth rate of a mineral to be accelerated, transforming the mineral from an imperfect to a perfect state (gold or silver) in a much shorter time. The idea that metals *grew* and *matured* within the mine was upheld until well into the Middle Ages.¹¹

Early civilizations first learnt how to work copper, bronze and gold and later lead, tin and iron. At the



A 15th century portrayal of Tubal-cain, descendant of Cain and "an instructor of every artificer in brass and iron", at work at the anvil. In the Middle Ages, this biblical figure was thought to be the inventor of music and sometimes of alchemy.

time of the Egyptian Pharaohs and in Assyro-Babylonian Mesopotamia, the heirs of Cain and Hephaestus, the smiths and metalworkers, had become a class of craftsmen apart, who jealously guarded the secrets of their trade. Along the banks of the Nile and in the surrounding fertile valley, metals were mined and worked in enclosed areas adjacent to the temples.¹² It is unlikely that the priests themselves participated directly in this work, though they probably kept a close eye on what was going on. All this subterfuge could only have



Two Mesopotamian "chemists" of the 3rd millennium B.C. (From *Chemistry and Chemical Technology in Ancient Mesopotamia*, by M. Levey).

added to the belief that metalworking was indeed a sacred craft and encouraged later rumors that mysterious books containing the secrets of the *Art* were hidden away in the temples.

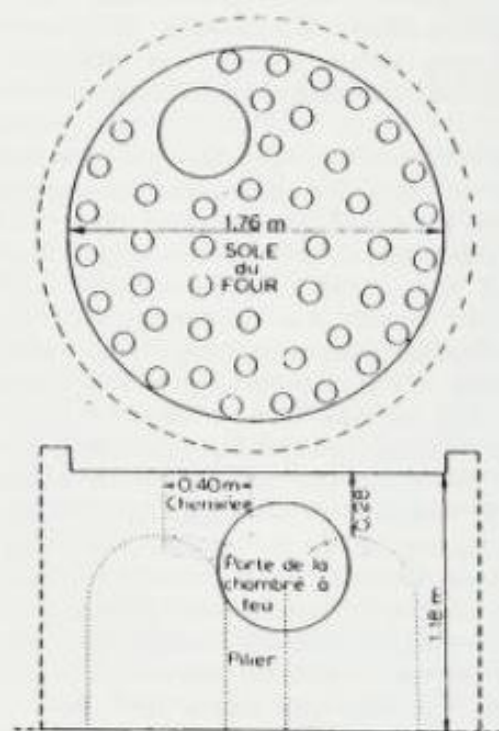
The Assyro-Babylonians possessed skills in what might be called pre-chemical technology, which enabled them to concoct perfumes, medicinal remedies, detergents and other special products.¹³ They were also accomplished in the preparation of colored glass which they used to make imitation precious stones.

Among the ruins of King Ashur-bani-pal's once magnificent library at Nineveh (7th century B.C.) were found a number of cuneiform tablets bearing recipes for the preparation of colored glass and artificial stones. But one passage describes something else as well, namely a method for producing imitation silver from certain base metals, such as copper, by means of a process similar to the alchemical recipe for the leucosis, or whitening, of copper.¹⁴ But the tablet goes one step further and describes a magic ritual that must be followed if a perfect result is to be achieved. Moreover, it advises the adept himself to dress in red garments and to cover the area where the experiment is to take

place with a white mantle. Lastly, it bears the warning: "Do not divulge this procedure to anyone". By combining in a single recipe a procedure to obtain imitation silver from a base metal, a magic ritual and a vow of silence, this tablet provides evidence that Mesopotamia played an important role in establishing the pre-history of alchemy.

No magic rituals are prescribed on the Nineveh tablets for the fabrication of glass. But a much older tablet (17th century B.C.) found at Tall'Umar on the banks of the Tigris, provides further food for thought.¹⁵ The tablet belonged to "Liballit-Marduk, son of Ussur-an-Marduk, priest of Marduk, from Babylon", and explains how to make green glass by adding copper to normal transparent glass. The style of the text is so enigmatic, full of abbreviations and incomprehensible wordplay that many scholars believe it was written so deliberately in order to discourage pursuit by non-adepts. And one cannot help noticing how close the style is to that so dear to the alchemists.

Not everyone agrees today with this interpretation of the Tall'Umar tablet,¹⁶ but the hypothesis that the Babylonians made an important contribution to the formation of alchemical theories is strengthened by another, more significant detail. Many of the Babylonian tablets, including those on the fabrication of glass, describe magic rituals for the consecration of the furnace. In at least two of these descriptions appears the word



Longitudinal plan and cross section of a furnace at Susa dating from before the 2nd millennium B.C. Some furnaces of ancient Mesopotamia could sustain temperatures of up to 1100°C. (From *Chemistry and Chemical Technology in Ancient Mesopotamia*, by M. Levey).

ku-bu (embryo, foetus) which, from the context, would seem to refer to the minerals being worked in the furnace.¹⁷ If this interpretation is correct, the Assyrians were the first to leave historical writings on the theory that metals were living matter which grew and developed in the furnace like an embryo in the womb. Which also means that the Babylonian tablets were the first documents to express one of the fundamental concepts of alchemy.

However, the exact meaning of *ku-bu* is controversial. It is possible that the text simply refers to the placing of real embryos (human or animal) in the furnace together with the metal. But according to Mircea Eliade, even in this case, the description of the ritual leaves no doubt that the Assyrians believed metals to be living matter, the growth of which could be accelerated artificially. The magical significance of the embryo was evidently derived from the belief that there was an equivalence between a foetus and an unborn mineral. The purpose of the *ku-bu* ritual would have been either to transfer the life reserve of the foetus to the metal, or to accelerate the birth of the metal by encouraging it to *behave* like the real embryo lying beside it.

The idea that metals grew within the dark womb of the Earth and that this metamorphosis could be speeded up artificially was not uncommon in China prior to the advent of Christianity.¹⁸ An even earlier belief in China and other parts of the East and West, was that cinnabar, the brilliant red sulphide of mercury, and other substances of a blood-red color, could give immortality.

It was a recurrent practice in the cultures of the Upper Palaeolithic and Neolithic stages of the Stone Age, to cover the bodies of the dead with red ochre prior to burial. These early ancestors of ours must have noticed that death occurred when there was a loss of blood, for instance from a wound, and as they believed that blood was, or at least contained the spark of life, they probably reasoned that by covering the body or bones with red ochre or some other substance of a similar color, those mortal remains would some day come back to life. Evidence that this custom was widespread for many thousands of years has been found in Europe, Asia, Africa and Australia. Over the centuries, in certain geographical regions, red ochre changed from being a magical drug of immortality to become a medicinal substance capable of prolonging life.

In China, India and pre-Incaic cultures, cinnabar was one of the substances that was sprinkled on the bodies of the dead. Like red ochre, this association with the idea of immortality led to the use of cinnabar as a pharmaceutical drug, which Chinese physicians prescribed to their patients to restore lost vitality and prevent bodily degeneration after death. The splendidly preserved corpse of the *Lady of Tai*, buried shortly after 168 B.C., and excavated in 1972, tells us more about the composition of certain potions. After lengthy analysis,

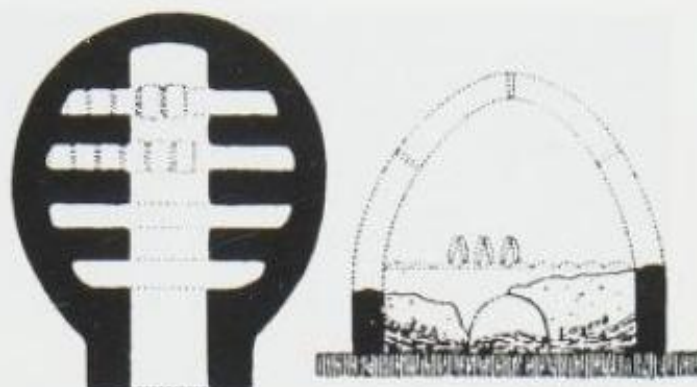


Diagram of an ancient domed furnace the ruins of which were discovered some 20 miles from Baghdad. The earliest remains of domed furnaces found in Mesopotamia date back to prehistoric times. (From *Chemistry and Chemical Technology in Ancient Mesopotamia*, by M. Levey).

the body was found to contain high concentrations of mercury and lead distributed in the body in such a way as to suggest ingestion shortly before death. Traces of native cinnabar were also found, which was probably the main ingredient of the elixir taken by the dying woman.¹⁹

In 144 B.C., some twenty years after the burial of the *Lady of Tai* the Emperor Ching issued an edict decreeing the death penalty for anyone discovered trying to falsify gold.²⁰ Around 180 A.D., almost 350 years after this edict, a commentator explained that the Emperor Ching had been obliged to take this drastic course of action in order to put a stop to the fabrication of gold by alchemical means which had in fact been encouraged by his predecessor, the Emperor Wen (c. 175 B.C.). Now, we ask ourselves, was the imperial edict aimed at restricting the propagation of alchemical experiments on the transmutation of metals, or was it more simply a precaution against the spread of common forgery? And was the cinnabar elixir taken by the *Lady of Tai* the end product of an alchemical quest for the elixir of life, or was it merely an empirical remedy for preserving the body from deterioration after death? In other words, was the alchemical tradition already alive in China in the 2nd century B.C., while on the banks of the Mediterranean the *Sacred Art* was about to step out of the mists of *prehistory*?

Once again we do not have sufficient pointers to enable us to answer these questions for certain. When Chinese manuscripts talk about the fabrication of gold, it is impossible to establish whether they are referring to forgery techniques, magic rituals or genuine alchemy. The exact origin of alchemical traditions in China remains, for the moment, a mystery. Possibly it dates from the 4th century B.C., though some scholars claim that it did not appear until the 3rd-4th centuries of our

Era. The first significant complete work is the CHOU I TS'AN T'UNG CH'I (TREATISE ON THE THREE PRINCIPLES), written by Wei Po Yang around 142 A.D., with passages added in the 9th century. Another important manuscript is the first chapter of the HUANG TI CHIU TING SHEN TAN CHING (EXPLANATION OF THE YELLOW EMPEROR'S MANUAL OF THE NINE-VESSEL MAGICAL ELIXIR) written in the second half of the 2nd century B.C.²¹

The TREATISE ON THE THREE PRINCIPLES is a strongly magical Taoist work concerning the preparation of the *pill of immortality* and conceived in the form of a commentary on the I CHING (BOOK OF CHANGES).²² The title of the book arises from the fundamental beliefs of its author, according to whom the BOOK OF CHANGES, Taoist doctrine and alchemical practices are concurrent, in that they all deal with the same subject though under a different name. The alchemy described in the TREATISE is based firstly on the hexagrams of the I CHING, a work of cosmic philosophy, secondly on the system of the five elements (water, fire, wood, metal and earth) and lastly on the interaction of the two cosmological principles *yin* (feminine, passive, lunar, moist, dark) and *yang* (masculine, active, solar, dry, bright). Each of the five elements, depending on the way in which *yin* and *yang* were combined within it, was capable of generating different substances with differing characteristics. Chinese alchemists aimed at controlling these cosmic combinations by way of the hexagrams of the BOOK OF CHANGES, which held the secret of the preparation of the *pill of immortality*.

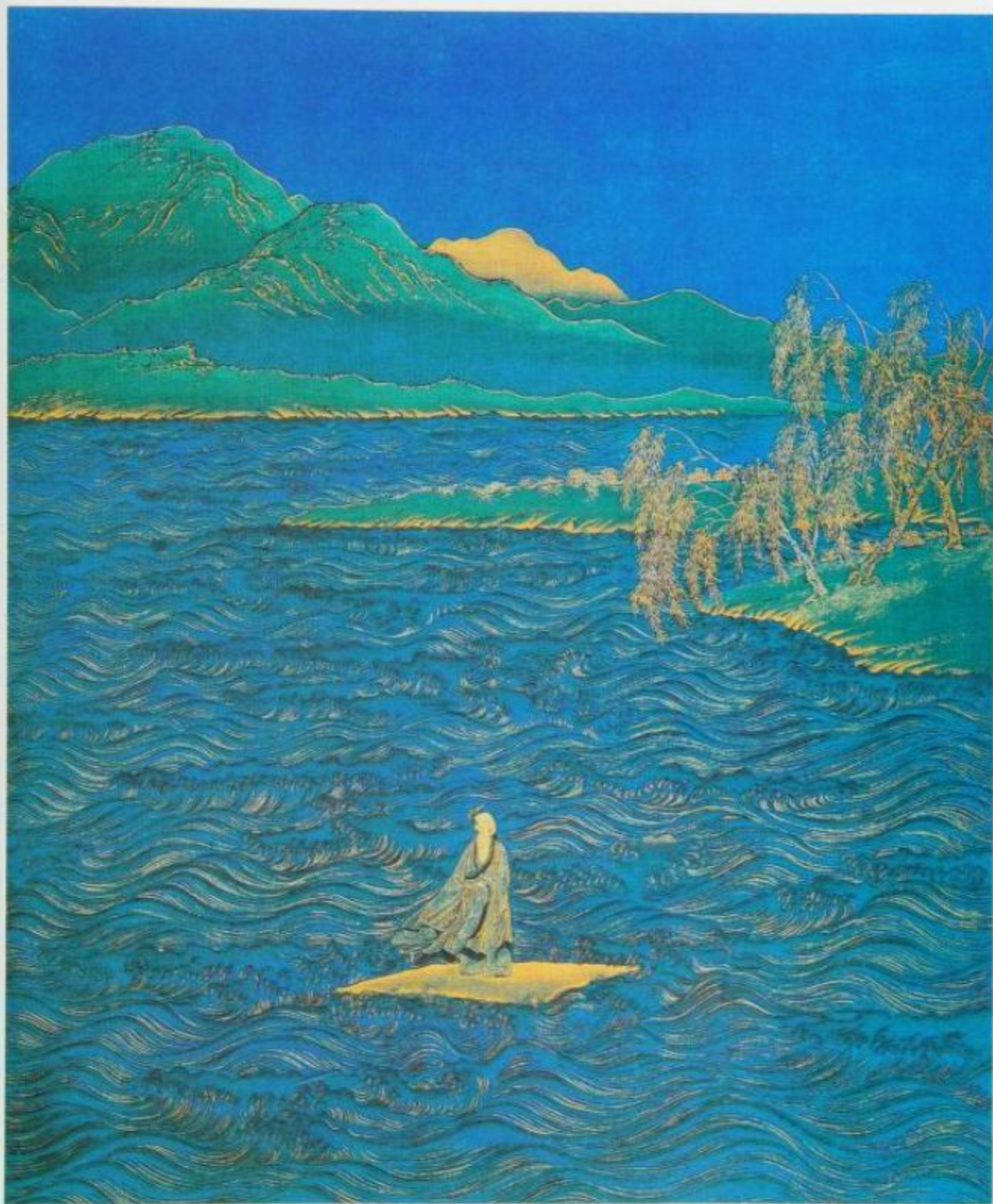
The book illustrates quite clearly that the Chinese alchemist's main preoccupation was the quest for immortality, while the fabrication of alchemical gold was merely a means by which to achieve this goal. According to Wei Po Yang longevity was of fundamental importance in the *grand triumph*. By eating alchemical gold, the common man would be transformed, attain immortality and become *chen-yen* (true man).²³ A story is told that Wei Po Yang succeeded in preparing the *pill of immortality*. He went into the mountains with his white dog and three disciples to try out the medicine. He gave one to his dog which promptly expired and his disciples lost faith. Po Yang felt it would be too humiliating to return without trying his own medicine even though it was obviously not complete, and having taken some, he too fell down apparently dead. One loyal disciple followed suit, while the other two departed to arrange a funeral. However, Po Yang revived from the apparently lethal dose, administered some well-concocted medicine to his disciple and the dog who also soon revived and the three of them went to join the *Hsien* (Immortal Sages).²⁴

Wei Po Yang was a Taoist philosopher and the alchemy he describes in the TREATISE ON THE THREE PRINCIPLES is clearly inspired by Taoist thought. No matter the age or place, alchemy has always assimilated contemporary popular religious beliefs, reflecting in its

language, its symbolism, its very philosophy, elements borrowed from these cults. And China was no exception. According to tradition Taoism was founded by Lao Tzu, author of a short compendium on Taoism called the TAO TE CHING (BOOK OF THE WAY AND OF THE VIRTUES), who is thought to have lived in the 6th century B.C. Taoism was born as a philosophical doctrine and gradually developed into a system of religion. The Taoist strove to obtain contact with the Tao, a cosmic-transcendent principle which is highly difficult to describe and which in the West is generally explained by such terms as *Way, Rule, Principle or Right Way of Life*. But Taoism means much more than this. To be in harmony with the fundamental laws of the universe was the first step in Taoist discipline. The Taoists were quietists and contact with Tao was achieved by practices such as "sitting with a blank mind". Various forms of breath control entered into the technique and also the cultivation of visionary travels of the mind. In this way the Taoist sought to preserve and strengthen his vital energies in order to reverse the natural process of ageing and escape bodily degeneration and ultimately death.

Contact with a philosophico-religious system so closely involved with the theme of immortality was fertile ground for alchemical thought. In the centuries following the TREATISE ON THE THREE PRINCIPLES, Chinese alchemy became more and more immersed in Taoism, gradually abandoning the original goal of seeking the elixir of life to become a Taoist technique for attaining spiritual perfection and immortality. But it would be a mistake to assume that alchemy had always been a Taoist discipline or that it had been invented by the Taoists.²⁵

Early Taoists certainly believed in the Immortals and this must surely have been the root of the Chinese alchemist's quest for lasting vitality and immortality. As far back as the 4th century B.C. Lieh Tzu, one of the fathers of Taoism, mentions five sacred islands where, in dwellings of gold and jade, lived the Immortal Sages, men who had achieved immortality by having lived the way of the Tao. Gold and jade were associated with immortality because they were held to be composed of near pure *yang*; it is not surprising that they soon came to be seen as substances capable of preventing bodily degeneration. Pao Pu'tzu (pseudonym of Ko Hung, c. 254-334 A.D.) prescribed: "If gold and jade are placed in the nine apertures of the corpse, it will be preserved from putrefaction."²⁶ It was a long-standing custom for the aristocracy and upper classes to be buried in caskets of gold and jade together with numerous objects made of these same minerals. When Chinese alchemy became involved with the fabrication of gold, people were advised to use alchemical gold to make plates and crockery: "If you eat and drink from these dishes, you will live a very long time", announced Ko Hung.²⁷ The Chinese were not yet



The Taoist sage Zhao Bing (2nd or 3rd century) is carried by the wind across a river on a reed-mat (17th century painting on silk). Zhao Bing was reputed to possess the power to turn water into wine and to make a withered plant flower again by placing a few grains of cinnabar on its roots. In Taoism the adept who has achieved immortality (*hsien*) is described as a being who can walk on water, in the air and through fire.

concerned with the preparation of the elixir of life, but simply of benefiting from the magical qualities of objects made from alchemical gold or gold dust. In the TREATISE ON THE THREE PRINCIPLES, the extraordinary effects of alchemical gold are described in these terms: "When the golden powder enters the five entrails, a fog is dispelled, like rain-clouds scattered by wind. The countenance beams with well-being and joy. Hair that was white turns to black; new teeth grow where old ones have fallen out; the old man becomes a lusty youth; the decrepit crone is again a young girl. He who has thus escaped the perils of life becomes a totally different being."²⁸

The Chinese alchemist's quest to make gold was not, therefore, to accumulate vast wealth but to attain immortality. Initially, it was enough to use pots and pans made of alchemical gold, but later this substance formed the basis of the pill of immortality and the elixir of life. Cinnabar was also vital to the Chinese alchemist, though not the native cinnabar taken by the *Lady of Tai*, but a substance that had been transformed in the furnace. In 133 B.C., the occultist Li Chao-kiun advised the emperor Wu Ti that if he were to worship the goddess of the Stove, he would thus invoke spiritual beings in whose presence it would be possible to transform cinnabar into gold amidst the flames. If he were then to use this gold to make vessels from which to eat and drink, he would prolong his life sufficiently to enable him to attain the audience of the Immortal Sages; and with their help become an immortal himself.²⁹

From earliest times this bright red sulphide of mercury had fascinated men for its color, so similar to that of blood, and in fact it was mythologized as "dragon's blood". For the Chinese alchemist cinnabar was important because when the ore is heated it releases volatile fumes of mercury which can be condensed into a silver mirror. This reaction was seen as something extraordinary and full of symbolism: the cinnabar *died* to be miraculously *reborn* as mercury. From the advice given by Li Chao-kiun to the emperor Wu Ti, it is evident that cinnabar played an important role in the preparation of alchemical gold. Later, it was linked directly with the elixir, which was also called *chin tan* (cinnabar-gold) or *shen tan* (transcendent gold).

Although the tradition of the Immortal Sages goes back to antiquity, the idea that immortality could be attained through alchemical means was not part of early Taoism, which totally rejected the use of any drug and believed that immortality could be achieved by spiritual practices alone.³⁰ The legend of the Taoist philosopher Wei Po Yang who went the way of the Immortals after having taken a pill which he himself had prepared, shows how Taoist thought had changed over the centuries.

Taoism first came into contact with the myth of the

elixir of life at the beginning of the 4th century A.D. when, after the fall of the city of Lo-yang (311 A.D.) at the hands of barbarian powers, there was mass migration of the Chinese to the region of the Yangtze, where alchemy already numbered among the practices that promised immortality. The educated fugitives soon adapted Taoism to alchemy and to the religious use of special potions. Around the year 500 a descendant of the aristocracy, Tao Hung-ching, founded a special Taoist movement which adopted alchemical techniques and expressed this new mingling of Taoism and alchemy in a strongly symbolic and metaphorical style of language.³¹ It was thus that Chinese alchemy, born as an independent discipline, gradually merged with the Taoist culture to become a tradition no longer concerned with chemical experiments, but one that emphasised only spiritual goals.

Alchemy has always been reputed by its followers to be a scientific tradition, the result of divine revelation and therefore not susceptible to any change. Despite this statement of principle, alchemy has undergone considerable transformation over the centuries, in both the East and the West. As regards Chinese alchemy specifically, the manuscripts in our possession bear witness to a marked ability to accommodate new impulses, both of a technico-chemical nature and new philosophical notions proposed by the popular religion of the time.

Chinese alchemy formed around a nucleus of three principles: longevity, the desire to prolong life and immortality of the soul; salvation, achieved through perfection of the spirit; celestial appointment, or the desire to go the way of the Immortal Sages.³² These goals were pursued through ascetic and devotional practices, but alchemy, with its special way of merging spiritual discipline and the fabrication of tangible substances, might have brought them closer.

For the Chinese alchemist, as for his western counterpart, the working hypothesis was to dominate Time and replicate the work of Nature more rapidly. According to a document written around the year 900, the alchemist accomplishes in a period of 4320 hours what takes Nature 4320 years.³³ These figures have a symbolic value only, but their proportion is significant: the alchemist *perfects* matter in a thousandth of the time that Nature takes.

In order to become a *Master of Time*, the Chinese alchemist too had first to become a *Master of Fire*, for it was the heat of the fire in the alchemical furnace that assumed the role of the cosmic forces in Nature. For a successful outcome to the experiment, everything had to be meticulously prepared according to precise guidelines: the dimensions of the furnace; its alignment in respect to the sky and earth; the quality and quantity of the substances that were to be cooked in the fire; the proportions of *yin* and *yang* in these substances; the intensity of the fire which was increased or decreased in

carefully timed cycles corresponding to the cycle of warmth and cold in the four seasons. The earliest experiments on record speak of two ingredients that were *yin* and *yang* with respect to each other and were placed side by side in the furnace. They were conjugated and separated through one cycle after another, progressively becoming more perfect.³⁴

In short, the goal of the Chinese alchemist was the interaction of *yin* and *yang*, the marriage of opposites. But this goal could be reached, not only within the vessel in the furnace, but within the body of the adept himself, envisaged as a large alchemical vessel. This aspiration belongs to the *nei tan* internal alchemy tradition involving meditation practices, which in China developed parallel to *wei tan* external alchemy based instead on chemical processes. We know for certain that during the first century A.D. a number of Chinese alchemists had already established relations with a hierarchy of gods within their bodies. There is further evidence that in the 4th century A.D. alchemists used yogic and meditative techniques of self-cultivation to visualize the circulation of vital energies or cosmic effluvia within the body.³⁵ According to the *nei tan* tradition the adept saw his body as a laboratory in which transformations were brought about by mental and physiological exercises, in particular the Taoist technique of breath control. The adept inhaled deeply, then held his breath for 120 heartbeats before breathing out again. After much practice he would be able to hold his breath for 1000 heartbeats. "When an old man reaches this stage," vows Pao Pu'tzu "He will become a young man again."³⁶

Arising as they did concurrently, it is not always easy to distinguish between *nei tan* and *wei tan*. For instance, the symbolism of the TREATISE ON THE THREE PRINCIPLES is so strongly obscurantist in style that the procedures it describes could just as easily belong to one tradition as to the other. However, over the centuries the spiritual tradition gradually gained the ascendancy, as it did in the West. Experiments with mineral ingredients became only marginally important until in the end alchemy emerged as a purely meditative discipline, veiled from the curiosity of the profane by a metallurgical symbolism. A possible explanation for this is that external alchemy failed to develop beyond a certain stage. From the 10th century onwards *wei tan* manuscripts show little progress in the understanding of chemical processes, while the *nei tan* system continued to elaborate new concepts and meditation techniques.

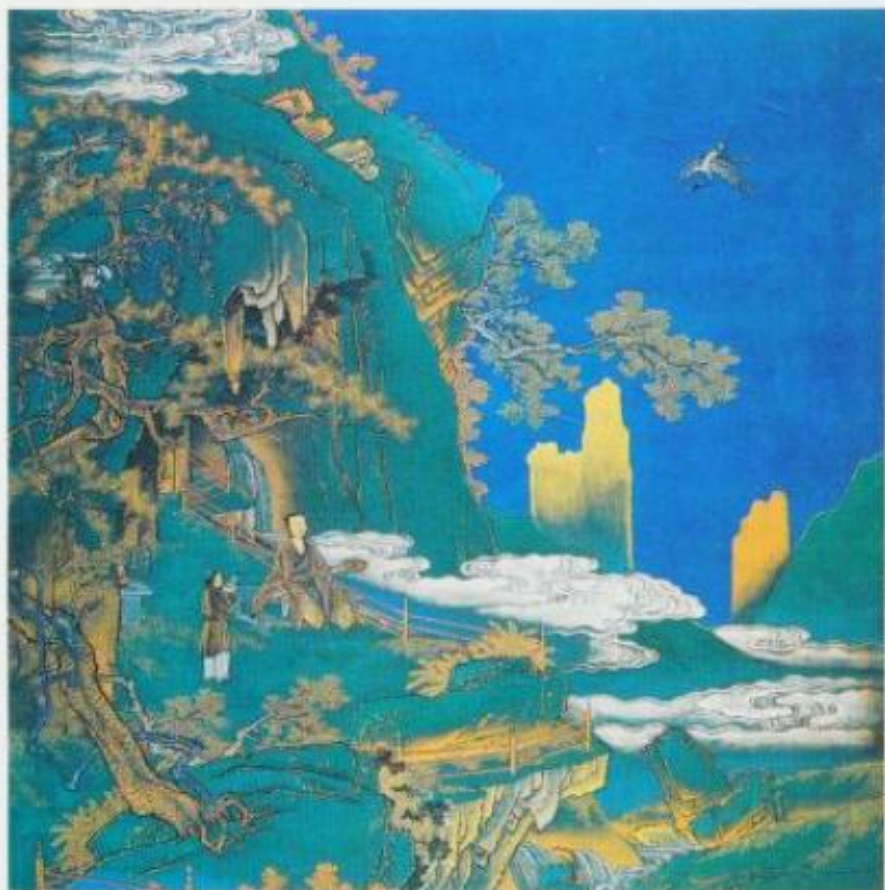
In Chinese internal alchemy metals correspond to different parts of the body, while the body itself is the laboratory. The meditative techniques for controlling the vital energies and the conscience take the place of the transformations achieved in the furnace. Seemingly, the alchemists are still describing the creation of *divine cinnabar*, but this is not the case: what they are really

talking about is the generation of the elixir of life within certain secret regions of the brain, and also through the channelling of sexual energy.³⁷

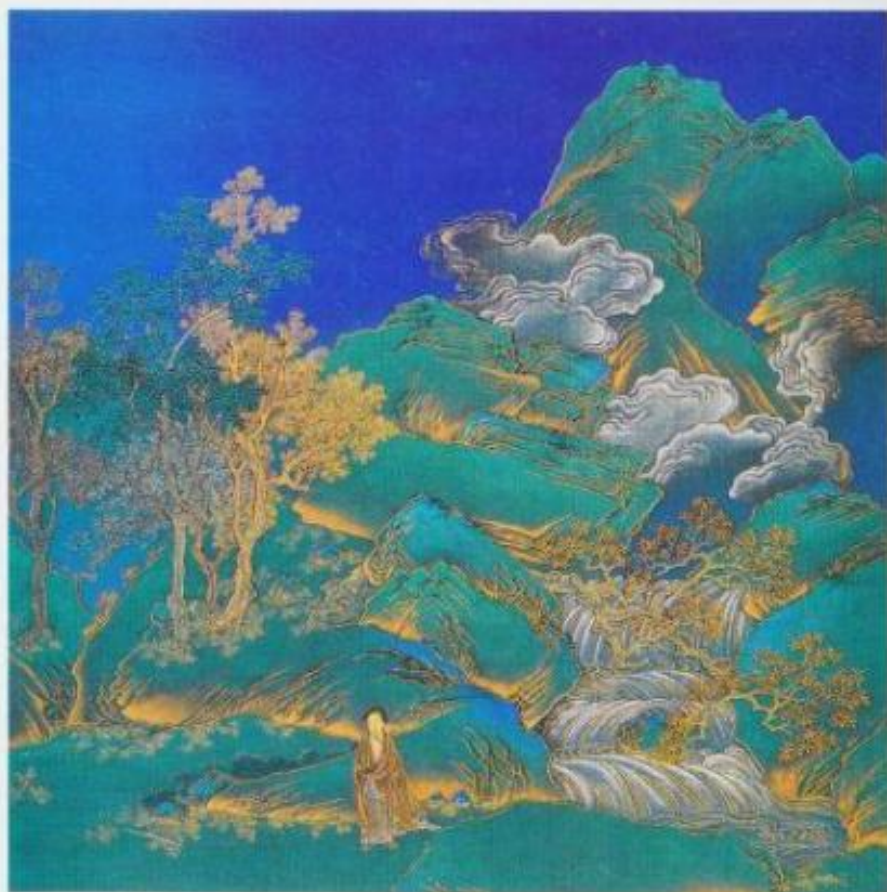
Already at the time of the TREATISE OF THE THREE PRINCIPLES Chinese alchemical tradition envisaged certain sexual techniques in which the joining of opposites seems to assume a literal significance. Later Taoist alchemy develops this aspect to the full. As in the Tantra of Indian alchemy, one particular pursuit was the reversal of the direction of the male seed. The adept's aim was to *distill* the sperm thus releasing the seminal essence which then flowed into certain secret parts of the body known as *fields of cinnabar*. Here dwelled a number of divinities which the adept sought to visualize in his mind by means of special meditation practices. Situated at the top of the head, in the solar plexus near to the heart and directly below the navel, these *fields* were *places* where the energy elicited was *nurtured*. The use of the word *field* immediately conjures up a picture of land cultivation. The similitude is actually quite appropriate, for it was in these *areas* that the spiritual energy and seminal essence were *cultivated* until the *embryo of immortality* was born within them.

The first step in this exercise was the exertion of sexual energy by way of special meditation practices or so-called *bedroom techniques*, which not surprisingly required the cooperation of a partner. Actual emission of the seed was, however, withheld so as to avoid dispersion of the seminal essence outside the body. The essence of the sperm was transformed into energy in the *fields of cinnabar* and as such could ascend and descend through the body by way of the spinal column. This movement was enhanced by breathing exercises. Once the process had become continuous, further mental exercises permitted sublimation of the energy and its subsequent transformation into a spiritual force, and the *embryo of immortality* was conceived. As the months went by, the process was accompanied by certain psychological and physiological phenomena, one of which was the acquisition of special *powers*, which the adept was not supposed to use. Once the embryo had been completed in the second *field of cinnabar*, it then had to be transferred to the upper *field of cinnabar* located in the head. Here it was preserved and *nurtured* until it reached maturity. Finally, the sublimated *yin* spiritual energy became totally *yang* spiritual energy, which could leave the body of the adept (and return to it at will) in the form of light particles or a minute reproduction, visible to others, of the adept's physical body. The adept who achieved this stage would then devote himself to a life of perpetual contemplation until his entire body became pure *yang* and thus immortal.³⁸

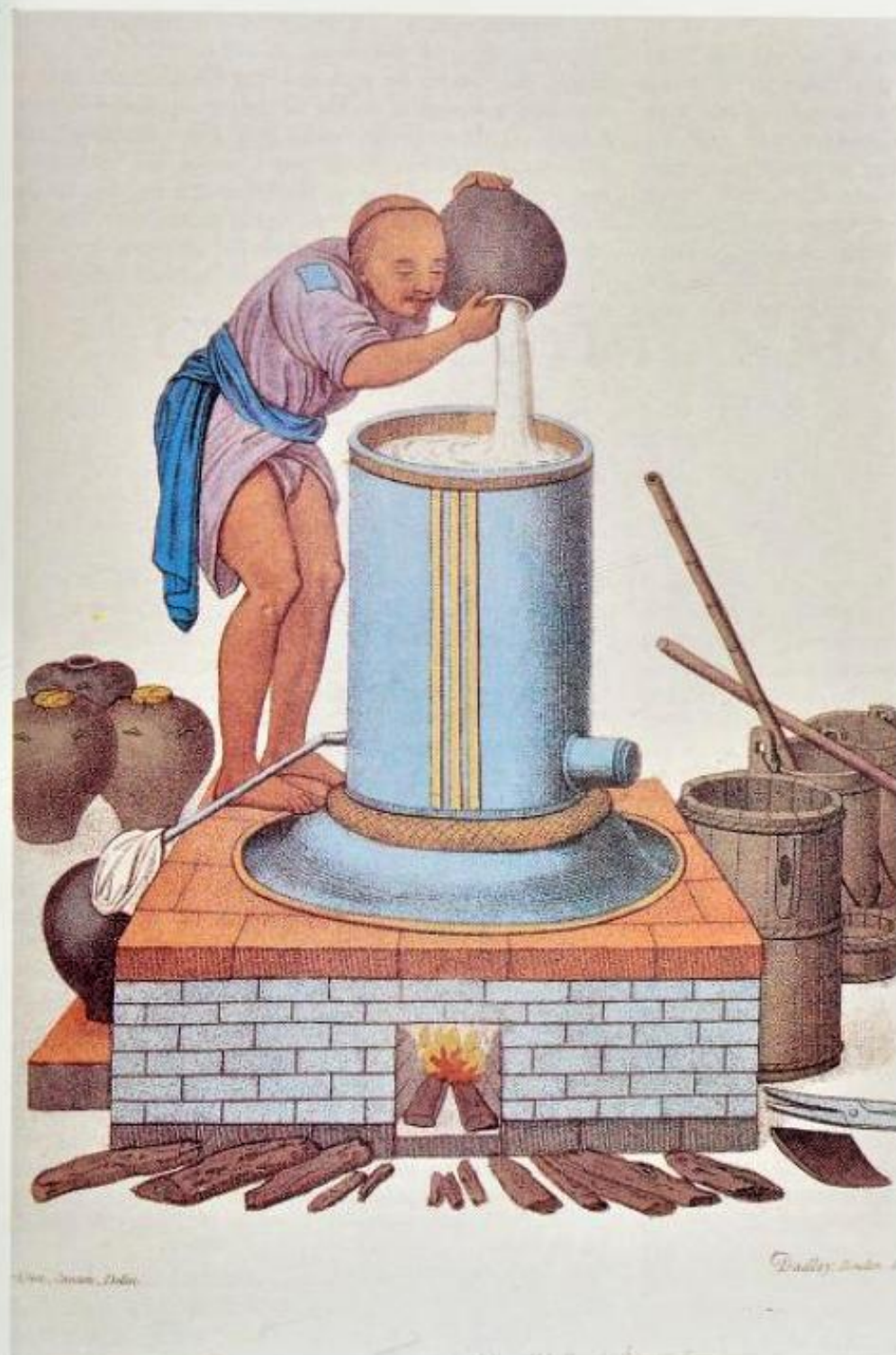
In this particular form of alchemy there was no longer room for metallurgical techniques, even though the symbolism adopted was often that of early metallurgical traditions. The *embryo of immortality* theory, in drawing a parallel between the evolution of the



Tao Hongjing (451-536), the Taoist hermit who was said to have begun his quest for the elixir of immortality at the age of ten. At the end of his search, he and his disciples took a potion made of cinnabar and went to join the Immortals (17th century painting on silk).



Su Lin, the mystic who was said to have used breath control techniques in order to achieve immortality (17th century painting on silk). Early Tao alchemical tradition combined laboratory practices with psycho-physical disciplines. From the 10th century onwards experimental alchemy was virtually abandoned and the art became a purely spiritual and mystical system.



Distillation of herbs in 18th century China. Part of the learning that inspired Taoist alchemy survives in the traditional medicine of modern China.

alchemical Opus and the development of a foetus within the womb, establishes a connection between the work of the early blacksmith and *nei tan* alchemy. And yet this link with past traditions was not always understood by the alchemists. At the time of the TREATISE OF THE THREE PRINCIPLES, internal alchemy, external alchemy and sexual alchemy intermingled as different aspects of a single tradition. Later Taoist alchemists however

sometimes went as far as to deny that the laboratory tradition had ever had any real function, apart from that of throwing the non-initiated off the scent. They argued that only the ignorant could have believed in the furnace technique and tried to put it into practice. This same position is assumed in the West by many alchemists of the modern age, who tend to describe alchemy solely as a means to attain spiritual fulfilment

through the sublimation of sexual energy.

Apart from these later developments, we are still faced with the problem of establishing whether Chinese alchemy is actually older than the Sacred Art and if so whether it could have provided inspiration for the Egyptian tradition. We know that in the first century B.C. silk caravans operated between China and Persia and we also know that Bactria, the most easterly province of the Persian empire, which became Buddhist at the beginning of the first century A.D. in the reign of King Kanishka, was a focal point for Hellenism

and oriental cultures. However, as it is impossible to set an exact date on the dawn of alchemy in China and Egypt, we cannot be sure whether Chinese alchemy in any way contributed to the evolution of the Hellenistic tradition. Theoretical and practical parallels and differences between these two systems are commonly quoted in favor of one or the other theory, but as the matter stands today it would seem more likely that the two forms developed independently, at about the same time after a long prehistory which in part followed a similar path in both East and West.

¹ M. Berthelot, *Collection des anciens alchimistes grecs*, Paris 1888, Vol. 3, p. 31.

² G. Syncellus, *Chronographia*, Vol. 1, p. 23-24, in *Corpus Scriptorum Historiae Byzantinae*, Bonn 1829.

³ The *Books of Enoch*, of which there are several versions, was long believed to be a manuscript of the Christian era. It is now held to be of an earlier origin, possibly of the 2nd or 3rd century BC, after fragments of *Enoch* were discovered amongst the Qumran manuscripts.

⁴ *Il libro di Enoch*, from *Apocrifi dell'Antico Testamento*, edited by P. Sacchi, Turin, 1981, p. 473-75.

⁵ M. Berthelot, *op. cit.*, Vol. 2, p. 239.

⁶ *Genesis*, IV:1.

⁷ S. Ribichini, *The Mark of Cain*, in "Abstracta", n. 17, p. 27.

⁸ *Genesis*, IV:22.

⁹ Tubal-cain is listed as one of the fathers of alchemy in a manuscript quoted in: G. Carbonelli, *Sulle fonti storiche della chimica e dell'alchimia in Italia*, Rome 1925, p. 17.

¹⁰ M. Eliade, *The Forge and the Crucible: The Origin and Structure of Alchemy*, Harper 1971. (*Forgerons et alchimistes*, Paris 1956). This fascinating study by Mircea Eliade has provided us with much information on the beliefs that inspired the tradition of the metal worker in ancient times.

¹¹ M. Eliade, *op. cit.*

¹² R. J. Forbes, *Metallurgy in Antiquity*, Leiden 1950, p. 62 onward.

¹³ M. Levey, *Chemistry and Chemical Technology in Ancient Mesopotamia*, London/New York 1959.

¹⁴ A. L. Oppenheim, *Mesopotamia in the Early History of Alchemy*, from "Revue d'Assyriologie" n. 60, 1966, p. 37 onward.

¹⁵ C. J. Gadd and R. Campbell Thompson, *A Middle-Babylonian Chemical Text*, from "Iraq" 3, p. 87-96, 1936.

¹⁶ According to A. L. Oppenheim (*op. cit.*, p. 40), the study uses signs that are both rare and artificial, but could nonetheless be understood by a well-educated Babylonian scribe.

¹⁷ M. Eliade, *op. cit.*

¹⁸ *Ibid.*, p. 61.

¹⁹ N. Sivin, *Chinese Alchemy*, from *The Encyclopaedia of Religions*, McMillan, New York 1987. Sivin's entry integrates and up-dates his earlier *Chinese Alchemy: Preliminary Studies*, Cambridge, Mass. 1968, to which we have referred for further information on Chinese alchemy.

²⁰ H. Dubs, *The Beginning of Alchemy*, from "Isis", Vol. 38, 1947, p. 62-68.

²¹ N. Sivin, *op. cit.*, p. 189.

²² Wei Po Yang, *An Ancient Chinese Treatise on Alchemy entitled Ts'an Tung Ch'i*, written by W.P.Y. about 142 AD, edited by Lu-Ch'iang Wu and T.L. Davis, in "Isis", Vol. 18, 1932, p. 210-289.

²³ *Ibid.*, p. 240.

²⁴ M. Eliade, *op. cit.*, p. 129.

²⁵ The relationship between Chinese alchemy and Taoism is analysed in: M. Strickmann, "On the Alchemy of Tao Hung-ching", in *Facets of Taoism: Essays in Chinese Religion*, New Haven 1979, p. 123-192.

²⁶ M. Eliade, *op. cit.*

²⁷ *Ibid.*, p. 128.

²⁸ Wei Po Yang, *op. cit.* p. 240.

²⁹ E. J. Holmyard, *Alchemy*, London 1957 and M. Eliade, *op. cit.*

³⁰ N. Sivin, *op. cit.*, p. 190.

³¹ M. Strickmann, *op. cit.*

³² N. Sivin, *op. cit.*, p. 187.

³³ *Ibid.*, p. 187.

³⁴ For all these details, see: N. Sivin, *op. cit.*

³⁵ N. Sivin, *op. cit.*, p. 188.

³⁶ M. Eliade, *Le Yoga, immortalité et liberté*, Paris 1954.

³⁷ M. Eliade, *op. cit.*

³⁸ Taoist alchemical studies describe this process with many variations according to the era and school of thought. Rarely, is the complete sequence of operations described to the full. The description given here is drawn not only from the Chinese alchemical studies quoted in the preceding notes, but also from the "Introduction" by C. Despeux to: Chao Pi Ch'en, *Traité d'alchimie et de physiologie taoïste*, Paris 1979.

CHAPTER II

GRAECO-EGYPTIAN ALCHEMY

In 1828 Johann d'Anastasis, vice-consul and later consul general of Sweden and Norway in Alexandria, and an expert in antiques, sold his collection of ancient Egyptian papyri to the Dutch government, which in turn sent them to the Museum of Antiquities of the University of Leiden. Two years later, the Dutch scholar, C.J.C. Reuvens, announced to the scientific community that one of these papyri was, in fact, a copy of a Graeco-Egyptian treatise on chemistry. The LEIDEN PAPYRUS, as it was called, soon became the focus of extensive scrutiny on the part of science historians. The French chemist Marcelin Berthelot alleged it was the starting point for his study of Greek alchemical manuscripts. Much later, in 1913, news leaked out that d'Anastasis had given a second papyrus collection on chemistry to the Swedish Academy of Antiquities in Stockholm where it had been carefully conserved for many years. Disclosure of the PAPYRUS HOLMIENSIS, as it became known, caused a great stir. Ever since their discovery these two documents have been the object of widespread analysis and considerable controversy. Nonetheless, even today they are still seen as a keystone of Graeco-Egyptian alchemy.

As the LEIDEN PAPYRUS comes from Thebes, it is more than likely that the Stockholm manuscript does as well. Both date from the 3rd-4th century of our Era, but almost certainly draw on much earlier sources. The LEIDEN PAPYRUS contains 99 chemical recipes and 10 articles, derived from the works of the Greek physician Dioscorides, while the Stockholm manuscript contains 159 recipes. These recipes describe processes for the purification of metals, the fabrication of alloys and the preparation of tinctures for the creation of gold, silver and precious stones, or for the dyeing of wool so as to make it look as though it were colored with real purple, which was very expensive and in great demand in the

Graeco-Roman world. Recipe 16 of the LEIDEN PAPYRUS, for instance, runs as follows: "To augment gold, take Thracian cadmia, make the mixture with the cadmia in crusts; or cadmia of Gaul, *misy* and sinopian red, equal parts to that of gold. When the gold has been put into the furnace and has become of good color, throw in these two ingredients and removing [the gold] let it cool and the gold will be doubled."

Recipe 26 stipulates: "Tincture of silver. Transforms copper objects into silver: Strips of tin, 2 drams; mercury, 4 drams; earth of Chios, 2 drams. Smelt the tin, add the ground earth, then the mercury, shake together with the iron and mould into little balls."¹

Apart from the general obscurity of many of these recipes which, not surprisingly, in any practical demonstration, fail miserably to produce the desired effect, and a certain difficulty in identifying some of the ingredients, the main purpose of these two manuscripts seems to be that of faking precious metals. As with the Assyro-Babylonian tablets, the problem is really to establish whether the Leiden and Stockholm papyri are truly alchemical or merely the work of forger craftsmen. According to some, the very fact that these recipes are only marginally successful and produce little more than an inept imitation of the real thing, lends credit to the theory that they are not the work of expert forgers, but rather of unskilled alchemists who mistook simple changes of color for authentic transmutations. But perhaps this hypothesis is a little rash. Although it is extremely difficult to distinguish between a technical and an alchemical recipe, one cannot help noticing that neither of the two Egyptian papyri makes any direct reference to the theory of the transmutation of metals, nor do they contain any of the theoretical and magico-mystical considerations that appear in some of the older Mesopotamian recipes. On the other hand, some experts, André Festugière for one, maintain that the Hellenistic tradition of alchemy probably



Aristotle the philosopher in the guise of an alchemist. Behind him, written vertically, is the motto: "The work of the Elixir, or the work of the Philosophers, is nothing more than to raise from the earth to the heavens". The phrase can be interpreted in two ways, for it alludes both to the process of distillation, during which the evaporating substance rises in the form of vapour, and to the spiritual elevation pursued by the alchemist himself (15th century miniature).

arose in Egypt and is in fact a combination of the art of forgery as described in the Leiden and Stockholm papyri and the mystico-philosophical postulations of Alexandrian Hermeticism.² In brief, the two papyri purchased from Johann d'Anastasis provide documentary evidence of a *prehistorical* phase of Graeco-Alexandrian alchemy.

Other almost contemporary texts of a more strictly alchemical nature have been handed down to us in the writings of certain Graeco-Byzantine copyists. This vast collection of manuscripts includes in some cases unabridged versions of the original writings and in other cases mere extracts of older works. They are attributed to both real and imaginary figures such as Agathodaimon, Kleopatra, Hermes, Isis, Maria

Prophetissa, Moses, Ostanos, Zosimos of Panoplis, Olympiodorus. The fact that they are only copies, and often incomplete, written centuries after the originals, obviously poses a problem, but we must nonetheless be grateful to the Byzantine copyists who have handed down to us invaluable information on the advent and emergence of the *Sacred Art*.

Some of these manuscripts are extremely detailed in their description of the ancient philosophers, the men who first explored the *Sacred Art*. However, they have no historical foundation, and probably this was not the intention in any event. The authors' main worry was above all to bring credit to the *Art* itself by creating a succession of circumstances that linked the newly written text to an illustrious forefather. Alongside the names of real or mythical alchemists, these lists also include the names of famous Greek philosophers such as Democritus of Abdera, Diogenes, Thales, Aristotle, Plato, Heraclitus. But apart from an understandable desire to enhance the prestige of the *Sacred Art*, this addition to the alchemical family tree of some of ancient Greece's greatest thinkers emphasises the objective truth that alchemical theory was highly dependent on current Greek scientific thought. For instance, it was Aristotle who first developed the theory of different levels of existence throughout nature, at the basis of which was a *prima materia* (first matter), pure potentiality without actuality capable of assuming an infinite variety of *forms*. The aim of the alchemists was to identify and separate this *prima materia* by reducing metals to a liquid state. They believed that by modifying the *form* copper to its *prima materia*, this latter could then be manipulated to become the *form* of gold or silver. It was Aristotle's belief that only after death could an animal of a certain species lose the *form* of that species and take on another. Likewise, the alchemists assumed that the transmutation of a metal from an imperfect to the perfect *form* of gold or silver could only occur if the base metal underwent a sort of *death and corruption* process in the furnace prior to forging.

The theoretical supposition on which transmutation was based was the Aristotelian concept that even the simplest matter is made up of the four elements: earth, air, fire and water, arising from the pairing of elementary *qualities*: hot, cold, wet and dry. Transformation of one element into another was believed perfectly feasible by a change of quality.

Apart from the Aristotelian theory, Hellenistic alchemy was also inspired by Stoic philosophy and the concept of *pneuma* or "fiery cosmic breath", a spirit that pervades and permeates all things, filling every corner of the Universe. The stoics believed that the world was composed of two inseparable principles, the active principle (*pneuma*) which united with a passive unqualified principle (matter). All things in the world contained a spark of this universal *pneuma*, and the difference between one physical body and another was

derived from the form taken by the *pneuma* within it. The alchemists thought the *pneuma* could be extracted from matter and made to assume a different conformation, thus giving rise to a different form, in brief a new substance.

The only Greek philosopher to be qualified as an alchemist in the Leiden and Stockholm papyri is Democritus of Abdera (c. 460-370 BC). Reference is made to him in the second recipe of the PAPYRUS HOLMIENSIS on the fabrication of silver, which begins thus: "Another recipe. According to Anaxilaos this recipe too belongs to Democritus..."³ Apparently the writer of the papyrus believed Democritus to be the author of several recipes on the preparation of metals.

Democritus of Abdera is famous in history for having developed, together with his older contemporary Leucippus, the first materialistic philosophy of nature, known as the atomic theory. He believed that every substance was composed of minute, indivisible or "uncuttable", as it were, particles, or atoms (Greek *a-toma* = uncuttable). These atoms were infinite in number, infinitely varied in shape and size and generally invisible to the naked eye. They were in perpetual motion in all directions in infinite space and were capable of forming objects by combination. He conceived of the soul as composed of the finest, roundest atoms, mobile and distributed throughout the body. These "soul-atoms" try to escape from the body, but they are constantly being renewed by breathing. Democritus explains human perception as being due to *eidola* or

images, emitted from the surface of bodies, producing air-impressions which enter our sense organs and by contact gives rise to qualities of color, sound etc. Dreams, too, are the result of *eidola*, which penetrate the sleeper's body through the pores.

By the dawn of Christianity, Democritus had become the protagonist of many strange tales; he is represented by tradition as having liked solitary places and even as having had the habit of locking himself away in tombs in order to verify and develop his theory on *eidola*. The Greek writer, Lucian of Samosata (c. 117-180 A.D.), tells of how on one occasion Democritus, who did not believe in ghosts, shut himself away in a tomb where he stayed for several days and nights writing and contemplating his theories. A group of youngsters, determined to give the philosopher a nasty turn, crept into the tomb dressed in black from head to foot and wearing skull-like masks. They then began to prance about in front of Democritus who, far from being frightened out of his wits, simply went on writing and murmured, "Do stop this foolishness", because, of course, he believed that "the soul was nothing once outside the body".⁴

Like Pythagoras, Democritus was reputed to have travelled widely in India, Persia, Egypt and many other distant and mysterious places, where it is assumed he learnt the secrets of magic and astrology. According to Pliny the Elder (23-79 AD) Democritus visited the tomb of the legendary Phoenician sorcerer Dardanus, with the intention of stealing his books on magic, on which he then based his own doctrines.⁵ Pliny was

Democritus points to a naked woman who holds in her left hand a flaming heart. She is Nature, whose inner force (the heart) the philosopher has discovered. Behind them, in a semi-kneeling position Hephaestus-Vulcan eliminates the impurities of Nature's shadow with his fire. In the distance can be seen a group of buildings representing the stages of Democritus's alchemical theories. (From *Symbola aureae mensae*, by M. Maier, 1617).



among those who attributed to the Greek atomist a deep understanding of the science of the Magi and in this respect he wrote that Democritus had recorded the stolen secrets in a book: "It is a well-known fact that the book *CHEIROKMETA* is surely the work of Democritus."⁶ This book, of which no trace remains, is also mentioned by Vitruvius (1st century A.D.), who wrote: "I also admire Democritus's books *DE RERUM NATURA* and his annotation entitled *CHEIROKMETOS*, in which he used a ring to seal with a soft wax the things in which he was an expert".⁷ *Cheirokmetos* is a Greek term used also by Aristotle which means *handmade substances, artificial substances*.⁸ However, when referring to Democritus's use of the word *chirokmeta*, modern Latin dictionaries prefer the meaning *manual work*.⁹ It is also possible that in Greek *chirokmeta* specifically implied medical, magical and technical practices.¹⁰ Quoting from the *CHEIROKMETA* Pliny describes the magical and medical *virtues* of certain herbs but, in consideration of the meaning of the title, it is equally feasible that the text explains the preparation of imitation metals. This hypothesis is borne out by the fact that in the 3rd-4th century A.D. the father of Hellenistic alchemy, Zosimos of Panopolis, described his colleagues as "those dedicated to the search for *ta cheirokmeta*", meaning by this term artificially produced metals.¹¹

The question is: was Democritus of Abdera just a philosopher or a magus and an alchemist, too? Pliny the Elder has no doubt. He refers to Democritus's magical practices as being so immoral and implausible that even Democritus's admirers have difficulty in admitting their authenticity. But - adds Pliny - they are wrong, for Democritus is indeed the man responsible for inciting a Hellenistic craze for magic.¹² Despite Pliny's self-assurance in expressing this rather negative opinion, he was in fact mistaken. Of a more objective, and better informed, opinion is Pliny's contemporary, Lucius Columella, a Latin writer born at Cadiz who died c. 65 A.D. Columella, too, speaks of magical annotations "which in Greek are called *CHEIROKMETA*, but he attributes them to the pen of an Egyptian named Bolos of Mendes, even though these works "erroneously bare the name of Democritus".¹³

Who was the man behind the pseudonym of Democritus whose works were frequently mistaken for those of the famous philosopher of Abdera? The *SUDA*, a Byzantine lexicon of the 11th century containing approximately 30,000 entries on the disciplines of knowledge, only adds to the confusion when it lists two different people with the name of Bolos: the first, named Bolos-Democritus (or the Democritean), is said to have written on the "history and art of medicine"; the second, called Bolos of Mendes and described as a Pythagorean, is instead the author of works concerning sympathies and antipathies of stones.¹⁴ So we are left with a Bolos inspired by Democritus, but who did not write on alchemy, and a Bolos of Mendes who was

deeply interested in the virtues of stones, but who was a Pythagorean!

The mystery was in part explained quite recently. It is widely agreed today that the magical and alchemical works once attributed to Democritus, were in fact the work of Bolos of Mendes, who deliberately used the name of the Greek philosopher, and was later involuntarily confused with him because of certain similarities between the two schools of thought. Bolos-Democritus (c. 300-250 BC) was one of the *inventors* of Graeco-Egyptian alchemy. He was also the first man to unite the theories of Egyptian alchemy, on which the Leiden and Stockholm papyrus collections were based, with the mystical and magical doctrines of the land of the Magi.¹⁵

What were the theories of Bolos of Mendes? Little or nothing is known today of the *CHEIROKMETA*, so famous in antiquity. We do know something however of another equally famous work by Bolos-Democritus, the *PHYSIKA KAI MYSTIKA* (*ON NATURAL AND INITIATORY THINGS*), which is clearly of an alchemical tradition. Although we cannot judge how much of the original document (2nd century B.C.) survives in the version handed down to us, this book is held to be the oldest alchemical text currently in our possession. It is composed in a rather fragmentary manner: the first part concerns purple dyes, after which the author describes how he came to possess the secrets of the Persian magus, Ostanos. He then provides numerous recipes for the fabrication of gold and silver, interspersed with magical ideas of sympathy and antipathy. As with the Leiden and Stockholm papyri, the style of these recipes is enigmatic.

"Take mercury, fix it with the metallic body of the magnesium, or with the metallic body of stimmi from Italy, or with apyro sulphur, or with aphroselinon, or with burnt limestone, or with alum of Melos, or with arsenicon, or with what you will. Place the white earth so prepared upon copper and you will have chalkos without shadow. Add yellow electron, and you will have gold, with gold you will have chrysocorallos reduced to metallic body. The same result will be obtained if you use yellow arsenicon or sandarach properly treated, and cinnabar wholly transformed. But mercury alone produces the chalkos without shadow. Nature triumphs over nature."¹⁶

This recipe has been explained by modern chemists as an attempt to give copper a superficial colouring similar to that of silver or gold by the use of mercury alloys or arsenic alloys.¹⁷ As is true of the Leiden and Stockholm papyri and all pre-chemical and alchemical texts of this same period, the true significance of these recipes is unclear, as we do not know exactly how to interpret many of the terms they use. For instance, the substance referred to by the alchemists as magnesium was something very different from the magnesium carbonate of modern chemistry.

"As coral grows beneath the waters and hardens in the air, so does the Stone". (Emblem XXXII of *Atalanta Fugiens*, by M. Maier, 1618). In one of his recipes Bolos of Mendes refers to the end product of transmutation as coral gold. For the Latin alchemists coral was one of the symbols of the Philosopher's Stone resulting from the Red Work.



The *magnesium* to which Bolos refers in his recipe is a substance we are unable to identify.¹⁸ It is equally difficult to know what the alchemists meant by *chrysocorallos*: literally it means *coral-gold*, but was probably the name given to the quintessence of gold, or the artificial gold dust produced at the end of the experiment. The other substances are easier to identify: *chalkos* is bronze or copper; *Italian stimmi* is the native sulfide of antimony; *apyro sulphur* is unheated sulphur (native sulphur); *aphroselinon* is selenite (gypsum, calcium sulphate) also known as *moon stone* or *specular stone* as it was thought to harbor the image of the moon, which changed day by day according to the waxing and waning of the real moon;¹⁹ *yellow electron* was either yellow amber or, more frequently, an artificial alloy similar to amber in color, composed of 80 parts of gold and 20 of silver, or of a mixture of copper, zinc and nickel; *yellow arsenicon* was orpiment; *sandarach* (known also as *realgar*) was red-colored arsenic sulphide.²⁰ However, we should not forget that in the *PHYSIKA KAI MYSTIKA* the names of many common substances are preceded by the adjective "our". When Bolos writes "Our lead", he is really saying "Not common lead, but that which we Philosophers, in this particular context, mean by lead". The use of this expression is common throughout the history of alchemy: "our cinnabar", "our sulphur", "our mercury" refer to substances prepared according to special secret processes and very different

from the substances we mean by these terms.

It is evident from these recipes that Bolos-Democritus had a solid understanding of contemporary chemistry, but the *PHYSIKA KAI MYSTIKA* is more than just a compilation of magical recipes. The very name of the book is overtly alchemical, because it draws a parallel between the hidden secrets of nature (*physika*) and things mystical (*mystika*). The aim of true alchemical philosophy was to go beyond the phenomena that could be achieved in the laboratory and try to discern the mysterious cosmic forces that governed these phenomena. This is basically the view taken by the French alchemist Fulcanelli when he tries to explain the difference between chemistry and alchemy: "Inevitably - he wrote - chemistry is the science of facts, while alchemy is the science of causes. The first is limited to material things, and is dependent on experience; the second, preferably, follows the principles of philosophy. The purpose of one is to study natural things, while the other attempts to penetrate the mysterious dynamism essential to their metamorphosis... It is not simply a question of knowing how to recognise and how to classify these phenomena; we must also be able to question nature in order to learn exactly under what conditions, and according to which precepts the products of nature are created".²¹

The recipes of *PHYSIKA KAI MYSTIKA* are interspersed



An alchemist portrayed in the robes of an oriental priest (17th century miniature). According to the alchemical tradition of Hellenistic Egypt, Ostanos, who was said to have instructed Bolos of Mendes, incarnated Persia's contribution to the birth of the Sacred Art.

with invocations, phrases and comments of a mystical note. Particularly interesting is the passage in which Bolos-Democritus tells how he came by the knowledge revealed in the pages of his book.

"Having learnt these precepts from our master (Ostanes), and recognizing the diversity of matter, we were called upon to harmonize their natures. But as our master died before we were initiated, at a time when we were still occupied with the knowledge of matter, we were told that it would be necessary to summon up his spirit from Hades. I forced myself to attain this end, addressing him directly with these words: By what gifts dost thou reward that which I have done for thee?' After pronouncing them I remained in silence. I called upon him several times, demanding how I could harmonize the natures. At last he replied that it was difficult to speak without permission of the *Daemon* and pronounced these words only: 'The books are in the Temple.'

"I returned to the Temple and set about seeking to become possessor of these books, for he had, while living, never spoken of them, and died without testamentary disposition. He had, as we supposed, taken poison to part his soul from his body; or as his son declares, he swallowed the poison by mistake. But he had intended before his death to show these books to his son only when he should have become of age. None of us knew of these books. Since after seeking we had found nothing, we would have given much to know how substances and their natures unite and are blended. When we would have effected the composition of matter, the time having arrived for a ceremony in the Temple, we made a festival together. Then, as we were in the shrine of the Temple, suddenly a column opened, but we could see nothing within. Neither his son nor we had been told by anyone that his father's books had been so deposited. Ostanes's son led us to the column, but we saw nothing revealed save this precious formula: 'Nature rejoices in nature, nature triumphs over nature, nature dominates nature.'²²

This motto is repeated frequently by Bolos-Democritus. For instance, it appears at the end of his recipe for the fabrication of gold and it would not be incorrect to say that this is probably Bolos's main theoretical contribution to the process that finally led to the transformation of dyeing techniques into the *Sacred Art*: a process in which this ancient craft was gradually infused with a subtle philosophico-religious substratum based on the concept of the fundamental unity of Nature, which encompasses all the peculiarities of the matter, i.e. the different natures. The possibility that different substances combine and unite to form a single substance (the harmonizing of the natures) depends on the sympathies and antipathies between one body and another. This synthesis occurs according to the assumption that Nature conquers (assimilates) similar natures.

Bolos-Democritus's formula was to influence alchemy

throughout its evolution. Some eighteen centuries after Bolos, the French alchemist Antoine-Joseph Pernety in his *DICTIONNAIRE MYTHO-HERMÉTIQUE (MYTHO-HERMETIC DICTIONARY)*, under the entry "Nature" remarks:

"The Philosophers (i.e. the alchemists) are strongly insistent on one particular point, that the composition of the Stone (of the Philosophers) must include nothing but things of the same nature. In fact, nature rejoices in its own nature, nature corrects nature, nature perfects nature, nature contains nature and nature is contained by nature. These are the expressions used by the Philosophers to show that the philosophical dissolvent must be of the same nature as the body it is going to dissolve. This is why they (the alchemists) say that different natures cannot correct each other, meaning that they cannot perfect each other because they cannot unite perfectly."²³

The story of Ostanes's disciples using necromancy to summon up the dead magus's spirit and the amazing discovery of his books, provides further enlightenment. We are told that Bolos-Democritus learned the rudiments of the *Art* directly from a teacher, Ostanes, and that the essential secrets of these practices were imparted by magical initiations, in line with the traditions of most religious systems of that period in which only the initiated were allowed to participate in certain secret rites. The summoning of the spirit of Ostanes and the feast that followed in the Temple clearly imply that alchemical tradition had assumed a strong magico-religious quality and gone beyond the confines of mere laboratory experimentation. The fact that the books of Ostanes were hidden inside a column in the Temple is reminiscent of the old Egyptian and Mesopotamian traditions according to which the sacred craft of metal working was always practiced within the temple confines. And the very fact that Ostanes might have unintentionally brought about his own death, while experimenting with a potion to separate the body from the soul, is open to a dual interpretation; indeed, should it be read as an act of external alchemy or internal alchemy? From a symbolic point of view, the episode could represent the aspiration of external alchemy to separate the elements by way of the dissolution of the bodies; on the other hand it could be the pursuit of internal alchemy to free the spirit from the mortal body, separating it by special techniques, and even with the use of drugs. Several centuries later (7th century B.C.) Stephanos of Alexandria, an alchemist and Christian mystic, author of texts in which laboratory practices are virtually ignored in favor of *mystical chemistry*, clearly describes alchemy as the "dissolution of the body and the separation of the soul from the body".²⁴

But who exactly was Ostanes, the man described in *PHYSIKA KAI MYSTIKA* as the teacher of Bolos-Democritus? In the first century B.C., the name of Ostanes

appeared regularly in Greek alchemical texts of the Hellenistic period, and several passages were attributed to him. Pliny the Elder, who showed total contempt for these writings, claimed that Ostanès was not only the author of the oldest treatise on magic of his era, but also the magician who accompanied the emperor Xerxes of Persia on his disastrous expedition against Greece in the 5th century B.C. Pliny also blames Ostanès for the craze for Persian magic that swept throughout the Greek world. But if this Ostanès was indeed a contemporary of Xerxes, then he certainly could not have been the teacher of Bolos-Democritus, who was born several centuries later.

Pliny's harsh judgement of Ostanès was due to the contents of the magical books attributed to him, which dealt with the magic of stones and herbs, with spells and medicines made from human bones and bone marrow and other unsavory ingredients. But apart from Pliny's accusations, it is impossible to date these books, or to establish who really wrote them. One thing is sure, however, that at the time of Bolos-Democritus, Ostanès was considered a great magician who, like Zoroaster, embodied the sacred and magical traditions of Persia. From a symbolic point of view, the episode narrated in *PHYSIKA KAI MYSTIKA* in which Democritus is reputed to have been a disciple of Ostanès in Egypt, would appear to be an attempt to present the *Art* as a doctrine encompassing both Graeco-Egyptian and Persian traditions.²⁵

But how much did the Persian science of Ostanès influence the alchemy of Bolos-Democritus? A critical analysis of the writings of *PHYSIKA KAI MYSTIKA* reveals that during his lifetime, Ostanès did little more than impart to his disciple a number of theoretical notions on ways of "harmonizing the natures", certainly not enough to guarantee the success of any practical experiment. The instructions given by the spirit of the dead Ostanès lead to the discovery, not of technical recipes, but merely of a philosophical concept concerning Nature. This would imply that the contribution made by Persian tradition to the development of the *Art* was essentially theoretical. Ostanès was reputed to have written several treatises on the virtues of stones and herbs. The astronomical and astrological theories developed by the Chaldaean Magi together with their ideas on the equation of metals and planets were to become one of the cornerstone concepts of alchemy. We have no way of knowing for certain if at the time of Bolos the magico-chemical traditions of the Assyro-Babylonians were still alive in the Eastern world. But if they were, Bolos would most surely have come into contact with some of the technical notions handed down from this culture. On the other hand, the Greek alchemical tradition places a distinction between Ostanès's method, that is the Persian school of thought, based on the *wet way*, and the Egyptian school of thought, or *dry way*. The former adopted the technique of immersing bodies in a liquid substance which was

absorbed by the bodies during heating in the furnace. The latter was instead based on calcination, which involved heating a substance until all the volatile components had been drawn from it and absorbed by the body being transformed.²⁶ Bolos is reputed to have introduced Persian methods into Egypt.

Key figures in the early years of Hellenistic alchemy in Egypt include a number of women, such as Maria Prophetissa, Kleopatra, Theosebeia, Paphnoutia. This is really quite extraordinary, because alchemy later became a male prerogative and it is not until the 15th century that we come across another woman alchemist, namely Pernelle, wife and associate of the Parisian alchemist Nicholas Flamel.

The name of Maria Prophetissa is often mentioned by Zosimos of Panopolis (c. 300 A.D.). Maria belongs therefore to an even older period and was a revered figure, as Zosimos makes clear. In legend she was the sister of Moses, perhaps in a symbolic sense, being identified with Miriam the prophetess whose story is told in *EXODUS XV: 20-21* and *NUMBERS XII: 1* and *XX, 1*. In the same way Ostanès symbolizes Persia's contribution to the dawn of the *Sacred Art*, so Maria Prophetissa would seem to suggest a possible Jewish influence. In Hellenistic Egypt Jewish magic was most certainly held in high consideration, perhaps because of the episode narrated in *EXODUS VII* and *VII*, which tells how Moses and Aaron defeated Pharaoh's magicians with their enchantments. In the magical papyri of Hellenistic times, Moses is said to have generated magical and astrological enchantments, while Solomon is the reputed author of formulae for spells and exorcisms. A number of alchemical recipes dating back to this period are attributed to Moses,²⁷ while others contain the names of Abraham, Isaac, Jacob and King Hosea.²⁸

However, it is quite possible that Maria Prophetissa did, in fact, exist, though she certainly was not the sister of Moses. Of her writings, only a few fragments remain, handed down to us through the words of later alchemists. Nonetheless, she is a revered figure to all the historians of chemistry and alchemy. She must have had a deep understanding of philosophical and technical principles, as well as a talent for intuition. She is credited with innovation in laboratory apparatus and for having invented several highly important procedures. According to Zosimos, she conceived the *tribikos*, a three-funnelled alembic.²⁹ Maria gives precise instructions on how to build the *tribikos*; she specifies the size and thickness of each piece, describes the materials to be used and how to assemble them and even includes an illustration. There is something about her use of language that hints she was familiar with kitchen equipment; for instance the three funnels of the *tribikos* were to be made of "three tubes of ductile copper, a little thicker than that of a pastry-cook's copper frying pan, luting the joints with flour paste".

Maria Prophetissa, or Miriam, the woman alchemist to whom Zosimos of Panopolis refers, who is said to have invented the *tribikos*, or three-funnelled alembic. In this picture she is pointing at a fire which rises from a vessel on the ground to another upturned vessel and then descends again. This circular movement probably alludes to the process that takes place during distillation. (From *Symbala aureae mensae*, by M. Maier, 1617).



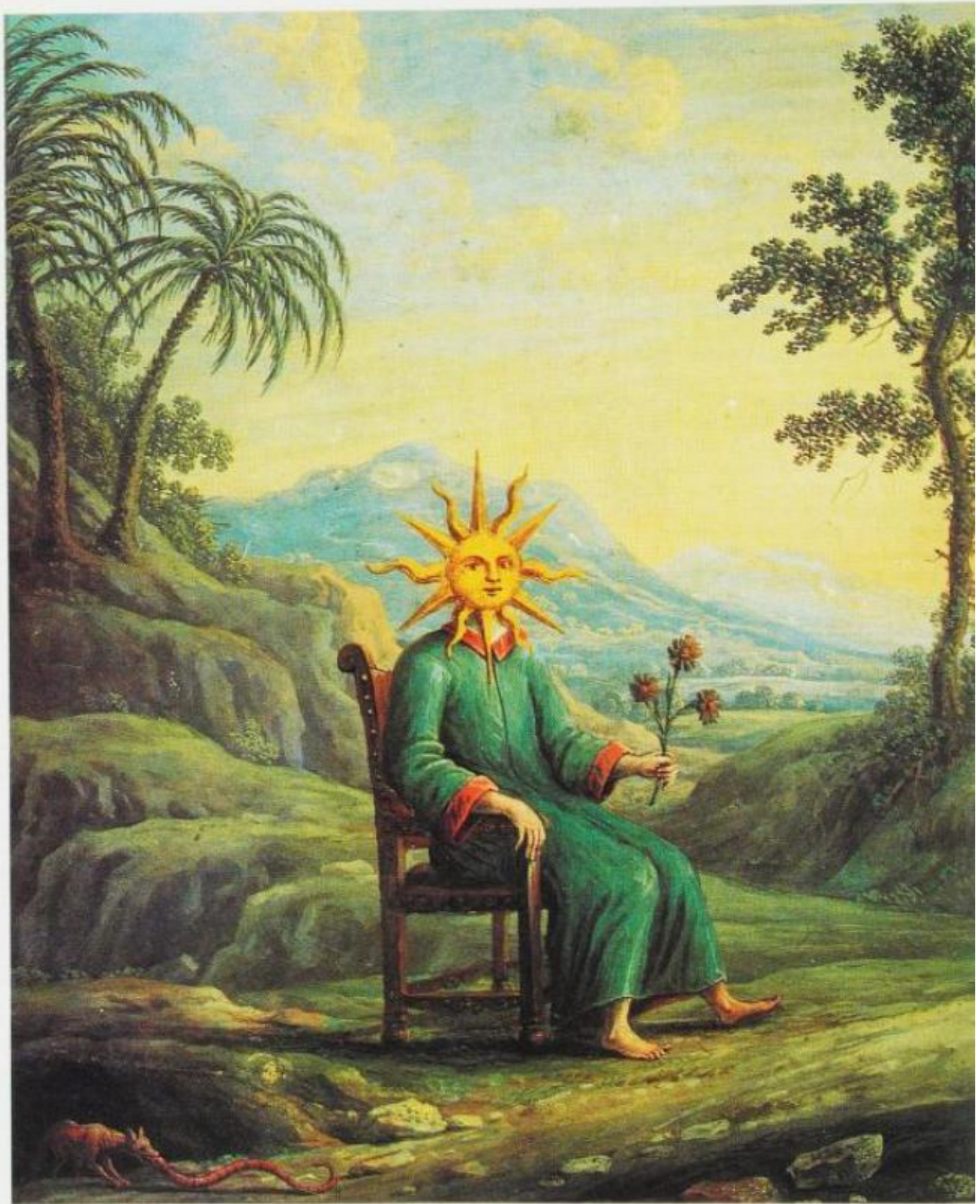
Thanks to the long vertical tube inserted between the head of the still and the distilling vessel, Maria's warming bath, which later became known as *Balneum Mariae* (*Bain de Marie*) after its inventor, permitted the liquids to be boiled at a higher temperature and thus more quickly.³⁰ The term *bain-marie* is still used today to describe a flat vessel for holding hot water in which other vessels are placed for heating food and other substances. The innovations introduced by this Jewish alchemist point to a deep understanding of the philosophical principles on which the *Sacred Art* was based, which Maria then managed to put into practice. From her observation that in nature water rises in the form of water vapor to fall again as rain, she developed the idea of exploiting the up and down movement of steam within the alembic. Reflecting on the principle of the correspondence between the infinitely large (macrocosm) and the infinitely small (microcosm), Maria discovered a way of reproducing inside a piece of laboratory apparatus the natural phenomenon that causes rain.³¹

Another woman alchemist of this same period, Kleopatra, not to be confused with the famous Queen of Egypt, is the protagonist of a very interesting document, *THE BOOK OF COMARIOS*.³² Kleopatra is presented as a disciple of the high priest Comarios, from whom she learns the secrets of the *Sacred Art*. Later, during a discussion with other alchemists, including Ostones, she expounds her vision of the world and of the *Art*. In explaining the *aqua divina*, which gives new

life to matter, Kleopatra suggests gathering plants, metals and stones and placing them in the furnace until they reach the "divine state of fusion". Within the fire these substances are nurtured and slowly grow and develop like an embryo within its mother's womb. When they reach maturity, they come forth from Hades like a new-born babe from the womb. Once born, the new creation must be fed and cared for, as a mother would care for her child. In an enigmatic style, Kleopatra instructs the Philosophers on how to accomplish the *Alchemical Opus*: arsenic and certain other substances are heated in the furnace until they are all united in *spirit and soul*. If the product of this unification process is then projected onto silver, the result will be gold fit for a king.

The symbolism used by Kleopatra reveals that the operation was envisaged as both a technical process using metals and other concrete substances, and as a spiritual exercise to liberate the soul from the material world. In the second case the objective was the fusion of *spirit and soul*. Once this had been achieved, the dark prison of corruption left the body, which was filled with the light of spirituality and divinity thanks to the *pharmakon of life* (medicine of life) with which it was now imbued.³³

THE BOOK OF COMARIOS sets forth clearly, and for the first time in a single document, four cornerstones of alchemical tradition: the parallel between a metal being transformed in the alchemical bath and an embryo developing in its mother's womb; the use of a symbolism rich in sexual imagery; the duality of alchemical literature



The alchemist who has achieved illumination by dominating Nature (17th century miniature). The ultimate goal of Hellenistic alchemy described in the *Book of Comarios* was the preparation of an *elixir* or *pharmakon* of life which permitted the adept to attain within himself a higher level of existence, in which his body was "filled with light".

in general which may be interpreted as either material or spiritual alchemy, the latter being the path towards spiritual enlightenment, according to the teachings of Hermetic gnosticism; the idea that it was through a *pharmakon of life* that this goal could be attained. It is interesting that for Kleopatra the sign of success was a physical body filled with light. "When the spirit of darkness and unsavory odor has been cast out, the body is filled with light. Soul and spirit rejoice. The soul summons the body now filled with light and says to it: 'Awaken now from the depths of Hades, come forth from the darkness, awaken and leave the darkness behind. Because you have regained a spiritual and divine nature, the voice of resurrection has spoken and the *pharmakon of life* has penetrated within you.'³⁴ The resurrection that the alchemist sought to achieve within himself and his preparations by means of the *pharmakon of life* was really the stepping stone from one level of existence to a higher one, from one level of consciousness to another with a qualitatively higher center of organization.³⁵ For both the alchemist himself and for his preparations, the conquest was immediate, and the body was suddenly filled with light.

What exactly does *filled with light* mean? In the ancient manuscript in which THE BOOK OF COMARIOS is to be found, beside the words *body; soul, spirit (pneuma), light* appear respectively the signs of lead, mercury, cinnebar and nascent sulphur. The sign of nascent sulphur appears also beside the word *fire*.³⁶ In relation to chemical alchemy the concept of light would appear to be linked to that of fire and refers probably to the lustre imparted by cooking. As regards gnostic alchemy, we must look elsewhere. In the COMMENTARY ON THE LETTER OMEGA, Zosimos of Panopolis maintains that the father of men, Adam, while he was still spiritually perfect prior to the Fall, "was in Paradise in the form of light".³⁷ This concept was handed down to the alchemists by gnostic writings, which describe Adam as having been created as light emanating from the Supreme Being, or "light that exists from the beginning".³⁸

According to Kleopatra's alchemy the adept, after having been regenerated by the *pharmakon of life*, regains the spiritual perfection enjoyed by Adam before the Fall and becomes once more a man of light. The notion of *body of light* or *body of glory* was used not only by Graeco-Egyptian alchemy but also by other mystical and esoteric traditions to define the condition of the man who had achieved *illumination*. When the light rises in the inner man — explained an Islamic mystic — "his heart is light, his body is light, his material shell is light, his hearing, his sight, his hand, his exterior and his interior are light, his mouth and his tongue are light".³⁹

The alchemy described in the BOOK OF COMARIOS is something very different from the Leiden and Stockholm collections of chemical recipes. Proceeding in the direction indicated by Bolos-Democritus, Kleopatra

develops a system brimming with magico-religious notions. Her doctrine on the manipulation of matter is developed within a truly philosophical vision of the Cosmos and the forces that govern it. The central theme is death and rebirth, which is applied not only to the substance being transformed in the fire, but to the adept himself, the idea being to destroy, purify and resurrect the soul so that the body it inhabits acquires a divine aura.

At this point in time Hellenistic alchemy appears as a form of gnosticism, a method by which to explore the nature of man and God. This is understandable: gnostic doctrine flourished in the Graeco-Roman world during the 2nd and 3rd centuries A.D. In Egypt for example there was a gnostic system that referred back to the concepts divulged by the mythic patron of alchemy, Hermes Trismegistus.

In pre-Hellenistic Egypt, one of the institutional tasks of the Temple priests was the study of the sky in order to gather astronomical data for the compiling of calendars and to determine the occult influence of the stars on human affairs. The papyri on which were transcribed the secrets of the *horoscopia* were guarded in the sanctuaries, together with other secrets such as mining techniques and metallurgical skills.⁴⁰

At the time of the Ptolomies, when Hellenism first reached Egypt, a number of astrological works were translated into Greek and attributed to Thoth, an ibis-headed god, worshipped throughout Egypt as a moon-god, patron of the arts and science, wisdom, inventions and magic, and keeper of the records of the gods. These texts gradually increased in number until they became the bulky Hellenistic Hermetic corpus, ascribed no longer to Thoth but to Hermes Trismegistus. The Greeks had been quick to notice a similarity between Thoth and their god Hermes and so they combined the two divinities under the name of Thoth-Hermes. Gradually, however, cultural changes gave rise to a tendency to consider these ancient gods as merely heroes or illustrious figures of a bygone age, who had received divine recognition in honor of their eminence and wisdom. Thoth-Hermes was made human and identified with Hermes Trismegistus, the Thrice Great god.

He was regarded as a historical founder of alchemy and Hellenistic magical astral mysticism. Many vital texts were attributed to him on astrology, magic and occult sciences and others of a mystico-philosophical nature. Clement of Alexandria (150-215 A.D.) refers to the existence of forty-two Hermetic texts, which the disciples of Thoth-Hermes carried in procession on special occasions. Other later writers attribute far more works to Hermes, which suggests that at that time a vast number of writings were circulating under his name. Only a small part of this literature has reached the West, but nonetheless it has enabled us to establish that the oldest texts are those concerning magic and astrology, some of which date back to the 3rd century

B.C., while the philosophical and mystical writings stem from the 2nd and 3rd centuries of our Era.⁴¹

The mystico-philosophical Hermetic texts known to us can be divided into three groups: the ASCLEPIUS, a Medieval Latin version of a lost Greek text; the CORPUS HERMETICUM, consisting of seventeen different texts; the ANTHOLOGIUM, compiled by the Greek anthologist Johannes Stobaeus (500 A.D.) in which fragments from many lost works are preserved. The birth and spread of such texts was the result of a gradual decline in the influence of Greek philosophy during the 2nd century A.D., which pushed men to seek other forms of knowledge. The old Graeco-Roman religion was no longer seen as the answer to mankind's innate fear of death and the evils that dominated the world. From this sense of instability stemmed the doctrines of redemption, such as Christianity and the mystery religions, and a growing interest in magical practices.

In Egypt, Alexandria was the heart of Hellenistic culture and the fulcrum of a brilliant and varied intellectual life, centered in the famous library⁴² and equally famous Museum, or Temple of the Muses, where scholars enjoyed not only free board and lodging but tax exemption, too. Virtually all the religious traditions of the ancient world were represented there: Egyptian, Jewish, Greek, Latin, Persian. And it was here, at the beginning of the 2nd century A.D., that the neoplatonists developed their philosophy. They tried to concentrate all the forces of Greek thought and religion and of oriental mysticism, too, absorbing all streams that in some way conformed with their own system. They sought to liberate the soul from the body and bring it back to God by means of a mystico-ecstatic experience. In Alexandria at this same time were other philosophical sects, such as the Chaldean astrologers, Persian magi disciples of Zoroaster and even Buddhists and *gymnosophists* (yogi) from as far away as India. It is more than possible that elements of these and other philosophical, magical and religious systems combined in Alexandria giving rise, among other things, to the proliferation of different sects and schools of thought.

The Hermetic texts reflect the sense of Hermetic gnosticism, which proposed redemption through knowledge of the self, in the search within the self for the spark of divine light which is innate in man. The KORE KOSMU (DAUGHTER OF THE COSMOS), one of the EXTRACTS OF STOBÆUS, explains that God, the Artisan of the Universe, created the souls by drawing forth from the depths of his own being, the breath (*pneuma*) of life, uniting it in the fire with other substances. But these souls then disobeyed their Creator and were punished: "The Lord and Master of all things saw fit to create the organism that is man, so that, within this organism the soul would suffer eternal punishment."⁴³ Though imprisoned within matter, the soul preserves the spark of divine *pneuma* breathed into it by God. Man achieves redemption by freeing himself of this

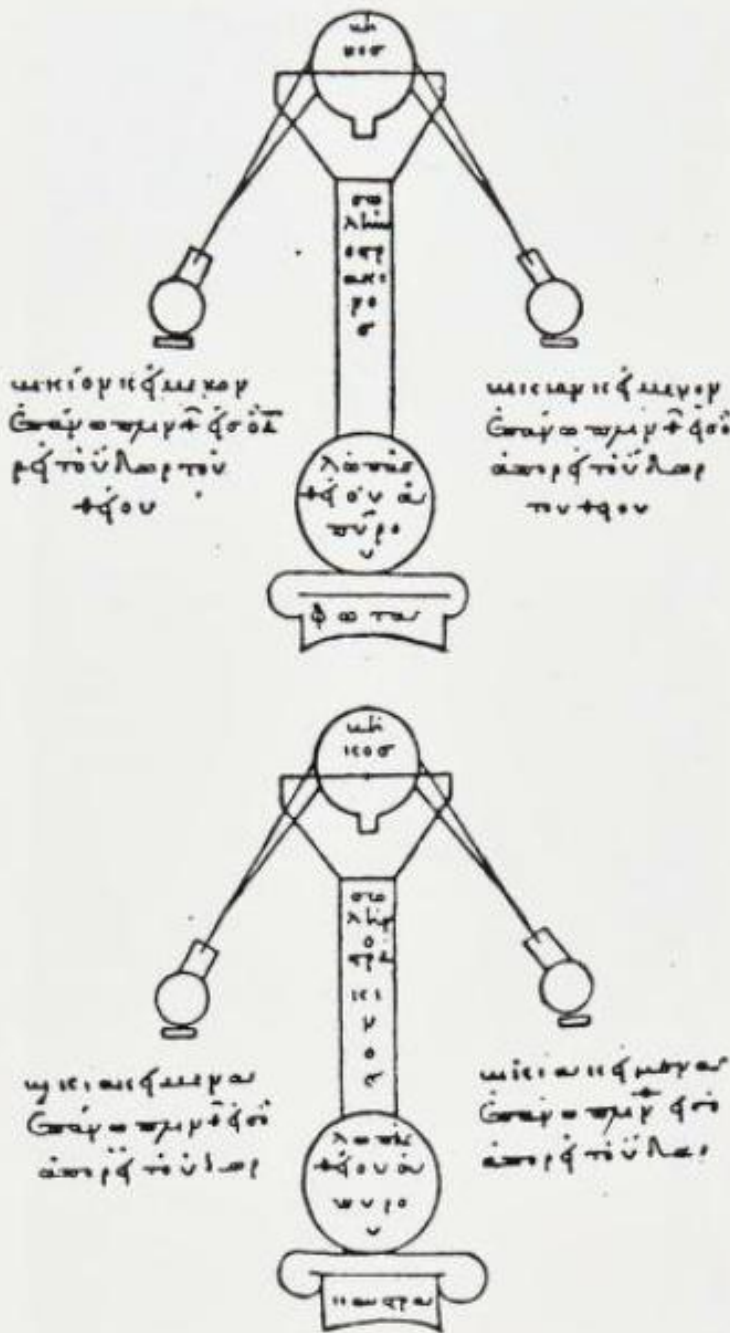
matter, and by distinguishing within himself the spark of divine light with which he was born and by then cherishing it. "If you learn to recognize that the true nature of man consists of light and life - confides the Supreme God to Hermes Trismegistus in the CORPUS HERMETICUM - and if you recognise that you, too, are made of these elements, you will return to life".⁴⁴ But knowledge of the self is not enough. Through asceticism and moral discipline, the righteous man will perceive how to make that divine part he has *recognized* within him prevail. The result will be a process of spiritual regeneration that will make him similar to God.⁴⁵ Once this has happened "the Hermeticist will never die". Or rather, at the moment of physical death, the deified soul of the man who has succeeded in freeing the divine light within him will separate from the material body and rise through the celestial spheres towards God, to then penetrate God and in turn become Power.⁴⁶

In the light of this doctrine it is easy to detect similarities with the procedures described by the lady alchemist Kleopatra, when she speaks of *mortifying* the matter in order to draw forth the soul and the spirit (the divine part) then moulding them together to regain the light, regeneration and final transmutation. Without doubt Hermetic philosophy had a strong influence on the development of alchemical tradition, rather as Taoism influenced alchemy in China. Nonetheless, this does not necessarily mean that Graeco-Egyptian alchemy actually stemmed from Hermeticism. It is of no little significance that while many of the older texts attributed to Hermes Trismegistus concern magical and astrological philosophies, not one of them refers to alchemy. The oldest alchemical book we know of is the PHYSIKA KAI MYSTIKA written by Bolos of Mendes about the year 200 B.C. According to this work the father of alchemical science is Ostanos, while Thoth-Hermes or Hermes Trismegistus is never mentioned. The BOOK OF COMARIOS, though clearly bearing the mark of philosophical Hermeticism, traces the genealogy of alchemy to Comarios, the high priest and philosopher who was, in fact, Kleopatra's teacher. It is not until Zosimos of Panopolis that alchemical tradition is first linked with the name of Hermes Trismegistus.

With Zosimos Hellenistic alchemy stepped out of legend and into history. Zosimos came from Panopolis, but seems to have worked in Alexandria around the year 300 A.D. He had a sister named Theosebeia who was also involved in the *Sacred Art*. Zosimos composed an encyclopaedia of alchemy consisting of 28 books dedicated to his sister. Only fragments of this work remain, and not always in the original Greek language, but in a Syriac translation. He was undoubtedly a polymath, equally familiar with the secrets of the *Art*, Archimedes' discoveries in applied mechanics, the theories of magical, astrological and philosophical



Hermes Trismegistus, the mythical father of alchemy, portrayed as a bearded old man dressed in oriental garments. On his turban he wears a crown, symbol of the regal dignity of alchemy. With the index finger of his right hand he points upwards, to an eight-pointed star; with three fingers of his left hand he points downwards. He is referring quite obviously to the words of the *Tabula Smaragdina*: "That which is above is like to that which is below, and that which is below is like to that which is above..." The *Tabula* was ascribed to Hermes (15th century miniature).



Hermeticism, many of the more important gnostic beliefs and other works of a mystico-religious nature.⁴⁷ As we saw in chapter 1, Zosimos believed in a distinction between *natural tinctures* and *opportune or timely tinctures* and launched a prolonged attack on those who upheld the latter, as they relied upon favorable *diamones* or spiritual beings. When he learnt that Theosebeia had fallen under the spell of the virgin Paphnoutia and other individuals who worked with

opportune tinctures, Zosimos wrote to her warning her of the danger of "ignorant people" who preached "idle myths".⁴⁸ Zosimos seems, then, to have been the forerunner of an Art which, quite simply, aspired to the study of matter based on *scientific* procedures and rid of all magical and astrological implications. In explaining his methods for the joining and separation of the four elements, he underlines the importance of establishing a precise working routine.

This picture of Zosimos is corroborated in all his writings, which reveal that he possessed a deep understanding of chemical methods for the preparation of metals and minerals. For instance, he talks of a *second mercury* (arsenic) obtained from *sandarach* (arsenic sulphide), and describes an experiment in which, by an absorption process, the *sandarach*, first releases sulphur, then, in the form of a *cloud of arsenic*, deposits the arsenious oxide which, when heated together with certain other substances, releases the *second mercury*.⁴⁹ Zosimos also made accurate descriptions of many other chemical substances and procedures. He was much interested in apparatus, too, writing about it in his *TREATISE ON INSTRUMENTS AND FURNACES*, in which he describes the *tribikos* invented by Maria Prophetissa.

But Zosimos is important not only for his understanding of the *chemical* aspects of the Art, but above all for his efforts to imbue the practical tradition of the Art with mystico-philosophical speculation based on Hermetic gnosticism and other concepts taken from the many cultural systems practiced in Egypt at that time. It is extremely difficult to distinguish in Zosimos's writings between the chemical and the mystico-philosophical aspects of alchemy. They become confused in a complex and obscure symbolism that is open to many interpretations. With Zosimos of Panopolis, the long pre-history of Hellenistic alchemy comes to an end and the *Divine Art* at last assumes the characteristics of the enigmatic science we know today.

Zosimos was also the author of a manuscript known as *ON VIRTUE* which concerns the composition of the *waters*, a term that certain chemistry historians believe was probably used to mean molten metals.⁵⁰ In this work Zosimos uses a literary expedient to explain his theories. He tells how he fell asleep and had a vision, a synthesis of which follows.

In the first dream a priest appears to Zosimos. He is standing before him on a chalice-shaped altar which is approached by fifteen steps. The priest describes the intolerable violence he has suffered, when he was cleaved with a sword and dismembered; his skin was removed from his head, his bones mixed with his flesh and these were burned in the fire of the treatment. It was thus, by the transformation of the body, that he learned to become a spirit. While the priest is speaking, he takes the appearance of a tiny man, tearing himself with his own teeth and falling away. Zosimos

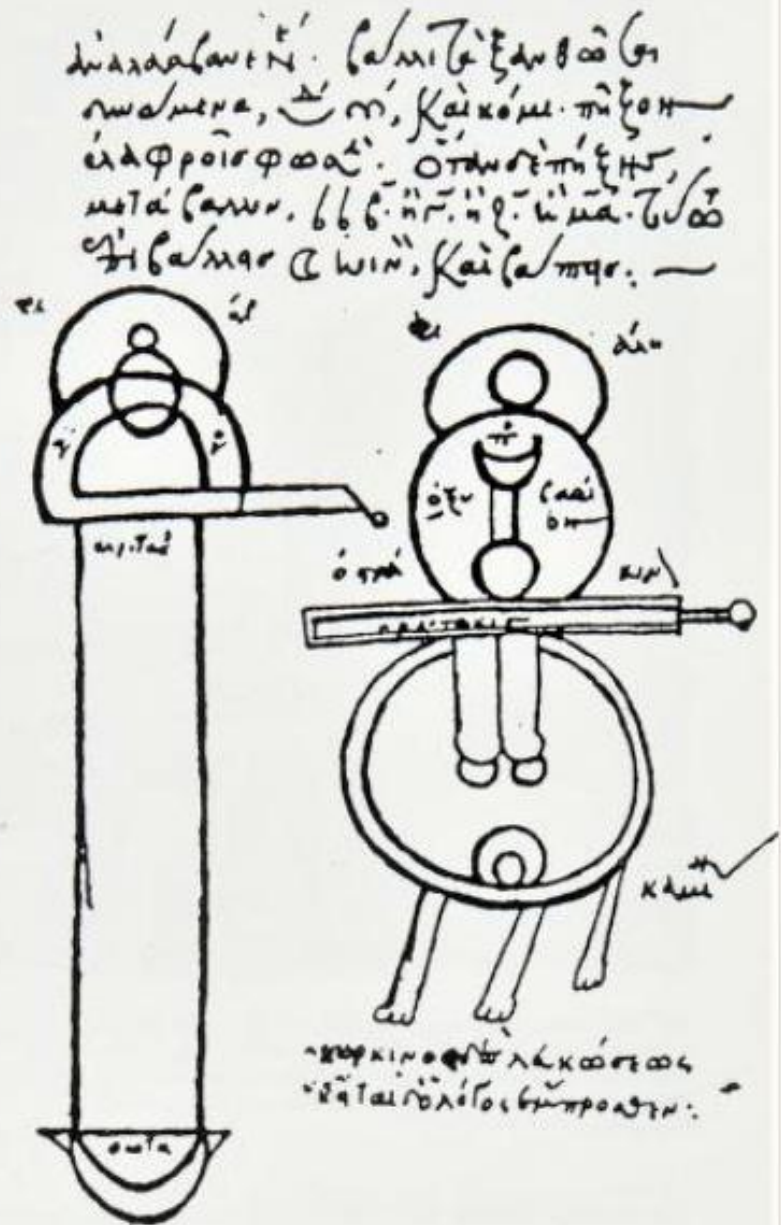
wakes for a moment then falls asleep again and has a second dream. He is in the same place, but this time in the upper part of the chalice-shaped altar water is being boiled in which a number of persons are floating. On the altar is a barber, whitened by years, who professes to be a spirit and a guardian of spirits. Then Zosimos sees a Man of Copper, whom he recognises as the priest of the first dream but now in a different state. Zosimos wakes again and narrates his visions, explaining in an enigmatic style how to transform the nature of metals.

Eager to climb the seven steps of the altar (no longer fifteen as in his first vision), Zosimos falls asleep again. He dreams that the old barber, who has now become the Man of Copper of the second dream, jumps into the fire. Then he meets another old man, Agathodaimon, representing the Man of Lead, who is also thrown into the fire. Zosimos awakes and explains the vision: the lead must be melted in order for the "combination of the liquids" to take place. Zosimos again goes back to sleep and this time dreams of two men. The first is holding a sword, the second a round object, known as the *Meridian of the Sun*. The man with the sword explains to Zosimos that his companion must be sacrificed and boiled. Upon waking, Zosimos remarks: "Well do I understand that these things concern the liquids of the Art of the metals".⁵¹

Experts on the history of chemistry believe that in his visions Zosimos gives a symbolic description of the chemical reactions that take place when certain metals are mixed with a reagent, and which, in the eyes of the alchemist, represented a process of torture, death and rebirth. The chalice-shaped altar described by Zosimos is the upper part of a distilling vessel or a *kerotakis*, an apparatus in the form of a tube with a furnace at the bottom and a condensing dome at the top, used to vaporize acidic liquids which would corrode metals. The dismembered human beings thrown into the fire represent the metals which have to be cooked and boiled in the apparatus. The steps leading up to the altar (twenty-two in all, i.e. fifteen plus seven) probably stand for the various phases of the experiment, which involves copper, lead and cinnabar (the *Meridian of the Sun*).⁵²

Some have suggested that the violent, almost delirious style of this account indicates that Zosimos was in a state of wild elation or semi-trance when he wrote it, brought on by the emotion of watching the boiling mass of metals inside the distilling vessel continually changing state and color. Descriptions of this kind are not necessarily pure literary fiction, but the result of an authentic mental experience.⁵³

But is this all that the visions of Zosimos mean? Probably not, for his writings have evident connections with Hermetic gnostic mysteries and rites. The *Sacred Art* becomes a system in which the themes of the death and rebirth of metals bear a strong resemblance to the techniques adopted by disciples of Hermes to achieve



The cylindrical instrument on the left is a *kerotakis*, a reflux apparatus used by the Greek alchemists for treating metals with vapours (11th century manuscript). In the treatise *On Virtue*, dedicated to the composition of the waters, Zosimos of Panopolis describes a chemical operation using the *kerotakis*, in which this instrument is likened to an altar where a sacrificing priest carries out a purification rite which leads to a knowledge of God and of the self.

mortification of the flesh thus freeing the divine spark. The symbolism used by Zosimos in his visions to describe the alchemical procedure is the same as that used by the mystery religions to depict the soul's ascent of the mystical stairway. The human beings who are cast into the "place of punishment" to reappear on the



The alchemist-priest-magus mitigates the fury of the dragon who disgorges fire (Mercury), by feeding it the Red Elixir. In the sky above a comet shines, announcing an amazing event, a change in the Nature (17th century miniature).

top of the sphere are reminiscent of the Fall and Redemption of primordial man (Anthropos) dear to Hermetic gnosticism. From these and other details it has been established that the central theme of the visions is the Hermetic, or more generally gnostic, doctrine of the knowledge of God and of the self.⁵⁴ ON VIRTUE is an extremely ambiguous manuscript, to the extent that its symbolism was equally clear to both historians of science, who read it as a chemical treatise, and of religion, who saw it as a mystical work.

The duality of alchemy is reflected in the duality of Zosimos himself, and vice versa. Zosimos believed firmly in *natural tinctures* and in working with a method. When he describes the processes involved, he is talking unequivocally about true chemical reactions. But what does he really mean by *tinctures*? Can we be sure he is talking about chemistry, or is it merely pre-chemistry? Our doubts are justified. When warning

his sister Theosebeia of the danger of using *opportune or timely tinctures*, Zosimos advises: Do not let the search for God worry you unnecessarily, fill your heart with peace and God, who is everywhere, will come to you... If your body is calm, you will be able to allay your passions, resist desire, pleasure, anger, temper and the twelve kinds of death... By correcting yourself, you will bring upon yourself divinity... In this way you will obtain the true natural tinctures. Do this until you have achieved perfection of the soul. When you are sure of having become perfect, spurn the elements of matter; seek refuge in your shepherd and, immersed in meditation, you will ascend to your origin...⁵⁵ This passage would seem to suggest that for Zosimos the preparation of *natural tinctures* was in reality a pretext for expounding a technique of Hermetic asceticism. Whatever Zosimos meant by these words to his sister, an examination of his writings as a whole reveals unequivocally that he was convinced that no chemical operation would be complete if the adept did not at the same time purify his inner self through strict self-discipline. The Latin alchemists expressed this duality in the formula "oratory and laboratory".

Duality and ambiguity, the visions of Zosimos have

one more surprise in store. In advocating the need for method he writes: "In fact, it is with method, measurement and the exact weight of the four elements that the combination and separation of all things is achieved. No bond can be achieved without method. It is a natural method, breathing in and breathing out, maintaining the combinations of the method, to increase or diminish them as necessary. When all things are

harmonized by a process of separation and combination, never forgetting the methods, nature is transformed. Because nature, when it withdraws into itself, is transformed."⁵⁶ It was by withdrawing into himself using a natural method based on breathing exercises, separating and joining the *yin* and the *yang*, that the Chinese alchemist sought unity with the Tao. We will never know if Zosimos was aware of this.

¹ R. Halleux, *Les alchimistes grecs*, Vol. 1, Paris 1981, p. 88 and 99.

² A.J. Festugière, *La révélation d'Hermès Trismégiste*, Vol. 1, p. 218-219.

³ R. Halleux, *op. cit.*, p. 110.

⁴ Lucian, *Philopseudes*, p. 32.

⁵ Plinius, *Historia Naturalis*, XXX 2, 8-11.

⁶ *Ibid.*, XXIV, 160.

⁷ Vitruvius, IX, 1, 14.

⁸ Aristotle, *Meteor.*, II, 1, 6.

⁹ F. Calonghi, *Dizionario Latino-Italiano*, under "Chirocmeta", Turin 1986.

¹⁰ R. Halleux, *op. cit.*, p. 66.

¹¹ J. Lindsay, *The Origins of Alchemy in Graeco-Roman Egypt*, London 1970.

¹² Plinius, *op. cit.* XXX, 10.

¹³ Columella, VII, 5, 17.

¹⁴ R. Halleux, *op. cit.*, p. 63.

¹⁵ For more information on Bolos of Mendes see: R. Halleux, *op. cit.*, p. 62-75; J. Lindsay, *op. cit.*, p. 103-141.

¹⁶ M. Berthelot, *Collection des anciens alchimistes grecs*, Paris 1888, Vol. 3, p. 46. Fragments of the text by Bolos-Democritus were translated into Latin by Domenico Pizzimenti and published under the title *Democritus Abderyta De Arte Magna*, Venice 1573. The Latin version was published again by H. Kopp in *Beiträge zur Geschichte der Chemie*, I, 1869.

¹⁷ J.M. Stillman, *The Story of Alchemy and Early Chemistry*, Appleton, New York, 1924, p. 157.

¹⁸ R. Halleux, *op. cit.*, p. 221 n.

¹⁹ Related by Plinius in *Historia Naturalis*, XXXVII 67, this belief was reconfirmed as late as 1612 in the *Lexicon Alchemiae*, by Martinus Rulandus, under the entry "Selenite". It is interesting to note that in the Christian era the moon stone was also known as *Mary's mirror* with obvious reference to the pagan goddess Selene (the Moon) and the Virgin Mary.

²⁰ These analogies are taken from: M. Berthelot, *op. cit.*, Vol. 3, Glossary; R. Halleux, *op. cit.*, Glossary; G. Testi, *Dizionario di alchimia e di chimica antiquaria*, Rome 1950.

²¹ Fulcanelli, *Les Demeures philosophales*, Paris 1929.

²² M. Berthelot, *op. cit.*, Vol. 3, p. 44-45.

²³ A.J. Pernety, *Dictionnaire Mytho-Hermétique*, Paris 1758.

²⁴ M. Berthelot, *op. cit.*, Vol. 3, p. 138. The term *mystical*

chemistry appears in the writings of Stephanus of Alexandria which are quoted by: J. Lindsay, *op. cit.*, p. 383.

²⁵ J. Lindsay, *op. cit.*, p. 167-168.

²⁶ *Ibid.*, p. 134 and 151.

²⁷ M. Berthelot, *op. cit.*, Vol. 3, p. 40 and 287.

²⁸ J. Lindsay, *op. cit.*, p. 250.

²⁹ The passage in which Zosimos describes the *tribikos* is quoted in: M. Berthelot, *op. cit.*, Vol. 3, p. 228.

³⁰ G. Testi, *op. cit.*, p. 47 n.

³¹ J. Lindsay, *op. cit.*, p. 257-258.

³² M. Berthelot, *op. cit.*, Vol. 3, p. 278 onwards.

³³ *Ibid.*, p. 284.

³⁴ *Ibid.*, p. 284.

³⁵ J. Lindsay, *op. cit.*, p. 268.

³⁶ M. Berthelot, *op. cit.*, p. 284 n.

³⁷ *Ibid.*, Vol. 3, p. 224.

³⁸ *Testi gnostici*, edited by L. Moraldi, Turin 1982, p. 226-227.

³⁹ H. Corbin, *L'Homme de Lumière dans le soufisme iranien*, Paris, p. 159.

⁴⁰ A.J. Festugière, *Hermétisme et mystique païenne*, Paris 1967.

⁴¹ *Ibid.*, p. 33 onwards.

⁴² At the height of its splendour the library, accidentally damaged by fire in the year 47 B.C. and subsequently burnt to the ground by the Christians in 391, contained some five hundred thousand papyri and parchments on all branches of learning.

⁴³ *Kore Kosmu*, 14.

⁴⁴ *Corpus Hermeticum*, 1:21.

⁴⁵ A.J. Festugière, *Hermétisme*, *op. cit.*

⁴⁶ *Ibid.*

⁴⁷ J. Doresse, *L'ermetismo di derivazione egiziana*, from *Storia delle religioni* (edited by H.C. Puech), Bari 1977, Vol. 8, p. 113.

⁴⁸ M. Berthelot, *op. cit.*, Vol. 3, p. 186-187.

⁴⁹ E.J. Holmyard, *Alchemy*, London 1957.

⁵⁰ J.M. Stillman, *op. cit.*

⁵¹ M. Berthelot, *op. cit.*, Vol. 3, p. 117 onwards.

⁵² F. Sherwood Taylor, *The Alchemists*, London 1952, p. 60.

⁵³ J. Lindsay, *op. cit.*

⁵⁴ A.J. Festugière, *Hermétisme et mystique païenne*, *op. cit.*

⁵⁵ M. Berthelot, *op. cit.*, Vol. 3, p. 235-236.

⁵⁶ *Ibid.*, p. 119-120.

Τούτο εστίν τὸ μυστήριον ὄφρα βόρος δράκων
 αὐτὸν, τούτ' εστίν ἡ λήσας τῶν σωμάτων
 καὶ τῶν πνεύματων αὐτοῦ :-



Τὰ δὲ αὐτῶν φώτων μυστηρίων τῆς
 ἐστὶ τῆς αὐτοῦ ἢ ἐξ ἄλλων :-
 τὸ δὲ πρῶτον αὐτοῦ εστίν ἰατρικὴ
 τέχνη ἢ σίψας αὐτοῦ :-
 οἱ δὲ πόδες αὐτοῦ οἵ τε σαρκεῖς οἱ
 σωμάτων τῆς τέχνης

τέχνης
 σου
 ἢ τε
 τοῦ
 ματ
 τὰ δὲ τῶν
 εστίν αὐτῶν
 ἢ δὲ τούτοις τὸν νοῦν ἔχον ὡφίλιπτε :-

ὡς αὐτοῦ
 θεοῦ ἢ οἴου
 αὐτοῦ τούτ' εστίν τὸ ὄφρα

Δράκων τις παράκειται φύλακτῶν τὸν μαρτύριον
 τὸν χρυσάμεινον· πρῶτον θύσει κὴ ἀπὸ δερμά-
 τοσόν, κὴ λαβῶν τὰ σάρκα αὐτοῦ ἕως τῶν ὀστέων,
 πρὸς τὸ σόμιον τοῦ μαρτύριου ποίησον αὐτὸ βάσις
 κὴ ἀνάβιθ κὴ εὐρίσας ἐκὰ τὸ ζητούμενον χρύ-
 μα· τὸν γὰρ ἱερεὺν τὸν χαλκῶν μετέτεθι τοῦ
 χρώματος τῆς φύσεως καὶ γέγονεν ἀργυρῶσ·
 ὄν μετ' ὀλίγου οὐκ ἔτι μέσσησεν ἀλλὰ ἔτι

Ouroborus, the serpent devouring its own tail, symbol of the cyclic process of Nature and the unity of the All, in a Greek manuscript of uncertain date which transcribes the so-called Book of Synesius.

CHAPTER III

FROM ANTIQUITY TO THE MIDDLE AGES

By the beginning of the 4th century, on the strength of the audacious speculations of Kleopatra and Zosimos of Panopolis, the *Sacred Art* had become a *fait accompli*. Primitive Egyptian methods for the manipulation of metals had been succeeded by what was becoming a veritable science, based on precise theoretical assumptions which combined chemical, philosophical and mystical aspects, the aim of which was to perfect and endow with immortality not only metals but man himself.

However, immediately after Zosimos, the contours of Graeco-Egyptian alchemy again became confused and indistinct, and the period was marked by little innovation and few figures of any real standing. The handful of better-known names of the 4th century include Pelagius, Dioscurus and Synesius, but even they are not much more than shadows and their books have little to say, being at most vague comments on the works of Bolos Democritus, Zosimos and other earlier writers. One thousand years later Latin alchemy remembers only the name of Synesius, who is sometimes identified with Synesius, the Greek neoplatonist philosopher and poet who became the Christian Bishop of Ptolemais at the beginning of the 5th century.¹

The fact that the *Sacred Art* took a step backwards almost before it had started on its journey, was not only due to the absence of men with the ability to carry on where Zosimos had left off. In the 4th century, with the spread of Christianity, the Roman Empire embarked on a bitter campaign against magical practices. In 319 Constantine the Great decreed that soothsayers were forbidden to enter private houses, even those of their closest friends, on pain of death. The decree was mitigated the following year and in the end the practice of white magic was allowed, at least until Constantius II (318-361) brought in the death penalty for all categories of soothsayers, astrologers and magi, and even for the wearers of lucky charms or anyone seen walking

in the vicinity of a cemetery after sundown, this being taken as evidence that the unlucky wanderer was a sorcerer or necromancer.² It is feasible that these persecutions hindered the spread of the new science which, as we know, was traditionally associated with magic, astrology and other accursed knowledge revealed to man by the fallen angels. Alchemy was viewed with suspicion by the authorities for other, more practical reasons, linked with the *Sacred Art's* reputation of being capable of transforming base metals into gold or silver. According to certain Byzantine historians, alchemy had been subjected to severe persecution as early as the time of Zosimos when, around the year 290, the Emperor Diocletian ordered the destruction of all the alchemical literature found in Egyptian territories, in order to prevent men from accumulating wealth in the form of alchemical gold and silver.

The authenticity of this story is doubtful, also because it is beyond the bounds of reason that the Emperor would have taken such a lively interest in a science which, in the year 290, was little more than a collection of hazy notions. Nonetheless, Diocletian certainly pursued a restrictive policy aimed at checking the Empire's economic crisis and reforming the monetary system; it is possible that one of Diocletian's worries was to stop the spread of forgery, which was common practice throughout the African provinces of the Empire and might have suggested to the authorities a link between alchemy and the forging of coinage.

An emblematic figure of late Hellenistic alchemy was Olympiodorus. Born at Thebes in Egypt, he lived and worked during the first half of the 5th century. He was a man of letters and diplomacy and his books reveal how great was his effort to anchor Zosimos's theories to the philosophy of the ancient Greeks. Drawing from the works of the atomist Democritus of Abdera (not Bolos-Democritus), Olympiodorus re-examines the

theory of the four elements and the concept of *arché*, a principle or prime substance from which all things are derived. Quoting Zosimos, he implicitly recognises the *Sacred Art* as a psychophysical practice: the *artist*, at peace with his own body, seeks to calm his passions and waits for the divine spirit to be born within him, thus achieving the union of the One with the All. Like Zosimos, Olympiodorus mixes mystical and chemical aspects. He quotes numerous types of tincture, and describes the substances and procedures from which they are made. In his writings, as in those of Zosimos, it is difficult to distinguish when the chemical terms are being used to describe real experiments with metals and when they are instead meant in a purely symbolic sense.

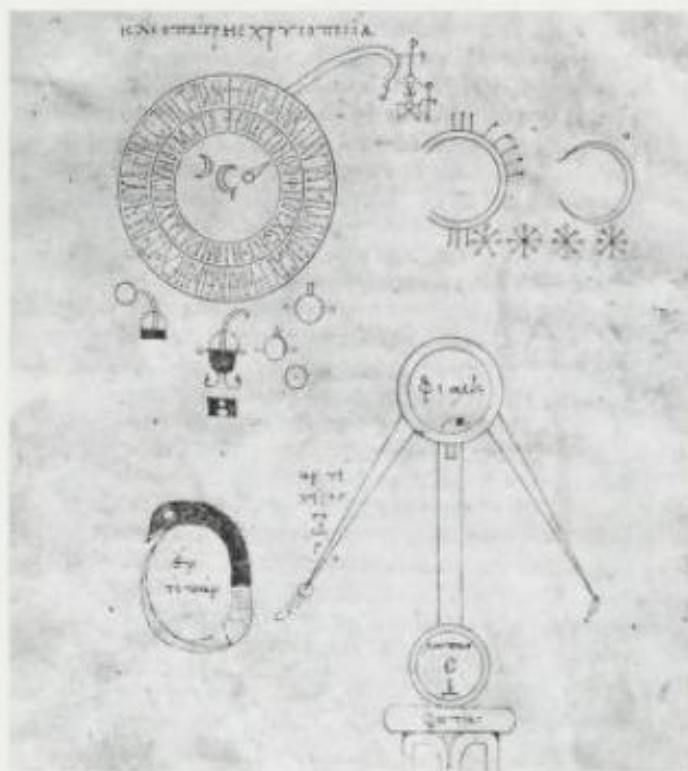
The last luminary of the Alexandrian tradition was the philosopher Stephanos, who worked in Alexandria in the period 610-641. It was he who sowed the seed of the great transformation of the *Sacred Art* which began to acquire the language and symbolism of Christian mysticism. In his writings Stephanos combined the theoretical and practical aspects of the *Art* expounded by

Bolos-Democritus and Zosimos with speculations inspired by ancient Greek philosophy and contemporary neoplatonism, but his style of language and use of alchemical symbolism underlines the influence of Christianity too. For example, Stephanos sees a clear parallel between the *Acqua divina*, which vitalizes and transmutes metals, and the grace of Christ, which is the living water that gives eternal life to mankind.

In 632, while Stephanos was teaching in Alexandria, Mohammed died at Medina. In the space of one century, the Arabs conquered Persia, Asia Minor, Syria, Palestine, Egypt and then entered Europe via Spain, where the tide of Moslem conquest was at last halted by Charles Martel ("the Hammer") at Poitiers in 732. Graeco-Christian alchemy disappeared from Egypt, but survived in the lands of the Byzantine Empire. In reality the Byzantine alchemists were not true philosophers, but rather erudite men who collected and commented on the works of the Alexandrian alchemists. In their writings the laboratory tradition is played down, in an attempt to transform the alchemical *Opus* into an allegory of a Christian mystical quest. It is true that these mystico-philosophical writings are occasionally interspersed with books of a technical nature, but for the most part these are collections of recipes which are more reminiscent of the Leiden and Stockholm chemical papyri than of the works of Zosimos.

The progressive transformation of Byzantine alchemy is reflected in the *CRISOPEA*, a brief treatise on the art of making gold written by the Byzantine politician and teacher of philosophy, Michael Psellus (1018-1078). Psellus was not an alchemist and he limits his comments to what he has heard and read on alchemy. And the opening lines of the *CRISOPEA* reveal just how approximate was his approach to the *Sacred Art*. In fact, in the dedication to Michael Cerularius, we read: "You see, lord and master of my soul, what you do to me when you force me to descend from the heights of philosophy to the mechanical technique of a metalworker, and persuade me to transform matter and modify Nature. Or perhaps this concerns philosophy and depends upon the science of Nature?"

"Many believe it is an initiatory and secret art and make no attempt to see it in a rational light. I, though surprised by the phenomenon, on the one hand take no notice of what people are saying, on the other consider it to be just another monstrosity..."⁷³ So it seems that Psellus doubted that the *Art* was philosophy or natural science and deemed it little more than a mechanical technique, about which it was almost dishonorable to write. In line with his comments in the dedication to Cerularius, alchemy as Psellus sees it is a series of procedures for making something similar to gold from base materials, such as sandarach, sulphate of iron and copper, orpiment, sulphur, cinnabar. Like the Leiden and Stockholm papyri, the *CRISOPEA* gives instructions on how to *double* gold, starting with a minimal quantity



This complex illustration from a 11th century Greek manuscript represents the text of the *Gold-Making of Kleopatra*. The figure top left, a schematic representation of Ouroboros, bears the inscription: "One is the All and through it is the All and by it is the All and if you have not the All, All is nothing" (outer circle); "One is the serpent which has its poison according to two compositions" (inner circle). The two symbols top right are those of silver (crescent moon) and of aurified silver (radiant semi-circle). Bottom right, a two-funnelled alembic, on the left the Ouroboros in whose centre are the words: "One is the All".

of real gold, which is used to impart a golden color to compounds of copper or other suitably prepared substances.

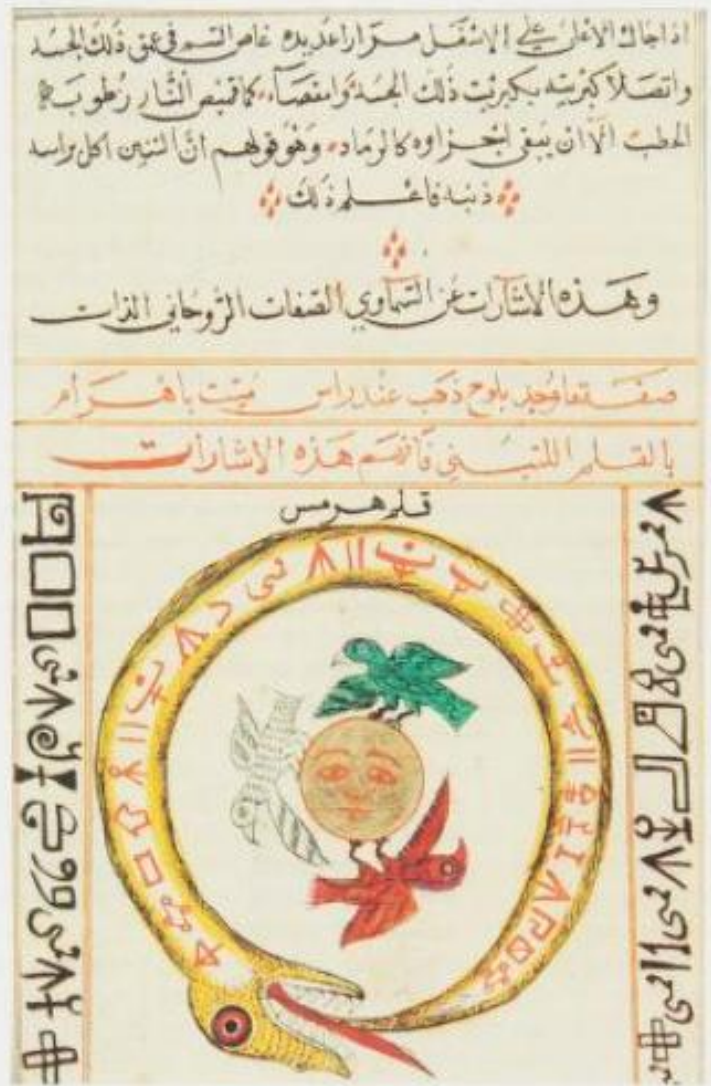
The works of the Byzantine scholars contributed to the spread of alchemical ideas in the medieval West, but the veritable craze for alchemy that hit Europe during the 12th and 13th centuries was the result of a far more complex process, by the end of which the *Sacred Art* had become true alchemy.

As the Alexandrian school began to lose its influence, the *Sacred Art* blossomed in the area that is now Syria, and at the court of Byzantium. In this region, three miles from Edhessa, close to the Turkish-Syrian border, was the ancient city of Harran, an important junction for the caravan routes where, since as far back as 1,400 B.C., the commerce and cultures of the Middle and Far East had met and mingled. Harran was a *magical* city: according to one legend, it was the burial place of the goddess Selena; another tradition narrates that it was the first city to be built after the Flood; in other stories it was founded by Abraham's brother and was the place whence Abraham departed on his journey to Canaan, while its religion was reputed to be the oldest in the world.⁴

In reality the Sabeans, as the inhabitants of Harran later came to be known, had a special religion of their own, a high allegorization of ancient myths combined with far-fetched imagery, based on the veneration of the seven planetary divinities, to each of which they dedicated a different temple. Supplications were addressed to the gods by priests, who alone understood the magical and astrological properties of the planets. The stars, too, were venerated, probably a legacy of the Babylonian religion. They believed that each plant, animal or metal belonged to a star, to which they offered magical or propitiatory sacrifices. Although the little we know about the Sabeans and their culture comes from late Christian and Moslem sources, it is plausible that Harran was the meeting place of cults that combined elements from Babylonian, Persian and later Greek, Christian and Islamic religions.

The mysterious city of Harran was also an important cultural center. Initially a rendezvous for Sumerian, Hittite and Babylonian civilizations, in 528 B.C. the city became part of the Median and Persian Empire, whose culture it absorbed. Subsequently, during the age of the Achaemenids, it became the point of convergence for Egyptian and Persian cultures. In Hellenistic times, its temples were the residence of scholars whose task it was to study and translate the fundamental works of ancient Greek philosophy and literature, and later the neoplatonist, Hermetic and gnostic writings. As Harran also had commercial ties with India and possibly China, it is feasible that ideas from Far Eastern countries mingled there, too.

This cultural melting pot became an important center for the production of philosophical, religious and magico-



An Islamic version of the Ouroboros (17th century manuscript). It was during the 5th and 6th centuries that the *Sacred Art* spread from Hellenistic Egypt to the Middle East and in particular to the area that is now known as Syria. In fact, it was from Syrian writings that the Arabs learned of this ancient *Art*, which they called *al-Kimiya*.

mystical books compiled and presented as the authentic works of Plato, Pythagoras, and Aristotle. Of the great philosophers of antiquity, the mythical Hermes must have been particularly revered by the Sabeans, for it appears that he was sometimes known as "the prince of the Harranians". The Sabeans also composed false books which they attributed to Hermes and his *pupils* Trismegistus, Agathodaimon, Asclepius and Ostanos.

A Moslem author, Hanum al-Rashid (763-809) tells how the Sabeans offered human sacrifices, and quotes an example of how this was done: a man, dressed as Hermes-Mercury, was placed alive in a vessel of oil and soda (or borax); after a year had elapsed, the spirit of Hermes entered the body of the unlucky victim, the mummified remains of whom were believed to have prophetic powers, and were worshipped and

questioned on the future. Stories of human sacrifices and prophetic mummified or artificial heads are to be found throughout antiquity to the Middle Ages, and were used by unscrupulous chroniclers to discredit the non-orthodox minorities. However, al-Rashid's story is so strange as to suggest that what he was offering to his readers was the account, handed down by word of mouth and deformed by the passing of time, of an ancient rite celebrating symbolically an alchemical experiment: the death and resurrection of imperfect matter inside the alchemical vessel by means of the action of certain special substances which permitted the imperfect matter to assimilate the spirit of the Mercury.

Almost certainly Harran was one of the cradles of alchemy. It was renowned for its metalworkers, who used materials imported from Asia Minor, Kurdistan and Persia. Its shops dealt in gold, silver, copper, tin, iron, lead, sulphur, arsenic sulphides, and borax, the same substance mentioned in al-Rashid's story.⁵ According to Ephrem Syrus (4th century), the HERMETIC

TEXTS, which expressed the philosophy of the Sacred Art, were written in Syria while Harran was considered by certain Arabic chroniclers to be the place where correspondences between planets, geometrical shapes, colors, metals, days of the week and numbers, so essential to the alchemical tradition, were first established.

In an Arabic text of 673 these correspondences are expressed in the table below.

In the 5th century, not only Harran, but the whole of Syria had become an important cultural and scientific center. As early as the 2nd century both the OLD and NEW TESTAMENT had been translated into Syriac. Subsequently philosophical, medical and alchemical texts were translated from Greek into Syriac. Little by little Syrian alchemy acquired a role of considerable importance: on the one hand it absorbed and revised the milestones of the *Sacred Art*, on the other it developed its own innovative experiments. It is perhaps no chance that Greek fire was invented in Syria, at Helicopolis, in 673. When the Arabs conquered Persia and

Saturn	hexagon	black	lead	Saturday	9
Jupiter	triangle	green	tin	Thursday	8
Mars	square	red	iron	Tuesday	7
Sun	square	yellow	gold	Sunday	6
Venus	elongated triangle	blue/white	copper	Friday	5
Mercury	hexagon inside square	various colors	all	Wednesday	4
Moon	pentagon	white and golden/white	silver	Monday	3



Morienus, the Christian hermit and alchemist, is said to have taught Prince Khaled ibn Yazid the secrets of alchemy. Here he is showing his pupil, who bows before him in a gesture of respect, the Earth, the only true source of knowledge: he who tries to scale the alchemical tower without a ladder is bound to fall. (From *Symbola aureae mensae*, by M. Maier, 1617).

Syria, the caliphs shrewdly took into their service the scholars of these two nations. The monks of the heretical Nestorian church were entrusted with the task of translating first into Syriac and then into Arabic the major Greek works on philosophy, astronomy, mathematics, medicine and other sciences. It was at this point that the *Sacred Art* changed its name to *al-kimiya*.

Our word *alchemy* is derived directly from the Arabic *al-kimiya*, which the Latin translators, from the 12th century onwards, wrote as *alkimia*, *alquimia*, *alchimia*, *alchemia*.⁶ What the Arabs actually meant by *al-kimiya* is plain to see, as this definition from the *KITAB AL-FIHRIST (BOOK OF THE CATALOGUE)* by an-Nadim (987 A.D.) shows: "The people who practice *al-kimiya*, that is to say those who make gold and silver from other different metals..."⁷ But if *al-kimiya* was the art of making gold and silver, from where had the Arabs taken this word, which in their language was used to substitute the terms *Sacred Art* and *Divine Art* used by the Graeco-Alexandrian Philosophers?

Al-kimiya is composed of the definite article *al* and the word *kimiya*, the origins of which are uncertain. It is not an Arabic word and must therefore have been derived from another language, probably Egyptian or Greek. The Egyptian hypothesis is that it is associated with the term *chem*, signifying *black* and relating to the ancient Egyptians' description of their land as "The Land of the Black Soil" in relation to the dark alluvial soil of the Nile delta which contrasted with the red terrain of the desert. This characteristic was known to Herodotus, who remarked: "a black and gritty land, composed as it is of mud and debris brought down by the river from Ethiopia".⁸ Some four centuries after Herodotus, Plutarch, too, appeared to have heard of the dual meaning of *chem*: "Egypt, land of the black soil, is known by the same name as the black part of the eye, *Chemia*..."⁹ This would then define *al-kimiya* as "The Egyptian Art", confirming the tradition according to which the origins of alchemy are to be found in Egypt.

The Greek hypothesis is even more convincing. As early as the 3rd century B.C. the Greeks adopted the term *chyma* to describe an ingot or metal bar.¹⁰ It later came to mean the casting or fusing of metals. Greek texts also mention the alternative forms of *chemeia* or *chemia*. According to the Byzantine writer George Syncellus, Zosimos had spoken of the existence of a book entitled *CHEMEU* containing the secrets of the *Art*.¹¹ On numerous occasions Zosimos and other Greek authors had attributed the origins of alchemy to a hero by the name of *Chèmès*, *Chimès* or *Chymès*.¹² Plainly there is a connection between the *Sacred Art*, the term *chyma* and its derivatives. *Al-kimiya* would therefore mean *the art of chimya* or *the art of fusing metals*.

Tradition has it that the first Arab to take an active interest in alchemy was Prince Khalid ibn Yazid, an historical figure who lived at Damascus and died in 704. The *KITAB AL-FIHRIST* provides this portrait of Khalid:

"He was a preacher, a poet, an eloquent man, full of passion and great wisdom. He was the first man to commission the translation of books on medicine, astrology and alchemy...It is taken for certain, and God knows better than anyone else if this is true, that Khalid succeeded in his alchemical exploits. He had written a certain number of treatises and booklets and composed poems on this subject. I have seen some five hundred pages of verse and I have seen amongst his works his *BOOK OF AMULETS*, *GREAT AND SMALL BOOK OF THE SCROLL*, *BOOK OF THE TESTAMENT (to his son)* *ON THE ART*".¹³

Far richer in detail is the alchemical tradition according to which Khalid was a young prince who, tired of the intrigues and immorality of court life, relinquished the pomp and ceremony that were his by right and devoted himself to the study of the sciences. Attracted by alchemy, Khalid ordered the translation into Arabic of many texts, but he was surrounded by false prophets who caused his attempts at transmutation to fail. One day he received a visit from a disciple of Stephanos of Alexandria, a Christian monk called Morienus who lived a hermit's life at Jerusalem. Before the prince's astonished eyes, Morienus successfully completed an experiment in transmutation. Khalid was so angry at having been duped, that he put the false alchemists, his former teachers, to death, but in the confusion Morienus disappeared. After some years, the monk reappeared and agreed to teach Khalid the secrets of the *Art*, and the prince thus became the first Moslem alchemist capable of achieving transmutation.

This story is probably based on both fact and fiction. As we said earlier, Khalid was indeed an historical figure, an Omayyad prince of considerable culture. It is possible that he took an interest in alchemy, although the alchemical books ascribed to his pen are surely false, written long after the real Khalid's death. But there is an underlying vein of truth when the tradition speaks of the transmission of alchemical skills from Stephanos of Alexandria to a hermit living in Jerusalem who then passed on the knowledge to an Arab prince. Whether or not the names are true, the story is a symbolic account of how the *Sacred Art* spread from Egypt to the Christian Middle East and to the world of Islam.

Much more is known about Jabir ibn Hayyan, who was venerated by the later European alchemists more than any other Arabic writer. The oldest known biography of Jabir is found in the *KITAB AL-FIHRIST*: "His name was Abu Abdallah Jabir ibn Hayyan ibn Abdallah al-Kufi, known by the name of al-Sufi. Not all agree on this matter. The Shi'ites say that he was one of their dignitaries and one of the fathers of their doctrine; they say he was a close friend of the famous sixth Shi'ite Imam, Ja'fa al-Sadiq (may God be pleased with him) and that he was an inhabitant of Kufa. A group of philosophers claims, on the contrary, that he was one of their number and composed works on rhetoric and



Jabir ibn Hayyan, known in the West as Gerber. The words beside the figure's head read "God and Nature do not operate in vain" (15th century miniature). For the alchemists Nature was a divine work, their task therefore was to seek the divine essence hidden within natural phenomena. In this way alchemy was both a form of science and a mystic discipline.

philosophy. As for the adepts of the art of making gold and silver, they affirm that he was highly skilled in this art during his lifetime, but was forced to keep silent about it. They add that he moved relentlessly from town to town, never staying long in one place, for he feared for his life. Others say that he belonged to the Barmecide family, to whom he was devoted, and that he was particularly friendly with Ja'far ibn Yahya. Those who are of this opinion claim that, when speaking of his teacher Ja'far, Jabir was referring to the member of the Barmecide family of that name, whereas the Shi'ites maintain that he meant Ja'far al-Sadiq. A man whose word I can trust and who is interested in alchemy told me that Jabir lived in a road called Bab al-Sham, which is situated in the area known as the "District of gold". He added that Jabir spent much time at Kufa, due to the city's excellent climate, and it was here that he prepared his elixir. When some houses were being demolished in Kufa a mortar was found weighing more than two hundred *rotls*.¹⁴ This same man told me that the place in which it was found was the site of Jabir's house and all that was left was the mortar and a laboratory for dissolving and combining. This happened during the reign of Izz-Eddaula, son of Mo'izz-Eddaula. Abu Sebekteguin, the chamberlain, told me that it was he himself who claimed possession of the mortar. A group of scholars and book-lovers has assured me that this man, Jabir, never really existed. Others say that if he had really lived he only ever wrote THE BOOK OF MERCY; as for the other books which bear his name, they are the works of men who used his name instead of their own. As far as I am concerned, I say that any man of worth who undertakes or bothers to write a book of two thousand pages, calling on all the resources of his spirit and intelligence, quite apart from the physical effort of actually putting the words on paper, and who then ascribes his book to someone who never existed, is an imbecile. This is something that no man with a smattering of scientific knowledge would undertake nor agree to; what profit, what advantages could he hope to gain? So Jabir must have existed; his personality is well known and rightly famous, and he is the author of many important works. He has also written books on the Shi'ite doctrine, which I will mention at the opportune time, and other scientific subjects, about which I have spoken in other chapters of this account. Rhazi, in his alchemical manuscripts, refers to him (Jabir) in the following words: 'Our teacher Abu Musa Jabir ibn Hayyan said...'¹⁵

These few lines well express the scepticism with which Jabir was regarded by the Moslem scholars of the 10th century. Today, in the light of the many inquiries that have been made into this mystery, it is possible to confirm that at least a part of the KITAB AL-FIHRIST is authentic. Jabir, believed to be the son of an apothecary, was born at Kufa in 721-722, one of the main cities of

the Omayyad caliphate. The title of al-Sufi indicates that he became a Sufi, a member of that mystical and esoteric sect that flourished within Islam. He was probably a Shi'ite, too, a disciple of Ja'far al-Sadiq, the sixth Shi'ite Imam, a scholar of occult sciences, particularly astrology and alchemy. After Ja'far's death in 765, Jabir is said to have become a close friend of the Barmecide family, who became powerful ministers and governors under the Abbasid caliphs. Thanks to his position at the Baghdad court, Jabir was able to carry out important scientific and alchemical experiments. When the Barmecides lost favor in 803, Jabir returned to Kufa, where he probably died somewhere between 813 and 815.

As an-Nadim points out, only a century or so after his death, there already existed a substantial corpus of alchemical writings bearing Jabir's name. Altogether Moslem scholars gathered some 3,000 titles ascribed to his pen, though only 215 of these have survived to the present day. Their authenticity is doubtful. Even the oldest would seem to have been written no earlier than the second half of the 9th century, more than fifty years after Jabir's death.¹⁶ This older part of the Jabirian Corpus is like a mosaic or jigsaw puzzle. Globally, it constitutes a single and complete system, which has been deliberately broken up and divided among different manuscripts, according to a precept dear to Jabir, the *dispersion of science*.¹⁷ In the light of a certain similarity of style and language, it is possible that these manuscripts, or at least a part of them, were written by Jabir's disciples or by alchemists who adhered rigidly to his teachings. It has been suggested that some of the writings ascribed to Jabir were the work of a group of natural philosophers who were close to the secret society of the Ikhwan al-Safa (Brethren of Purity), active during the 9th-10th centuries who, preferring to remain anonymous, signed their works with the name of the legendary Jabir.¹⁸ It is more likely, however, that the members of the Brotherhood were not actually the authors of the Jabirian texts, though they may have taken his ideas as the basis for their doctrine, which they then wrote down in an Encyclopaedia of fifty-one treatises intended as a testimony of contemporary knowledge in general, and a valid guide for the evolution of mankind.¹⁹

The doubtful authenticity of the Jabirian Corpus, or what is left of it, is not enough to throw doubt on the existence of the man himself nor his reputation as father of Islamic alchemy. The books bearing his name represent the integral product of a single school of thought which used the name of its Master to honor his memory, and not a collection of works written by charlatans and fraudulently attributed to a famous figure in order to exploit his reputation. In the case of Jabir, the identification of the disciples with their Master is particularly significant. In the Jabirian book KITAB AL-MAJID (BOOK OF THE GLORIOUS), it is written that to understand the book is to be *like* Jabir himself, acquire the

knowledge contained therein means to become Jabir, the Glorious, the pure Light. Comments Henry Corbin: "Jabir is neither a myth nor a legend; Jabir is something more than a mere historical figure. The Glorious is the archetype; even if the *corpus* has been written by many authors, they would merely have been continuing the *glorious work* of the archetype, thus with every right to use his name."²⁰

The main works of the Jabirian Corpus are: the KITAB AL-RAHMA, known in Latin alchemy as LIBER MISERICORDIAE (BOOK OF MERCY); the KITAB AL-SAB'IN, known in the West in a Latin version, LIBER DE SEPTUAGINTA (THE SEVENTY BOOKS); the KUTUB AL-MAWAZIN (BOOKS OF THE BALANCES).

It has been implied, even in recent times, that Islamic alchemy follows two distinct patterns: a spiritual alchemy, which expresses symbolically the gradual regeneration of the human soul, whose chief advocate was Abu al-Iraqi (13th century); the purely operational, or *chemical* alchemy upheld by Abu Bakr ar-Rhazi (865-923/4).²¹ Jabir's alchemy succeeded in integrating the two aspects, according to the tradition of the *Sacred Art*.

Jabir's most consequential ideas were probably those that modified the Aristolian theory of the four elements (fire, air, water and earth) associated with the four qualities (hot, dry, moist and cold). Another of his innovations, which became a cornerstone of later alchemy, was the Sulphur/Mercury theory. In the KITAB AL-IDAH (BOOK OF EXPLANATIONS) he writes: "All metals are made basically of Mercury combined or solidified with Sulphur. They differ one from the other only in the qualities that are theirs by chance, and this difference is due to the quality of the Sulphur used, which in turn is determined by the type of terrain in which it is found and its location in relation to the heat of the sun".²² The Mercury and Sulphur of alchemical tradition are not the substances commonly known by these names, but two principles, the combination of which in differing proportions forms the basis of all metals. As with the *yang* and *yin* of Chinese philosophy, Sulphur is the masculine principle which, being fiery and active represents the sun, while Mercury is the feminine principle, liquid and passive, representing the moon. When they are totally pure and perfectly combined, Sulphur and Mercury engender the most perfect of metals: gold. If the combination is not perfect, the result is an imperfect metal. The task of the alchemist is therefore that of extracting and purifying the two principles in order to achieve a successful transmutation. According to Jabir the operations which made up the work were multifarious, but could be divided into three fundamental phases: distillation of the *prime matter* in order to extract the fundamental components; purification, involving complex manipulations (grinding, absorption, drying, cooking) of the substances being distilled, in order to achieve the *spiritualization* of the

matter; reunification of the purified elements in a single substance, the Philosopher's Stone. To carry out these operations many pieces of apparatus were used, including the cucurbit (*al-qur'a*) and the alembic (the word adopted in Europe comes from the Arabic *al-inbiq* meaning a sill, which in turn comes from the Greek *ambix* applied to the head of the sill). Jabir's alchemy also envisaged the preparation of the Elixir of Life. In one of his books, he tells how one day he was called by the nobleman Yahya al-Barmaki, in despair because a favorite concubine of his was dying of a strange disease. The alchemist had with him an elixir (this Western term also comes from the Arabic *al-iksir*) of which he gave to the sick woman one dose of two grains mixed with two ounces of vinegar and honey. In less than half an hour the patient had completely recovered.²⁴

In the LIBER DE SEPTUAGINTA when he describes the function of the distilling vessels, Jabir stresses the importance of leaving an opening at the joint of the cucurbit and the alembic large enough to allow the insertion of a certain number of bamboo stalks or myrtle stems serving as branch pipes. A bamboo stalk could quite feasibly be used as a primitive form of pipe, but even if we stretch our imagination, the same could hardly be said of a myrtle stem! It is thought that Jabir was speaking in code, and this hypothesis is backed up by a comment he makes in his BOOK OF ORIENTAL MERCURY. He writes that when, in an earlier work, he describes distillation using myrtle stems, he does not exactly mean what is normally meant by myrtle.²⁵ Given the importance of color change in the alchemical process, it is believed that myrtle alluded to the color green and bamboo to yellow.

Jabir's masterpiece of impenetrability is his BOOKS OF THE BALANCES. In fact some of the alchemical methods he describes are so tortuous that his name gave rise to the term "gibberish". The balance in question is not a pair of scales, but a fundamental principle dear to Jabir, equilibrium. Jabirian equilibrium has many meanings, being applied without distinction to: specific weights; the proportions of substances in a mixture; speculation on the letters of the Arabic alphabet in relation to the four qualities (hot, cold etc.); the metaphysical principles leading to man's self-realization. Perhaps these meanings were suggested to Jabir by the allegorical interpretations, dear to Moslem Gnosticism, of the Koranic passages on the scales of the Last Judgement. In fact, Jabir introduces Moslem Gnosticism into his scientific system, just as the early alchemists had incorporated in the *Sacred Art* first Hermetic Gnosticism and later Christian Gnosticism. As we have said before, Jabir's books can be just as easily interpreted as chemical alchemy as spiritual alchemy. That he is not speaking purely of metallurgical operations is evident from passages such as this, from the BOOKS OF THE BALANCES: "In the BOOK OF THE SYNTHESIS I told you 'If we could take a man and cut him up in order to

balance his Natures and subsequently endow him with a new life, he would never die'. This balance, once achieved, never again changes, never again alters, never again modifies...²⁶ Another paragraph from the same book reads: "With the help of God I have studied the Pentateuch, the Gospel, the Psalms, the Song of Songs. In the Pentateuch I found proof of the need to balance the Natures in order to conserve the bodies against corruption. You must go back to the first creation to understand what you are doing; you must be able to distinguish the coldness of the soul from the warmth of the spirit, similarly the coldness of the earth from that of the air; only then will you understand the significance of all this."²⁷ Jabir would seem to be advocating the balance of the Natures as a method for regaining the spiritual perfection that was Man's before the Fall, the perfection that gave Adam immortality

before he was cast out from the Garden of Eden. There is nothing surprising in this. Jabir, as we know, was an upholder of both Sufi and Shi'ite doctrines.

Sufism (derived from the Arabic *suf*, wool, referring to the coarse garments worn by early devotees) is a mystico-ascetic doctrine within Islam which arose in the 7th-8th centuries. One of the first Sufi communities was organized at Kufa, Jabir's native city. The Sufi elders taught their disciples how to progressively free themselves of the impurities of human nature, by means of a spiritual discipline that developed through a process of death and resurrection of the soul which, once purified and regenerated, could join with God. The symbolism the Sufis use to describe this journey is that of the alchemists: the subject of this spiritual process, the soul, is like the lead that must be transmuted into gold, the Moon that must join with the Sun (the Spirit), the dragon that must be killed before the hero can gain the prize.²⁸

The city of Kufa was also the place where in the 7th century the Shi'ite sect first appeared. The name Shi'ite covers a multitude of sects but common to them all was the belief that Ali (Mohammed's cousin and son-in-law) was the true successor of the prophet and that the first three caliphs of the Sunnites were usurpers. From the outset the Shi'ites showed a tendency to accept many different forms of occult and esoteric thought. The name they gave to their leader was Imam (*head of common prayer*). And as we have already seen, it was the sixth Imam, Ja'far al-Sadiq, who was reputed to have been an alchemist and Jabir's teacher.

The BOOKS OF THE BALANCES, so complex, so full of latent meaning, has often been severely criticised by science historians in terms such as: "Incoherently composed, a mixture of puerile convictions and humbug" or "A bizarre book, a jumble of Cabalistic and philosophical ideas."²⁹ This indignation and contempt is almost always provoked by a section of the book that is indeed strange, in which Jabir poses an unending series of apparently senseless questions, such as: "Why when you attach the bone of a dead man to an aching tooth, does the tooth stop hurting?... Why does a lion keep its distance from a woman in her menstrual cycle who lies naked on her back? Is the lion afraid of the woman who is menstruating?... Why, if a woman in labor puts on a man's garments which the man then puts back on without first washing them, will the man recover from quartan fever? Is the fever afraid of the garments the woman has worn, or is there some other reason?..."³⁰

Beliefs such as these, which were frequent in the magical rites of medieval western culture, probably belonged to popular Arabic magic of the day. Why did Jabir include them in the BOOKS OF THE BALANCES, which opens with a long panegyric to intelligence, God's supreme gift to mankind? Perhaps Jabir, like



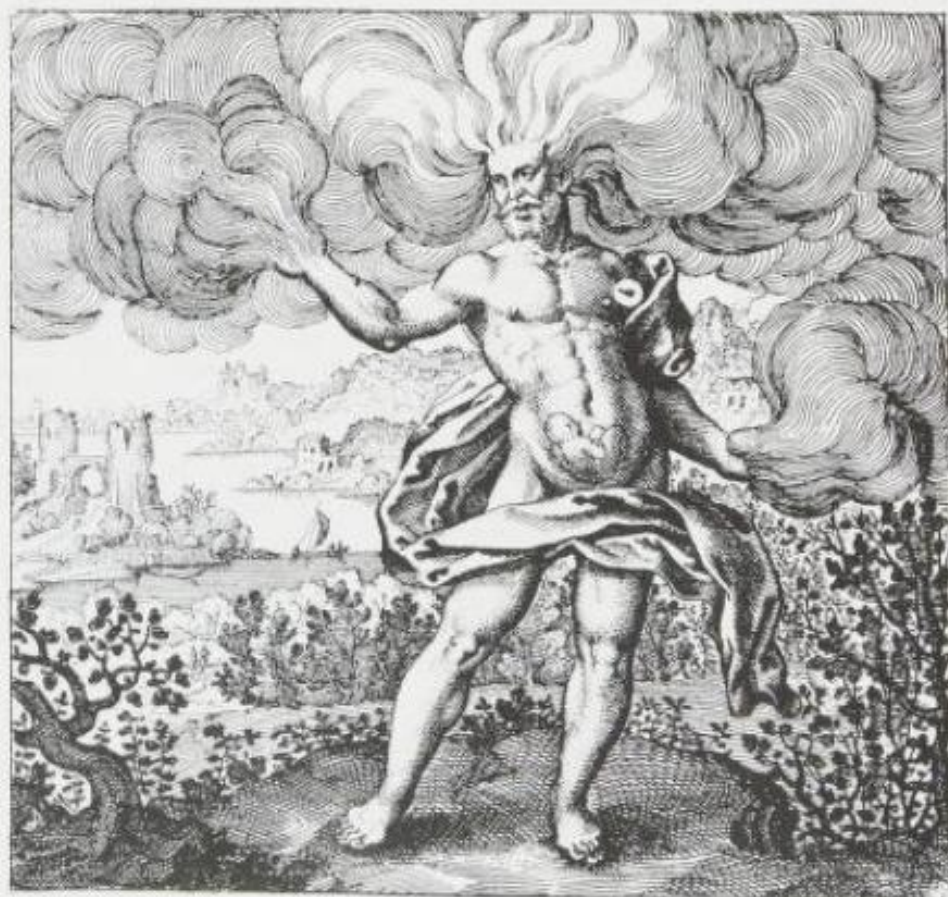
A page from a 17th Islamic alchemical manuscript, at the bottom of which an eagle and a serpent are fighting. The eagle represents sublimated Mercury, a highly volatile substance; the serpent is terrestrial Mercury, which will be devoured by the eagle.

many other alchemists before and after him, loved to make fun of his less perspicacious readers. More probably, these strange queries served only to disperse the secrets of the *Art*, camouflaging them in the midst of totally irrelevant remarks. According to a 14th century writer, Ibn Khaldoun, the reason for such mystification was another: "Alchemy (...) is a sort of magic (...). It is for this reason that they (Jabir, Maslama and their non-Islamic predecessors) write in this enigmatic way: it is to protect alchemy from the disapproval of the religious laws, and not to guard its secrets, as the ill-informed like to believe."³¹ In reality, there was never any open hostility between the Islamic dogma and alchemy. It is true, however, that Islamic jurists often regarded the *Art* with a suspicious eye, possibly confusing it with the criminal offence of counterfeiting gold, as was the case in the West.

Strange as it may be, the BOOKS OF THE BALANCES collection has been interpreted by science historians as a rigorous attempt to classify the natural sciences in a quantitative system.³² But the Jabirian science of *balances* is much more than a simple chapter of the pre-history of the sciences. As Henry Corbin has demonstrated, the books hinge on the spiritual as well as material world.³³ In this respect the scope of the science of *balances* is to seek within each body the relationship that exists between the manifest and the occult, the exoteric and the esoteric. When Jabir seeks to measure

the degree in which the four qualities (heat, cold, moisture and dryness) are present within a given body he is not simply carrying out a physical operation, he is also trying to measure the extent to which the *Anima Mundi* (Soul of the World, see chap. V) has desired to pervade the body in question. The desire the *Anima Mundi* experiences for the elements constitutes the basis of Jabirian alchemy: it is the transmutation of the *Anima* which reverts to its original condition, overcoming or modifying the level of its desire for the elements, that finally leads to the transmutation of the body. Corbin explains that Jabir saw the alchemical operation as a typical psycho-spiritual exercise. This does not mean that the Jabirian alchemical texts are just an allegory of the soul; a genuine physical experiment is carried out on genuine matter, but at the same time the various phases of the operation symbolize the phases of the transmutation of the soul.³⁴

In 1923, among the Jabirian corpus, the discovery was made of the copy of a treatise whose only known version up until that moment was in Latin. Its name was the TABULA SMARAGDINA (EMERALD TABLE). The alchemists of medieval Europe believed the TABULA came from the very dawn of time and they told of how the original version, carved on a slab of emerald, was found inside a cave clasped in the hands of the body of Hermes Trismegistus. According to other legends, the TABULA was discovered by Sara, the wife of Abraham,



Emblem I of *Atalanta Fugiens* by M. Maier (1618), dedicated to a verse from the *Tabula Smaragdina*: "The Wind carried it in its womb..."

INDIAN ALCHEMY

A contemporary of Avicenna, the Arabic scientist Abu al-Biruni (973-1051), has left us valuable evidence of the existence of an alchemical tradition in medieval India: "They (the Indians) possess a science of their own very similar to alchemy. They call it *Rasayana*, a word derived from *rasa*, 'gold'". Al-Biruni's statement has aroused much discussion among the historians of science, some of whom argue that Indian alchemy, where the term implies the science of the transmutation of metals, did not originate in India, but was introduced into that country by the Arabs. Today this hypothesis is refuted, for though many Indian alchemical manuscripts have still to be examined, the origin and development of Indian alchemy fit into a well-defined pattern extending back over millennia.

Rasa is an ancient Sanskrit word meaning *fluid* or *vital fluid*, and refers in particular to the sap of trees. Originally *rasayana* was the way of the fluid or the way of the vital fluid. In the *Caraka Samhita* (1st or 2nd century B.C.), a classical text of India's oldest medical tradition, *Ayurveda*, the term *rasayana* was used to describe certain techniques the aim of which was to revitalize the body and extend life expectancy with the aid of special elixirs, the majority of which were prepared from plants. The concept of *rasayana* had a mystical as well as medicinal implication. In the yoga system of Patanjali (c. 2nd century B.C.) the fluid of medicinal plants, or fruit of *Rasayana*, is recommended as a means of achieving perfection, or liberation during life.

As al-Biruni explains, at a certain point *Rasayana* came to mean a system in which base metals were transmuted into gold. There is no proof that this occurred because of the influence of Islamic alchemy. A number of texts written before the Islamic conquest prove that the Indian culture had long believed in the possibility of transmuting metals by the use of drugs and spells. The ability to transmute stone into gold and gold into stone was, according to ancient tradition, one of the powers (*siddhi*) acquired through the practice of yoga.

In later Hindu terminology of the mineral world, *Rasa* came to mean mercury, possibly because this strange liquid metal was in some way comparable to the fluids of plants and of the human body. And when mineral and mercurial drugs began to take the place of the vegetable elixirs described in the early manuscripts, *Rasayana* changed its meaning from way of the fluid to way of the mercury. The transmutation of metals, like longevity, could be achieved in three different ways: the use of vegetable preparations; the use of mineral preparations; the practice of yoga.

In time, Indian alchemy developed strong ties with Tantric yoga. As with Chinese alchemy and Taoism and Hellenistic alchemy and Gnosticism, Indian alchemy, too, when it came into contact with Tantrism, developed a language and a symbolism that could be read either in a spiritual key involving knowledge of the self, or a practical one in which metals were subjected to operations corresponding to those on a psychic level. As Mircea Eliade explains, the elixir obtained by alchemical means is equal to the immortality sought through Tantric yoga. The alchemist works on his metals in order to transform them into gold through regeneration, the yoga adept works on his own body and psycho-mental processes so as to transform his flesh into a *divine body* thus liberating the Spirit.

The ambivalence of the term is perfect. For instance the chemical *killing* of the metals corresponds to the yoga practice in which there is suspension of all mental states, or transmutation of the mind involving the turning away of the senses from the external world, and concentration on inner mental processes. The *killed mercury* which, within the oven, becomes the principle that regenerates the base metals, on a cosmic level becomes the "Semen of Shiva", a primordial substance from which all beings are generated. Sexual union is vital in Tantra and from it Indian alchemy derived a tradition that attributed a sexual value to every substance and every combination of the elements throughout the Universe. The world is the emanation of the eternal union between the twin cosmic principles Shiva and Shakti, whose sexual essence, of which Mercury and Sulphur are the visible manifestations, are the means by which to purify the world. It was from Tantrism, which uses a sexual symbolism and iconography to express the union of energies, that *rasayana* developed its explicitly sexualized language where, for example, Mercury penetrates Sulphur to be killed and reborn in a more perfect state. It is still not clear, however, to what degree Indian mystical alchemy was influenced by Tantric sexual techniques, and in particular that of the retention of the semen which in China inspired the *nei tan* spiritual tradition of alchemy.



17th century drawing inspired by the *Turba Philosophorum*: six Philosophers are engaged in a lively discussion on the principles of the Art. The *Turba*, a Latin version of an Arabic text derived probably from a Greek original, is comprised of seventy-two speeches, in which the theoretical premises of alchemy are discussed.

or by Alexander the Great, or by the famous Greek philosopher and reputed worker of miracles Apollonius of Tyana (1st century A.D.).

Jabir was among those who believed that the *TABULA SMARAGDINA* had been found by Apollonius of Tyana. The discovery of the Arabic version of the *TABULA* shows that the text is indeed very old, and was probably translated from the Syriac though ultimately it may have been based on a Greek original. The *TABULA* is considered to be one of the fundamental texts of the Arabic alchemical tradition and would certainly have influenced the works attributed to Jabir.³⁵

The *TABULA SMARAGDINA* is one of the briefest texts of the entire history of alchemy and consists of a mere handful of lines: not for this is it any easier to decipher. In fact, countless pages have been written on its meaning. Here below is a translation from the Latin:

"True it is, without falsehood, certain and most true. That which is above is like to that which is below, and that which is below is like to that which is above, to accomplish the miracles of one thing. And as all things were by the contemplation of one, so

all things arose from this one thing by a single act of adaptation.

The father thereof is the Sun, the mother the Moon.

The Wind carried it in its womb, the Earth is the nurse thereof.

It is the father of all works of wonder throughout the whole world.

The power thereof is perfect.

If it be cast onto the Earth, it will separate the element of Earth from that of Fire, the subtle from the gross.

With great sagacity it doth ascend gently from Earth to Heaven.

Again it doth descend to Earth, and uniteth in itself the force from things superior and things inferior.

Thus thou wilt possess the glory of the brightness of the whole world, and all obscurity will fly from thee.

This thing is the strong fortitude of all strength, for it overcometh every subtle thing and doth penetrate every solid substance.

Thus was this world created.

Hence will there be marvellous adaptations achieved, of which the manner is this.

For this reason I am called Hermes Trismegistus, because I hold three parts of the wisdom of the whole world.

That which I had to say about the operation of Sol is completed."

In general, the document affirms the principle of the correspondence between macrocosm (*things superior*) and microcosm (*things inferior*), both deriving from the same origin, the same prime matter. This, in turn, is the daughter of the masculine principle (Sol) and feminine principle (Luna). The text might also be making an allusion to the theory of the four elements, where it states that all things arise from the concurrence of the Sun (fire), the Moon (water), the wind (air) and the earth. Separating and revitalizing the elements, volatilizing the fixed and fixing the volatile, through a series of alchemical operations, the adept acquires the ability of reproducing nature's creative cycle (*thus was this world created*).

To which alchemy is the unknown author of the *TABULA SMARAGDINA* referring? However closely we analyse the text, it is never clear whether it is talking about a chemical process or mystical and spiritual techniques. The phrases: "With great sagacity it doth ascend gently from Earth to Heaven. Again it doth descend to Earth, and uniteth in itself the force from things superior and things inferior" suggest the process of distillation, but they might just as easily be referring to an exercise in atonement in which the spirit leaves the body to join with the Absolute. While the words: "Thus thou wilt possess the glory of the brightness of the whole world, and all obscurity will fly from thee" could allude both to the whitening of the substance blackened in the furnace or to the achievement of the mystical body of light.³⁷



Within a temple, the Arabic alchemist Senior Zadith consults a tablet divided into two parts. On the left can be seen a silver colored full Moon and crescent Moon, and two birds with their beaks locked together. On the right side are two golden Suns, and a circular figure divided into three sections, each of which bears a face. Three young men enter the temple, pointing to an alchemical vessel on the top of a column and containing a golden liquid. On the roof blue eagles armed with bows, aim their arrows at Senior Zadith (Miniature from the *Aurora Consurgens*, 14th century). The illustration is a pictorial transposition of the opening lines of the *Tabula Chemica*, a text to which the Latin alchemists attached considerable importance and ascribed to an imaginary Senior Zadith, son of Hamuel. In reality the work is derived from an original Arabic manuscript entitled *The Silvery Water and the Starry Earth*, by Muhammad ibn Umail (10th century).

Another Arabic text ascribed to Jabir imagines a group of philosophers assembling together to discuss the principles of alchemy: Almost certainly this book is modelled on a famous manuscript of Latin alchemy, the *TURBA PHILOSOPHORUM* (THE CROWD OF PHILOSOPHERS). Studies conducted during the Thirties and Fifties have shown that this CROWD so dear to Western alchemists is the Latin version of an Arabic original dating back to around 900. It is even possible that the Arabic text may have been the revised version of a Greek work.³⁸

The text tells how nine philosophers of ancient Greece (Anaximander, Anaximenes, Anaxagoras, Empedocles, Archelaos, Leucippus, Ephantus, Pythagoras and Xenophanes) meet together to discuss alchemical matters in association with speculation on God the creator of the world, the unity of the Universe and the theory of the four elements. Sub-divided into seventy-two debates, the CROWD gives an Arabic "sheen" to those concepts of Greek philosophy which formed the theoretical premise of the *Sacred Art*. The book is an example of the attempt made by early Islamic alchemists to "Islamize" alchemy.

Following in Jabir's footsteps were other illustrious Islamic alchemists, such as: the famous Persian physician Abu Bekr Muhammad ibn Zakariya ar-Rhazi (c. 864-925), known to the West as Rhazes, author of the *KITAB AL-ASRAR* (BOOK OF THE SECRETS), which deals with apparatus as well as chemicals and adds a third constituent, Salt, to the two Jabirian principles, Sulphur and Mercury, underlying all matter; Maslama ibn

Ahmad, known as al-Magriti meaning "from Madrid" (d. 1007); Muhammad ibn Umail (900-960), whose book *THE SILVERY WATER AND THE STARRY EARTH* was translated into Latin as the *EPISTOLA SOLIS AD LUNAM CRESCENTEM* (EPISTLE OF THE SUN TO THE CRESCENT MOON), or *TABULA CHIMICA* (CHEMICAL TABLET) and attributed to an imaginary Senior Zadith, son of Hamuel (an obvious transposition of ibn Umail); Abu Ali ibn Sina (980-1037), known to the West as Avicenna, the "Prince of Physicians", rose to highest prominence both as an administrator and as philosopher-physician, and wrote on the generation of metals though he was strongly critical of transmutatory alchemy. The Islamic alchemical tradition spread steadily up until the 13th century, with Abu al-Iraqi, and to the 14th century, with Aydamur Jildaki.

Like many other branches of Islamic philosophy and science, alchemy was introduced into the world of Christendom as Islamic political and religious dominion extended to the West. Spain and Sicily were the two gateways through which the Arabic and Latin cultures mingled. Spain in particular, for centuries under Saracen rule, was influenced by Moslem culture and science, magic and astrology.³⁹ For the men of the 12th century, thirsty for new cultural experiences, the Spanish peninsula became a sort of "promised land", where mathematics, astronomy, medicine and alchemy could be studied. From all over, men gathered in Toledo, Barcelona, Tarragona and other Spanish cities to improve their knowledge of Arabic and work as translators. It was not an easy task, and at times they were obliged to enlist the help of the Spanish Jews,



The Arabic philosopher and physician Avicenna, who was reputed to have been an alchemist, though in reality he did not believe in the possibility of transmutation. Here he is pointing to an eagle chained to a toad, symbol of the marriage of the Volatile and the Fixed. (From *Symbola aureae mensae* by M. Maier, 1617).

who translated from Arabic into the vernacular, which the official translators then put into Latin. With such a complicated system it goes without saying that the final version was full of inaccuracies, if not gross errors.

The work of translating Arabic manuscripts was often encouraged and protected by the ecclesiastical authorities, such as the archbishop of Toledo or the bishop of Tarragona. Not infrequently the translators themselves were clerics; on the other hand, the keys to culture in those days of widespread illiteracy were securely in the hands of the Church. After a meeting in Spain with the Englishman Robert of Chester (or Robert of Ketton, known as Robertus Castrensis), Peter the Venerable, the last great abbot of Cluny, encouraged the Englishman to undertake the translation of the Koran.

According to tradition this same Robert of Chester was the first man to translate an alchemical manuscript. On February 11, 1144, he in fact completed the Latin version of an Arabic text reputed to have been written by the famous Christian hermit Morienus for his illustrious pupil in alchemy, Prince Khalid. In the preface to this book, translated as *LIBER DE COMPOSITIONE ALCHEMIAE* (BOOK OF THE COMPOSITION OF ALCHEMY), Robert of Chester writes: What alchemy is, and what the composition of alchemy is, which you of the Latin culture have yet to encounter, I will explain to you in this book.⁴⁰ And even though a handful of Greek manuscripts on the tinctures of the *Sacred Art* had in fact reached Europe from Byzantium during the 8th-9th centuries, this was the beginning of the alchemical adventure in the Western world.

¹ On the identification of Synesius, see: J. Lindsey, *The Origins of Alchemy in Graeco-Roman Egypt*, London 1970.

² Ammianus Marcellinus, XIX, 22, 14.

³ M. Psellus, *La Crisopea*, edited by F. Albin, Genoa 1988, p. 27.

⁴ When not stated otherwise, the notes on Harran have been taken from: J. Partington, *A History of Chemistry*, London 1970, Vol. I p. 330-343.

⁵ J. Lindsey, *op. cit.*

⁶ R. Halleux, *Les textes alchimiques*, Turnhout 1979, p. 45.

⁷ M. Berthelot, *La Chimie au Moyen Âge*, Vol. 3, p. 26.

⁸ Herodotus, *History*, 11, 12.

⁹ Plutarch, *De Iside et Osiride*.

¹⁰ For the Greek etymology of *al-kimiya*, see in particular: J. Lindsay, *op. cit.*

¹¹ G. Syncellus, *Chronographia*, Vol. 1, p. 23-24.

¹² R. Halleux, *op. cit.*, p. 45.

¹³ M. Berthelot, *op. cit.*, p. 29. For the titles of the works of Khalid quoted by an-Nadim, we have referred to the translation made by J. Holmyard in *Alchemy*, London 1957.

¹⁴ A rotl was equivalent to approximately 327 grams, according to the comparisons quoted in: Jabir ibn Hayyan, *Dix Traités d'Alchimie*, Paris 1983. Introduction by P. Lory, p. 86.

¹⁵ M. Berthelot, *op. cit.*, p. 31-32.

¹⁶ See: R. Halleux, *op. cit.*, p. 67.

¹⁷ Jabir ibn Hayyan, *op. cit.*, p. 53.

¹⁸ F. Sherwood Taylor, *The Alchemists*, London 1976, p. 69-70.

¹⁹ H. Corbin, *Histoire de la philosophie islamique*, Paris 1964.

²⁰ *Ibid.*

²¹ Jabir ibn Hayyan, *op. cit.*, p. 17.

²² Quoted in: J. Holmyard, *Alchemy*, in *A History of Technology*, Vol. 2, Oxford 1956.

²³ Jabir ibn Hayyan, *op. cit.*, p. 88-89.

²⁴ J. Holmyard, *op. cit.*

²⁵ Jabir ibn Hayyan, *op. cit.*, p. 81-82 and notes.

²⁶ M. Berthelot, *op. cit.*, p. 148.

²⁷ *Ibid.*, p. 148.

²⁸ S. H. Nasr, *Sufi Essays*, London 1972.

²⁹ M. Berthelot, *op. cit.*, Préface.

³⁰ *Ibid.*, p. 150 onward.

³¹ Jabir ibn Hayyan, *op. cit.*, p. 33.

³² P. Kraus, *Jabir ibn Hayyan, contribution à l'histoire des idées scientifiques dans l'Islam*, Paris 1985.

³³ H. Corbin, *op. cit.*, p. 140-141.

³⁴ *Ibid.*

³⁵ J. Holmyard, *op. cit.*

³⁶ This translation of the *Tabula Smaragdina* is that of R. Steele and D. W. Singer, made earlier this century.

³⁷ An interesting esoteric interpretation of the *Tabula Smaragdina* is provided in: T. Burckhardt, *Alchimie, sa signification et son image du monde*, Basle 1974. Among other things, Burckhardt bases his interpretation on both the Latin and Arabic versions, which differ slightly from one another.

³⁸ J. Holmyard, *op. cit.*

³⁹ C. H. Haskins, *The Renaissance of the 12th Century*, New York, 1958.

⁴⁰ J. J. Manget, *op. cit.*, Vol. 1, p. 507.



The Rebis, or alchemical androgyn, representing the union of opposites, is one of the most famous symbols in alchemy which can be found in many different representations. In this case the male part of the creature is holding a hare, the female part a bat: the *conjunctio* portrayed is that of the Fixed (the hare) with the Volatile (the bat). (Miniature from the *Aurora Consurgens*, 15th century).

CHAPTER IV

WITHIN THE MONASTERY WALLS

From the 12th to 14th centuries, as alchemy began to spread throughout the western world, it was bound to attract the attention of the Franciscan and Dominican monks. Revealed to the West through the translations of Robert of Chester and his colleagues, this new science was fervidly received by Medieval culture and the Church. When, in the early 13th century, the first original Latin alchemical manuscripts were written, many monks and men of the Church were already deeply involved in alchemical practices, as is evident from the comments of some of the alchemical writings dating from that period: "Brother Pasinus Parvus of Brescia practices alchemy and knows how to extinguish mercury with coral; I think this is the same preaching friar from Mantua to whom Gabriel refers when he describes a brother of the Friars Minor with misguided ideas..."; "Friar Michael of Cremona, of the Order of the Hermits of St. Augustine, is an alchemist..."; "Master Galieno, the Bishop's scribe, is an alchemist and knows how to whiten copper so that it resembles common silver..."; "I will first expound the chapter written by an archbishop who was also an alchemist..."¹

If the *CHRONICA* (*CHRONICLES*, 1258) of Salimbene of Adam is to be believed, alchemy was introduced to the Franciscans at an early date, thanks to Friar Elias Buonbarone who later became famous as Brother Elias of Cortona and assumed leadership of the Order shortly after the death of Saint Francis. Though his exact origins are uncertain, Elias was probably born at Cortona or Assisi. He joined the order in 1211 and soon earned the respect of Saint Francis himself. In 1217 he was appointed Minister Provincial for the Holy Land.² He sailed from Brindisi in 1217 together with the Crusaders and stayed in the East for three years. We have no record of his activities during this period, but we do know that he stayed in Syria for a time, where he was joined by Saint Francis in 1219.

Quite possibly it is here, in a country where the mysterious tradition of Harran was still alive and which had played such a vital role in the transformation of the *Sacred Art* into *al-kimiya*, that Brother Elias first encountered the science of transmutation.

In 1221, upon his return from the East, Elias was appointed vicar to the Saint, his duties, meticulously carried out, being to organise and guide the Order. Upon the death of Saint Francis in 1227, the Franciscans elected Brother John Parenti to succeed him as General of the Order. Brother Elias, swallowing his pride and disappointment, turned his efforts to the construction of the basilica of Assisi, which took twenty-five months to build and was completed by April 1230. That same year a special chapter was called to discuss a number of serious problems that had arisen within the Order, not least of which was the question of the poverty rule: to precisely what extent were the friars obliged to comply with the Franciscan *Rule* that prohibited the use of money? Were the friars to remain simple souls, following in the steps of their founder, or should they study and perhaps teach at the universities? Were they obliged to follow Saint Francis's *TESTAMENT* to the letter, leading an itinerant life of heroic poverty, residing only in "churches or humble dwelling places"?

In reality, already in those early days, the Order was divided on the question; the rigorists on the one hand advocated strict observance of the rules of poverty and humbleness, on the other the laxists believed in mitigation and the use of money to expand and strengthen the Order. The contention was such that on September 28, 1230, the papacy, in the person of Pope Gregory IX, invested not only with the authority of his position but also with the influence arising from his deep personal friendship with Saint Francis himself, issued the bull *QUO ELONGATI*, which established that Saint Francis's *TESTAMENT* was not law but merely an exhortation.

The bull was to play a decisive role in the future of the Order. In 1232 Brother Elias was elected the third general and he at once embarked on a course designed to confer power and glory on the Franciscans. This, combined with his tyrannical manner, soon upset the rigorists, who saw him as the negation of all that Saint Francis had stood for. They turned to the Pope, accusing Brother Elias of worldly conduct and eliciting his immediate dismissal, and his career in fact abruptly ended shortly thereafter. Caught up in the power game between Gregory IX and Emperor Frederick II, Elias, who was a friend of both, tried to mediate between the two contenders. When he failed to appease the Emperor he was accused of Ghibellinism and, unable to resist the current moving against him, was deposed in 1237. Not long after he was deprived of his post of guardian of the Basilica of Assisi, following which he retired to Cortona with a small group of disciples. A second attempt to negotiate peace between the Pope and the Emperor was misinterpreted and in fact made matters worse and he was promptly threatened with excommunication for having acted on behalf of the Emperor. Elias apparently sent a letter of explanation to Gregory IX but the letter failed to reach its destination and the excommunication edict was confirmed. Though expelled from the Church, Elias still remained on excellent terms with Frederick II, who sent him on a delicate diplomatic mission to the East (1241-1242), but the assignment only helped to increase his reputation as a Ghibelline. During the years to come, his disciples made a number of attempts to restore his good name, but to no avail. All hope finally died when, in 1245, the new Pope, Innocence IV, confirmed his excommunication and forbade him to wear the Franciscan habit. Again Elias's letters of explanation to the Pope were intercepted by his enemies and failed to reach their destination.⁷ He died at Cortona on April 22, 1253, and was probably reconciled with the Church on his deathbed.

How Elias was judged by his contemporaries was undoubtedly influenced by the current political situation and the split within the Order. The *LEGENDA PRIMA* (*LIFE OF SAINT FRANCIS*), written by Thomas of Celano in 1229, describes Brother Elias as one of Saint Francis's closest friends; so great, in fact, was the Saint's esteem that he chose him "as a mother for himself and father for the other sons."⁸ The book also narrates how Elias received a special blessing from St. Francis on his deathbed, almost as though the Saint's last wish was that Elias should be his successor at the head of the Order.⁹ He is described by contemporary chroniclers as "famous in the art of architecture...", an eloquent speaker "so well-versed in every branch of human knowledge that there are few in Italy who can equal him..."¹⁰ And the very fact that he was sent by Gregory IX on a mission to Frederick II indicates that he was indeed a man of many talents. And yet after his death, when the historians of the Order were piecing together

the events of the early years of the Franciscans, the finer of Elias's qualities — up until 1239 he had been revered almost as a saint — were gradually played down until he became known as the man who had "upset the whole Order", a scapegoat for all the trials and tribulations experienced by the Franciscans during the first half of the 13th century.⁷

The famous medieval chronicler Salimbene of Adam, who had been accepted into the Order in 1238 by Brother Elias himself, accused Elias of having transformed the Order into a den of alchemists. According to the list he compiled of Elias's multifold misdeeds, the eleventh transgression of which he was guilty was "the infamy he brought upon himself by having taken an active interest in the practice of alchemy. In fact, whenever rumor reached his ears that there were friars within the Order who had studied this science of deception he would summon them to stay with him at the Gregorian Palace." Salimbene adds: "There was within the monastery of the Friars Minor a magnificent suite which had been built to the specifications of Pope Gregory IX, not so much for the glory of Saint Francis's house as for his own personal comfort whenever he visited Assisi. The suite contained many secret places and it was here that Elias lodged these friars and other men and where it is said they engaged in conversation with the Priestess."¹¹ The chronicler continues with an account of Brother Gerard of Cremona's visit to the former General at Cortona in 1247: "Brother Gerard passed a sleepless night and, as he later recounted, heard noises he took to be demons fluttering to and fro in the suite and the monastery all night long like bats, their cries filling him with terror from head to toe..."¹²

In confusing the alchemist's laboratory with the devil's lair, Salimbene affords proof that alchemical practices were already being viewed with suspicion in the Western world as early as St. Francis's time. Pursued almost exclusively by men of the Church, many saw it as a science closely akin to the satanic arts. Today, however, we must ask ourselves just how objective Salimbene's *CHRONICA* was in its criticism of Elias. Does it indeed prove that Brother Elias was an alchemist? Although we cannot be sure that St. Francis's successor actually engaged in alchemical practices, Salimbene's affirmations are backed by further evidence. First, we find the name of a Brother Elias of Assisi or Cortona attributed to a number of treatises and poems of an alchemical nature. Second, the *LIBER LAUREATUS*, written around the year 1300, names Elias as one of the fathers of alchemy.¹⁰ Third, in the *HISTORIA SEPTEM TRIBULATIONUM*, written prior to 1326, Angelo Clareno (1255-1337) describes Elias as an accomplished alchemist.¹¹ Last of all, the alchemical manuscripts ascribed to Michael Scotto (c. 1190-1250) astrologer and alchemist at the court of Frederick II, repeatedly refer to Elias as an expert in the Art.¹² Other circumstances would seem to confirm that this Franciscan friar was indeed one of the first alchemists of the Western world.



Calcination, represented by a dog-like creature with wings and a tail. The sword and the arrow are symbols of the fire essential to the operation. Inside the vessel an eagle and a dragon are fighting, each biting the other's tail, thus forming a figure reminiscent of the Ouroboros, describing a process of alternation between the Fixed and the Volatile. (Miniature from the *Aurora Consurgens*, 15th century).

Destiny was to take him for sufficiently long periods of his life to Syria and Sicily, and we know for a fact that Syria was one of the historical birthplaces of Islamic alchemy. The Sicilian court of Frederick II was one of the places in which Islamic scientific manuscripts were translated into Latin. Michael Scotto was renowned for his proverbial knowledge and his translations from Arabic. He is even said to have translated a text written by the Arabic physician Rhazes.¹³ Scotto, who spent much of his youth at Toledo, another center of Islamic-Latin alchemy, was probably one of the first men of Western culture to practice alchemy and to write his own accounts of the science. In one of the texts attributed to his pen, Scotto refers to a fellow alchemist named Brother Elias.¹⁴

The oldest copies of manuscripts bearing the signature of Brother Elias were not written prior to the 15th century and their authenticity is therefore doubtful. In accordance with a tradition recurrent throughout the evolution of alchemy, it is possible that these manuscripts were the work of some unknown Friar Minor of the 13th or 14th century, who elected to overcome his anonymity by adopting the name of an illustrious predecessor and reputed alchemist. However, Brother Elias's reputation had been so badly

compromised in the second half of the 13th century, thanks to the scathing words of Salimbene and other Franciscan historians, that it would have been unwise for any aspiring alchemist friar of the 14th century to use the name of a man believed to have been a perpetrator of iniquity. If the manuscripts ascribed to Elias are fakes, then they must date back to a period in which Buonbarone's reputation was still relatively intact. It therefore follows that these writings may indeed be the result of early Franciscan alchemy. On the other hand, Salimbene's allegations describing Assisi during Elias's generalship as a den of alchemists, cannot be entirely without foundation and probably reflect the spread of alchemical practices within the Franciscan organization during the first half of the 13th century.

When Salimbene describes alchemical activities as one of Elias's misdeeds, he is implying that such practices were illicit at that time. This was not true. In the first half of the 13th century, the Doctors of the Church spoke freely and unfearingly of alchemy. Robert Grosseteste (1175-1253), chancellor of the university of Oxford and reader to the Franciscans, was a great admirer of Brother Elias and in his writings occasionally alludes to the science of alchemy. He was apparently aware of some of its fundamental theories — for instance, the *maturing* of metals from an imperfect to a perfect state beneath the earth's surface — and did not entirely refute the theory of alchemical transmutation.¹⁵ The Dominican Vincent of Beauvais (c. 1190-1264), author of *SPECULUM MAIUS* (*GREATER MIRROR*), the most extensive encyclopaedia of medieval



The Dominican philosopher Albertus Magnus, held by tradition to be one of the fathers of Latin alchemy. Here he is shown in bishop's robes, for he was bishop of Ratisbon from 1260 to 1262, pointing to the mystery of the Robis. (From *Symbola aureae mensae*, by M. Maier, 1617).

knowledge, completed around 1250, often mentions alchemy in the *SPECULUM NATURALE* (NATURAL MIRROR), one of the three parts comprising the encyclopaedia. Vincent of Beauvais believed alchemy to be linked to the science of mineralogy, rather in the same way that agriculture is linked to botany.¹⁶ He, too, was convinced that minerals, especially metals, could be transformed from their original species to another purer state; and even though alchemy may sometimes seem to be illusory, its true value has been proved, not only by the ancient philosophers but by the men of this age who practice it. He held that transmutation was possible, because base metals could be reduced to their simplest state and then transformed until they assumed the characteristics of a precious metal. It was through the Philosopher's Stone, the Elixir, that the *Art* imitated nature.¹⁷ In his encyclopaedia, Vincent de Beauvais writes that alchemy was founded on a number of fundamental points: the four spirits present in all metals (Mercury, Sulphur, Arsenic and Salt); the six basic metals (gold, silver, copper, tin, lead and iron) generated within the bowels of the earth; all metals were generated from the marriage of Sulphur and Mercury.¹⁸ However, Vincent de Beauvais was convinced that there was more to alchemy than just the theory of transmutation. He believed it had many practical applications, for instance, that alchemical techniques for the disintegration and subsequent transformation of matter could be used for *industrial* purposes, such as the fabrication of minium, cinnabar, saltpetre and brass.¹⁹

Another Dominican, Thomas Aquinas (c. 1225-1274), was even more deeply involved in the alchemical debate, though his attitude in this respect was to change more than once during the course of his lifetime. In one of his early writings *SCRIPTUM IN IV LIBROS SENTENTIARUM MAGISTRI PETRI LOMBARDI* (COMMENT ON THE SENTENCES OF PETER LOMBARD), written around 1252-1257, he conveys a certain scepticism, remarking that alchemists could not hope to fabricate true gold as they used the heat of a fire for their operations, unlike nature which uses the heat of the sun.²⁰ However, some ten years later, in his monumental *SUMMA THEOLOGIAE*, written between 1269 and 1272, in debating whether or not it was ethical to sell alchemical gold, his attitude is less guarded: "Therefore, if the gold or silver created by the alchemist does not possess the qualities of the true metal, it is fraudulent and deceitful to try to sell it. True gold and silver possess certain qualities deriving from natural processes which are obviously absent from the sophisticated gold of the alchemist. For instance, the ability to alleviate suffering in certain illnesses. Moreover, true gold, unlike artificial gold, can be used more, lasts longer and maintains its purity. However, if pure gold could be obtained through alchemical practices, it would not be illicit to sell it. There is nothing to prevent the art from resorting to certain natural processes in order to produce truly natural effects; as St. Augustus sustains, when he talks of the things produced by the arts of the devil."²¹



Miniature from a 16th century manuscript dedicated to *Tractatus qui dicitur Thomae Aquinatis de alchimia* (Treatise on alchemy said to be by Thomas Aquinas), one of the many alchemical texts erroneously ascribed to this Dominican theologian. At the bottom of the picture can be seen the alchemist and his *soror mystica* holding the keys of the Great Work. The ram and the lion represent their respective zodiac signs. The upper part of the miniature depicts the death and resurrection of matter.



Three legendary alchemists symbolically engaged in conversation in front of an athanor. Basil Valentine, a Benedictine of St. Peter of Erfurt; Thomas Norton; John Cremer, abbot of Westminster. The picture portrays the early phase of Latin alchemy, when the Art was widely practiced in ecclesiastical circles. (From *Triplus aureus*, by M. Maier, 1618).

Even less sceptical, and perhaps for this very reason less famous, is the view he expresses in his comment on Aristotelian philosophy *IN IV LIBROS METEOROLOGICORUM EXPOSITIO*, (COMMENTARY ON ARISTOTLE'S *METEOROLOGICA*) 1269-1272: "As regards the material principles of metals, it should be remembered that these fall into two categories: some in fact are the remote materials of such metallic bodies, which are the vapors imprisoned within the Earth's rocks; but the immediate materials of the metals are Sulphur and Quicksilver: this is what the alchemists maintain. Thus, in the aforesaid rocky places of the Earth, by way of the mineral virtue, Sulphur and Quicksilver are first generated, from which, according to the proportions in which they are mixed, spring other different metals. By means of the alchemical art (a veritable art indeed but nonetheless a difficult one due to the occult operations of the celestial virtue, namely the mineral virtue, which, hidden as they are, are imitated by us only with difficulty), the alchemists sometimes manage to achieve the authentic generation of metals either from the above mentioned Sulphur and Quicksilver without the generation of vapor, or by causing certain bodies to exude the vaporous exhalations by means of the appropriate application of heat, which is the natural agent."²²

A number of alchemical writings are attributed to Thomas Aquinas, but before going into them, it is worth our while to examine the views of the German philosopher and theologian, Albert of Bollstaedt (St. Albertus Magnus, c. 1193-1280). Albertus joined the Dominican order while studying in Padua. He later taught in the schools of Hildesheim, Ratisbon and Cologne, where Thomas Aquinas was his pupil. He

was a man of vast scientific interests who firmly believed that the only valid basis for science was observation and direct experience. In his book *DE REBUS METALLICIS ET MINERALIBUS* (ON METALS AND MINERALS), Albertus reveals a generic interest in alchemy, though like Avicenna, who was critical of transmutatory alchemy, he holds that alchemy cannot actually mutate the species of metals, only imitate them, as when coloring copper until it looks like gold.²³ Of all the arts, alchemy is the one that best imitates nature, but it is still only an imitation.²⁴ In theory — he explains — the alchemists could purify a vast quantity of the two fundamental components of metals (Sulphur and Quicksilver) and then combine them in differing proportions according to the metal they wish to create; in practical terms, however, the alchemists only succeed in coloring the base metal yellow or white. Theoretically, the transmutation of metals is possible but alchemy has yet to discover the key. "I have tested alchemical gold personally — affirms Albertus — but after it has been heated six or seven times it turns to powder."²⁵

In the light of our knowledge today, the Dominican's statements are remarkably accurate. With the advent of nuclear physics, scientists have established that the transmutation of matter is indeed possible, though it requires highly complex techniques that the medieval alchemist could not have imagined even in his wildest dreams. Albertus Magnus's involvement in alchemy would have gone no further than this shrewd intuition, were it not for the fact that a conspicuous number of magical and alchemical writings have been ascribed to his pen. The first, especially the two manuscripts known as *MAGNUS ALBERTUS* and *PARVUS ALBERTUS*, are a collection of recipes, spells and other popular

superstitions, that are now known to have been written at a later date. The second group, too, are now held to be spurious, apart from one or two rare exceptions, such as the *LIBELLUS DE ALCHIMIA* (LITTLE BOOK OF ALCHEMY), possibly derived from the earlier *ALCHIMIA MINOR* (MINOR ALCHEMY). This manuscript is said by some to be authentic, while others more cautiously go no further than to say that there are strong possibilities that the text is his.²⁶ The fifty-seven chapters of *LIBELLUS DE ALCHIMIA* deal with the key aspects of alchemy, such as the Mercury-Sulphur theory of the generation of metals; the quality and quantity of the alchemical ovens; the various steps of the alchemical operation (sublimation, distillation, calcination, coagulation etc.); the nature of the Elixir; the various substances that are used in alchemical processes (arsenic, sal ammoniac, alkali, cinnabar etc.).

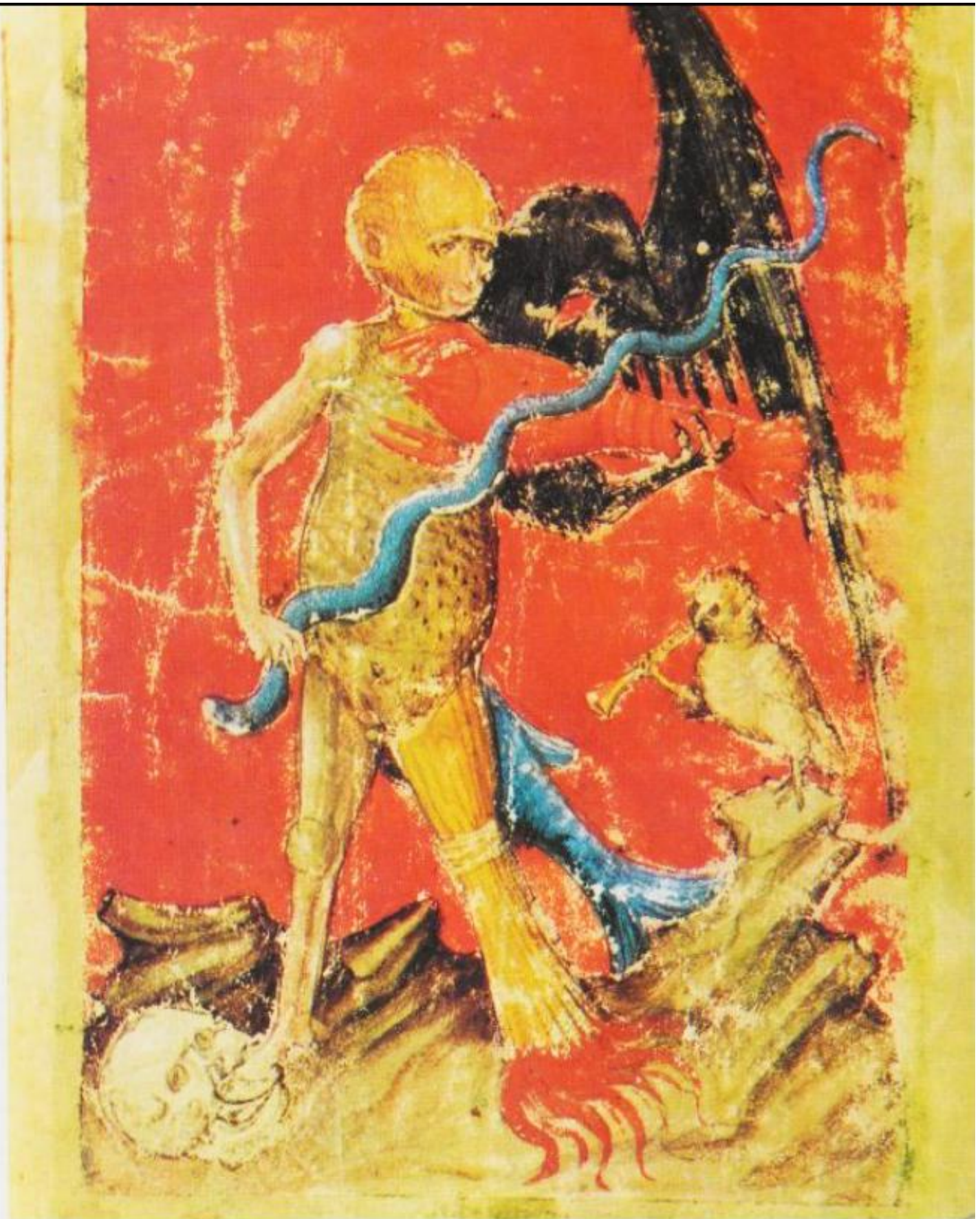
The most interesting part of *LIBELLUS* is the preface in which the author describes the vicissitudes of his search for the secrets of the *Art*: "Having traveled, despite great difficulty, throughout many regions and even more provinces, not to mention cities and castles, in pursuit of the science called Alchemy and having spoken at great length with scholars and learned men about this art in my desire to penetrate its secrets, and having transcribed all their writings and pored long hours over their works, I found no truth in the things their books declared. I then studied the writings of those who are opposed and of those who are in agreement and I found that they have nothing to offer and therefore have no use. Certainly, I met many rich and learned men, abbots, deans, canons, physicists, and ignorant people too, who for the sake of this art had wasted much time and money and had in the end abandoned the search because it was leading nowhere. In truth, I did not despair, but continued my travels despite the hardships and expense, wandering from place to place, meditating as did Avicenna: if this thing is, then how is it? If this thing is not, then how is it not? I persevered in my study, meditation and contemplation of his (Avicenna's) works until I found what I was looking for, not by way of my scientific knowledge but by the grace of the Holy Spirit. Thus, with my experience and understanding of that which surpasses nature, I began to pay more attention to the alchemical decoctions and sublimations, solutions and distillations, waxings, calcinations and coagulations, and at last I realized that transmutation in Sol and Luna is possible. This (the metal thus obtained) appears upon handling and examination, to be far better than any natural metal..."²⁷

Were this passage authentic, it would be extremely embarrassing, for it virtually alleges that Albertus Magnus was not only an alchemist, but that he had actually obtained the Philosopher's Stone. In all events, even if the passage were authentic, it would have to be taken with a pinch of salt, because Albertus, Count of Bollstaedt, however knowledgeable he may of been, was

still a man of the Middle Ages and as such was inclined to take veritable nonsense for the ultimate truth. In his writings he sometimes claims to have successfully carried out some totally absurd experiment which he presents to his readers as an authentic scientific discovery, declaring peremptorily: "I saw it with my own eyes!"²⁸ For instance, he apparently believed in the strange mystical powers attributed throughout the Middle Ages to the toad, and even alleges to have watched an experiment in which a toad with a mere glance successfully distinguished precious stones that were not sufficiently pure.

The reputation Albertus enjoyed among his contemporaries of being an alchemist was bound to rub off on his favorite pupil, Thomas Aquinas, to whom are attributed a number of alchemical manuscripts. Petrus Borellius's catalogue, *BIBLIOTECA CHIMICA*, published in 1656, lists a copious group of works under his name: *LIBER LILII BENEDICTI* (BOOK OF THE BLESSED LILLY); *TRACTATUS DE ESSE ET ESSENTIA MINERALIUM* (TREATISE OF THE BEING AND ESSENCE OF MINERALS); *SECRETA ALCHIMIAE MAGNALIA* (THE SECRET WONDERS OF ALCHEMY); *THESAURUS ALCHIMIAE* (THE TREASURE OF ALCHEMY); *AURORA CONSURGENS* (THE RISING DAWN); *DE ARTE METALLICA* (THE ART OF METALS); *DE LAPIDE VEGETABILI* (ON THE STONE THAT GIVES LIFE); a commentary on the *TURBA PHILOSOPHORUM* and another on the *TABULA SMARAGDINA*. None of these books is held to be authentic, as they were probably not written until the 14th century. According to a popular legend of the late Middle Ages, which totally overlooked the question of authenticity, St. Dominic was reputed to have been an alchemist and to have discovered the way to obtain the Philosopher's Stone. A secret that he apparently passed on to Albertus Magnus, who in turn revealed it to Thomas Aquinas.

Apart from the *LIBELLUS DE ALCHIMIA*, it is a fact that in some of his writings, the authenticity of which is unquestionable, Albertus Magnus reveals a deep understanding of alchemical matters.²⁹ With such an inquisitive scientific mind, it is not unlikely that he did, in fact, dabble in alchemy. This is less probable in the case of Thomas Aquinas, though quite recently, Marie-Louise von Franz, who worked under Jung at a time when he was researching alchemical symbolism, expressed the opinion that the *AURORA CONSURGENS* could indeed have been written by Thomas Aquinas. The *AURORA*, which we will be discussing in detail further on, is a highly suggestive work. According to Marie-Louise von Franz there is much in the book to imply that it was written by a dying man.³⁰ It is said that Thomas Aquinas, during the last years of his life, sometimes appeared to be alienated from the world around him, as though his mind were elsewhere. His close friend Reginaldo of Piperno, a fellow monk who had been with Aquinas for many years as a sort of secretary-servant, wrote that at a certain point he began to fear for Thomas's sanity. Apparently, he would be sitting at his desk trying to compose the closing passages of his



One of the most famous works ascribed to Thomas Aquinas is the *Aurora consurgens*, of which there exist handwritten copies beautifully illustrated with enigmatic miniatures such as this one, portraying a monstrous creature the symbolism of which is far from clear. The creature has an ape-like face, indicating that the *Art* is the "ape of Nature". It has three legs, one being a fish (the element Water), one a burning sheaf of corn (Fire), and the third a horse's leg resting on a skull (Earth). On its left shoulder sits an eagle, representing the element Air. Using a serpent for a bow, the creature plays a red crab, symbol of the Philosopher's Stone. He is accompanied by an owl playing a small trumpet, suggesting the supreme harmony that inspires the Great Work.

SUMMA, when suddenly he would drop his pen and sit with his head resting on his hands, his eyes fixed in an unseeing stare. When Reginaldo asked him why he was not writing, he would invariably reply "I cannot". After this same scene had been repeated for several days running, Thomas, prompted by his friend's urgings to take up his pen again, explained that he was unable to continue because everything he had written up to that moment now seemed vain and empty. Subsequent versions of the episode reported by other sources go a step further, maintaining that Thomas was more specific: "... everything I have written until now seems vain and empty in comparison with the things I have seen and that have been revealed to me." The episode is often quoted in support of the theory that, during the closing stages of his life, Aquinas had mystical visions during which he believed he had experienced a higher form of consciousness. In all fairness, it should be added that others are of the opinion that this attitude was merely the early signs of senile dementia. Marie-Louise von Franz tends to favor the first hypothesis; however, this was not her most important discovery. Apparently, Thomas Aquinas died while composing a commentary on the SONG OF SONGS, the book of the Bible which more than any other bears a resemblance to the AURORA CONSURGENS. These and certain other factors have convinced von Franz that the AURORA was derived from notes on Thomas Aquinas's last lessons.³¹

While the legend of Dominican alchemy was forming, Franciscan alchemy was already a *fait accompli*. The Franciscan friar Bonaventura d'Iseo, a contemporary of Elias, is said to have written the LIBER COMPOSTELLA, though the oldest known manuscript of this work dates back no further than the 15th century.³² Bonaventura, who probably lived between 1180 and 1260, was a leading figure in the history of the Franciscan order after the generalship of Elias. Salimbene of Adam describes him as being: "learned, ingenious and wise, an honest man leading a saintly life". He also adds that he was one of the few men with the ability to oppose the tyranny of Brother Elias's rule. Nevertheless, Salimbene does allow himself a characteristic streak of malice when he affirms that Bonaventura "often assumed an extremely superior attitude, despite rumors that he was born the son of a humble innkeeper".³³ Written undoubtedly after 1256, the LIBER COMPOSTELLA is a collection of practical alchemical recipes which suggest ways of preparing oils, solvents and powders from which could be obtained medicines, tinctures and metals colored to resemble gold and silver. The basic substances used in these experiments include, together with the metals and other materials common to traditional alchemy, some rather more unusual ingredients such as sea water, poppy extract and even human blood.

Later alchemists were not only interested in the recipes themselves, they were also intrigued by the title of the

work and the true meaning of the word *compostella*. Several hypotheses have been put forward: firstly, that *compostella* is derived from the Latin *compositum* (compound) meaning "a book compounded of many things" or even "a book of alchemical compounds"; a second possibility is that *compostella* refers to Santiago de Compostela, the destination of a pilgrimage to which the alchemists attributed a deeply symbolical meaning, as we shall see in another chapter; lastly, according to those who delighted in unravelling the enigma of the alchemists' habit of playing with words to hide the true meaning of their statements, *compostella* was instead a compound of *cum* (with) and *post* (after), or of *compos* (master) and *stella* (star), meaning "book written in accordance with the ancients, but after them" or "book written in order to possess the star", the star being one of the signs that transmutation had been achieved.³⁴

The LIBER COMPOSTELLA also recommends a recipe that "serves to make man wise and of a quick memory." In describing the miraculous effects of this water, the author writes: "This water is equally good for epilepsy and was discovered by Master John of the Friars Minor."³⁵ Whoever the author was, this observation proves once again that speculative and practical alchemy was widely pursued by the Franciscans. By the second half of the 13th century alchemy was a firmly established activity in monasteries throughout Europe, so much so that the religious authorities began to be worried and eventually responded by issuing a series of deliberations condemning alchemy.

The first serious restriction was announced in 1272 when the Provincial Chapter of Narbonne forbade the Franciscans to dabble in alchemy, ordering the burning of all alchemical texts and implying that there were strong similarities between the *Art* and magic.³⁶ Even more repressive was a supplementary note added, somewhere between 1279 and 1313, to chapter 113 of the 1279 edition of the Friars Minors' COSTITUIONES GENERALES ANTIQUE, which forbade the friars of the Order to have anything to do with alchemy, and threatened transgressors with severe punishment and even excommunication:

"And if they (the alchemist friars) persist in their wrongdoing, they shall be deprived of the company of their fellow brothers; should they persevere in their error to the bitter end, they shall be thrown into prison. Let this be announced by the general chapter or by the minister-general in accordance with the minister-provincial together with any further comments he may wish to add.

"Similarly, may the minister-general, together with the general chapter, categorically forbid, in the name of the Holy Spirit, any friar to practice or teach the techniques of alchemy, necromancy, spellcasting, magic or any other superstition or sorcery or operation pertaining to other questionable doctrines and arts that are not carried out in the light of day or that are forbidden by

the Church, and in general any form of deceptive or loathsome activity, such as the invocation of demons or the casting of spells on people and things. May no friar dare to possess, write, prepare for himself or for others, lend or give to others, ask for or receive in any way books or writings on such things; nor may he in any way help, favor or agree with those who desire to learn or teach these things, or who possess or wish to possess such books and writings, or who talk to others about them; nor may he familiarize with them or help them in any way in relation to the aforesaid things or objects of these injunctions.

"Furthermore, may the aforesaid minister-general, together with the general chapter, advise all friars to observe to the letter, once they have been informed of it, the aforesaid precept and its entire contents. Whosoever, after this, sees fit to disobey the writ, shall be liable *ipso facto* to the penalty of excommunication."³⁷

The practice of alchemy was banned in other monastic orders, as well. In 1273 the chapter general of the Dominicans at Pest warned the friars "...not to study or teach alchemy, or engage in alchemical activities, or keep writings on this science." The ban was confirmed at Bordeaux in 1287.³⁸ The Cistercians did not move in this direction until 1317, when they at last declared: "The chapter general requires all members of the Order to abandon the fraudulent art of alchemy under pain of excommunication, no matter how they dare or presume to practice the aforesaid art. Whosoever should discover that others are involved in this art, is obliged to report them to his superiors, otherwise he will be liable to incur the same punishment..."³⁹

The fact that the number of alchemist friars was on the rise is not sufficient to justify the severe measures taken by the Franciscan and Dominican ecclesiastical authorities between the years 1272 and 1279, nor does it explain why, in just a few decades, the tolerant attitudes of Vincent of Beauvais and Thomas Aquinas were totally forgotten in an attempt to eradicate from the monasteries the practice of what had unpredictably come to be seen as a fraudulent, diabolical art. What had happened to change the practice that had once been considered a science into a magical, even hell-inspired art?

Alchemy itself had certainly not changed. The most feasible explanation is that the sudden intolerance of the ecclesiastical authorities was a response to the spread of the Joachimite heresy throughout the monastic orders, especially the Franciscans. Joachim of Fiore (c. 1135-1202), an Italian mystic and abbot of the Cistercian monastery of Corazzo in Calabria, had aroused quite a stir with his mystical interpretations of history and the Scriptures, from which he established "concordances" between the history of Israel and that of the Church. From the letter of the Old and New Testaments, he believed, would spring a new spiritual intelligence, the clue to the meaning of history. This idea is embodied in his famous conception of three ages in

the world's history, each corresponding to a member of the Trinity: the age of the Father, the age of the Son and the age of the Holy Spirit, shortly to be consummated in perfect liberty commencing in 1260. The theories of Abbot Fiore were condemned by the Lateran council in 1215, but his *Eternal Evangel* continued to be widely accepted, especially by the spiritual Franciscans, disillusioned as they were to see that St. Francis's call to chastity, poverty and obedience had long been forgotten even within the Order itself.

The Church's reaction was severe. Many friars were questioned and some even accused of heresy and burnt at the stake. John of Parma, minister-general of the Franciscans, was himself brought to trial for Joachimism. Nevertheless, a group of alchemist friars were convinced that the fulfilment of the Great Work and the age of the Holy Spirit were one and the same thing: by divine inspiration, their minds were enlightened with a knowledge of the essence of alchemy and endowed with the ability to prophesy, kindling the desire to prepare the world for the age of perfect liberty predicted by Joachim of Fiore. According to the historian F. Heer, natural science "becomes an instrument of the Franciscans' spiritual redemption of the world. Roger Bacon and his disciple Arnald of Villanova apply the prophetic enthusiasm of the Spirituals to 'science', which they see as the means whereby to reform the world under the guidance of true men of learning. Scientists of nature are the only true scientists. They alone understand the Spirit and seek it in nature. They announce the new age, the age of man who, by virtue of the Spirit, will become master of the earth."⁴⁰

Arnald of Villanova and John of Rupescissa are the most outstanding examples of the alchemist-prophet figure generated by the Franciscan Spiritual movement. However, it was Roger Bacon who first personified the Franciscans' interest in alchemy. Though Bacon is one of the luminaries of 13th century philosophical thought, his biography is full of gaps. He came from an aristocratic background and according to one tradition was born at Ilchester in Somerset around the year 1214. He seems first to have joined the Franciscan school in Oxford, studying possibly under Robert Grosseteste and later, in 1240, to have migrated to Paris for his philosophical course, after which he lectured for some years on the art. Around 1247 he resigned his chair and returned to England. It is thought that he joined the Franciscan Order in 1257, by which time Bacon was a man of considerable learning. As a layman he had plenty of money at his disposal and complete freedom, enabling him to travel widely, meet and exchange ideas with other intellectuals of his time, buy and read books to further increase his knowledge and undertake a variety of scientific experiments.⁴¹ It thus follows that he would only have joined the Franciscans if the scientific outlook of their establishment coincided with his own desires to continue

Emblem dedicated to the Franciscan friar, Roger Bacon. He is pointing to a pair of scales in perfect equilibrium on which are being weighed water and fire. The successful outcome of the Great Work depends on the correct equilibrium of the elements. (From *Symbola aureae mensae*, by M. Maier, 1617).



his research in medicine, alchemy, astrology, optics and mathematics. The Order had long since abandoned the ideals of poverty and simplicity expressed by its founder and gave ample scope to men of science, so different from the early friars. Though motivated by views completely opposed to those of the Spirituals who took inspiration from Joachimism, Roger Bacon's Franciscanism went well beyond the cultural boundaries set by the ecclesiastical hierarchy tending as it did to envisage Christian science as more of a technical capacity than an abstract culture.

Independent, inquiring and versatile as he was, Bacon suffered frequent vexations from his superiors. As early as 1260, the general constitutions of Narbonne forbade the Franciscans to diffuse the results of their studies outside the Order without prior examination and approval by the religious authorities. This probably sparked off a conflict between Bacon and the Order. According to a *Chronica* written in the second half of the 14th century, in 1277 the minister-general of the Franciscans, Jerome of Ascoli, declared himself against Bacon, forbade the reading of his books and even accused him of "certain suspicious innovations."⁴² In the end he issued an order for his imprisonment.⁴² From this moment on little more is known of Bacon. According to tradition he died in 1292, a year after he was released from prison.

That Roger Bacon nursed a strong interest in alchemy is unquestionable. He distinguished between two types of alchemy, speculative and practical. By this he did not intend, as one might think, a distinction between

the mystical and chemical aspects of the *Art*, but rather a division between theory and practice, between *scientific philosophy* and *experimental science*. Speculative alchemy focused on the search for the philosophical principles of the generation of the elements; practical alchemy had a wider scope, as it taught how to produce metals, colors and many other things, more so than nature itself. In short, alchemy, with its artificially produced products, could increase the material well-being of mankind and extend life expectancy thanks to its medicinal elixirs.⁴³ Bacon saw alchemy not just as an *Ars transmutatoria* for a chosen few, but as the science of the future which, if practiced on a wide scale, could contribute to the progress of humanity.

Bacon expresses a partially modified view in his *EPISTOLAE DE SECRETIS OPERIBUS ARTIS ET NATURAE, ET DE NULLITATE MAGIAE* (LETTERS ON THE SECRET WORKS OF ART AND NATURE, AND ON THE VANITY OF MAGIC), a fascinating work containing alchemical as well as magical material, for which Bacon is rightly famous. It was written to refute magic and contains a number of chapters in which Bacon predicts certain remarkable inventions of a later age: "Navigational instruments for seafaring men can be made in such a way as to permit large river and seagoing ships to be piloted by one man alone and at a greater speed than if they were driven by an army of rowers. It is also possible to build carriages that need no animals to pull them and yet move at an incredible speed. It is equally possible to build flying machines, so that a man, seated inside the machine, by moving some ingenious device, could activate a pair of artificial wings. It is possible to

build small instruments capable of raising and lowering immense weights...Or instruments for walking on the beds of seas and rivers without endangering a man's life... And many other things, too, such as bridges spanning the entire width of a river with no supporting columns, and still more incredible machines and devices."⁴⁴

The last three chapters of the *EPISTOLAE* describe ways of making the Philosophical Egg, though the style of writing is both fragmentary and obscure. Readers should not, however, be overly surprised, for the entire preceding chapter is dedicated to "concealing the secrets of Nature and the Art." Other works ascribed to Bacon are almost certainly spurious.

Another famous contemporary figure who espoused a view similar to that of the Franciscan Spirituals was the Catalan physician Arnald of Villanova (c. 1240-1311). Arnald qualifies as one of the great medieval scientists, especially as a professor of medicine, but he also enjoyed a reputation as a diplomat, astrologer, alchemist, religious and social reformer. He studied medicine and natural science in Paris and theology at Montpellier.⁴⁵ He learned to speak French, Hebrew, Arabic and possibly even Greek; his restless travels took him from Spain to France, Italy, Greece and Africa. He was still a young man but already famous when he was called as personal physician to Peter III of Aragon, where he stayed for many years. It was during this period that he first came into contact with the Joachimite heresy and he, too, soon became the author of prophetic works. In *DE ADVENTU ANTICHRISTI ET FINE MUNDI* (*THE ADVENT OF THE ANTICHRIST AND THE END OF THE WORLD*) he predicted the coming of the Antichrist for 1345 and criticised the temporal power of the Church,

calling for widespread reform. Strange planetary conjunctions, first in Aquarius then in Pisces, were the elements on which he based his prophecy.

A later work — in which he declared that by Antichrist he meant bad priests, guilty of lust, vanity, hypocrisy and other similar sins, exhorting them to remember and observe the vow of poverty — aroused the anger of the Inquisition. He escaped serious consequences by virtue of his diplomatic status. Shortly afterwards he was called to Rome as chief physician at the court of Boniface VIII. Urged by the Pope to abandon his theological studies, Villanova turned his attention to experiments in alchemy. According to the direct testimony of the jurisconsult Johannes Andreae, the results of these experiments were quite remarkable. "Arnald of Villanova, the famous physician, theologian and alchemist spent several days with us at the Roman Curia, during which time he gave us his permission to put to any test of our choosing the golden rods he himself had made."⁴⁶ After this mysterious episode and despite the Pope's warning, Villanova continued to take an active interest in theological affairs, narrowly escaping the wrath of the Inquisition on more than one occasion. In 1316, five years after his death, some of his books were declared heretical and burnt.

His renown as an alchemist stems not only from the experience narrated by Johannes Andreae, but also from his *ROSARIUM PHILOSOPHORUM* (*ROSE GARDEN OF THE PHILOSOPHERS*), which became so popular that it gave rise to a whole series of imitation alchemical manuscripts of the same name. Villanova's *ROSARIUM*, which is reputed to be the most complete account of Latin alchemy, is divided into two parts: the first, comprising ten



Emblem dedicated to Arnald of Villanova, who is pointing to a royal couple in the act of exchanging wedding rings, symbolizing the *marriage of opposites*. (*Symbola aureae mensae*, by M. Maier, 1617). This Catalan alchemist and professor of medicine, and one of the greatest scientists of his time, is reputed to have achieved a transmutation in Rome at the court of Pope Boniface VIII in the presence of witnesses. It is on this episode that Villanova's reputation as an alchemist rests. He is also reputed to have been the author of many manuscripts, including the famous *Rosarium Philosophorum*.

chapters, enumerates the theoretical principles of the *Art*; the second, comprising thirty-six chapters, describes the various operations resulting in transmutation.

Popular tradition ascribes many other alchemical works to Villanova. The best known of these include *NOVUM LUMEN* (NEW LIGHT), a text of practical alchemy which gives priority to mercury in transmutation and illustrates the preliminary processes of the purification of the Philosopher's Stone and each new stage of the cooking operation, and *FLOS FLORUM* (FLOWER OF FLOWERS), which describes the most common errors made by inexperienced alchemists.

Another name often used to confer authority on alchemical texts was that of the Catalan philosopher and Christian missionary to the Moors, Ramon Lull (1235-1315), who was reputed to have studied alchemy under Villanova. Soon after his death the name Lull or Lully began to appear on a host of alchemical papers. In reality, in his *LIBRE DE LES MARAVALS* (BOOK OF WONDERS), Lull appears critical of alchemy. And in other books, too, he is sceptical of the possibility of transmutation. Moreover, the list of his works compiled in 1311-1314 contains not one alchemical manuscript.⁴⁷ It is now believed that the alchemical texts bearing his name were instead the work of his disciples, who continued to encourage the spread of Lullian thought in France and Spain, signing their writings with the name of their teacher.

Despite the stipulations of the monastic Orders, the clergy were still dabbling in alchemy at the beginning of the 14th century, though they had become a trifle more cautious. It is thought that Pope John XXII's papal decree *SPONDENT QUAS NON EXHIBENT*, issued in 1317, was intended as a direct response to the clergy's persistence in this direction and to the ideological dangers of alchemy. In truth, a close analysis of the decree reveals no precise disapproval of the theoretical principles of the *Art*, nor does it accuse alchemy of any heretical or demonic connotations. It seems to stem more from the desire to prevent the fabrication of imitation gold by means of an art which John XXII obviously held to be fraudulent. The best way to understand the essence of the decree is to read it from start to finish, in a translation by J.R. Partington:

"Poor themselves, the alchemists promise riches which are not forthcoming; wise also in their own conceit, they fall into the ditch which they themselves have digged. For there is no doubt that the professors of this art of alchemy make fun of each other because, conscious of their own ignorance, they are surprised at those who say anything of this kind about themselves; when the truth sought does not come to them they fix on a day for their experiment and exhaust all their arts; then they dissimulate their failure so that finally, though there is no such thing in nature, they pretend to make genuine gold and silver by a sophistic

transmutation; to such an extent does their damned and damnable temerity go that they stamp upon the base metal the characters of public money for believing eyes, and it is only in this way that they deceive the ignorant populace as to the alchemic fire of their furnace. Wishing to banish such practices for all time, we have determined by this formal edict that whoever shall make gold or silver of this kind or shall order it to be made, provided the attempt actually ensues, or whoever shall knowingly assist those actually engaged in such a process, or whoever shall knowingly make use of such gold or silver either by selling it or giving it in payment for debt, shall be compelled as a penalty to pay into the public treasury, to be used for the poor, as much by weight of genuine gold or silver as there may be of alchemic metal, provided it be proved lawfully that they have been guilty in any of the aforesaid ways; as for those who persist in making alchemical gold, or, as has been said, in using it knowingly, let them be branded with the mark of perpetual infamy. But if the means of the delinquents are insufficient for the payment of the amount stated then the good judgement of the justice may commute this penalty for some other (as for example imprisonment or another punishment, according to the nature of the case, the difference of individuals and other circumstance). Those, however, who in their regrettable folly go so far as not only to pass moneys thus made but even despise the precepts of the natural law, over step the limits of their art and violate the laws by deliberately coining or casting or causing other to coin or cast counterfeit money from alchemical gold or silver we proclaim as coming under this animadversion, and their goods shall be confiscate, and they shall be considered as criminals. And if the delinquents are clerics, besides the aforeside penalties they shall be deprived of any benefices they shall hold and shall be declared incapable of holding any further benefices."⁴⁸

Quite clearly, the decretal was intended only as a measure against the forging of fake coinage, and in fact the penalty envisaged for offenders was the payment of an equivalent sum of money and public disgrace. Only if the offender had no assets, could the judge decide to commute the sentence into imprisonment or some alternative punishment. Nonetheless, the inquisitor Nicolas Eymeric (1320-1399), the renowned persecutor of supposed witches, in a statement condemning alchemy written at the close of the 14th century, indicated that John XXII's decretal had been the result of a conference convened by the Pope in order to establish whether or not alchemy was a natural science. According to Eymeric, who had yet to be born at the time of the conference, the debate was attended by alchemists and naturalists; and as the former had been unable to prove their theories, the Pope had issued the *SPONDENT*. We have no way of knowing for certain whether it was before or after this hypothetical event that the English alchemist John Dasteyn wrote his interesting alchemical letters to the Pope in defence of

Sapientia Dei are one and the same thing.¹⁵⁶ In comparison with the mass of Latin practical alchemical recipes dating from the 13th century, the AURORA CONSURGENS is worlds apart. It adopts a style of language imbued with Christian symbolism and the overall meaning of the manuscript is reminiscent of the quest for spiritual transmutation, resulting in liberation of the divine universal soul lying dormant in all matter and the consequent achievement of a higher level of consciousness (*Sapientia Dei*) and conjunction with the deity. It is hardly surprising that the Jungian school was deeply interested in this manuscript. More than any other contemporary alchemical

work the AURORA would seem to be describing an interior psychic process, the scope of which was realization of the Self. The AURORA CONSURGENS and the visions of Rupescissa were the final sparks of a dying fire, the end of the golden age of alchemy in the monasteries. Men of the Church were still to study and practice alchemy in the decades to come and attempts were also made, quite successfully, at alchemical-Christian allegories. But in general, by the second half of the 14th century, the Art was slowly losing credit within ecclesiastical environments to become more and more a bizarre science contemplated and pursued by laymen prompted by strange bursts of mystical fervor.

¹ Quotations from: M. Berthelot, *La Chimie au Moyen Âge*, Paris 1893, Vol. 1, p. 75-76.

² P. Dallari, *Frate Elia*, Milan 1970. Unless otherwise stated, the notes on the life of Elias of Cortona are taken from this account, published, with the official approval of the Order, by a Franciscan historian and based on a critical analysis of multifarious sources.

³ *Ibid.*, p. 98.

⁴ *Ibid.*, p. 17.

⁵ *Ibid.*, p. 34.

⁶ *Ibid.*, p. 27 and 13.

⁷ *Ibid.* p. 106 ff.

⁸ Salimbene, "Chronaca", edited by G. Pochettino, S. Geminiano 1926, p. 72.

⁹ *Ibid.*

¹⁰ G. Carbonelli, *Sulle fonti storiche della chimica e dell'alchimia in Italia*, Rome 1925, p. 5.

¹¹ P. Dallara, *op. cit.*, p. 20 n.

¹² L. Thorndike, *A History of Magic and Experimental Science*, New York 1923, Vol. 2, p. 334 ff.

¹³ *Ibid.*, p. 334

¹⁴ *Ibid.*, p. 334

¹⁵ *Ibid.*, p. 447

¹⁶ *Ibid.*, p. 471

¹⁷ *Ibid.*, p. 471

¹⁸ *Ibid.*, p. 472

¹⁹ Vincent de Beauvais, *Speculum Maius*, Venice 1591, Vol. 1, Book 7:95.

²⁰ Thomas Aquinas, *Scriptum in IV libros Sententiarum*, Book II, d. 7, q. 3, a. 1.

²¹ Thomas Aquinas, *Summa theologiae*, II, II, q. 77.

²² Thomas Aquinas, *In IV libros Meteorologicorum expositio*, Turin 1951, Book III, l. 9.

²³ Albertus Magnus, *De rebus metallicis et mineralibus*, III, i, 9.

²⁴ *Ibid.*

²⁵ L. Thorndike, *op. cit.*, p. 568.

²⁶ Opinions in favor of the authenticity of the *Libellus de alchimia* have been expressed by L. Thorndike and J. Holmyard. A more cautious position is taken by P. Kibre, see: R. Halleux, *Les textes alchimiques*, Brepols 1979, p. 102-103 n.

²⁷ Albertus Magnus, *De alchemia*, in: *Theatrum Chemicum*, Argentorat, 1659-1661, vol. 2, p. 422.

²⁸ L. Thorndike, *op. cit.*, Vol. II, p. 542-548.

²⁹ R. Halleux, *op. cit.*, p. 102.

³⁰ M.L. von Franz, *Alchemy*, Toronto 1980.

³¹ *Ibid.*, p. 148-149.

³² L. Thorndike, *op. cit.*, Vol. II, p. 501 n.

³³ Salimbene, *op. cit.*

³⁴ For this interpretation of the *stella see*: Fulcanelli, *Le Mystère des Cathédrales*, Paris 1964. It is interesting to note how similar this symbolism of the star is to that of the comet that guided the Three Kings to the place where Christ was born. This star, too, expressed a transmutation: the spirit that became man.

³⁵ B. d'Iseo, *Le antiche vie dell'alchimia*, Rome 1973, p. 104.

³⁶ (Edited by) C. Crisciani, *Preziosa margarita novella*, Florence 1976, p. XIII, and n.

³⁷ G. Abate, *Le "Costitutiones generales antiquae" dei frati minori nella redazione assisiana del 1279*. In "Miscellanea francescana", Vol. XXXV, 1935, issue 1-2, p. 58.

³⁸ The account of the prohibitions is to be found in: *Acta capitulorum generalium O.P.*, Rome 1899, Vol. 1, p. 170, 239, 252. The quotation is taken from: C. Crisciani, *op. cit.*, p. XV and n.

³⁹ *Statuta Capitulorum Generalium Ordinis Cisterciensis ab anno 1116 ad annum 1786*, Lovanio 1937, Vol. III, p. 337.

⁴⁰ F. Heer, *Mittellalter von 1100 bis 1350*, 1962.

⁴¹ The historical notes on Roger Bacon are taken chiefly from: F. Alessio, *Mito e scienza in Ruggero Bacone*, Milan, 1957.

⁴² L. Thorndike, *op. cit.*, Vol. II, p. 628.

⁴³ J. Holmyard, *Alchemy*, London 1957.

⁴⁴ Translated from: R. Baconis, *De secretis operibus Artis et Naturae*, London 1622, chap. 5.

⁴⁵ The biographical notes on Villanova are taken chiefly from: Menéndez Pelayo, *Arnaldo de Villanova médico catalan del siglo XIII*, Madrid 1879.

⁴⁶ Johannes Andreae, in *Speculum iuris* by G. Durand, Frankfurt, 1592, p. 486.

⁴⁷ L. Thorndike, *op. cit.*, Vol. II, p. 867.

⁴⁸ *Extravagantes communes*, L.V., Vol. VI, "De crimine falsi".

⁴⁹ L. Thorndike, *op. cit.*, Vol. 3 p. 32 onward and p. 88 onward.

⁵⁰ See: J.P. Baud, *Le procès de l'Alchimie*, Strasbourg 1983, p. 29-44.

⁵¹ *Ibid.*, p. 55-77.

⁵² L. Thorndike, *op. cit.*, Vol. 3, p. 352.

⁵³ J. de Rupescissa, *Liber lucis*, in: J.J. Mangeti, *Bibliotheca Chemica Curiosa* Vol. II, p. 84.

⁵⁴ C.G. Jung, *Psychology and Alchemy*, M.L. von Franz, *op. cit.*, p. 145-223. This latter contains a translation of a number of parables from the *Aurora*.

⁵⁵ Translation from the Latin text quoted in: C.G. Jung, *op. cit.*

⁵⁶ *Ibid.*

CHAPTER V

BOOKS AND LANGUAGE

Before venturing further with our discovery of the history and legends of alchemy, we should first try to understand the vastness of the terrain being explored, and its hidden traps.

Alchemical literature runs into some tens of thousands of works, the majority of which are ancient manuscripts written in Arabic, Greek or Latin. It is almost impossible to give a more precise picture of this immense literary heritage, as only a minimal part of these texts has been satisfactorily identified and studied. Shortly after the end of the First World War, the Union Académique Internationale attempted to tackle the problem, setting in motion an ambitious project aimed at cataloguing all the alchemical manuscripts preserved in the libraries of numerous European countries. The project, entrusted to a team of leading scholars and researchers, has extended over several decades without producing any significant results. In spite of its size, eight volumes to be precise, the *CATALOGUE DES MANUSCRITS ALCHIMIQUES GRECS* (*CATALOGUE OF GREEK ALCHEMICAL MANUSCRIPTS*) only covers the Greek manuscripts preserved in Parisian, Italian, English, German and Spanish libraries. A long-awaited ninth volume is currently being researched which deals with the manuscripts kept in Russia, but other important collections still need to be examined, for instance, those guarded in the libraries of certain Greek monasteries. And whereas the *KATALOG DER ARABISCHEN ALCHEMISTISCHEN HANDSCHRIFTEN DEUTSCHLANDS* (*GERMAN CATALOGUE OF ARABIC ALCHEMICAL MANUSCRIPTS*) is complete, the *CATALOGUE DES MANUSCRITS ALCHIMIQUES LATINS* (*CATALOGUE OF LATIN ALCHEMICAL MANUSCRIPTS*) can be regarded as little more than a sample, one volume covering the pre-17th century manuscripts preserved in the French public libraries and three others listing the pre-17th century manuscripts of Great Britain and Ireland.

Aside from the work of the Union Académique

Internationale, other institutions have, at different times and in different parts of the world, set up projects to research and catalogue the alchemical manuscripts. Their efforts have produced some fascinating results, but large gaps still remain. The eastern European countries, for instance, must surely be in possession of exciting new evidence; in particular Czechoslovakia, which was an important center for alchemical study in the 17th century. As yet, little is known about the quantity of alchemical manuscripts in China, India and the Islamic countries.

Often these manuscripts are in the form of a collection of apographs, that is to say copied from earlier sources. The copying work was not very precise: if the copyist was, or considered himself, an expert alchemist, he would attempt to correct and expand on the original wherever he felt it to be lacking. In this way he would often cut, add, or substitute whole sections of text and might even adapt the instructions on the basis of his own experiments. The result could no longer be considered a copy; nor could it be considered an original work. Titles were unreliable: identical copies could appear under totally different titles while heavily re-written texts might still carry the original title. Moreover, if a particular text gained a certain reputation, its title became the inspiration for other more or less similar titles, resulting in a veritable craze. This explains the origin of a multifarious collection of texts existing under the following headings: *ROSARIUM*, *TESTAMENTUM*, *LUMEN*, *SPECULUM*.

The vast number of manuscripts, the difficulty of tracing them, the problems caused by inaccurate copying and erratic titling, make it almost impossible to establish, at least for the moment, just how many tens of thousands of texts comprise the alchemical heritage. In the end one is left with the feeling that trying to catalogue alchemical literature is rather like trying to count the stars: the moment you think you are getting



The tree of the Philosophers. (Miniature from the *Splendor Solis*, 16th century). From their resting place amongst the branches of a tree, a flock of birds flies off into the sunrise. The only bird left is a white-headed crow, symbol of the transition from *nigredo* to *albedo*. An alchemist standing on a seven-rung ladder, symbol of the seven metals, has plucked a leafy branch which he offers to two Philosophers. It is the *Arbor Philosophica*, from whose golden roots springs the mercurial rivulet. In the lower part of the miniature, outside the frame, are a group of ladies who have turned completely white after bathing, an obvious allusion to the *albedo*.

somewhere, everything becomes confused and you have to start all over again.

With the advent of printing, first developed on a wide scale by Johannes Gutenberg, some of the more influential texts of the tradition were transferred from the original manuscripts to the pages of printed books. The process was not immediate however; perhaps because the alchemists who were actually contemporaries of Gutenberg felt that the mass diffusion of their Art by way of the printed page somehow betrayed its esoteric nature. The first treatise to go into print was Avicenna's *DE ANIMA* (COMPENDIUM ON THE SOUL), published in Paris in 1484. The following year an edition of Geber's *SUMMA PERFECTIONIS* (THE SUM OF PERFECTION), which included the *LIBER TRIUM VERBORUM* (BOOK OF THREE WORDS) attributed to Khalid, was printed in Rome. But it was only in the second half of the 16th century, in the wake of Renaissance interest in Hermetic philosophy, that printing was to become a powerful implement for the diffusion of alchemical works. In addition to the printing of single texts, both ancient and contemporary, several collected works also went to press, thus combining some of the most renowned texts of the Arabic and medieval Latin traditions, and providing aspiring alchemists with a hitherto unheard-of opportunity for further research.

The first collection, *IN HOC VOLUMINE ALCHEMIA* (A VOLUME OF WORKS ON ALCHEMY), was published in Nuremberg in 1541, but widespread publishing successes in this field were not to come until a few decades later with the collections promoted by Guglielmo Gratarolo of Bergamo. An enthusiastic collector of alchemical writings, Gratarolo, in 1561, commissioned Petrus Perna, a printer from Basle, to print *VERAE ALCHEMIAE ARTISQUE METALLICAE* (OF TRUE ALCHEMY AND OF THE ART OF METALWORK), containing 53 particularly rare treatises, and in 1572 *ALCHEMIAE QUAM VOCANT* (DOCTRINE OF THE METALLIC ART THEY CALL ALCHEMY). From then onwards, up until the mid-18th century, there followed a succession of major collections: in 1593 *AURIFERAE ARTIS* (OF THE AURIFEROUS ART); in 1602 *THEATRUM CHEMICUM* (CHEMICAL THEATRE); in 1625 *MUSAEUM HERMETICUM* (HERMETIC MUSEUM); in 1652 *THEATRUM CHEMICUM BRITANNICUM* (ENGLISH CHEMICAL THEATRE); in 1653 *BIBLIOTHECA CHEMICA CONTRACTA* (ABRIDGED CHEMICAL LIBRARY); in 1672-73 *BIBLIOTHÈQUE DES PHILOSOPHES CHIMIQUES* (LIBRARY OF THE PHILOSOPHER CHEMISTS), and in 1702 *BIBLIOTHECA CHIMICA CURIOSA* (LIBRARY OF CURIOUS CHEMICALS). Some of these were printed in several editions, resulting in a widespread understanding of alchemical doctrines. Even today these texts (of which either original copies or anastatic reprints can easily be consulted in libraries) constitute a fundamental point of reference for anyone wishing to approach alchemy.

The study of ancient printed texts on alchemy presents

a twofold difficulty for the reader. Firstly there is the inaccuracy of the printed versions, which are drawn from a single manuscript source and contain printing errors, adaptations, abbreviations and other alterations. The second and perhaps more serious difficulty lies in the fact that many of the colored illustrations which sometimes accompanied the written manuscripts are missing.

The use of illustrations, unusual in Graeco-Alexandrian and Arabic alchemy, had become an important component in the Latin handwritten tradition between the end of the 14th and the 15th centuries. Highly imaginative, beautifully colored and enigmatic, the illustrations of the alchemical manuscripts were not mere decorations. On the contrary, they were carefully designed in minute detail, even in the choice and gradation of the colors, to help the reader to understand through the use of symbols. They provided enlightenment for the initiated while keeping the ignorant in the dark. In the printed texts, particularly those of the great

LVSVS SERIVS,
 QUO
 HERMES sive MERCVRIVS
 R E X
 MUNDANORUM OMNIUM
 SUB HOMINE EXISTENTIUM,
 post longam disceptationem in Concilio OCTOVRALI
 Gallicano, hinc, ac rationali arbitrio, iudicatus
 & confirmatus est.
 A V T H O R E
 MICHAELE MAJERO Com. Pal. Med. D.
 HORAT.
 Quae tunc pariterque quae mox erit acta dicit.



OPPENHEIMII
 Ex Chalcographia HIERONYMI GALLERII
 Sumptibus LUCÆ JENNIS Bibliop. 1616.

The frontispiece of *Lusus serius*, by M. Maier (1616). In the presence of Hermes Trismegistus, the three worlds - mineral, vegetable and animal - pay homage to man, sovereign of nature. Thanks to the improvement of printing techniques, from the 17th century onwards, alchemical writings were illustrated by pictures such as this one.

collections, the delicate play of illuminated symbolism so characteristic of the originals was inevitably lost. It was not until the 17th century with the renewed interest in Hermeticism inspired by the Rosicrucian movement that alchemical texts were once again accompanied by a rich display of images whose beauty and symbolic complexity, even in the absence of color, easily bears comparison with the best examples of the art of illumination.

Who were the authors of this massive corpus of alchemical literature? Leafing through the ancient texts it is surprising how many illustrious names appear in the lists of authors: philosophers, men of letters, kings, popes, saints, heretics, men of arms and scientists, all seem to have written on the subject of alchemy. In reality, this super-abundance of famous names — at one time taken as an indication of the nobility of the art — points to the problem of pseudepigraphy.

Roger Halleux explains: "A pseudepigraph is a term for books or writings bearing a false title, or ascribed to another than the true author. This may occur by mistake or through deliberate falsification. In the first case the copyists may have been the victims of some confusion over writers of the same name, or perhaps, fearful of leaving a blank space at the bottom of some anonymous manuscript, they may have preferred to attribute it to an author who wrote in a similar style. Similarly, the name that appeared on the cover or fly-leaf was generally taken to be the author of all the works contained in the book. The second case is the exact opposite of plagiarism. In other words, the author signs his work with a different name, usually that of a person better known than himself."¹

This practice was motivated by various factors. In part it was derived from the tradition, common in ancient schools of medicine and philosophy, of attributing to the master the works of his pupils; in part it took its motivation from those mystic and esoteric texts reputedly inspired by a supernatural being who was consequently regarded as the true author. In the majority of cases, however, it was seen as a way to bestow greater authority on the work than if it had appeared under the name of an unknown author.

As we have seen in the first two chapters of this book, already in Graeco-Egyptian alchemy, texts circulated under the names of mythical characters, kings and ancient sages: Hermes Trismegistus, Isis, Osiris, Agathodaimon, Kleopatra, Moses and his sister Maria Prophetissa, Democritus. Initially, Syrian and Arabic alchemy was also inspired by this model, attributing texts to Socrates, Plato, Aristotle, and Archelaos. While these first attempts seem somewhat naïve, in medieval Latin alchemy the practice of signing works with the names of famous historical figures was done in such a subtle way that it became increasingly difficult to unravel the mystery, as can be seen from the case of the Latin Geber.

The fame of the Arabic alchemist Jabir ibn Hayyan

spread early to medieval Europe. In the 12th century some of his works, including *KITAB AL-RAHMA*, were among the first Islamic alchemical texts to be translated into Latin. They circulated widely in the West where Jabir was now known by the Latinized name of Geber or Jeber. In the centuries that followed, several other titles appeared under Geber's name, which were resolutely included by alchemists in their list of authoritative works, and which science historians subsequently took to be noteworthy examples of Islamic alchemy. It was not until a few decades ago that scholars began to wonder why it was that the numerous Latin manuscripts of the *SUMMA PERFECTIONIS* or the *LIBER INVESTIGATIONIS* bearing Geber's name did not appear to have any Arabic equivalent, and why even the oldest of these Latin manuscripts went back no further than the end of the 13th century. After extensive analysis, they came to the belated conclusion that this group of works had been compiled by a European alchemist, probably from Moorish Spain. The Latin Geber, or false Jabir, was nonetheless a great scholar and unquestionably a master of both the Arabic language and Islamic alchemy.² Not only have these false manuscripts stood the test of time, they have also entered the history of science as a fundamental chapter in the development of alchemical thought.

The existence of pseudepigraphs is not the only obstacle to the correct identification of alchemical texts. From the end of the Middle Ages, alchemists began to sign their works with strange pseudonyms, often employing an ingenious play on words. Many of these strategies have been explained by the French alchemist Fulcanelli and his pupil Eugène Canseliet, from whom we have drawn some examples.

For instance, it would appear that Basil Valentine, author of the *LIBER DUODECIM CLAVIUM* (*BOOK OF THE TWELVE KEYS*), was not, as legend has it, a Benedictine monk who lived in the monastery of Erfurt during the 15th century, but a mysterious alchemist of the following century who concealed his true identity behind a pseudonym based on the Latin words *basileus* (king) and *valens* (powerful). The author of *MUTUS LIBER* (*SILENT BOOK*), which contained only illustrations and was published in 1677 by an alchemist named Altus, is thought to be Jacob Sulat of Marez, Altus being an anagram of Sulat (for Saulat). Further proof of this is provided by the motto that appears in the book "Oculatus abis" (*Clairvoyant Go Thy Way*), which is another anagram of Jacob Sulat. But even the name Jacob Sulat could well be a pseudonym, since no trace of a family of that name has ever been found in the French archives. It has also been pointed out that in old French, Sulat or Soulat des Marez can be read as "calming of the seas" and the name could in fact have allegorical origins.

Adrian von Mynsicht (1603-1683), a Palatine Count and Poet Laureate and the physician who discovered



Miniature from the *Splendor Solis* (16th century) portraying *putrefaction*, seen here as a black sun burning down on a desolate landscape. The accompanying text explains that: "the first thing required in alchemy is dissolution" this being none other than a way of combining the moist with the dry, so that the putrefaction blackens the matter.

doctrine, either charitable or extravagant. However, it is impossible to establish a clear-cut division between the two categories. For instance, a writer who has jealously guarded his words for pages and pages may suddenly repent his reticence and delight his readers with a lucid explanation of a key passage of the alchemical operation; on the contrary an apparently loquacious writer has only to hide a single lie in the midst of many truths to compromise his entire description.

Books of a specifically chemical content such as those containing alchemical recipes, appear to be more clearly written. They describe an operation or series of operations for the preparation of medicinal remedies or specific chemical concoctions such as *sal alkali* or *sal ammoniakos*. Nonetheless, even these recipe books are far from easy to interpret since the animal, vegetable and mineral ingredients required for the experiments are described so vaguely as to create considerable confusion. The problem of identifying substances was already common in Greek alchemy, but it became more serious in Latin alchemy which used terms translated from the Arabic which in turn were often derived from Greek.

The case of *sal ammoniakos* is exemplary: "The Greeks gave the name *sal ammoniakos* not to the sal ammoniac (ammonium chloride) that we know, but to a variety of rock-salt extracted from the Oasis of Ammon. Ammonium chloride was prepared by one of Jabir's pupils, who called it *nusadir*. But before long Arabic lexicographers, resuscitating an obsolete Greek term, took to calling ammonium chloride by the name of *salmiak*. In the West, the term *nusadir* was initially transcribed simply as *almisadir*, but it later became written as *sal ammoniacus* by which was intended ammonium chloride. Thus, the recipes of Western tradition in which *sal ammoniacus* maintains its original meaning, have been handed down together with recipes translated from Arabic which by this same term are describing something similar to modern-day sal ammoniac".¹¹

But there is another, more serious problem: the possibility that the entire chemical process described in the recipe, or series of recipes, is nothing more than the allegory of a process of spiritual alchemy, conceived as a doctrine which pursues a form of gnosis.

It is not rare for books on alchemy to open with a promise to reveal every secret promptly, clearly and with the utmost sincerity. Wrote Arnald of Villanova in his well-known work *ROSARIUM PHILOSOPHORUM*: "This book is called *ROSARIUM* because it is a brief work, taken from the books of the Philosophers, in which nothing is concealed, nothing is a false trail, nothing is abbreviated; but it contains all that is necessary to accomplish our work."¹² In spite of its apparent sincerity, this affirmation is merely another attempt to lead the reader astray. In reality, no alchemical treatise

could ever be called complete or contain all the information necessary to successfully achieve the alchemical work. At most, the description is explicit in some stages of the operations, but very vague in others. More often than not whole passages are omitted and the technique of altering the chronological order of the operations is commonplace; ostensibly the reasoning seems logical and continuous, in reality the sequence of operations jumps backwards and forwards all the time. To add to the confusion, alchemists often delighted in referring to the same substance or operation with different names, or in using one name for different things, all within the same text. The alchemist Arisicus warns: "Take heed, researchers of this science, for the envious have split the puzzle into many pieces, that is to say: philosophy, astronomy, magic art; and they have dealt with many waters, juices, bodies, stones, spirits, thus devastating this precious art by multiplying all the names; they have described many experiments and vessels with the aim of leading the friends of this Art astray..."¹³

Geber, the false Jabir, is equally forthright in the conclusion to his *SUMMA PERFECTIONIS*, in which he advises the reader not to rely on knowledge gleaned from books alone. Gerber writes: "As I nurture no envy, I hereby declare that I have never imparted our science in a consistent way, but have always divided it into many chapters. This I have done because had I reported it in an orderly manner, it would have been within the reach not only of the worthy but of the unworthy, too. Similarly, I disguised it wherever I was speaking more openly. Anyway, I was addressing disciples of the Art, not enigmatically but in a comprehensible manner. Just as the Almighty, the one and only blessed, sublime and glorious God had imparted this knowledge to my humble mind, thus I wrote it down, filled with the grace and goodness of God, who has the power to grant and to withhold enlightenment, and to inspire whomsoever, wherever, He wishes. Therefore do not despair, Son of the doctrine, for if you seek you shall find, not by theoretical study, but through your own research on the course of nature. He who seeks alone, relying on his own efforts, will find the knowledge, he who seeks in books will reach much later an understanding of this precious art."¹⁴

Apart from the dismembering of a text, many other techniques were used to hide or veil the truth. One of the most complex, and least frequent, was cryptography. This consisted in the writing of words or whole sentences in a code, at times based on an alphabet invented specially for the occasion, using a mélange of Hermetic or imaginary signs, letters and numbers. The more generous authors used simpler forms of cryptography, limiting their efforts to writing names backwards, introducing extra letters into certain words and making drastic abbreviations, such as *aroph* for *aroma philosophorum*. Writers who destroyed the whole

sense of the text by substituting key words with meaningless ones must have been very jealous of their art indeed!

Roger Bacon's fascinating work *EPISTOLA DE SECRETIS OPERIBUS ARTIS ET NATURAE* contains a passage, the authenticity of which has however been questioned by some, which conceals in an anagram the basic recipe for the preparation of gunpowder (potassium nitrate, charcoal and sulphur). The passage reads as follows: "Sed tamen salis petrae LURU Vopo Vir Can utriet Sulphuris; et sic facies tonitrum et coruscationem si scias artificium."¹⁵ By anagrammatizing the meaningless words, *LURU Vopo Vir Can utriet*, we get R. VII PART. V NOV. CORUL. V., which is an abbreviation of "Recipe VII partes, V novellae coruli V et." If we translate the entire phrase from Latin we have: "In any event, take seven parts of saltpetre, five parts of young hazelwood, and five of sulphur; in this way, if you know your craft, you will make thunder and lightning."

Fulcanelli has provided ample explanations of phonetic cabala, according to which in order to understand the meaning of a word it is necessary to examine its assonance rather than its spelling, which is simply meant to mislead. Phonetic cabala would explain, for instance, why alchemists sometimes referred to St. Christopher, the giant who carried Christ as a child across a swollen river. According to Greek etymology *Cristoforos* means *he who carries the Christ*, but in alchemy, by virtue of phonetic assonance, *Cristoforos* becomes *Crisoforos*, meaning *he who carries the gold*. Explains Fulcanelli: "It is the hieroglyph for solar sulphur and nascent gold (Jesus), raised on the mercurial waves and then carried by the energy of the mercury itself to the level of power possessed by the Elixir".¹⁶

By a similar process, and with the expedient of an anagram, Fulcanelli rewrites the title of a strange little book published in the 18th century *AMILEC OU LA GRAINE D'HOMMES* as *ALCMIE OU LA CRÈME D'AUM*. In Fulcanelli's own words: "In this way novices will understand that we are talking about an alchemical treatise, because in the 13th century alchemy was written as *alkimie*, *alkemie*, *alkmie*; it will also be clear that the author is talking about the science of the extraction of the spirit closed within primitive matter, or *philosophical virgin*, which bears the same sign as the Celestial Virgin, namely the monogram *AUM* (...) If we lift the veil that conceals the title, we will realise how appropriate it is, because it announces the revelation of the secret method for obtaining that *cream of virgin's milk* which few researchers have had the good fortune to possess."¹⁷

What makes Fulcanelli's erudite books so fascinating is his continual recourse to phonetic cabala. Though Fulcanelli's deductions are sometimes lacking in linguistic precision, and he occasionally goes so far as to bend the rules to fit his theories, the reader should not forget that Fulcanelli in his reasoning was less concerned with

linguistic rigor as with using phonetic cabala to prove a point. In *LES DEMEURES PHILOSOPHALES* Fulcanelli dedicates an entire chapter to this strange language made up of word play and riddles, which he defines as one of the many forms assumed by the *language of birds*, the language known only to the initiated and used by them to confuse the profane. Here Fulcanelli is referring to a well-known story of Greek mythology. The myth tells how Teiresias was deprived of his sight by the goddess Athena as punishment for having involuntarily beheld her while she was bathing. To soften the punishment she conferred upon the unhappy Teiresias the gift of understanding the *language of birds*, in other words of foretelling the future.¹⁸ The theme of the *language of birds* is known also in the Muslim and Christian traditions, for instance in the famous episode of St. Francis preaching to the birds. To acquire the *language of birds* is to acquire a higher level of understanding, and regain possession of the long-lost celestial or angelic language, which permits the adept to comprehend the universal idiom of nature.

In *LE MYSTÈRE DES CATHÉDRALES*, Fulcanelli reveals the intriguing case of an alchemical enigma carved in the wall of the chapel of Lallemand Palace at Bourges. In a 16th century niche are inscribed the words "RERE, RER" three times. On the pediment are three igneous garnets. According to Fulcanelli the key to the mystery is the instruction to perform the same operation three times, the operation in question, as revealed by the three garnets, being the calcination of the sulphur of the Philosophers. He explains the two enigmatic words as follows: "RE, the Latin ablative of *res*, means *thing*, applied here to the matter from which it is made, as the word RERE is made up of RE, *one thing* and RE, *another thing*, it can be interpreted as *two things in one*, or a *dual thing*, thus RERE is equivalent to REBIS."¹⁹ The Rebis is the androgyne of alchemy, the indivisible union of two opposite natures, generally portrayed as a monstrous creature with both male and female attributes. Having thus clarified the mystery of RERE, Fulcanelli becomes reticent, inferring that he cannot be so explicit over the other word, RER. However, as R is half of RE, RER is equivalent to one substance (RE) plus half of another or half again of the same substance (R). But Fulcanelli's books teach us that the alchemists did not entrust the secrets of their wisdom to the written word alone, they sometimes rendered them in symbols and inscriptions carved in stone.

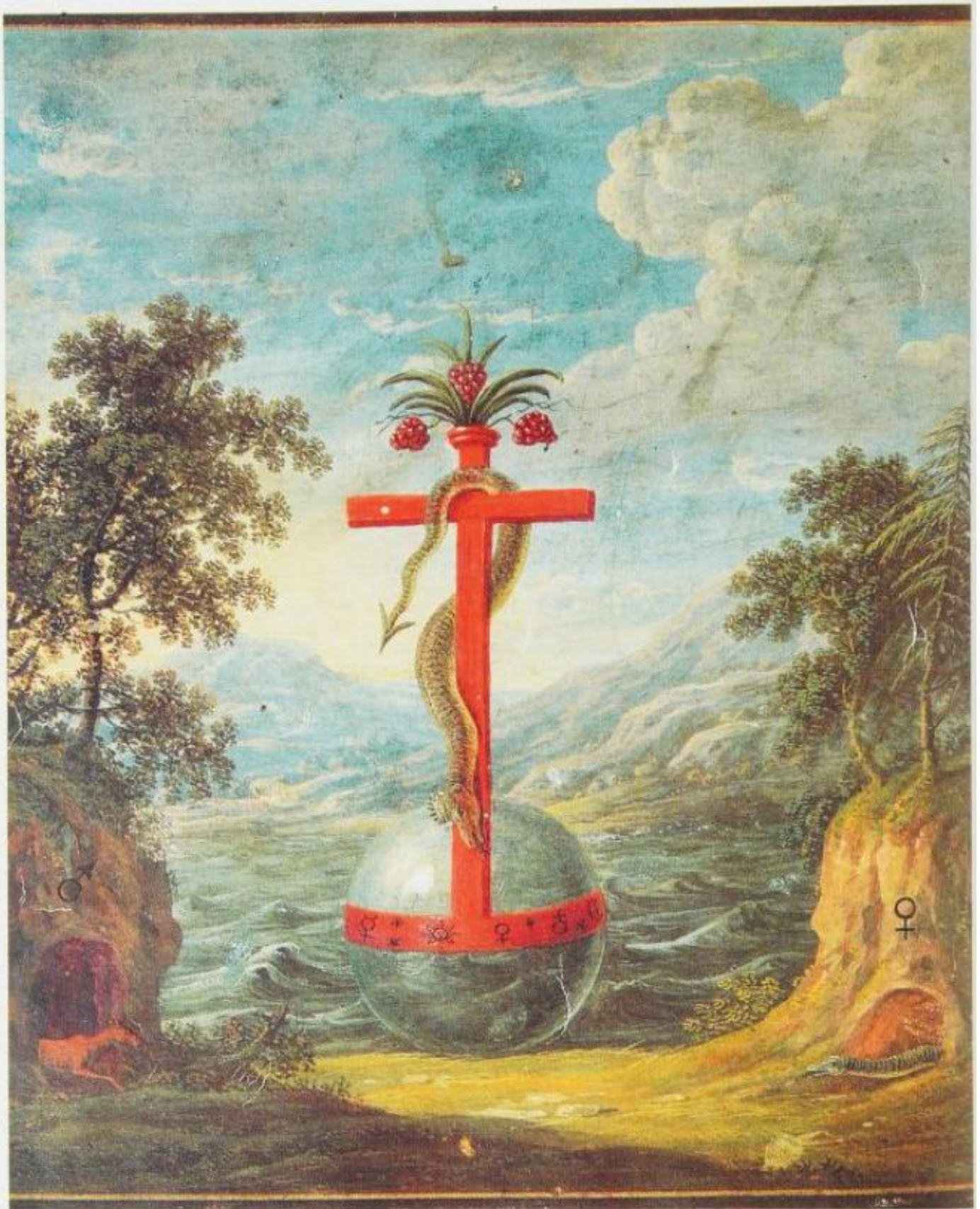
Not only do we have a written message, we also have the figurative message of symbols, not that these are any less enigmatic to the profane. In the *DEL IMPRESE* we read: "In this same way the chemical philosophers, too, use eagles, dragons, tears, virgin's milk, the moon, the sun, marriage, mountains, resurrections, the spirit, the soul and many other things to conceal



The red-headed Ethiopian. (Miniature from the *Splendor Solis*, 16th century). This strange being is a symbol of the Great Work: "black as a Moor", he has one white arm, while the other arm and his head are red implying that the Opus begins with the colour black, goes through the white stage and ends with the red. He rises from a mire, freeing himself from the corruption of matter. He is received by a winged woman, wearing multi-coloured garments, and bearing on her head a gilded crown topped with a silver star. She is about to clad the Ethiopian with a red mantle "before carrying him away towards the light and thence to Heaven".



The alchemists read the ancient legends and mythological tales as allegories of the Great Work. This illustration narrates the myth of Danae who had been locked up in a tower by her father. Zeus, who had been attracted by the girl's charms, found a way to enter the chamber in a shower of gold. The Hermetic Philosophers saw the tower as the athanor, Danae as the Mercury, Zeus as the Sulphur, while the golden shower was the distillation of the philosophical gold. The episode as a whole represented the marriage of Sulphur and Mercury. (From *Trésor de la philosophie des anciens*, by Coenders van Helpen, 1693).



17th century miniature illustrating the verses of the *Tabula Smaragdina*: "The father thereof is the Sun, the mother the Moon. The wind carrieth it in its womb, the earth is the nurse thereof..." The unity of Nature, which is derived from the *prima materia*, is forcefully expressed in the *Tabula*.

earth was./ When there were no depths, I was brought forth; when there were no fountains abounding with water./ Before the mountains were settled, before the hills I was brought forth./ While as yet He had not made the earth, nor the fields, nor the highest part of the dust of the world./ When He prepared the heavens, I was there.....¹⁴

The Anima Mundi

In the cosmogony of the Stoic philosophers the world originated from a fiery breath (*pneuma*), which could take the four forms of the elements of earth, water, air and fire. These gave rise to a dualism based on an active principle, *Anima Mundi* (*Soul of the World*), formed by Fire and Air, and a passive principle, *Corpus Mundi* (*Body of the World*), formed by Water and Earth. In this way nature was conceived as a single identity, composed of matter pervaded by an intelligent principle from which it originated and which organized its existence.

The alchemists believed the *Anima Mundi* to be the purest part of the *Chaos of the Sages*, in other words of the *prima materia*.¹⁵ In reality, the concept of the *Anima Mundi* was almost totally ignored by the early

Latin alchemists. In the 15th century, however, the Florentine Platonist Marsilio Ficino (1433-1499) stirred the embers of Hermetic philosophy and magic, adapting them to the Renaissance culture, while in his books he began to speak of an *Anima Mundi* and a *Spiritus Mundi* (*Spirit of the World*), with which man sought to establish contact.¹⁷ Renaissance religious magic was strongly influenced by this theory, to the extent that the chief preoccupation of the contemporary magus was to become one with the *Anima Mundi*.¹⁸ It is possible that this pretension gained a footing in the magico-mystical school of Western alchemy.

The Two Principles

Alchemy distinguishes between two opposing cosmological symbols: one is feminine, passive, lunar, moist; the other is masculine, active, solar, dry. They represent what Taoists would call the *yin* and *yang* polarity in the cosmos. Western alchemy refers to them as *Mercury* (or *Quicksilver*) and *Sulphur*. When combined in different proportions they give rise to different metals: "The mineral principles within the mine are Quicksilver and Sulphur. From them are born all other metals and minerals, of which there are many different species. Nature always seeks to achieve the perfection of gold, but accidents frequently occur, transforming the metals, as is clearly described in many of the books of the Philosophers. Thus, depending on the purity or impurity of Quicksilver and Sulphur, the metals are born either perfect or imperfect, that is to say they become gold, silver, tin, lead, copper, iron..."¹⁹

As we explained earlier, alchemical Sulphur and Mercury are very different from the chemical substances now known by these names. They could best be described as two opposing *qualities* present in varying degrees in all things, similar to the *yin* and *yang* of Chinese philosophy. In truth, the Sulphur-Mercury theory was unknown to Graeco-Egyptian alchemy, which instead distinguished between a masculine and a feminine principle, sometimes portrayed as *Sol* and *Luna*. It is feasible that the *TABULA SMARAGDINA* refers to precisely these two principles when it reads: "The father thereof is the Sun, the mother the Moon."

Sulphur and Mercury are among the substances mentioned in the chemical recipes of the *LEIDEN PAPYRUS* and certain other manuscripts of the *Sacred Art*, though they had yet to acquire the specific meaning ascribed to them in later medieval alchemy. The Sulphur-Mercury theory of the generation of metals is propounded clearly for the first time in the writings of the Arabic alchemist Jabir ibn Hayyan. In the *KITAB AL-IDAH* (*THE BOOK OF EXPLANATIONS*) Jabir explains that all metals are a synthesis of Mercury combined or solidified with Sulphur; the difference between one metal and another is derived from a difference in the quality



The Mercury of the Philosophers as the *Anima Mundi* (16th century miniature). Alchemical doctrine borrowed the concept of *Anima Mundi* from ancient Greek philosophy.

principle, and Sulphur the inflammable principle that could be modified by fire. Paracelsus believed there were various species of Sulphur, Mercury and Salt, implying for instance, that the Sulphur of gold was different from that of silver, which in turn was different from that of iron and so forth. The theory of the three principles (*tria prima*) exercised a strong influence on alchemical thought after Paracelsus and Salt, the fixed principle that united Sulphur and Mercury, became part of general alchemical terminology.

Even greater importance was attached to the Paracelsian parallel between the *tria prima* of Sulphur-Salt-Mercury and the Soul-Body-Spirit triad. That the human body was founded on a trinity was not a new idea. Greek philosophy speculated that man was composed of *soma* (body), *psyché* (soul, vital principle) and *nous* (intellect, immortal, divine principle), while the Gnostics claimed that man embodied *yle* (matter), *psyché* (soul) and *pneuma* (spirit, divine and eternal spark that lies deep within all human beings). Right from its earliest days alchemy had sought comparisons between the transmutation of metals and the spiritual regeneration of man, though this second aspect was always concealed from the eyes of the uninitiated by a veil of ambiguous symbolism which seemed to be describing metallurgical procedures. The Paracelsian theory provided the key to further enhance the duality typical of all alchemical writings worthy of consideration. The alchemical texts of the 17th century, inspired by Rosicrucian philosophy, describe chemical operations involving Sulphur, Salt and Mercury which, to an experienced eye, can be easily read as descriptions of techniques aimed at regenerating what in man are known as *body, soul and spirit*.

Although some alchemical writings tend to use the terms *spiritus* and *anima* for both Sulphur and Mercury, the most widely accepted interpretation considers Sulphur as the transcendent principle and Mercury the vital essence. When alchemical symbolism is applied to the human body, *Mercury* or *Quicksilver* would appear to correspond to a principle found in the blood, or perhaps in the sperm: Writes an anonymous 14th century alchemist; "May those who seek to extract Quicksilver from anything other than the red servant and from water other than our permanent water, hold their tongues..."¹⁶ In the writings of the early Greek alchemists Mercury is sometimes referred to as "ejaculation of the Serpent."¹⁷

The Four Elements

In comparison with Chinese alchemy, which envisaged five elements (see Chapter 1), Islamic and Latin alchemy, both of which were offshoots of ancient Greek philosophy, are based on the doctrine of the four elements: Earth, Water, Air and Fire. As with the Sulphur

and Mercury principles, these terms are not meant to be taken literally. They stand instead for the four *conditions*, or *states*, in which matter can be found: Earth symbolizes the solid state, Water the liquid state, Air the aerial or vaporous state, Fire the tenuous gaseous state. Transformation of one element into another is perfectly possible by change of quality, for instance a liquid that evaporates on heating is really the element Water transforming itself into the element Air.

From Greek philosophy again comes the alchemical concept of the four *qualities* of matter: hot, cold, moist and dry. Numerous alchemical tables and illustrations show the effects of possible combinations of the four elements and the four qualities in the material world. Alchemy tends to act on these combinations to achieve the desired modification of given matter.

The Quintessence

To the four elements of Air, Water, Fire and Earth, Aristotle added a fifth known as the *quintessence*, that incorruptible ethereal essence from which the celestial spheres are made. Medieval alchemists believed that this fifth element, the moment it became earthly matter, was transformed into the other four elements Air, Water, Fire and Earth. However, a little of the *quintessence* was left inside each of the other four from which all matter was derived. In other words, the quintessence was the fixed and unalterable part of the *prima materia*.

In line with this theory, had the alchemists succeeded in extracting the quintessence from a material body, they would have expected to find that it incorporated all the *virtues* of the *prima materia* and was thus an extremely potent medicine. In a text on the quintessence ascribed to Ramon Lull we read: "It preserves the flesh from corruption, aids the diet, restores lost youth, enlivens the spirit, facilitates the digestion, hardens things that are soft, softens the hard, fattens things that are thin, thins the fat, cools things that are hot, warms the cold, dries up humidity, moistens dryness..."¹⁸ It would appear from this that the quintessence has practical applications such as the concoction of medicines, the transmutation of metals and the fabrication of precious stones.¹⁹

During the course of their experiments the alchemists tried to extract the quintessence from all manner of substances, using the distilling apparatus known to Maria Prophetissa and Zosimos. When they tried distilling wine, they obtained pure alcohol and as alcohol was a colorless liquid similar to water but which easily caught fire, they gave it the name *aqua ardens* (water that burns). These and similar experiments led to the discovery of a liquid that was called *aqua-vitae*, the water of life, because they believed they had found the true quintessence.

The Seven Metals

In the first chapter of this book we explained the primitive belief that metals were formed in a way similar to the formation of an embryo within the maternal womb. Medieval alchemy, thanks to the establishment of the Mercury-Sulphur theory, took the doctrine of the generation of metals a step further, enhancing it with a cosmogonical significance. Wrote the noted alchemist Bernard of Treves: "Above all we should not forget the divine work of the Creation with which God in the beginning created a confused and disorderly world filled, according to his will, with infinite matter, from which he created the four elements. Subsequently, by mixing them together, he created living creatures, some of which he endowed with intellect and senses, while other were vegetables and minerals. The creatures gifted



The mine of the Philosophers according to the *Splendor Solis* (16th century). The mine is caught in the rays of the Sun, but the Moon, too, reflected in a little lake, cooperates in the work of Nature. The alchemical theories on the generation of metals lay great emphasis on the importance of celestial influences in the evolution of minerals within the mine.

with intellect are composed of all four elements, but in them Fire and Air predominate. In the creatures gifted with senses, Fire is secondary while Air is dominant, as is the case with wild animals, horses, asses, dogs, birds etc. The creatures of vegetable origin are also composed of the four elements, but in them Air and Water predominate. In the minerals, again composed of the four elements, Earth and Water predominate. The minerals vary in nature, but can never multiply unless they are first reduced to their prime matter, this being because, as we have said earlier, they bear their own seed within, wherein are hidden the virtues of their power to multiply and of their ultimate composition."²⁴

Having thus explained the creation of humanity, the animal kingdom, the plants and minerals and avouched that minerals cannot be transmuted or multiplied unless they are first reduced to the state of *prima materia*, Bernard of Treves claimed that originally all metallic matter was composed of a type of Mercury in which two of the four *qualities* predominated, namely cold and humidity. Deep beneath the earth's surface, this metallic matter was cooked to perfection by heat from the sky penetrating to the mine. However, it was not the heat of the Sun "as fools believe", but heat developed by the continual movement of the celestial spheres: a heat so subtle and temperate that it could hardly be felt, yet was capable of a slow and steady action throughout the day and night. The heat generated by the movement of these spheres was absorbed by the earth, but it did not act directly on the metallic matter within the mine. This type of heat was already tenuous at source and would be even more so by the time it penetrated beneath the earth's surface. In this condition it would therefore take a very long time to cook Mercury to the perfect state of gold. What really enhanced the evolution of the metal was the power of the celestial spheres to awaken and excite the innate natural heat of the metallic substance. As time went by the two *qualities* that initially dominated within the Mercury (cold and humidity) succumbed to the other two (heat and dryness) which had been activated by the influence exerted by the celestial spheres. Once heat and dryness prevailed, the Sulphur component began to emerge from within the Mercury and the original substance began a process of transmutation into numerous other metals, following a scale of perfection until the ultimate state of gold was achieved. Bernard of Treves repeatedly reminds his readers that "Sulphur and Mercury are not two separate things" because "Sulphur is none other than pure fire, in other words the heat and dryness concealed within Mercury."²⁵ This remark belies the apparently straightforward Mercury-Sulphur theory, and once again shows just how obscure alchemical philosophy can be, even when expressing concepts which at least appeared to enjoy unanimous agreement. The seven states of metal are those established by



The bespectacled alchemist holding a staff and lamp follows in the steps of Nature. The motto that explains this famous emblem from *Atalanta fugiens* (1618) reads: "For him versed in chemistry, let Nature, Reason, Experience and Reading be his Guide, staff, spectacles and lamp".

within the belly of the earth underline the alchemist's obsession with the correlation between the infinitely large and the infinitely small, between the macrocosm and the microcosm. The opening lines of the *TABULA SMARAGDINA* categorically allege this principle: "True it is, without falsehood, certain and most true. That which is above is like that which is below, and that which is below is like that which is above, to accomplish the miracles of one thing."

From earliest times alchemists emphasised the role of nature as a guiding principle, whose ways were to be studied, understood and imitated in alchemical operations. The alchemist does not invent, or create, he merely imitates and transforms through his *Art* that which nature produces. One of the illustrations in Michael Maier's remarkable book of emblems *ATALANTA FUGIENS*, shows nature in the guise of a young woman, the goddess of fertility, walking in a country scene leaving behind her a trail of deep footprints. Following in her path is a bespectacled alchemist carrying a staff and a lamp. The caption reads: "Let Nature be your guide, and with your art follow her closely. Without her you will err. Let reason be your staff; experience lend power to your sight, that you may see afar. Let reading be your lamp..."²⁸

But it was not enough to study nature and penetrate its secret mysteries. According to the macrocosm-

microcosm analogy, the alchemists sought to work in harmony with the flow of natural phenomena, which enabled them to exploit favorable celestial conjunctions. In other words, the successful alchemist would plan his operations to begin at a given time of year and proceed according to a pre-determined temporal schedule.

Explains Fulcanelli: "In all his microcosmic operations, the alchemist must closely follow the circumstances that accompany the Great Work of the Creator."²⁹ For this reason the corpus of alchemical operations was called *hebdomas hebdomadum*, the *week of weeks*, or simply the *great week*. The alchemist commenced and completed his work in the space of a symbolic week, just as God, in the book of *GENESIS*, created the heavens and the earth and all within them in the same time of seven days.

In attempting to reiterate the divine creation in the lesser world, the alchemist had to await favorable cosmic conditions. Canseliet describes how, having reached the final stage of his work, he had waited more than twenty years before the conditions necessary for him to complete the operation occurred: "You must wait and be worthy of the great miracle; be ready, each spring, to use that unpredictable week of weeks — *hebdomas hebdomadum* — in which the work of man and that of Nature unexpectedly meet."³⁰

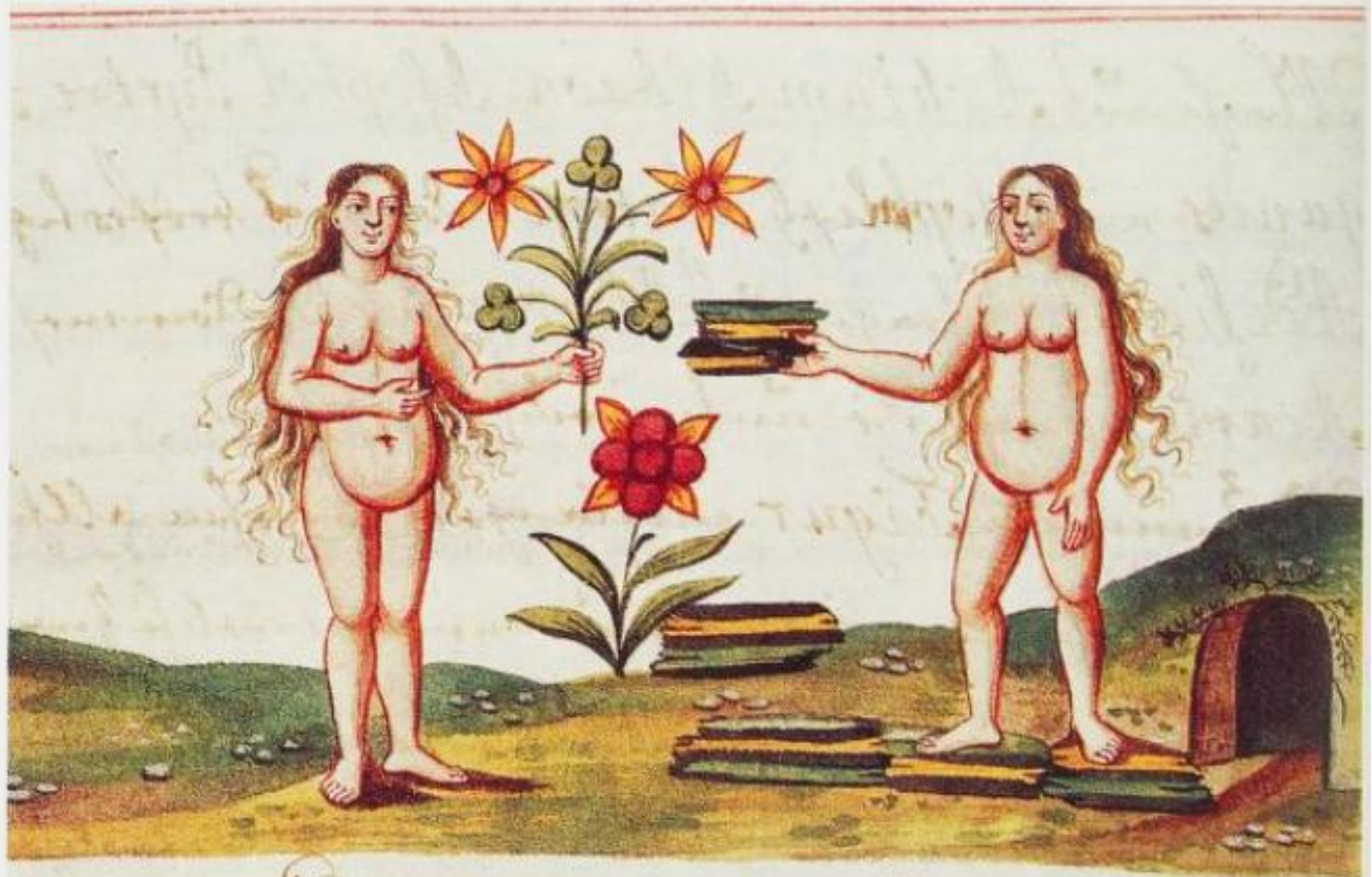
Multiplication: this is one of the final stages of the Great Work. It consists in increasing the strength of the *Powder of Projection* (Philosopher's Stone).

Projection: this implies casting a tiny amount of *Powder of Projection* on the melted imperfect metals so as to color them, or rather to turn them into gold or silver, according to their degree of purity.³⁴

The beginning and the end of the Great Work: the Subject of the Sages, the prime matter of the alchemical opus, when first removed from the mine is a rough, shapeless object, which in the end will be transformed into a multicoloured flower (17th century miniature). What the Subject of the Sages actually was is one of the most closely guarded secrets of the alchemists, who merely say that it is a Stone, that it is found everywhere, costs nothing and has an unpleasant smell.

Why should there be so much apparent confusion over the number of operations required to achieve the Great Work? Apart from the widespread tendency to use different names for identical operations, there is also another explanation: the Great Work is based on three cycles of operations, each comprising seven steps. This means that globally there would be twenty-one operations, some of which would be repeated in each of the three cycles and always referred to with the same name. Others would be carried out once only. However, by neglecting to explain this simple fact, the alchemists would appear to have created the confusion on purpose.

The mythic progression to the Stone through a series of twenty-one operations subdivided into three cycles has in fact been hinted at by a few alchemists, among whom Fulcanelli.³⁵ In *LE LIVRE DES FIGURES HIÉROGLYPHIQUES* (BOOK OF HIEROGLYPHIC FIGURES) the



Das erste Buch
aus unserm Primordialischen Chaos
des Hylealips & Sapientia zu beschreiben.



"Give fire to fire, Mercury to Mercury, and this will be sufficient" reads the motto of Emblem X of *Atalanta fugiens* (1618): by stimulating with the outer fire the inner fire of the first matter, the Mercury it contains will combine with the Mercury of the Philosophers. This idea is often taken as proof that the quest for the Mercury of the Philosophers was in reality the quest for knowledge of the Self.

mine, it is to be found within you, and can be taken from you.⁴⁰ Is it possible that the alchemist was to extract the prime matter from within himself? If we accept this hypothesis as a code for the interpretation of the entire text, Morienus's alchemy is a spiritual process, cleverly concealed behind a chemical façade.

The Vessel and the Furnace

Even from the time of Maria Prophetissa, alchemists attached vital importance to the design and description of the apparatus used during the course of the Great Work. Alchemical literature is full of illustrations of the different types of *athanor* (from the Arabic word *al-tannur* meaning oven) and alembic. In general the *athanor* is portrayed in the form of a free-standing, brick-built tower with a turret or dome roof. Fuel was introduced by means of a door in the lower part of the tower, through which the fire could be tended. On the roof of the tower was placed a layer of hot ash in which the vessel containing the substance to be cooked was partially immersed. In this way the vessel did not come into direct contact with the fire but was instead submitted to a gentle, continuous heat. In the words of one alchemist: "If we want to imitate nature, we must use a furnace that resembles the mountains, not in size but in the way they provide a continuous heat, so that the fire within, when it blazes, finds no way out and the heat

reverberates onto the sealed vessel containing the Stone."⁴¹ When the heat of the celestial spheres penetrates the mine, it is a gentle, constant heat; similarly, the alchemical vessel must not come into direct contact with the heat of the fire; the furnace must be built in accordance with this requirement.

The alchemists have never been reticent in their descriptions of the various types of distilling apparatus, but they are very secretive about the vessel that was to contain the *Subject of the Sages* and all the other things required to complete the Great Work. In the early years of the *Sacred Art* they used a vessel made of terra-cotta with a metal lid and it was not until some time later that they switched to sealed glass containers.⁴² Many miniatures of Latin alchemy picture a flask-shaped glass vessel with a long narrow neck which would have been easy to seal at the top. The alchemists then began to refer to this vessel symbolically as the *Philosophical Egg*, portraying it as an egg.

Why should they have chosen an egg? For many ancient cultures the egg, a tangible object bearing within it the seed of life, was the archetypal symbol of the creation. According to a Hindu tradition, all things had originated from a cosmic egg, in which dwelled the *Brahman* (the Absolute, the Word). The *Brahman*, having broken the shell with the power of his mind, formed the heavens, the earth, the seas and the rest of the Universe. In ancient Greece Orphic doctrine tells how the Night gave birth to the cosmic egg which then hatched Eros, who was reputed to "bring harmony to chaos."

known as the *fire of the lamp* and that the Greek word *lampas* (lamp) resembles another Greek word meaning anything that rises to the surface, *froth*, *foam*, *dross* etc. According to Fulcanelli, this second term applies to the nature of the *mineral shell* which contains the *fire of the lamp*. It is difficult to see what Fulcanelli means when he states that the secret inner energy, called the *fire of the sages*, is hidden within a sort of *froth* or *dross* which tends to rise to the surface. If we penetrate the meanders of this mysterious symbolism we cannot help recalling that a decade or so before Fulcanelli, a Chinese alchemist of the Taoist tradition had left these words: "A body without essence (the principle present in sperm) and without breath (sublimated essence) is like a lamp without oil. If there is oil without breath, or breath without oil, there is no life. Where there is sufficient breath the adept can engage in the practice of *adding oil*."⁴⁶ In order to *add oil to the lamp*, or sublimate the essence, the Chinese alchemist undertook special breathing techniques, kindling a *yang* fire in the essence of the seed.⁴⁷

Faced with this surprising coincidence in the symbolism of the two traditions, we cannot help wondering to which alchemy Fulcanelli was referring in his books. Is it possible that, like the early Chinese alchemists, he was using the language of metals to describe psycho-physiological techniques based on the awakening and sublimation of sexual energies? Perhaps his enigmatic writings should be re-read in the light of this new hypothesis.

The Colors

One of the most suggestive images of alchemical iconography is the peacock of the multi-colored tail. The *cauda pavonis* (peacock's tail) represents the multi-colored stage in the Great Work in which a range of colors appears on the surface of the metal inside the *vas hermeticum*.

The alchemists believed that the sequence in which the colors appeared on the surface of the metal was an indication of the success of the experiment. An old Arabic text reads: "The Stone of this work contains within it all colors. In fact it is white, red, bright red, yellow, bright yellow, light blue, green..."⁴⁸

The early metal workers would have been understandably impressed by the color changes occurring on the surface of the object of their experiment, and may have taken this as an indication of successful transmutation. On the other hand we know that it was common practice at the dawn of the *Sacred Art* to equate planetary cycles with a metal and a color. It may have been this association of planets and colors that provided the inspiration for the famous Greek historian Herodotus (c. 484-430 B.C.) when he wrote his symbolic description of the city of Ectabana, envisaged

as a complex of seven concentric circular walls, each painted a different color. Working inwards from the outermost wall the bastions were white, black, purple, blue, orange, silver and gold.⁴⁹ The coupling of colors and metals is first seen in the complex correspondences attributed to the Sabaeans of Harran.

Latin alchemy recognises three stages or processes using color symbolism: the *Black Work*, the *White Work* and the *Red Work*. There is general agreement on the sequence of these three colors: the initial stage is known as *nigredo* and is the darkness of chaos, death and mortification, after which there must be a purifying, washing and whitening, hence the name *albedo*. The culmination of the opus is the *rubedo* or reddening. It is interesting to note that in Western culture black is the color of darkness and death, white the color of purity and red the color of flames and love.

To the three basic colors the alchemists often added others and it is feasible that each of the twenty-one phases of the Great Work corresponded to a color. George Ripley (15th century), probably the most influential alchemist in the English poetical tradition, is famous for his vision of a toad, which passes like a chameleon through fifteen different colors.⁵⁰

In trying to interpret the Great Work as a mystical journey, some commentators have underlined a similarity between the *nigredo* and the spiritual condition described by the Spanish mystic Juan de la Cruz as the *dark night of the soul*. It is certainly a suggestive hypothesis, but very difficult to prove.

The Philosopher's Stone

The fundamental aim of the *Sacred Art* of Kleopatra and Zosimos was the production of an *elixir of life* or a *divine water* capable of transforming imperfect metals into perfect metals. The Islamic alchemy of Jabir envisages several different types of elixir capable of transmuting base metals into gold. Early Latin alchemy, an offshoot of the Islamic tradition, was concerned with only two types of elixir.

In the *ROSARIUM PHILOSOPHORUM* the great medieval scientist Arnald of Villanova interprets the purpose of the Opus as the preparation of a *White Elixir* or of a *Red Elixir*. The former transmuted Mercury into silver, the latter transmuted it into gold. In both cases only one part of the elixir was required to transmute one hundred parts of Mercury. But, as Villanova points out, whether the Elixir is white or red, it is also a medicine, and one with powers superior to any other form of remedy, capable of curing all illnesses in a short time, of preserving good health, of bringing renewed vigor to the aged and healing all the ailments of old age.⁵¹

The *SPECULUM ALCHEMIAE*, a medieval manuscript ascribed to Roger Bacon, outlines the preparation of a

transmutation was to repeat the experiment no more than a few times, just to prove to himself and perhaps a witness that it could indeed be done.

But did the alchemists genuinely believe in the possibility of transmuting base metals into gold and silver, or was their quest merely an allegory of spiritual transformation? Undoubtedly, the contemporaries of Zosimos, Jabir and Villanova must have been convinced that transmutation could be achieved, because the scientific culture of that time sustained this theory. But did the alchemists really care about changing iron and lead into gold and silver? In Hellenistic alchemy, as in Islamic and Chinese traditions, the chemical and spiritual aims of the *Art* are so strongly mixed that it is impossible to establish which of the two aspects is predominant. The recent theory according to which alchemy has never been anything but a psycho-physiological discipline to free the soul and spirit, carefully concealed behind a veil of metallurgical symbolism, is belied by the importance that was genuinely attached to the chemical or pre-chemical features of the tradition. Even the more mystico-philosophical alchemical manuscripts show an authentic understanding of chemistry and not infrequently describe innovative chemical techniques. The chemical knowledge of Maria Prophetissa, Zosimos, Jabir, Villanova and Basil Valentine is far from superficial and indicates a life spent exploring arts that included the study of the transformation of matter. At the same time there is ample evidence that the alchemists aspired to greater things, namely psycho-physical regeneration, symbolized in an eloquent if somewhat gross way, by the miraculous effects of the Elixir of Life. This is not in the least surprising for all traditional religions sustain basically the same thing: he who attains truth and illumination will have everlasting life.

Oratory and Laboratory

A famous plate from the AMPHITHEATRUM SAPIENTIAE AETERNAE (AMPHITHEATRE OF ETERNAL WISDOM), by Heinrich Khunrath (1560-1605), shows the devout alchemist kneeling in prayer before an altar in the middle of his magnificent oratory. Behind him, on the opposite side of the room, are a large alchemical furnace, alembics and other paraphernalia and musical instruments. *Oratory and laboratory* are the two inseparable aspects of alchemy. The alchemist was not an early chemist, interested only in the technique of manipulating matter; he was a man of deep religious faith who sought divine knowledge and believed God to be the prime mover of his success.

Alchemical literature of all ages is imbued with this religious spirit. Regardless of which religious doctrine was providing the inspiration for its symbolism, were it Taoism, Christianity or Islam, from a religious point of

view all alchemical traditions are basically a form of gnosticism, the quest for superior knowledge of spiritual things, and quite distinct from traditional religious dogmas. The aim was always the progressive liberation of a seed of immortality hidden deep within in order to regain the glorious physical and spiritual condition that was man's before the Fall.

To achieve this goal the alchemist was initiated into the realm of nature, seeking to grasp the rhythm and secret forces that govern the Universe. By studying and experimenting the mutations of nature the adept gained insight into the fundamental mechanism of the macrocosm and the microcosm. This doctrine probably provided the foundation for the mysterious techniques involving the manipulation of bodily energy and fluids which is more openly expressed in Indian and Chinese alchemy than in the Latin tradition.

Latin alchemists frequently intimated in their writings that the *Art* was not simply a chemical practice. In a warning to aspiring alchemists Bernard of Treves writes: "In truth I believe (and God will love me for this) that all those who have written, either figuratively or in parables, about hair, urine, blood, sperm, herbs, vegetable and mineral substances, plants, mineral stones, salts, alums, couperose, inks, vitriols, boraxes, magnesiums and any other type of stone or water, have spent little or nothing on these works (they so recommend) nor have they ever experimented them and they are prompted to do this (write certain things) by pure cruelty."⁵³ He adds: "Flee the sophistications of false alchemists...Leave well alone their sublimations, conjunctions, separations, congelations, distillations, preparations, disjunctions, connexions and all the other tricks..."⁵⁴ The false alchemists are those who think only of burning strange things in the athanor, disregarding the secret principles hidden in the matter. From the time of Paracelsus onwards, these alchemists were known as *Spagyrist*s from a word supposedly invented by Paracelsus himself, while this form of alchemy, devoid of metaphysical aspirations, was referred to by the true Philosophers as *spagyric art*.

Sexuality in the Opus

Yang and Yin, Sulphur and Mercury: the vision of a universe established on the mystic marriage of two opposites, one masculine, the other feminine, gave rise to a strongly sexual symbolism and style of writing. The alchemists ascribe a sex to all the forces and energies at play in the cosmos, and the relationship between the male and female forces was described in openly sexual terms. While the metal forming in the mine was likened to an embryo maturing in the womb, its conception was presumed to be the result of sexual union between *Sol* and *Luna*. As *Sol* and *Luna* were both derived

- ¹ B. Valentine, *Triumph wagen antimonii*.
- ² J. Lindsay, *The Origins of Alchemy in Graeco-Roman Egypt*, London 1970.
- ³ St. Mark's Library, Venice: ms 299, f. 88v.
- ⁴ T. Burckhardt, *Alchimie, sa signification et son image du monde*, Olten 1960.
- ⁵ Verses VIII: 22-31 of the *Book of Proverbs* are used as an allusion to the *prima materia* in: R. Alleau, *Aspects de l'alchimie traditionnelle*, Paris 1953.
- ⁶ Fulcanelli, *Le Mystère des Cathédrales*, Paris 1964.
- ⁷ F. Yates, *Giordano Bruno and the Hermetic Tradition*, London 1964.
- ⁸ *Ibid.*
- ⁹ R. Bacon, *Speculum alchemiae*, in: J.J. Manget *Bibliotheca Chemica Curiosa*, Geneva 1702, Vol. I, p. 613.
- ¹⁰ The passage in question from the *Kitab al-Idah* is quoted in: J. Holmyard, *A History of Technology*, Vol. II, Oxford 1956.
- ¹¹ J. Holmyard, *Alchemy*, London 1957.
- ¹² See the synthesis of the theory of the generation of metals frequently expressed by Bernard of Treves.
- ¹³ J. Holmyard, *Alchemy*.
- ¹⁴ The Sulphur-Mercury-Arsenic triad is quoted, for example, in a number of works ascribed to Bernard of Treves (Bernardus Trevisanus), floruit c. 1380. It is possible however, that these works were not written until the 16th century.
- ¹⁵ J. Holmyard, *Alchemy*.
- ¹⁶ B. Trevisanus, *De Secretissimo Philosophorum Opere Chémico*, in: J.J. Manget, *op. cit.* Vol. II, p. 390.
- ¹⁷ M. Berthelot, *Collection des anciens alchimistes grecs*, Paris 1888, Vol. III, *Lessico*, p. 4-18.
- ¹⁸ R. Lull, *De Secretis Naturae sive Quinta Essenti libri duo*, Cologne, 1567.
- ¹⁹ *Ibid.*
- ²⁰ J. of Rupescissa, *Treatise on the Quinte Essence*.
- ²¹ The discovery of the *aqua vitae* can probably be dated some centuries before Rupescissa. In 1288 *aqua vitae* was widely used for medicinal purposes and in 1309-1312 Arnald of Villanova described its curative powers. For further information see: F. Sherwood Taylor, *The alchemists*, St. Albans 1976, p. 98-99.
- ²² A. J. Pernety, *Dictionnaire Mytho-Hermétique*, Paris 1758.
- ²³ *Ibid.*, p. 300-301.
- ²⁴ B. Trevisanus, *op. cit.* p. 394-395.
- ²⁵ *Ibid.*, p. 395.
- ²⁶ *Poimandres*, edited by P. Scarpi, Venice 1987, p. 61-63.
- ²⁷ *Celsus, Il discorso vero (True Word)*, edited by G. Lanata, Milan 1987, p. 121-122.
- ²⁸ M. Maier, *Atalanta fugiens*, Oppenheim 1618, Emblem XLII.
- ²⁹ Fulcanelli, *Les Demeures Philosophales*, Paris 1965.
- ³⁰ E. Canseliet, *L'alchimie expliquée sur ses textes classiques*, Paris 1972.
- ³¹ Albertus Magnus, *Compositum de compositis*, in: *Theatrum chemicum*, Argentorati, 1659-1661, Vol. IV, p. 830.
- ³² See: *Cabala, Spiegel der Kunst un Natur*, Augsburg, 1616.
- ³³ J. Quercetanus, *De ortu et causis metallorum*, in: *Theatrum chemicum*, Vol. II, p. 174-175.
- ³⁴ These explanations are a synthesis of the descriptions by: M. Rulandus, *Lexicon Alchemiae*, Frankfurt 1612; G. Johnson, *Lexicon Chymicum*, in J. J. Manget, *op. cit.*; A. J. Pernety, *op. cit.*
- ³⁵ Fulcanelli, *op. cit.*, Vol. I, p. 250 n.
- ³⁶ S. Trismosin, *La Toison d'Or*, Paris 1975 (French version of the *Splendor Solis*).
- ³⁷ Morienus, *Liber de compositione alchemiae*, in J. J. Manget, *op. cit.*, Vol. I, p. 513-515.
- ³⁸ Albertus Magnus, *op. cit.*, p. 830.
- ³⁹ Crassellame, *Lux obnubilata suapte natura refulgens*, Rome 1980, p. 131. The original text, written in old Italian verse, has been translated into modern language for clarity.
- ⁴⁰ Morienus, *op. cit.*, p. 515.
- ⁴¹ R. Bacon, *op. cit.* p. 615.
- ⁴² J. Lindsay, *The Origins of Alchemy in Graeco-Roman Egypt*, London 1970.
- ⁴³ G. Pontano, *Letter on the Philosophical Fire*.
- ⁴⁴ B. Trevisanus, *op. cit.* p. 396.
- ⁴⁵ Fulcanelli, *op. cit.*, Vol. II, p. 48.
- ⁴⁶ Chao Pi Ch'en, *Traité d'alchimie et de physiologie taoïste*, Paris 1979.
- ⁴⁷ *Ibid.*, p. 103.
- ⁴⁸ Khalid, *Liber trium verborum*, in: *Theatrum chemicum*, *op. cit.*, Vol. V, p. 186.
- ⁴⁹ Herodotus, *Historia*, I, 98.
- ⁵⁰ J. Holmyard, *op. cit.*
- ⁵¹ A. of Villanova, *Rosarium Philosophorum*, in: J.J. Manget, *op. cit.* Vol. I, p. 676.
- ⁵² R. Bacon, *op. cit.* p. 616.
- ⁵³ B. Trevisanus, *op. cit.*, p. 391.
- ⁵⁴ *Ibid.*, p. 391-392.
- ⁵⁵ J. Lindsay, *op. cit.*
- ⁵⁶ This particular interpretation of the Great Work was upheld by the English occultist Alister Crowley (1875-1947) and his followers.
- ⁵⁷ Chao pi Ch'en, *op. cit.*

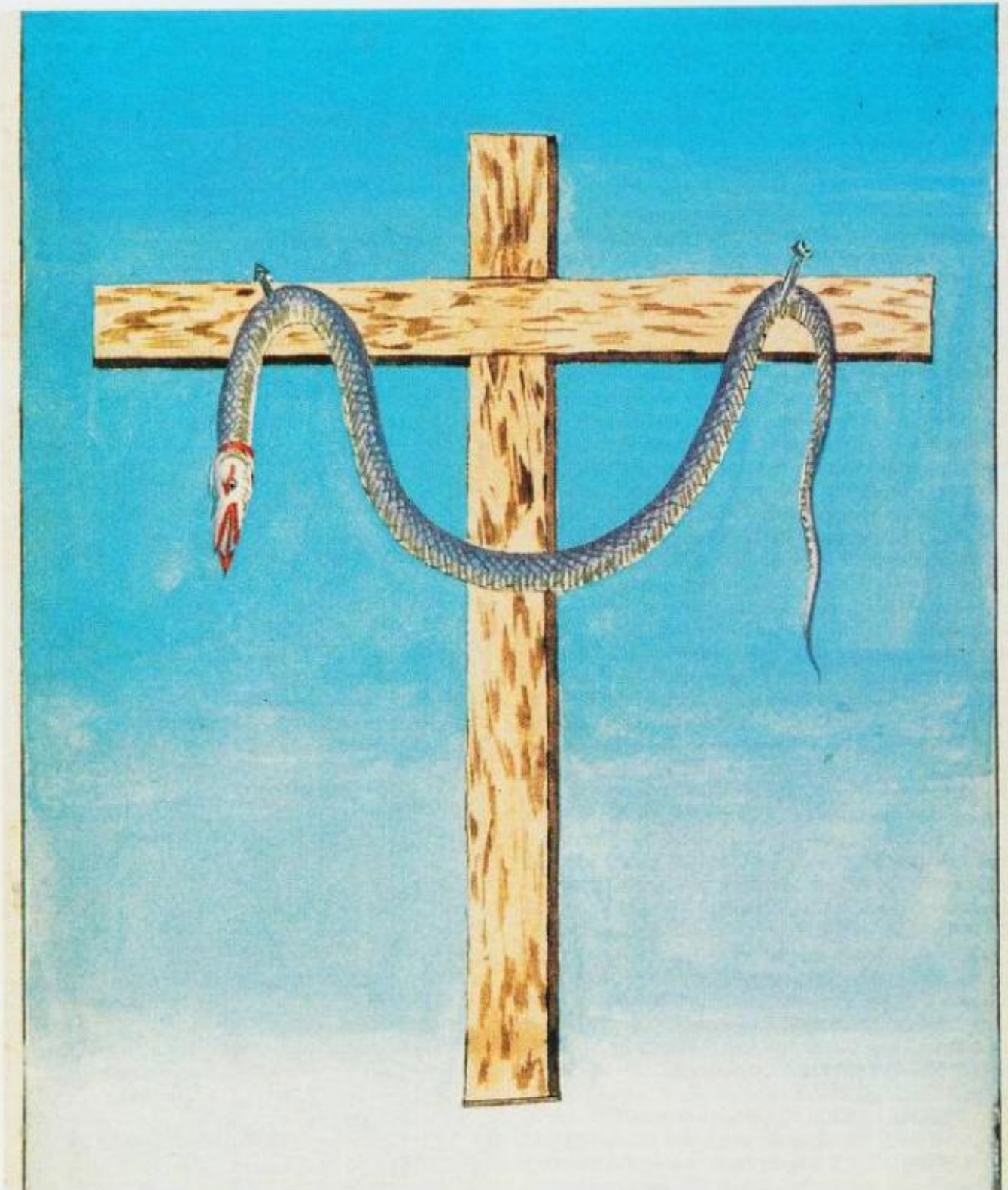


A supposed portrait of Nicolas Flamel, described here as the "French Philosopher". (Print from the second half of the 17th century). In reality, though we have reliable evidence that a scribe by the name of Nicolas Flamel did flourish in 14th century Paris, it is unlikely that he was an alchemist.

Perhaps the most famous of medieval alchemists was Nicolas Flamel (1330-1417) who, like Hortulanus, lived and worked in Paris. His biography is inevitably part fact, part fiction, but that he became a wealthy Parisian notary and publisher is confirmed by a number of irrefutable circumstances, such as documents bearing his signature; his signed will, now safeguarded in the Bibliothèque Nationale de Paris; his marble tombstone preserved at the Musée de Cluny. It is evident from the few remaining tokens of his life that Flamel was a pious man, a member of his local church's board of trustees and much inclined to charitable deeds. Under his will fourteen hospitals were founded, three chapels built and seven churches endowed; he also made provisions for the poor, to whom he left 300 ells of flannel, and for his maid, Margot la Quesnel. He was also concerned for his own soul, for his will states that a mass was to be celebrated on his behalf twelve times a year and that on this occasion his tomb was to be sprinkled with holy water.⁴

He died on March 22, 1417 and, in accordance with his last wishes, was buried in the church of Saint-Jacques-la-Boucherie. His grave was sealed with a marble tombstone bearing an inscription composed by the alchemist himself a few months before he died. The church was secularized in 1790 during the Revolution; some seven years later it was sold to a builder, part of the agreement being that he should demolish it. This led to the disappearance of Flamel's tombstone, along with many other relics. By a strange twist of fate it came to light again in the shop of a fruitseller who found its smooth surface just right for chopping up vegetables and herbs. It was rescued by a man who kept a pet shop who in turn, unable to find a customer willing to buy it, handed it over to an antique dealer. It remained unsold for six years and in the end the antique dealer was happy to part with it for 120 francs to the Musée de Cluny, where it can still be seen today. The epitaph inscribed in gothic letters reads: "Feu Nicolas Flamel jadis escrivain a laissé par son testament a leuvre de ceste église, certaines rentes et maisons quil avoit acquestées, et achatées à son vivant, pour faire certain service divin et distributions d'argent chascun an par aumosne touchans les quinze vins. Lostel Dieu et autres églises et hospitaux a Paris. Soit prié pour les trespassez."⁵ ("Here lies Nicolas Flamal, once a notary, who has left according to his last will and testament in the hands of this church certain assets and houses acquired during his lifetime with which to perform divine services and gifts of money each year in favor of the "quinze vins"⁶ of the Hotel Dieu and other churches and hospitals of Paris. Pray for the dead"). The upper portion of the stone shows carved representations of Christ, holding a globe and cross in his left hand and making a benediction with his right, and St. Peter and St. Paul, standing one on either side of him. St. Peter is holding a huge key, St. Paul a sword. Behind the figure of Christ are symbols of the Sun and Moon. At the bottom of the stone a wasted corpse is represented above which are the words: "Domine Deus in tua misericordia speravi" (Oh Lord, I have trusted in your mercy"); the inscription below reads: "De terre suis venu et en terre retourne/ Lame rens à toy J.H.U. qui les pechiès pardonne" ("From the earth I came, and to the earth I return. To you I yield my spirit, Jesus Redeemer of Humanity, forgive us our sins"). Contrary to what has sometimes been suggested, the inscriptions and the carved figures reveal no specifically alchemical undertones. They are no more than a manifestation of Christian piety. The symbols of the Sun and Moon could be alluding to alchemy, which was also called the *Art of the Sun and the Moon*, but it is far more likely that these symbols had a religious connotation implying that the light of Christ was so great that it eclipsed even the light of the Sun and Moon.⁷

Another vestige of the life of Nicolas Flamel is a very old house located at rue Montmorency 51, which was still partly intact until a century ago. Of the original



The crucified serpent of which Nicolas Flamel talks in *Le Livre des Figures Hiéroglyphiques* (17th century miniature). This symbol, which in alchemy signifies the fixing of Mercury, is particularly important in Christianity. In *Numbers*, XXI: 4-9, when the Lord sends fiery serpents among the people of Israel, Moses makes a brass serpent and sets it upon a pole; any man who is bitten by a poisonous snake has only to behold the serpent of brass and he will live. In *John III: 14* Jesus uses this story as a parable to announce his death on the cross and to promise everlasting life to all who believe in the Son of God. For this reason Jesus is sometimes depicted as a serpent on the cross, meaning everlasting life.



In his *Le Livre des figures hiéroglyphiques* Flamel describes both the seven figures of the mysterious *Book of Abraham the Jew* and the commemorative arch he had built in the Churchyard of the Innocents, in Paris. The arch is thought to have been built in 1407 and destroyed in 1797. This print of the arch shows the alchemist and his wife kneeling before Christ in the company of St. John (left) and St. Peter (right).

thanks to the Elixir of Life and merely disappeared, having gone to join Pernelle who was also immortal and living incognito under a new name. In the 17th century a man named Paul Lucas, journeying home from a trip in Asia Minor, claimed to have come across traces of the alchemist during his travels. The details were that an Uzbek dervish had revealed to him that the Flamels were now living in India, and that their graves in Paris contained nothing but pieces of wood

wrapped in funeral clothes. By the 18th century Nicolas and Pernelle were reported to have left India and to have returned to Paris where they were living in the cellars of their old house in rue Marivaux, which they had converted into a laboratory. Someone else with an even livelier imagination professed to having recognized them, in the company of a son born in India, at the Paris Opera House! In 1818 Flamel's reputation was still sufficiently vivid for a cunning trickster to succeed in passing himself off as the immortal alchemist, duping the gullible into buying from him the secret of the fabrication of gold.

Did Nicolas Flamel the alchemist really exist? Or rather, was Nicolas Flamel the notary really an alchemist? And was it indeed he who wrote the manuscript known as *LES FIGURES HIÉROGLYPHIQUES*? We know for sure that a notary named Nicolas Flamel

and 1490. It now appears that he was a 14th century German alchemist from the town of Trier (Treves) on the Mosel, more or less a contemporary of Hortulanus and Flamel. The date is certain, for Bernard of Treves exchanged a lively correspondence with Thomas of Bologna, astrologer and physician to King Charles V of France and father of the poetess, historian and feminist Christine de Pisan, born in 1363 or 1364.²²

It seems most unlikely that *DE SECRETISSIMO PHILOSOPHORUM OPERE CHEMICO* was really the work of Bernard of Treves, as it was written later than the first half of the 15th century, but it is nonetheless a very interesting document. With the aim of warning readers against fraudulent alchemists, the author describes his arduous quest for the Great Work, providing a meticulous and presumably authentic picture of the 15th century craze for alchemy.

"The first book of alchemy I came across — writes Bernard — was a manuscript by Rhazes. I spent four years of my time and 400 crowns on testing the book. Then 2000 crowns on books by Gerber. I was surrounded by impostors who spurred me on and caused me to dissipate a fortune. For the next three years I studied the works of Archelaos, during which time I met a monk who became my companion. For five years we worked together on the books of Rupescissa and John of Sacrobosco, trying to prepare the *aqua vitae* rectified thirty times with wine dregs. The result was so strong that we were unable to find a glass resistant enough to hold it. This experiment cost us 300 crowns. Over the next twelve or fifteen years we spent much more money fruitlessly, testing an infinite number of recipes and all possible ways of preparing salts, such as common salt, sal ammoniac, vitrous salt, saltpetre, tartar salt, metallic salt, dissolving them, freezing them, calcinating them more than one hundred times in two years. I experimented with alums, all the marcasites, blood, hair, urine, human excrement, sperm, animals and on vegetable products such as herbs, on couperose, ink, vitriol, eggs, separating the elements in the athanor, the alembic and the pelican, by way of distillation, circulation, reverberation, ascent and descent, fusion, ignition, evaporation, conjunction, elementation, sublimation, mixing and an infinite number of other sophisticated operations. I persevered for twelve years with these experiments but, having reached the age of 38, I still had not succeeded in extracting Mercury from these vegetable and animal things. Thanks to my own stupidity and the coaxings and flatterings of impostors, in my quest to understand this science, I fruitlessly dissipated some 6000 crowns. The more I delved, the more I was duped, until in the end I began to lose heart. Nonetheless, I never once stopped praying to God that he might see fit to bless my efforts with success.

"It then happened that I met a Prefect of my own country who was also an adept in the Art, and had been trying to obtain the Stone from common salt

dissolved by exposure to moist air and then crystallized in sunlight, and from many other things that are too complex to discuss here. We continued these experiments for eighteen months, but it was no good, for we were not using the true matter. As is written in the venerable *TURBA*, known as the *CODE OF TRUTH*, in no thing can you find that which is not contained in that thing. And it was evident that what we were looking for was not to be found in common salt. So, after having tried the operation fifteen times and seeing no change whatsoever, we abandoned the project. We saw other alchemists who made an excellent *aqua fortis* for dissolving silver, gold, copper, and other metals. They dissolved silver in one vessel and quicksilver in another by means of the same strong water. Each of the solutions was left to stand for twelve months. They then mixed them together in a single vessel, explaining that this was the marriage of the body and the soul. The concoction was then evaporated over hot ashes to two-thirds of its original bulk, the remaining solution was put into a narrow rectangular cucurbit and left exposed to the Sun's rays, in the belief that the solution would crystallize into fine lapilli, as liquid as it was when hot, but which would harden when exposed to the air. They said that this was the White Stone. Of the twenty-two half-filled flasks thus prepared, three were given to us. For five years we did nothing else but wait for the liquid to crystallize, hoping each day to see the small stones begin to form on the bottom of the flasks. At last we realized that this was not going to happen, because, as it says in the *TURBA*, no extraneous thing is required to make the Stone, because it will perfect itself from its own original metallic matter. We were deeply despondent, and I was now forty-five years old.

"Later, having joined forces with a monkish friar named Godfrey Leporis, I again set about making the Stone. We knew that any other work, apart from the Stone, would have been futile. We began thus: We bought 2000 hen's eggs and boiled them in water until they were hard; we then removed the shells which we calcinated till they were as white as snow. The yolks and the whites we left to rot in horse manure and then distilled them thirty times, ending up with white water and, apart, red oil. We did many other things that are too long to describe here until, two and a half years later, we realized that we were not going to find what we were looking for. In desperation we abandoned everything, for we knew we had been using the wrong matter. My companion and I learned how to sublimate spirits, make strong water, dissolve, distil and separate the elements, build furnaces and make fires in many different ways. This took about four years.

"We were joined by a theologian, protonotary of Burgis, who suggested making the Stone with vitriol. First of all we distilled some good vinegar eight times, in which we dissolved calcinated vitriol. This we then extracted and replaced in the vinegar fifteen times a day, for two months. The fumes were so strong that they



An anonymous Philosopher from before the time of Hermes Trismegistus. His right hand reaches out to protect the *Vessel of the Philosophers*, the sealed container in which the Philosopher's Stone is prepared. Behind the figure the partially erased motto reads: "Likewise take a Vessel, because the maxim of the Philosophers is dissolve the Sulphur in the Stone...A single body, that is the Rebis, and a single vessel..." The instruction to operate on a single body in a single vessel recurs throughout the history of alchemy (15th century miniature).

FIGURES HIÉROGLYPHIQUES. Like Flamel, Zachaire attaches a symbolic meaning to the date; when he writes that his first alchemical transmutation was achieved on Easter Day, the feast of the Resurrection, he is suggesting to astute readers that the triumph of alchemy consists in resurrecting matter from death to assume a state of divine perfection.

Lowbrows, braggards, spendthrifts, devotees of the most incredible experiments: the obscure crowd of alchemists to whom Bernard of Treves refers corresponds to the reality of the *Art* in the 15th century, a period which saw the publication of a larger number of manuscripts in comparison with the preceding century (a sign of widespread promulgation) but which had fewer illustrious names and little innovation.²⁶ The writings of this century provide us with a long list of such virtual unknowns as: Egidius of Vadis, Anthony of Abbatis, Nicolas of Spain, Nicolas of Prussia, Gerald of Aquitaine and many more from all over Europe. The few 15th century alchemists worthy of a place in history include Christopher of Paris (floruit 1470), and above all the celebrated English alchemists George Ripley and Thomas Norton. George Ripley was born in the Yorkshire village of Ripley and wrote his alchemical books during the period 1450-1476.²⁷ He first studied the *Art* during his travels in Italy, but it was during his stay on the island of Rhodes, a guest of the Knights of St. John of Jerusalem, that he perfected his knowledge of the arcane arts. He returned to England and by 1471 was firmly established as a canon of the Augustinian priory at Bridlington where, according to popular legend, he concluded his alchemical experiments. In 1470 he wrote in English his *COMPOUND OF ALCHEMY*, dedicated to Edward IV, which became famous in a Latin translation entitled *LIBER DUODECIM PORTARUM* (*THE BOOK OF TWELVE GATES*). In 1476 he dedicated his *MEDULLA ALCHEMIAE* (*THE MARROW OF ALCHEMY*) to George Nevill, archbishop of York, and he also wrote a song or *CANTILENA* which purports to explain the alchemical mystery with a strange allegory proposing the correct sequence of the colors of the Great Work: black, yellow, peacock's tail, rainbow, green, blue, white, grey and again yellow, these being the main steps to achieve the final red stage of the Elixir. But Ripley is especially famous for his enigmatic *VISIO* (*VISION*), written around 1471, in which a Toad passes like a chameleon through the colors of the *Opus*. Ripley's works are regarded critically by contemporary scholars: Lynn Thorndike finds them "very stupid and tiring to read."²⁸ but they have always been held in high esteem by disciples of alchemy, to the extent that whole books have been written to explain and comment on them.

Adopting the narrative expedient first used by Zosimos some twelve centuries earlier, Ripley describes the vision that appeared one night before his "dimmed

sight" while he was poring over books on alchemy: it was of a red toad who drank the *juice of grapes* until "overcharged with the broth" he burst asunder; after which he cast off his foul venom and began to sweat a "golden humor." The dying toad becomes like "coal for color black", a clear illusion to the *nigredo*. The toad's body was left to rot for a certain time then heated in a gentle fire, during which process the alchemist perceived the colors of the *cauda pavonis* until the final red stage was reached. Bit by bit the toad's venom had become a precious elixir capable of healing all ills. The symbolism of this vision is all too clear: the toad represents the *Stone* placed in the *Hermetic vessel* which, passing through various stages, dies and is purified to become the *Red Elixir*.

According to an unconfirmed tradition, Ripley was said to have been the instructor of another famous author, Thomas Norton. Little is known of Norton except that he may have been a man of means and that his father was probably the Norton who was sheriff of Bristol in 1401 and Mayor in 1413. He held the post of privy counsellor to Edward IV and probably followed the King when he fled to the continent in 1470. He died after 1478.²⁹ All we know of Norton the alchemist comes from a long poem, *THE ORDINALL OF ALCHEMY*, which was first published in a Latin translation entitled *CREDE MIHI* (*BELIEVE ME*). *THE ORDINALL* was written anonymously in 1477 and it was not until 1652 that the English scholar Elias Ashmole, after reading the original English version of the poem, realized that the first word of the preface and the initial letters of the following six chapters, if placed side by side, read: "Tomais Norton of Briseto, a parfet Master ye maie him call trowe."

Like Ripley's *VISION* and *CANTILENA*, *THE ORDINALL*, too, is in verse. It tells how the author began to study alchemy at an early age and that he would soon have lost himself in the meanders of the alchemical mystery had he not been able to count on the experience of a great master (thought by some to be George Ripley). After many entreaties, Ripley at length invited Norton to join him in Yorkshire to speak together "face to face." Norton eagerly undertook the hundred-mile ride and after only forty days had learned the "secrets of Alkimy." He tells the disheartening tale of how, having succeeded in preparing the Great Red Elixir, it was stolen from him by a dishonest servant. He was so discouraged at the thought of the cost, the time and the pain of starting all over again, that he was tempted to have nothing more to do with alchemy. But the depression wore off and he set to work to prepare the Elixir of Life. Though his efforts were crowned with success he was again robbed of his elixir, this time by a woman who is said to have been the wife of a master mason named William Canynges.³⁰

The author of *THE ORDINALL* was very obviously concerned with warning his readers of the dangers involved in the practice of alchemy, for he narrates the

HE IS THE LAST OF THE REDS TO

In the first part of the world
 the sun is in the middle
 and the moon is in the
 middle of the world. He is
 the father of all things
 and the mother of all things
 and the son of all things
 and the daughter of all things
 and the brother of all things
 and the sister of all things
 and the friend of all things
 and the enemy of all things
 and the lover of all things
 and the hater of all things
 and the master of all things
 and the servant of all things
 and the king of all things
 and the subject of all things
 and the lord of all things
 and the vassal of all things
 and the father of all things
 and the mother of all things
 and the son of all things
 and the daughter of all things
 and the brother of all things
 and the sister of all things
 and the friend of all things
 and the enemy of all things
 and the lover of all things
 and the hater of all things
 and the master of all things
 and the servant of all things
 and the king of all things
 and the subject of all things
 and the lord of all things
 and the vassal of all things



He is the last of the reds to
 the first of the whites to
 the middle of the world to
 the father of all things to
 the mother of all things to
 the son of all things to
 the daughter of all things to
 the brother of all things to
 the sister of all things to
 the friend of all things to
 the enemy of all things to
 the lover of all things to
 the hater of all things to
 the master of all things to
 the servant of all things to
 the king of all things to
 the subject of all things to
 the lord of all things to
 the vassal of all things to



In the Sea withouten lie
 standeth the bird of Hermes
 with his wings white and red
 to make him selfe thus call stable
 when all his feathers be down
 he standeth there still as any stone

There is now both white and red
 and altho flowe to make the head
 and all one same without fable
 both white and redde a malytable
 to understande never asynge
 and make this yet for our profit

The Hermetic eagle in the miniature of a 16th century code reproducing an alchemical work ascribed to George Ripley. Besides the *Compound of Alchemy* written in 1471 and dedicated to Edward IV, and which is held to be authentic, Ripley's name is ascribed to many other treatises of uncertain origin, but which are definitely earlier than the 16th century.

The alchemist's assistants, in the miniature of a manuscript copy (16th century) of the *Ordinall of Alchemy* by Thomas Norton. This book advises alchemists to mistrust their servants, who are almost always negligent, idle and false.



Portrait of Paracelsus, surrounded by inscriptions in German, Latin and Greek, and magical numerical squares. This famous picturesque figure is presented as a: "Very learned doctor well-versed in the sciences of nature". He is holding a sword on the pommel of which is written "Azoth", a term invented by Paracelsus himself by combining the first and last letters of the Latin, Greek and Jewish alphabets: A-Z, Alpha-Omega and Alef-Thau respectively, standing for the spiritual essence which bore within it the beginning and end of all things. Azoth also meant an amalgam of gold, silver and mercury (17th century copper engraving, inspired in part by an earlier illustration).

by magic, when he elaborated his theory on the *homunculus*, an artificial human being which he believed could be created by means of a highly secret process, thanks to the powers of spagyric art. Paracelsus's recipe for creating *homunculus* envisaged placing a human male seed in a sealed vessel and leaving it to rot for forty days at the highest temperature possible. At the end of this time, the seed would have become a shapeless, transparent form. By feeding it with the *arcantum* of human blood for forty weeks, the shapeless form would develop into a miniature human being. Though much smaller than a naturally generated

human being, *homunculus* would be endowed with greater wisdom, by virtue of the fact that he was made by a magic process.

To an earlier century belongs the anonymous alchemist who presented his writings as the work of a 15th century Benedictine monk called Basil Valentine. The legend has it that Basil Valentine lived around 1413 in the Benedictine monastery of St. Peter of Erfurt, where he wrote his two most famous works, *CURRUS TRIUMPHALIS ANTIMONI* (THE TRIUMPHAL CHARIOT OF ANTIMONY) and the *LIBER DUODECIM CLAVIUM PHILOSOPHIAE* (BOOK OF THE TWELVE KEYS OF PHILOSOPHY). Whether knowingly or not, the legend of Basil Valentine evokes the story of the Persian magus Ostanos. It tells how the books written by the Benedictine monk were hidden inside one of the columns of the Erfurt monastery, where they came to light again in 1602, when a thunderbolt split the stone asunder and revealed the hiding place. A critical analysis has established that the writings ascribed to Valentine were composed by an alchemist who was familiar with the works of Paracelsus, especially his theories on the *tria prima* and the *arcana*. In all events, these works are more than worthy of the reputation they enjoyed. They reveal a harmonious mixture of speculative and practical alchemy in which passages of pure alchemical gnosticism alternate with pages exploring new chemical procedures, such as the preparation of antimonite oxide and hydrochloric acid. The writings also include the description of a pilgrimage to Compostela, disclosing the pseudo-Basil Valentine's knowledge of the tradition of Nicolas Flamel.

One of the less reputable pages of the history of alchemy tells the tale of two English alchemists named John Dee and Edward Kelly, or Kelley. Dee was born in London on July 13, 1527 and became an outstanding scientific figure of the Tudor Age. He taught Greek at Trinity College and filled in his spare time studying astrology, alchemy and angel magic which caused accusations of witchcraft and sorcery. Soon his reputation as a sorcerer exceeded that of a man of science and letters. Consequently, when Elizabeth I ascended the throne in 1528, Dee was summoned by the Queen for astrological consultations. His association with the court of Elizabeth lasted some time, though he occasionally fell out of favor. He wrote books on the arts, the sciences, philosophy and alchemy. He became deeply involved with séances of angel magic which attracted the attention of an egregious scoundrel named Edward Talbot, who later assumed the name of Kelly. Kelly was born in Worcester in 1555 and was an apprentice to an apothecary. He may have studied at Oxford without gaining a degree and got into trouble with the law for forging or coining; he was also caught digging up a corpse for purposes of necromancy. He presented himself one day at Dee's



Emblem dedicated to Michael Sendivogius, the Moravian adventurer who for some time succeeded in passing himself off as the author of *Novum Lumen Chemicum*, which was in reality a compilation of the writings of the Scottish alchemist Alexander Sethon, by adopting Sethon's nickname of "Cosmopolite". (From *Symbola aureae mensae*, by M. Maier, 1617). The illustration, published before the confusion had been cleared up, shows Sendivogius pointing to Saturn, who is busy watering a clump of trees whose fruits are the Sun and Moon. The Great Work is nurtured by Sulphur and Mercury.

Basically, the story goes that in 1601 a Dutch ship was wrecked off the Scottish coast, in the vicinity of the village of Sethon. The pilot, Jacob Haussen, was rescued by a Scotsman named Alexander Sethon, in whose house he found hospitality while recovering from his unfortunate adventure. Sethon also provided him with money to return home, expressing the hope that they would meet again. The following year, 1602, Sethon visited his Dutch friend in Holland. On the day of his departure, March 13, 1602, Sethon, wishing to present Haussen with a souvenir in exchange for his cordiality, performed an act of transmutation before his host's amazed eyes, by changing a piece of lead into a piece of gold of the same weight. Haussen told the story to a local doctor, one A. Van der Linden, who left a written record of the episode.

Sethon left Holland and continued his tour of Europe, carrying out transmutations wherever he went before incredulous audiences. In 1610, Professor Wolfgang Dienheim of Fribourg, wrote a detailed account of his meeting with Sethon in the summer of 1602, and of the transmutations to which he and another man named Jacob Zwinger had been witnesses. Zwinger confirmed the story in a letter he wrote to Emanuel Koenig, professor at Basle, who then published it. And Sethon was probably the foreigner who, in the summer of 1603, asked a Strasbourg goldsmith named Güstenhover if he could borrow some of his tools. By way of compensation the mysterious foreigner left Güstenhover a strange red powder which turned out to be *powder of projection*. Vanity proved Güstenhover's undoing, for he could not resist the temptation of passing

himself off as an alchemist and demonstrating transmutations before his astonished friends and fellow citizens. He even gave a small quantity of the powder to three town councillors and showed them how to use it, which they did with success.

The echo of these events reached the ears of Emperor Rudolf II, who nurtured a passion for alchemy, and Güstenhover was summoned to court. The Emperor demanded to know the secret of the *powder of projection* and the preparation of alchemical gold. The goldsmith, having exhausted the supply of powder given to him by Sethon, at last admitted that the powder had been left to him by a stranger and that he had not the slightest idea of how to make it. The avaricious monarch did not believe him and had him immured in his fortress where he spent the rest of his unhappy life.

Meanwhile Sethon continued his transmutations at Frankfurt, Cologne and Hamburg. Sometimes he carried out the *projection* personally, on other occasions he gave a little of the powder to his onlooker, provided him with the necessary instructions and let him get on with it by himself. Many of these supposed transmutations are actually documented.

In the autumn of 1603 Sethon, newly wed to a girl from Munich, was invited to the court at Kossen by Christian II, Elector of Saxony, who had heard of his miraculous powers. But Sethon was on his honeymoon and made excuses, sending his servant, William Hamilton, equipped with some of the *powder*, as his deputy. Hamilton successfully made a *projection* and produced a piece of gold that withstood all testing. Prompted by thoughts of easy wealth, Christian II



Emblem XVIII of *Atalanta Fugiens* (1618), the motto of which reads: "Fire loves to excite fire, but gold does not like making gold". It portrays an alchemist attempting to make gold from a dish full of gold coins. In all stories of transmutation alchemical gold is never obtained from melting gold in the crucible, but from lead together with a few grains of a mysterious red powder. The philosophical gold thus obtained was said to increase even further if mixed with quantities of silver.

any reduction in the quantity of mercury when it is turned into gold. As mercury has a lower density than gold it should have diminished by approximately one third.⁴³ It has been suggested that van Helmont invented the episode, or that his son did when, in 1648, he edited and published his father's works. These suppositions are only partly feasible. Why, for instance, should a respected scientist risk ridicule by inventing such a story and repeating it several times? And why should his son, whose attitude towards alchemy was one of outright scepticism, have wished to manipulate his father's manuscripts by the addition of an account of a spurious alchemical transmutation?

Even more amazing is the tale left by the Dutch physician Johann Friedrich Schweitzer, better known as Helvetius (1625-1709). The story opens on a note similar to that of van Helmont's account, but it is much more detailed. He relates that on December 27, 1666, he was visited at his house in The Hague by a rustic looking stranger of medium height, whom he judged to be about forty-three or forty-four years of age. He had a pock-marked face, very black hair and was attired in plain, shabby clothes. He said he was interested in alchemy and had read the papers in which Helvetius expressed his doubts on the existence of the Philosopher's Stone and its therapeutic properties. The man produced from his pocket a small ivory box containing three sulphur-colored, almost transparent

lumps of stone about the size of a walnut. He hinted that they were the true Philosopher's Stone. When questioned as to where he had obtained the stones, he replied that they had been given to him by a stranger to whom he had offered hospitality and who had revealed to him certain secrets of the Art. While he was pretending to examine the stones, Helvetius managed to scratch off a tiny quantity which he hid under his nail. When the stranger had left he tried to perform a transmutation but was unsuccessful.

Three weeks later the stranger returned. In vain the doctor tried to convince him to prove his affirmation with a practical demonstration. The man was steadfast in his refusal, but in the end agreed to leave Helvetius a small fragment of the Stone, no bigger than half a grain of mustard. At this point Helvetius owned up to his fruitless attempt at transmutation with the stolen powder. The stranger explained that to ensure success, the Stone had first to be coated with yellow wax before being cast into molten lead in order to prevent its virtues from being damaged by the vapors of the molten metal. Having held forth on the nature and difficulties of the Great Work, the stranger departed, promising that he would one day return with further explanations and would also carry out a *projection*.

The stranger failed to keep his promise and was never seen again. Helvetius, suspecting that he had been fooled, decided to try again by himself. While his wife wrapped the Stone in wax, Helvetius placed half an

¹⁰ P. Arnaud, *Trois Traitez de la Philosophie Naturelle, non encore imprimez*, Paris 1612.

¹¹ N. Flamel, *Oeuvres*, p. 45-46.

¹² *Ibid.*, p. 46.

¹³ *Ibid.*, p. 54.

¹⁴ *Ibid.*, p. 54.

¹⁵ *Ibid.*, p. 56.

¹⁶ P. Borel, *Trésor de recherches et antiquitéz gauloises et françoises*, Paris 1655, p. 161.

¹⁷ See chapter IV.

¹⁸ N. Flamel, *op. cit.*, p. 50.

¹⁹ See introduction to *Le Sommaire Philosophique* in: *Musaeum Hermeticum*, Graz 1970.

²⁰ Fulcanelli, *Les Demeures Philosophales*, Paris 1965.

²¹ *Ibid.*

²² For notes on the correspondence between Thomas of Bologna and Bernard of Treves, see: L. Thorndike, *op. cit.*, Vol. III, chap. XXVI.

²³ Bernardus Trenvisanus, *De Secretissim Philosophorum Opere Chemico*, in: J.J. Manget, *Bibliotheca Chemica Curiosa*, Geneva 1702, Vol. II, p. 389-391.

²⁴ G.B. Nazari, *Della Tramutatione Metallica Sogni Tre*, Brescia 1599, p. 99. In Manget, *op. cit.*, Bernard claims to have learned the secrets of the Art at the age of sixty-four, but Nazari's version of this point would seem to be more feasible.

²⁵ See preceding chapter.

²⁶ L. Thorndike, *op. cit.*, Vol. IV, chap. LII.

²⁷ F. Sherwood Taylor, *The Alchemists*, London 1976, p. 107.

²⁸ L. Thorndike, *op. cit.*, Vol. IV, p. 352.

²⁹ E.J. Holmyard, *Alchemy*, London 1957.

³⁰ J.J. Manget, *op. cit.*, Vol. II, p. 293.

³¹ *Ibid.*, p. 292-293.

³² Unless otherwise stated, the notes on Paracelsus are taken from: W. Pagel, *Paracelsus*, Basle 1982.

³³ Paracelsus, *Das Buch Paragranum*.

³⁴ W. Pagel, *op. cit.*

³⁵ *Ibid.*

³⁶ The words of the transaction are quoted in: E.J. Holmyard, *op. cit.*

³⁷ J.J. Manget, *op. cit.*, Vol. II, p. 474.

³⁸ *Ibid.*, p. 474.

³⁹ The truth about Sendivogius began to emerge in the wake of investigations carried out in 1651 by Mr. Desnoyers, secretary to the Queen of Poland, Maria of Gonzaga, as described in a letter of his published by the physician Pierre Borel in: *Trésor de recherches et antiquités gauloises et françoises*, Paris 1655.

⁴⁰ The main sources of information on the adventures of the Cosmopolite are the letter of Mr. Desnoyers and the study carried out by Lenglet Du Fresnoy, from which E.J. Holmyard also gains his facts, *op. cit.*, and others.

⁴¹ E.J. Holmyard, *op. cit.*

⁴² J.B. van Helmont, *Opera Omnia*, 1682, "Vita Aeterna", p. 697; "Hortus Medicus".

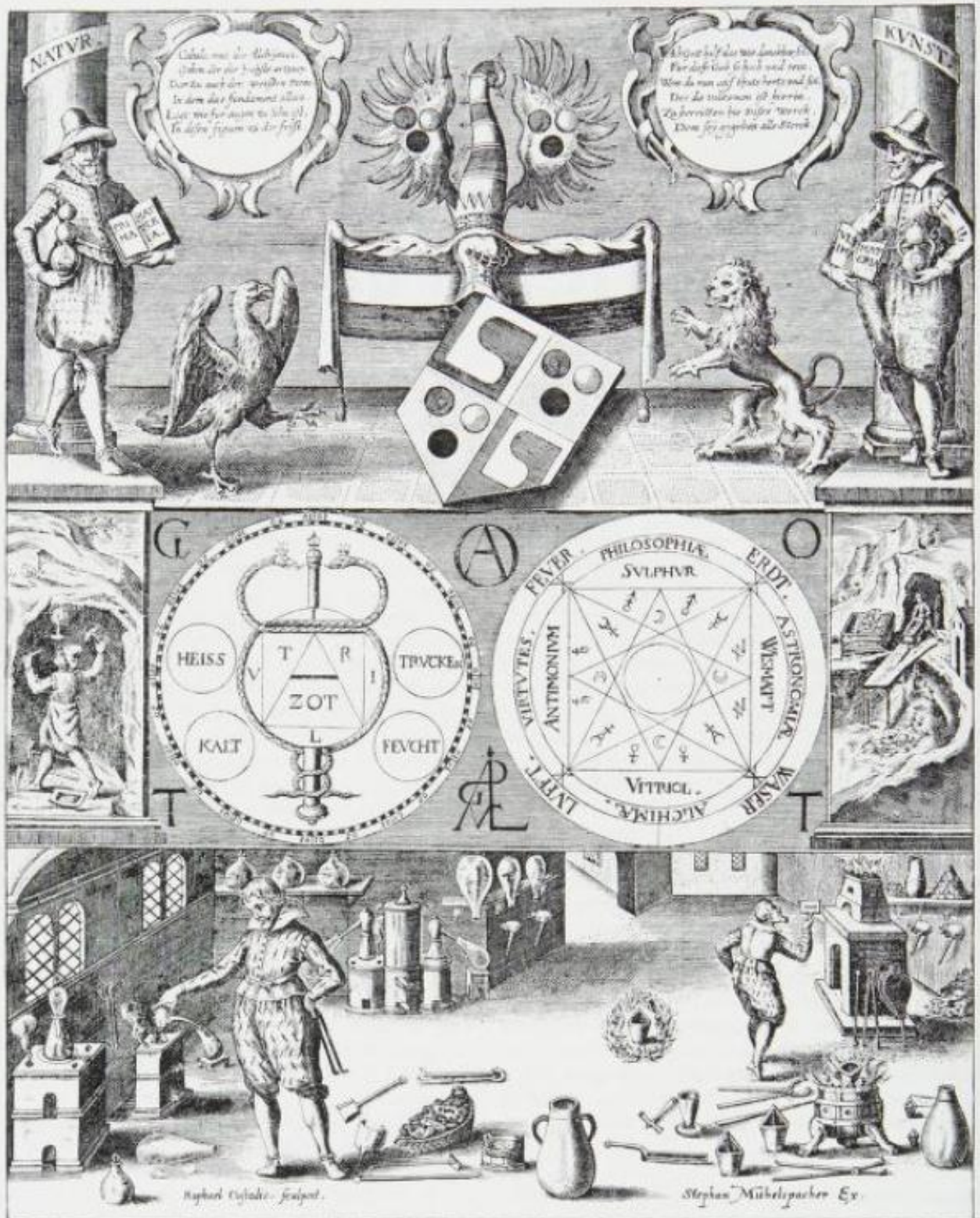
⁴³ F. Sherwood Taylor, *op. cit.*

⁴⁴ J.F. Helvetius, *Vitulus Aureus*, in: J.J. Manget, *op. cit.*, Vol. I, p. 204.

⁴⁵ *Ibid.*, p. 204.

⁴⁶ E.J. Holmyard, *op. cit.*

⁴⁷ Spinoza spoke of the matter in a letter dated 27 March 1667 to his friend Jarrig Jellis, the text of which is to be found in Spinoza's *Opera posthuma*. The closing lines of the letter are quoted in *La Pierre philosophale*, Paris 1972, written by the physicist George Ranque.



The traditional symbolic inheritance of alchemy shown in this medieval miniature was further enriched in the printed illustrations of 17th century alchemical writings, inspired by Rosicrucian philosophy. The upper part of this picture is dedicated to the *prime matter*, supplied by Nature and the *last matter*, resulting from the Great Work. The former is volatile (the eagle), the latter fixed (the lion). In the middle section are portrayed miners at work and complex alchemico-cabalistic diagrams. The bottom section shows two alchemists demonstrating two different traditional methods of work: the wet way (on the left, illustrated by the distilling apparatus) and the dry way (furnace and crucible). (From *Cabala, speculum artis et naturae in alchymia*, by S. Michelspacher, 1654).



Frontispiece of the *Monas hieroglyphica* by John Dee, Antwerp 1564. In the center is the complex symbol of the *Monas*, used by Dee as a graphic example of his theories, which combined mathematical, magical and cabalistic notions. He claimed to have discovered a form of science that interpreted the three cosmic dimensions of the Cabala: the natural, the celestial and the supercelestial.

Dee's *MONAS HIEROGLYPHICA* (*HIEROGLYPHIC MONAD*), published in Antwerp in 1564. It is no accident that the frontispiece of *CONSIDERATIO* includes a verse from the book of *GENESIS* (XXVII:28) "Therefore God give thee of the dew of heaven and the fatness of the earth...", which also appeared in the frontispiece of the *MONAS*.

John Dee was an outstanding figure of the Tudor age, with a reputation throughout Europe for expertise in scientific and magical subjects. Although he was involved in séances of angel magic together with his scribe Edward Kelly, a fraudulent alchemist and thorough rogue, Dee showed little interest in traditional alchemy and laboratory practices concerning the transmutation of metals. Moreover, he was a talented mathematician and had studied the *qabbalah cristiana* by Pico della Mirandola (1463-1494) and the *occulta philosophia* by

Cornelius Agrippa von Nettesheim (1486-1535), dwelling in particular on the magical use of numbers in relation to the Cabalistic evocation of angels and spirits. His alchemy was not concerned with *athenors* and *alembics*, but was more a form of philosophical speculation of a Hermetico-Cabalistic nature, according to the magical traditions of the Renaissance.

In fact, Dee invented nothing new. In 1460, a Greek monk journeying from Macedonia, had presented Cosimo de' Medici, of the influential Medici family of Florence, with a Greek-language version of the *CORPUS HERMETICUM*, a collection of seventeen essays attributed to the mythical Hermes Trismegistus, all traces of which had long since been lost in medieval western Europe. Trismegistus was already a well-known name by then, as people really believed him to have been a historical figure. Moreover, according to Lactantius



The royal couple, King and Queen, about to enter the purifying bath (17th century miniature). *The Chemical Wedding of Christian Rosenkreutz*, one of the key texts of the Rosicrucian movement, narrates the story of the alchemical wedding of a King and Queen, who after the wedding undergo a process of death and resurrection.

Then, together with the bride and groom, he watches an allegorical play and an equally allegorical series of executions, of which the king and queen are victims. On the fifth day Rosenkreutz explores the castle vaults, and then attends a funeral on the lake. On the sixth day the guests are called upon to participate in an alchemical experiment to bring the king and queen back to life. The experiment is successful. On the seventh and last day the newly resuscitated couple invest Rosenkreutz and his fellow guests with the emblem of the *Order of the Golden Stone*. Shortly after, the story is abruptly broken off and a footnote informs readers that two pages were missing from the original manuscript.

THE CHEMICAL WEDDING is not easy reading. This romantic story is full of symbols the exact meaning of

which is difficult to understand. The reader's first impression is that the story narrates an initiatory journey similar in spirit to the magical, alchemical, Cabalistic philosophy expressed by the Rosicrucians in the *FAMA FRATERNITATIS*, the *CONSIDERATIO BREVIS* and the *CONFESSIO FRATERNITATIS*. That the alchemy of THE CHEMICAL WEDDING stems from the same source as the two earlier manifestos is confirmed by the fact that on one of the opening pages of the first edition, beside the text and without any explanation, appeared the symbol of John Dee's *monas hieroglyphica*.

THE CHEMICAL WEDDING OF CHRISTIAN ROSENKREUTZ is further proof that Rosicrucian alchemy had little or nothing to do with chemistry. In traditional alchemy, from Zosimos to Basil Valentine, mystical and chemical practices were intimately linked one with the other and considered of equal significance, whereas Rosicrucian alchemy exalted the spiritual aspect of the Art. In THE CHEMICAL WEDDING it is explicitly pointed out that alchemical laboratory practice "is still one of the arts, though not the noblest, or the best, or the most necessary."¹¹ The Rosicrucians were followers of Paracelsian philosophy and advocates of a new and



Frontispiece of *Mysterium magnum* by Jakob Böhme published in *Theosophische Wercken*, 1682. The picture shows the two faces of the Great Mystery, the Messiah and Moses, symbolizing the opposites that must coexist.

allegory into explicit terms, Andreae was really saying: the proposal of the Rosicrucians, in promoting a pretence (play with ingenious parts) was trying to call attention to the problem of social and political injustice (dramatic play) and verify whether a reformist petition would have been favorably received. But before long the true reformists had been forgotten, their place being taken by charlatans who fraudulently claimed to be Rosicrucians (replacement of the actors); once the true upholders of Rosicrucian ideals had withdrawn from the scene, no one was left but the false prophets. The whole business had become extremely suspect, all traces of truth having disappeared.

Why did Andreae talk of *ludibrium*? Was the message of the Rosicrucians really only a literary hoax purporting to dupe the pursuers of magico-Cabalist knowledge? Or did Andreae invent the story of the *ludibrium* merely to avert attention from his participation in the Rosicrucian adventure in the wake of the outcry caused by the publication of the FAMA, the CONFESSIO and THE CHEMICAL WEDDING? Opinions differ and it has even been suggested that Andreae attributed to the term *ludibrium* the meaning of *dramatic scene* rather than *hoax*.¹⁴

Whatever the answer, the romantic tale of Christian Rosenkreutz and his secret Brotherhood of magi soon overreached the intentions of Andreae and his friends. The FAMA, the CONFESSIO and THE CHEMICAL WEDDING were reprinted several times and translated into other languages. A conflict arose over the true nature of the Rosicrucian proposal and the Brotherhood itself. Fanatics wasted no time in spreading around all

his inner nature. He was no longer capable of understanding the spiritual world hidden in visions, dreams, alchemy and the magic of numbers. He believed that magic was the mother of eternity and of the essence of all essences, because it had made itself and was manifest in desire. In it there was but one will, and this same will was the great mystery of all wonders and secrets, and yearned with a burning desire for self-contemplation.¹⁵

Böhme's theosophy often resorts to the use of alchemical metaphors: the "burning desire" for divine things, which he had personally experienced, was referred to as a *cold fire*, a *fire that does not burn*, the same definition the alchemists applied to their *universal solvent*.¹⁶ Böhme's theosophy was also closely akin to the Cabala.¹⁷ His works, condemned by the ecclesiastical authorities of Görlitz, were first distributed in a handwritten form, but once they were published and enjoyed wider distribution they strongly influenced German philosophy and alchemical thought.

Apart from John Dee's Cabalist magic, the Rosicrucian manifestos were almost certainly inspired by other sources. One such source was the Hermetic philosophy of Heinrich Khunrath (1560-1605), a German alchemist who was acquainted with John Dee, and author of the *AMPHITHEATRUM SAPIENTIAE AETERNAE*, published in 1609, shortly before the appearance of the manuscript version of the *FAMA FRATERNITATIS*. Khunrath's *AMPHITHEATRUM* consists of a series of 365 meditations to cover each day of the year and is illustrated by twelve engravings of rare beauty illuminated by magical, alchemical and Cabalist symbols. Perhaps the most famous plate, mentioned earlier in chapter VI, depicts the devout alchemist kneeling in prayer in the midst of his huge and magnificent *oratory-laboratory*. The text shows many similarities with John Dee's philosophy and the Rosicrucian manifestos.¹⁸

The Rosicrucian ideals were also influenced by the alchemy of Oswald Croll (1580-1609), a German Paracelsian physician and chemist, personal physician of Prince Christian I of Anhalt-Bernburg and a member of Emperor Rudolf II's entourage in Prague. Croll studied Hermetic magic, Cabala, alchemy and Paracelsian medicine. His most famous work, the *BASILICA CHEMICA*, published in 1609, proposed the use of medicinal remedies prepared according to alchemical methods which he himself had tested. Although he is considered to be responsible for a number of interesting chemical discoveries (succinic acid), Croll was nonetheless a traditional alchemist concerned with the doctrine of the microcosm-macrocosm analogy, magical influences and the harmony between the alchemist and nature. The frontispiece of *BASILICA CHEMICA* shows the portraits of the men Croll believed to be the torchbearers of alchemical thought throughout the centuries: Hermes Trismegistus, Morienus, Ramon Lull, Jabir, Roger Bacon, Paracelsus. Beside these portraits were two complicated magico-Cabalist

diagrams. The first was meant to encourage humanity to strive toward the supreme divine light; the second proposed the theological Cabala, astronomical magic and alchemical medicine as the basis of human knowledge.

An antagonist of the spirit of Rosicrucian alchemy was Andreas Libavius (1540-1616), one of the foremost writers in the history of alchemy and chemistry. He, too, was a Paracelsian physician, but believed in a scientifically based alchemy, free of excessive mysticism. Libavius was the author of a monumental work entitled *ALCHYMIA* (1606), which weighed approximately 10 pounds and was decorated with figures representing the entire repertoire of alchemical symbols: The King and Queen, the phoenix, the crow, the ouroboros-serpent, the tree of metals, lions and dragons. Yet *ALCHYMIA* was a revolutionary work, considered by the historians of chemistry to be "the first chemical manual" in which are described many chemical substances, such as stannic chloride, lead acetate and ammonium sulphate, and a number of chemical processes including the combustion of sulphur with nitric acid to produce sulphuric acid, the preparation of candid sugar and the extraction of fermented liquids from alcohol.¹⁹ Not only did Libavius try to describe his experiments and the substances he derived from them in a clear and accurate manner, he considered his writings as veritable teaching manuals. Though an admirer of Paracelsus, he attacked certain ideas of Paracelsian chemistry. In short, he had a critical, enquiring mind; and even though he shared the quest of traditional alchemists for the *panacea*, about which he wrote in *DE PANACAEA*, and sometimes resorted to a linguistic style rich in images, Libavius represents the other face of 17th century alchemy, based almost exclusively on laboratory practices having abandoned all forms of magical speculation. On the other hand there were the Rosicrucians who had moved out of the laboratory in their quest for mystical wisdom. This separation was a slow process that took place over the entire 17th century while, despite strong opposition, Rosicrucian philosophy spread throughout Europe.

Another key figure in the Rosicrucian movement was the German Paracelsian physician, Michael Maier (1566-1622). After practicing medicine first in Rostock, in 1608 he was called to Prague as physician to Emperor Rudolph II, patron of alchemists and magicians. Upon the death of the Emperor, he traveled widely in Europe, visiting England several times, where he studied and translated into Latin Thomas Norton's *THE ORDINALL OF ALCHEMY* and met the Rosicrucian philosopher Robert Fludd. On his return to Germany, he became the court physician of the Landgrave of Hesse, Maurice of Hesse, and thus came into contact with the entourage of Frederic V, Elector Palatine and King of Bohemia, who had close ties with the Rosacrucians. He died in 1622 during the occupation of Magdeburg, at the start of the Thirty Years War.



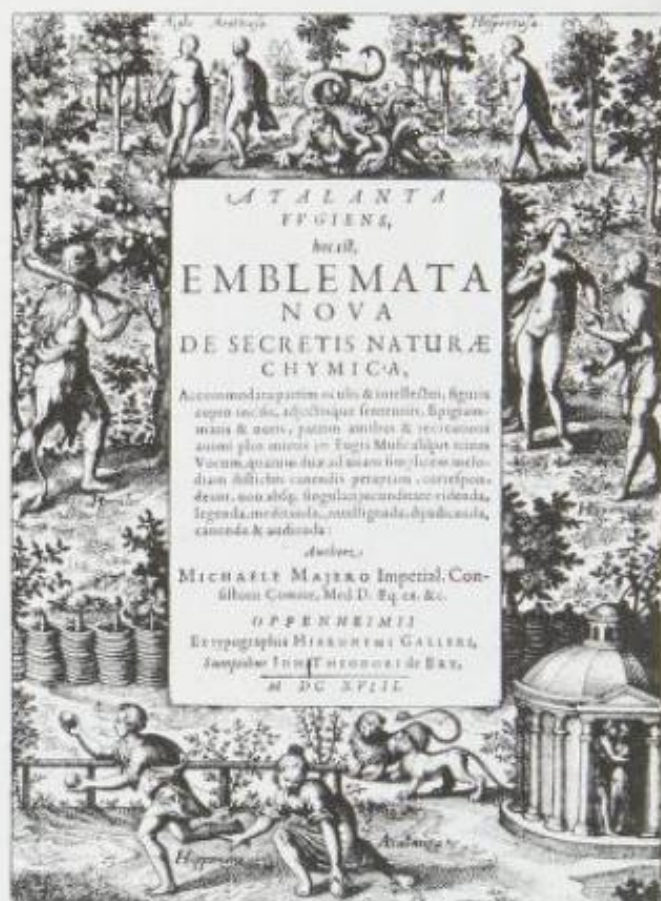
TRES SCHOLA. TRES COESAR TITVLOS DE-
DIT: HÆC MIHI RESTANT.
POSSE BENE IN CHRISTO VIVERE. POSSE MORI.
MICHAEL MAIERVS COMES IMPERIALIS CON-
SISTORII etc PHILOSOPH ET MEDICINARVM
DOCTOR. P. C. C. NOBIL. EXEMPTVS FOR-OLIM
MEDICVS C.A.S. etc

Portrait of Michael Maier, done in 1617, at the age of 49. The words below read: "Three titles I have had from Coesar, three from the School. These things I will always have: that I may live well and die well in Christ".

Maier wrote several alchemical works, the most famous of which was the ATALANTA FUGIENS (FLEEING ATALANTA). It was published in 1618 and contained many fine illustrations. It was inspired by the Greek myth of Atalanta, the princess whose greatest pleasure was in the chase and who declared she would only marry the man who could beat her in a foot race. More than one suitor had been beaten and then killed by Atalanta when a certain Melanion finally thought of a trick. During the race he dropped one by one three golden apples given to him by Aphrodite. Atalanta paused to pick them up and was thus beaten. The alchemists had a habit of interpreting the ancient myths in a special way of their own, and the myth of Atalanta was no exception. The race between Atalanta and Melanion represented the Great Work, the golden apples were the *Philosophers' Gold*. Atalanta herself was the *mercurial water*, so *volatile* (*volatile* meaning that which evaporates or rises to sublime levels) that it could only be fixed by the *Philosophers' Gold*.²⁰

However, the real innovation of the ATALANTA FUGIENS was another, as the lengthy subtitle explains: "New Chemical Emblems on the Secrets of Nature, a work in part intended for the eyes and intellect, with figures engraved in copper, additional sentences, epigrams and notes, and in part intended for the ears and the delight of the mind, with some 50 Musical Fugues for three voices, two of which correspond to a simple melody suitable for a sung couplet; it is a work to look at, read, meditate, understand, judge, sing and listen to not without a singular delight." The title was, in fact, a play on words: the adjective *fugiens* of the book did not refer to Atalanta, but to the musical composition known as *fugue*, which in this case was a series of 50 musical fugues.

The alchemists were well aware of the numerical relations governing the intervals in the musical scale. In their speculations on the numerical proportions governing



Frontispiece of the first edition (1618) of *Atalanta Fugiens* by M. Maier. The scenes portrayed around the title illustrate the myth of the Garden of the Hesperides, in which grew the tree of the golden apples, and whose entrance was guarded by the dragon Ladon. At the top can be seen the nymphs Aegle (the light), Arctura and Hespera (the evening); on the left is Hercules, who was sent to gather the golden apples; on the right is Venus giving three golden apples to Melanion; at the bottom the race between Atalanta and Melanion. The entire myth was interpreted by Maier in an alchemical key.

Work, on the other to condition the spirit of the alchemist in order to enable him to better carry out his work.

The emblems of ATALANTA FUGIENS were important, too. While the Hermetico-Cabalist magic of the Renaissance advocated meditation of paintings, Maier, encouraged by the high quality of contemporary printing techniques, proposed the meditation of printed pictures. ATALANTA was a work to be "looked at, read, meditated, understood, appreciated, sung and listened to." Everything in the book was intended to stimulate the reader's perception, guiding him on the right road to spiritual perfection. That all philosophies, arts and sciences should converge towards the same *philosophia moralis* concerning the promotion of human well-being was, in fact, the aim expressed by the mysterious Rosicrucians in the FAMA FRATERNITATIS.

In another treatise, SYMBOLA AUREAE MENSÆ



Hand colored illustration from the 1687 edition of *Scrutinium Chymicum* by M. Maier. It is in reality a reproduction of emblem 17th of *Atalanta Fugiens* (1618). The motto reads: "The fourfold sphere regulates the work of the Fire", and alludes to four different fires which guide the hand of the alchemist during the Great Work.

DUODECIM NATIONUM (SYMBOLS OF GOLD OF TWELVE NATIONS), Maier lists what he considers to be the key figures in the history of alchemy from twelve different countries: Hermes Trismegistus the Egyptian; Maria Prophetissa the Jewess; Democritus the Greek; Morienus the Roman; Avicenna the Arab; Albertus Magnus the German; Arnald of Villanova the Frenchman; Thomas Aquinas the Italian; Ramon Lull the Spaniard, Roger Bacon the Englishman; Melchior Cibinensis the Hungarian; an anonymous Pole (later identified as Sendivogius). Missing from the list are Jabir (whose place is taken by Avicenna) and Paracelsus (replaced by Albertus Magnus), while Arnald of Villanova is strangely referred to as a Frenchman (*gallicus*). In all events, the choice was symbolic, in that the number twelve stood for totality, like the twelve months of the year. In attributing to alchemy a tradition stemming from twelve different countries, Maier was really saying that the Art had spread throughout the entire world.

One of the emblems of SYMBOLA AUREAE was particularly significant. It showed a priest celebrating Mass. Behind him, suspended in the air, was the Virgin Mary enveloped in flames and suckling the Baby Jesus. The emblem was, in fact, dedicated to the Hungarian alchemist, Melchior Cibinensis (Nicholas Melchior Szebeni), who, in 1490 became chaplain and astrologer to Ladislaus II of Hungary and Bohemia, and in 1526 chaplain to Emperor Ferdinand I. It was at the court of Ferdinand I that Cibinensis wrote a treatise analysing the symbolism of the Catholic Mass from an alchemical viewpoint. In describing the emblem, Maier remarked: "The Stone, like a child, must be fed on a Virgin's Milk." *Virgin's milk* was a term used by the alchemists to mean the *Mercury of the Philosophers* in a watery form. As we saw in Chapter V, there had been a tendency very early on to equate alchemy with the Mass, and similarly the Philosopher's Stone with Christ (the Lapis-Christus parallel). Maier's remarks were merely meant to confirm the redemptive powers of the *Lapis Philosophorum* which brought spiritual enlightenment and everlasting life.

Another example of the passion for lavish emblem books during this period was the PHILOSOPHIA REFORMATA (PHILOSOPHY REFORMED), written in 1622 by Johann Mylius (1585-1628), a doctor and theologian who had studied with Michael Maier. In 1624, Daniel Stolz, or Stolzius, used the emblems of Maier, Mylius and other writers with full acknowledgement, for his VIRIDARIUM CHYMICUM (CHEMICAL GARDEN). Its 107 copperplate illustrations were each accompanied by a brief Latin epigram, which was supposed to explain the illustration, but in fact used the obscure language so dear to the alchemical tradition.

In France, the Rosicrucian movement was greeted with rather more diffidence than genuine interest. In 1623 there appeared on the walls of Paris placards announcing the "visible and invisible" presence in town of



The correspondences between Macrocosm and Microcosm according to the theories expressed in *Utriusque cosmi histori* (1617-1618) by the English physician Robert Fludd, a stout Rosicrucian supporter. Together with his German friend, Michael Maier, Fludd was one of a group of men who introduced audacious magico-cabalistic speculations into 17th century alchemical thought, which was rapidly drawing away from all forms of laboratory practice.

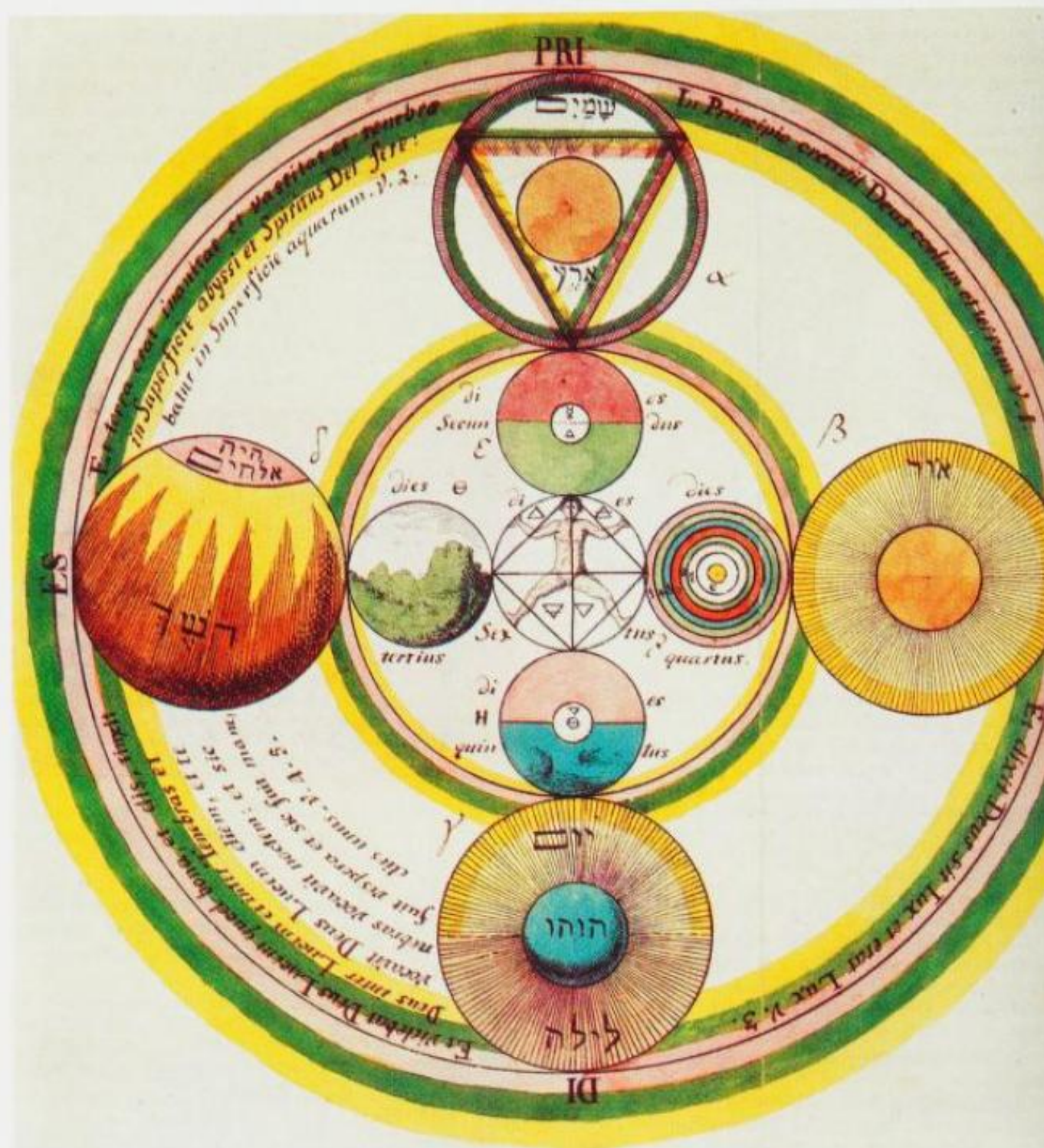
entitled *SOMMUM BONUM* (1629), the complete title of which was *SOMMUM BONUM, OR THE MAGIC, THE CABALA AND THE ALCHEMY OF THE TRUE BROTHERS OF THE ROSY CROSS*. Fludd's alchemy belongs to the mainstream of mystical speculation which was gradually abandoning laboratory practices with its customary fires and alembics.

Of more traditional ideas was another Englishman, Elias Ashmole (1627-1692). He was a man of wide interests energetically pursued, but he was particularly devoted to antiquarian studies and had a collection of old alchemical texts and other ancient documents. In his youth he translated into English both *FAMA* and *CONFESSION*, to which he added his own comments. His interest in alchemy was sparked off when, in 1648, he was given an old alchemical manuscript. Two years later, in 1650, he published his first work on the subject, *FASCICULUS CHemicus*, which was the translation of two hitherto little known alchemical writings. He used an anagram of his own name, James Hasolle, for the

book. Ashmole continued translating and in 1652 published his greatest contribution to the study of alchemy, the *THEATRUM CHemicum BRITANNICUM*, a collection of works by English alchemists.

Ashmole could not be described as a practicing alchemist, but rather a meticulous scholar of alchemy who played a major role in arousing interest in the *Art* in his own country. He rose to immense prestige and in 1661 became one of the founding fellows of the Royal Society of London. In 1669 he received a doctorate in medicine from the University of Oxford, but he is perhaps best known today as founder of the Ashmole Museum in Oxford (1683), based on the collection of curiosities and rarities formed by his friend the Cornish explorer John Tradescant.

Ashmole's biography includes another important episode. On October 16 1646, he became one of the first English freemasons at a lodge at Warrington, in Lancashire. Ashmole made a note of the event in his diary, thus providing us with the oldest known document testifying the existence of speculative freemasonry in England.²⁸ The actual date of the foundation of speculative freemasonry is uncertain. All we know is that during the 16th and 17th centuries, the medieval lodges of *operative masons*, that is to say *working masons*, in England and Scotland, began to admit *non-operative masons*, noblemen, landed gentry and men of learning, lovers of geometry and architecture.



There is little to do with chemistry in this illustration from *Opus mago-cabalisticum et theologicum* (1708) by G. von Welling. By the 18th century, at the dawn of modern chemistry, traditional alchemy was rapidly declining in popularity.



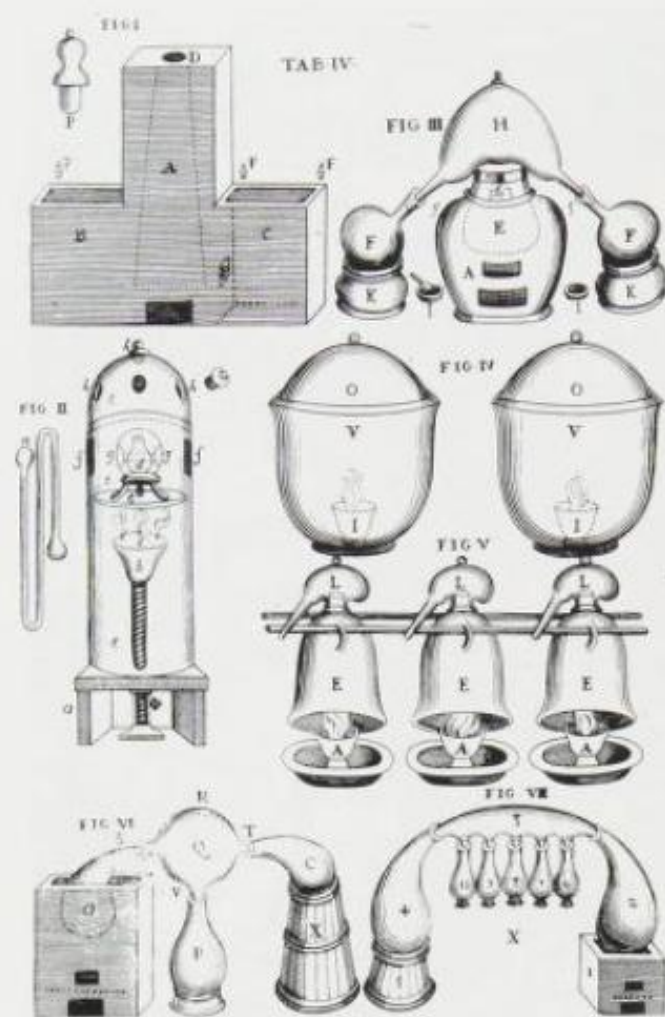
Plate from *De re metallica* (1566) by G. Bauer, better known by his Latin name Georgius Agricola. This treatise, enriched with many beautiful illustrations, gives a highly detailed account of mining and metalworking techniques, but makes no mention of any magical or mystical notions.

In Medieval and Renaissance societies the art of working glass and metals, of dyeing materials and preparing medicines had developed independently from the alchemical tradition. With the advent of printing there was a sudden massive output of printed manuscripts, not only on alchemy but on practical chemistry which described authentic laboratory experiences and totally ignored the symbolic speculation dear to the alchemists. In 1500 the *LIBER DE ARTE DISTILLANDI DE SIMPLICIBUS* (THE ART OF DISTILLING SIMPLIES) by Hieronymus Brunschwig was published in Strasbourg. It described how to extract the active principles from medicinal plants by means of distillation. It was followed in 1540 by the *DE LA PIROTECHNIA* (THE ART

OF FIRE) published in Venice by Vannoccio Biringuccio (1480-1539), a vast work on the mining, analysis, smelting and processing of metals. In 1556 the *DE RE METALLICA* (THE ART OF METALS) by the metallurgist and mining technologist Georg Bauer (1494-1555), better known by his Latin name Georgius Agricola, was published posthumously in Basle. It was Agricola's crowning achievement, describing mining geology and mining engineering in great detail and illustrated with a magnificent series of woodcuts portraying the mine and the machinery. All these works gave full explanations of how to build furnaces and distilling apparatus, how to process metals and organic substances and how to obtain products for immediate use. Simultaneously alchemy, though apparently dealing with the same subject, continued to camouflage its true objective behind a screen of secrecy and symbolism, combining accounts of chemical experiments with notions of a philosophical and religious nature, and purporting to be a revealed tradition, the fruits of which, albeit remarkable, were reserved for a chosen few.

But to consider the birth of scientific chemistry a direct and natural consequence of the evolution of alchemy, is far too superficial an approach to the question. Chemistry in the 17th and 18th centuries was in fact the result of a protracted interplay of a multitude of diverse factors: early metallurgical techniques, the confused and often crazy experiments of the *puffers* (spurious alchemists, driven by the prospect of easy wealth); the experiments of the *spagyrist*s (disciples of Paracelsus, whose sole objective was to "tear apart and gather together" substances in order to make medicines); the working methods of the great Hermetic philosophers such as Zosimos, Jabir and the pseudo-Ramon Lull or Basil Valentine.² Nor is it right to think of alchemy as the fatuous forefather of chemistry, for the aspirations of mainstream alchemists were worthy of the highest respect, and were supported by ethical considerations and a philosophy in which the alchemist aspired to achieve a harmony with cosmic phenomena and a mystical insight into the divine secrets of Nature. In the light of modern society's growing preoccupation with ecology, chemistry is once again struggling to revivify the *science with conscience* vision that was innate in the alchemical tradition of the past.

The time-honored theories of the *prima materia*, the *tri-prima* (Sulphur, Salt and Mercury or Quicksilver) and the four elements have never been refuted by the alchemical tradition, which still today expresses its concepts in a symbolic key, and purports to manipulate the energies that govern the essence of matter and consequently of the adept himself. The chemists of the 17th century pursued quite different, more concrete and immediate objectives. In order to achieve them they first had to establish a basis for their experiments and little by little they came to the conclusion that the traditional alchemical theories had no place in their science.



Some of the many chemical instruments illustrated in *Pharmacopoea Schroedero-Hoffmanniana* (1688), by J.J. Manget. Many of the instruments used by 17th alchemists were adopted by the pioneers of the new chemical science.

The first to strike at the root of alchemical speculation was Robert Boyle (1627-1691), a man of science who believed in the theoretical possibility of transmutation, but whose main concern was to establish a rational system of chemistry based on modern methods and experience. In 1661 he published his epoch-making book *THE SCEPTICAL CHYMIST: OR CHYMICO-PHYSICAL DOUBTS AND PARADOXES*, which was deeply critical of the four Aristolian elements and Paracelsus's *tria prima*. Boyle established the modern concept of *element*, which, he said, should be regarded as "primitive and simple, or perfectly unmingled bodies; which not being made of any other bodies, or of one another, are the ingredients of which all those called perfectly mixed bodies are immediately compounded, and into which they are ultimately resolved..."

It has been suggested that the publication of *THE SCEPTICAL CHYMIST* was the "death-warrant of alchemy."³ In reality Boyle's observations undermined the foundations of iatrochemistry (or medical chemistry) and all

17th century chemistry based on the theory of the four elements. Alchemy, however, survived in apparent vigor for another century, nor did it disappear completely even after Lavoisier's elucidation of the composition of air and water.

Despite this chemical revolution, old theories died hard. Only eight years after publication of *THE SCEPTICAL CHYMIST*, the eminent German physician and chemist Johann Joachim Becher (1635-1682) refurbished Paracelsus's theory of the *tria prima*, giving it a new lease of life. In 1669 he published a book entitled *PHYSICA SUBTERRANEA* (*SUBTERRANEN PHYSICS*) which was the first attempt made to bring physics and chemistry into relation. In speculating on the phenomena of combustion, Becher sustained that all mineral substances were composed of three *terre* (earths): *terra prima* or *terra lapida*; *terra secunda* or *terra pinguis*; *terra tertia* or *terra mercurialis*. According to Becher, when a metal underwent calcination or combustion, the *terra pinguis* escaped into the air, leaving behind a residue composed of *terra lapida* and *terra mercurialis*. The *terra lapida* was described as being resistant to fire and vitrifiable; the *terra pinguis* embodied the principle of combustion and was to the *terra lapida* as the soul is to the body; the *terra mercurialis* rendered the minerals malleable, volatile and liquefiable. The characteristics expressed by Becher were identical to those attributed by Paracelsus and his followers to *Salt*, *Sulphur* and *Mercury*.⁴ The concept of *terra pinguis* (fatty earth) was postulated as early as the time of Jabir, who referred to *Sulphur* as *pinguedo terrae* (fertility of the earth).

Becher's theory was further elaborated by Georg Ernest Stahl (1660-1734), who founded the theory of *phlogiston* (from the Greek *phlogistos*, inflammable), a principle common to all combustible bodies and metals. Like Becher, Stahl believed that during calcination metals released *phlogiston* into the air; When these substances, which were left by the escape of *phlogiston*, were heated with substances which contained much *phlogiston*, such as oils or fats, sulphur or charcoal, they again combined with *phlogiston* and the original unburned substance was produced. Had they weighed the metal before and after calcination they would have had food for thought; indeed metals increase in weight on calcination because of course, far from losing *phlogiston*, they absorb oxygen.

As with the *Salt*, *Sulphur* and *Quicksilver* of the early alchemists, the *phlogiston* was not a true substance which could be evaluated experimentally, but rather an indefinable principle inherent in matter but nonetheless capable of determining a number of changes in mineral substances. Despite some criticism, the *phlogiston* theory was widely accepted by physicians, chemists and natural philosophers, and became the pivot for a number of chemical suppositions that were still being defended well into the second half of the 18th century. The invention of the *phlogiston* theory was the

extreme response of Paracelsian iatrochemistry, seeped in alchemical tradition and with its view of nature as a dynamic, autonomous and creative flow, to the nascent scientific chemistry, based on a mechanistic assessment of natural phenomena.

During the 17th and 18th centuries alchemy continued to exert a certain influence. Many of the pioneers of the experimental sciences had studied alchemy, and believed transmutation to be theoretically plausible. Even Isaac Newton (1642-1727) nurtured a serious interest in alchemy, to the extent that he personally copied numerous alchemical writings, and his library contained all the major printed alchemical collections. He read and re-read the *THEATRUM CHEMICUM BRITANNICUM* by Elias Ashmole, and the works of Michael Maier, from which he transcribed several passages, and he also wrote commentaries on some of Maier's emblems; he studied the Rosicrucian manifestos, of which he possessed the English version published in 1652. We know that Newton believed in the possibility of the transmutation of metals, though he deemed the *Art* itself far too costly a method of obtaining gold and silver. But we are left to speculate whether Newton was aware of the esoteric aspect of alchemy with its mystical beliefs on Nature and its quest to achieve the spiritual perfection with which man had been blessed by his Creator before the Fall.⁵

Johann J. Becher, father of the *terra pinguis* theory, was a firm believer in alchemy. In 1673 he made a proposition to the Dutch government to manufacture one million gold thalers a year, over and above expenses, by operations on sea-sand. He maintained that when sand was melted with certain ingredients and silver, it yielded one thaler of gold for every mark of silver employed. The government agreed and a preliminary small-scale experiment was successful, but shortly afterwards Becher left the country and the scheme was never pursued. Becher commemorated his presumed ability as an alchemist on a silver medal, on the back of which was this inscription in Latin: "In the month of July 1675 I, Doctor. J.J. Becher, transmuted by Hermetic art, this ounce of purest silver from lead."⁶ The story of alchemy is rich with medals apparently coined from alchemical gold and silver. In most cases they belong to the 18th century and are a further vestige of those strange figures who, following in the footsteps of the Cosmopolite, travelled the length and breadth of Europe championing the cause of alchemy. Some used outright trickery, others, such as Van Helmont and Helvetius, achieved their effects with methods that still remain a mystery today.

Many of the adventurers of alchemy during the 18th century bore illustrious names. Particularly famous were Giuseppe Balsamo, who loved to call himself Count of Cagliostro, and the so-called Count of Saint-Germain. Neither were alchemists, but both pretended

to be so, gaining wide-spread respect and giving rise to numerous improbable legends. Their adventures, in many ways similar, are worthy of attention in that they epitomize the confusion of alchemical speculation just before the outbreak of the French Revolution.

The man who passed himself off as Claude-Louis, Count of Saint-Germain, was an adventurer of uncertain origins, born probably just after 1700. According to some he was a Portuguese Jew, while others claimed he was indeed of aristocratic lineage, being the illegitimate son of Maria Anna of Neuberg, widow of Charles II of Spain; a third opinion deemed him the son of a Bohemian Hermetic philosopher who had assumed the name of *Comes Cabalisticus* (Count Cabalist). Around 1743 he was in London, where he frequented the local nobility. In 1746 he moved to Germany and in 1758 to Paris, where he managed to enthrall the influential Madame de Pompadour with incredible stories, in which he vowed he was immortal and had made the acquaintance of Francis I, who had been king of France some two centuries earlier (from 1515 to 1547). He led an extravagant life, which he claimed was made possible by the gold he made with the Philosopher's Stone. In 1776, after more adventures, during which he may have become a spy (which would account for his wealth and his friendship with the potentates), he settled in Leipzig, where he assumed the name of Count of Welldone.

In Germany he continued to curry favor with the aristocracy and the power elite. He told Joseph Maximilian I, archduke of Austria, that he was over two hundred years old and that his remarkable state of health was due to an Elixir of Life that he himself prepared. In order to ingratiate himself even further in the eyes of the Establishment, he took to distributing doses of the Elixir, which turned out to have the somewhat unphilosophical effect of a laxative! Upon analysis, the Elixir proved to be a mixture of sandalwood, senna leaves and fennel seeds. To Frederick II's ambassador he gave the plans of twenty-nine industrial processes of his own invention, some of which were indeed of some practical use in that they effectively improved the manufacturing processes of paper, silk and wine. Only two concerned medicinal products (one was for the preparation of a universal panacea, the second for that of a prosaic laxative). In 1778 Saint-Germain was offered hospitality by the Landgrave of Hesse, who even provided him with a laboratory at Eckernförde where he could continue with his experiments. Here he died and was buried on March 2, 1784. At the end of this same year, a Parisian hairdresser named Alliette, who claimed to be a disciple of Saint-Germain and as a side-line told fortunes by means of cards using the anagrammed pseudonym of Etteilla, started the rumor that the extraordinary count was still alive and kicking, that they had dined together and that he had now reached the ripe old age of 325. Similar yarns were blazoned about in the years to come, and Claude-



This splendid illustration, by the engraver Matthaus Merian, comes from *Opus medico-chymicum* (1618) and expresses in considerable detail the correspondences between Macrocosm and Microcosm according to Rosicrucian alchemy. At the top the Holy Trinity and a host of angels exercise their influence on the Zodiac; below are a number of alchemical symbols: the crow (*nigredo*), the swan (*albedo*), the dragon (*prima materia*), the pelican (*Mercury*), the phoenix (*Sulphur*). Other details of the engraving represent symbols of the opposites: *Sol* and *Luna*, Light and Dark, Volatile and Fixed. At the bottom of the picture, in the center, standing on a lion with two bodies (*rebis*), is a figure symbolizing the unity of the Great Work.

alchemy was enjoying a certain revival, following the publication, in 1742, of the *HISTOIRE DE LA PHILOSOPHIE HERMÉTIQUE* (*HISTORY OF HERMETIC PHILOSOPHY*) by Abbot Nicolas Lenglet-Dufresnoy (c. 1674-1755), a vast three-volume work which covered thousands of alchemists, their lives and writings.

Pernety's first book was the *MANUEL BÉNÉDICTIN* (Paris 1754), a revised edition of the Rule of Saint Benedict, in which Pernety, feeling a growing intolerance towards the ties of religious life, introduced certain changes designed to mitigate the rigors of the Rule. Three years later Pernety displayed another of his talents, that of the artist, when he published his *DICIONNAIRE PORTATIF DE PEINTURE, DE SCULPTURE ET DE GRAVURE* (*POCKET DICTIONARY OF PAINTING, SCULPTURE AND ENGRAVING*). It was not until 1758 that *LES FABLES ÉGYPTIENNES ET GRECQUES DÉVOILÉES ET RÉDUITES AU MÊME PRINCIPE, AVEC UNE EXPLICATION DES HIÉROGLYPHES ET DE LA GUERRE DE TROYE* (*EGYPTIAN AND GREEK MYTHS REVEALED AND ATTRIBUTED TO THE SAME PRINCIPLE, WITH AN EXPLANATION OF THE HIÉROGLYPHS AND OF THE WAR OF TROY*) and the *DICIONNAIRE MYTHO-HERMÉTIQUE* (*MYTHO-HERMETIC DICTIONARY*) were published. The two books were reprinted several times and in different languages.

The craze for alchemy had evidently not died out in Paris, for three years later the controversy over Nicolas Flamel's biography broke out. In 1761, Abbot Villain, curate of the parish of Saint-Jacques-la-Boucherie, where Flamel the scribe and alchemist was reputed to have lived and worked, published his *HISTOIRE CRITIQUE DE NICOLAS FLAMEL ET DE PERNELLE SA FEMME*

(*CRITICAL HISTORY OF NICOLAS FLAMEL AND HIS WIFE PERNELLE*). Basing his critique on a number of documents that had been found in the parish archives, the abbot deduced that Nicolas Flamel, the 14th century scribe or notary whose existence was an historically proven fact, had never shown the slightest interest in alchemy and that the famous book ascribed to him, *LE LIVRE DES FIGURES HIÉROGLYPHIQUES*, was therefore an apocrypha. Pernety challenged Villain's theory in a letter that he sent for publication in Fréron's *ANNÉE LITTÉRAIRE*.¹⁰ A few years earlier, in 1758, the *ANNÉE LITTÉRAIRE* had published another, anonymous, letter which revealed the existence of a signed copy of an additional alchemical work by Flamel, *LE BRÉVIAIRE* (*THE BREVIARY*), and alleged that Dom Pernety had seen the manuscript, certain characteristics of which it then went on to describe.¹¹ In view of the style of the letter of 1758, it is almost certain that the author was again Pernety, already hard at work examining alchemical texts of dubious derivation.

Pernety was a man of many interests and a restless spirit. When, in 1763, he heard that Count Louis-Antoine de Bougainville had plans to establish a center of commerce and scientific research in the Malvinas islands, better known today as the Falklands, it appears that he forgot all about alchemy. Suddenly remembering his youthful inclination for natural history and drawing, and gripped by an indomitable urge for adventure and who knows what other urges, he asked the King's permission to accompany Bougainville in the office of chaplain.

On September 1, 1763, at five o'clock in the morning, the expedition set sail with two ships, the frigate

L'Aigle, manned by a crew of 100 and armed with fifty cannons, and the corvette *Le Sphinx*, with forty men and 8 cannons. The General Staff of *L'Aigle* included the name of "Dom Antoine-Joseph Pernety (sic), of Rouanne, Forez, Benedictine of the Congregation of Saint Maurus, Passenger, Envoy of the King." The Count of Bourgainville must have been aware of his chaplain's chemical background, because, shortly after departure, Pernety wrote in his diary: "Three days after our departure, the sea grew rough; the rain and hail fell violently; nonetheless, it was not a true storm, and our passage was not affected. I took advantage of my free time to try an experiment on one of M. Seguin's preparations, designed to preserve our drinking water from deterioration during the long voyage. A Chemist had given another composition to M. de Bourgainville for the same purpose. It was in the form of a greyish paste, which seemed to be composed of clay and crude antimony powder. Somebody said it also contained a mixture of Mercury. M. de Bourgainville did not show me the composition until we were aboard the frigate, and I have not tried to analyse it. As regards M. Seguin's preparation, as I knew that its essence was the spirit of salt, and this made the water suitable for drinking and prevented and healed scurvy, I did not hesitate to test it..."¹²

Apart from compiling a sort of nautical journal, Pernety also noted down observations on the history and customs of the places they visited during the voyage. On June 26, 1764 the two ships returned to France, berthing at Saint-Malo. Pernety wrote an account of his adventurous experience which was first published in 1762 and reprinted several times in the following years.

The few months of freedom enjoyed during the voyage must have made Pernety even more dissatisfied with monastic life, for on the June 15, 1765 he was one of the twenty-eight Benedictine monks who requested dispensation from the Rule. The document was retracted on July 11, but with much reluctance. In 1766 the Chapter General of the Congregation of Saint Maurus was held, and Antoine-Joseph was elected as one of the commissioners responsible for the drafting of a new and less rigid Constitution.¹³ Perhaps because things were moving too slowly, or the reform was not as he had hoped, or perhaps, quite simply, his aspirations had changed, Pernety left the Order, joined the Freemasons and departed for Prussia in reply to an invitation from Frederic II.¹⁴

In actual fact, the invitation was the result of a misunderstanding. The monarch was convinced that he had invited Pernety the author of *LETTRES PHILOSOPHIQUES SUR LA PHYSIONOMIE*, which was of course the work of Jacques Pernety, Antoine-Joseph's uncle.¹⁵ By the time the error was discovered, the former Benedictine monk had already won Frederic II's confidence and he was assigned the post of Curator of

the Berlin Library, and awarded the title of member of the Royal Academy of Sciences and Belles Lettres of Prussia not to mention a substantial salary. In 1770 Pernety was also made Abbot of the Abbey of Burgel.

Pernety's early years in Prussia were quiet ones despite minor friction with some fellow scholars. The misunderstanding over his summons to Germany persuaded Pernety that it was high time he turned his attentions to the science for which his uncle had become famous and in 1776 he published in Berlin *LA CONNAISSANCE DE L'HOMME MORAL PAR CELLE DE L'HOMME PHYSIQUE* (KNOWLEDGE OF THE MORAL MAN BY MEANS OF THAT OF THE PHYSICAL MAN). This copious work (three volumes) was immediately successful, so much so that only one year later a second edition was brought out with the addition of an appendix entitled *OBSERVATIONS SUR LES MALADIES DE L'ÂME* (OBSERVATIONS ON THE DISEASES OF THE SOUL). The science of physiognomy was very popular at that time; only a few years before the Swiss physiognomist and theologian Johann Caspar Lavater (1741-1801) had written his most celebrated work *PHYSIOGNOMISCHE FRAGMENTE ZUR BEFORDERUNG DER MENSCHENKENNTNIS UND MENSCHENLIEBE* (ESSAYS ON PHYSIOGNOMY DESIGNED TO PROMOTE THE KNOWLEDGE AND LOVE OF MANKIND), and physiognomy was generally regarded as a way of recognizing the good and escaping the bad in order to lead a more righteous life.

According to some, after his digression in physiognomy Pernety resumed his studies and experiments in alchemy.¹⁶ It was at this time that he made the acquaintance of the Polish starosta Grabianka, who introduced him to Abbot Jean Louis Guyton de Morveau, better known as Brumore. Brumore revealed to him the existence of a mysterious being, *Elia Artista*, a disclosure that was to change the life of the former Benedictine monk. Brumore, despite the fact that he was the brother of Louis Bernard Guyton de Morveau (1737-1816), a major figure in the chemical revolution of the 18th century, was deeply involved in alchemy, Hermetic magic and theosophy. *Elia Artista* was an old acquaintance from the pages of alchemical literature.

At the beginning of the 17th century, just prior to the upsurge of the Rosicrucian movement, the adepts of alchemy had examined the possible advent of an *Elia Artista*, as is shown in the treatise *DE DISQUISITIONE HELIAE ARTISTAE* (STUDY ON ELIA ARTISTA), supposedly written by one Heliophilus Philochemicus a Percis and published for the first time in 1606.¹⁸ In the second part of the book, dedicated to a *NOVA DISQUISITIO DE HELIA ARTISTA THEOPHRASTEIO*, the author affirmed that Theophrastus Paracelsus was "the first (as far as I know) to make mention in his books of one Elia Artista who was to come after him..."¹⁹ And he added that Paracelsus, in the eighth chapter of *DE MINERALIBUS*, had spoken of an *Elia Artista* whose arrival on the scene would have permitted all the secrets of the Art to



Pan, son of Hermes and father of Nature, plays his pipes. On his head he bears a Moon, the alchemical symbol for silver. On the right can be seen an eight-pointed star, indicating the successful outcome of the Great Work (15th century miniature). The Hermetic philosophers took the characters and stories of Greek and Egyptian mythology to be allegories of their science, and believed that the ancients had used mythology to conceal the mysteries of the alchemical Opus.



Frontispiece of *Arcana arcanissima hoc est hieroglyphica aegyptio-graeca* (1614), in which Michael Maier intended to show that the "gods, divinities, heroes, animals and institutions" of the ancients hid the secrets of the "golden medicine of the body and soul". The craze for interpreting mythological tales as allegories of alchemical principles reached its zenith in the mid-18th century, with publication of *Les fables égyptiennes et grecques dévoilées* and the *Dictionnaire mytho-hermétique* by Antoine-Joseph Pernety.

issued on February 2, 1791 by the Dominican monk Pani, master of the *Sacro Palazzo*.³¹

During the Revolution, the Avignon sect, with its aristocratic members, its magic cults, its angel séances and indeed its very name, so similar to the *Illuminati of Baviera*, were in the eyes of the new regime a suspicious anachronism. Although Pernety had been careful to keep his distance from the events around him, the *Temple of Tabor* was searched by the police and Pernety himself was arrested and imprisoned for a while.

In the wake of a law voted by the Autumn Convention of 1793 the *Illuminati of Avignon* split up. It seems that Pernety, though abandoned by his companions, continued his study of alchemy. He died in 1796.

Was Pernety really an alchemist? His two celebrated books, *LES FABLES ÉGYPTIENNES ET GRECQUES DÉVOILÉES* and the *DICIONNAIRE MYTHO-HERMÉTIQUE*

show that the author had a deep knowledge and understanding of alchemical writings, and yet they seem more the work of an expert on alchemy than of an expert alchemist. The detailed description of the experiments carried out by Pernety aboard the frigate *L'Aigle* en route to the Malvinas, prove that Dom Antoine-Joseph was far from alien to laboratory practices. And in fact, Pernety's intellectual eccentricities make his vision of alchemy all the more fascinating. As we have learnt, despite its claims to be a traditional, revealed and immutable science, alchemy had undergone considerable change over the centuries. Pernety lived at a time of widespread cultural upheaval which inevitably effected his personal view of the Art.

The tendency to interpret Greek and Egyptian mythology in Hermetic terms went back a long way in time, but was revived and invigorated by Rosicrucian alchemists such as Michael Maier, author of the *ATALANTA FUGIENS*. In 1614 Maier published *ARCANA ARCANISSIMA HOC EST HIEROGLYPHICA AEGYPTIO-GRÆCA* (MOST SECRET SECRETS, OR THE GRAECO-EGYPTIAN HIEROGLYPHICS), a book in which the Egyptian myths and hieroglyphics were postulated as alchemical allegories which bore the hidden knowledge necessary to achieve the golden state of spiritual renewal and regeneration.

At the time of Pernety, the 18th century, the craze for Egyptian culture was focused essentially on the mystery of the hieroglyphics, believed to be the code by which the ancient Egyptians had concealed the answers to the mysteries of the spirit, including the dogma of the Holy Trinity and the emblems of Christianity.³² For Pernety, too, these hieroglyphics and mythology in general were none other than symbols representing not only the principles of the Art, but a moral doctrine and the highest *Wisdom* of antiquity.

The angelic rites of the *Illuminati of Avignon* were the culmination of a long tradition, revived in the Hermetico-Cabalistic magic of the Renaissance, re-formulated in alchemical terms by John Dee and the Rosicrucians, and updated by Pernety on the basis of Swedenbourg's mysticism. The founding of the Avignon sect was a direct consequence of the invisible Brotherhood of the Rosy Cross and, on the eve of the Revolution, the spread of Masonic societies and visionary sects such as the *Illuminati of Baviera*.

A man of letters and science, an occultist, an alchemist, a Freemason, an explorer, an artist and a mystic, Antoine-Joseph Pernety absorbed the culture of his time, sometimes confusing its multifarious aspects but always demonstrating a lively and acute intelligence. It was the age of the dawning of scientific chemistry. Pernety accepted the new science with little ado and an open mind. Hermetic art and chemistry — he said — have different aims and ways of achieving them: chemistry is the art of destroying the compounds of Nature, Hermetic philosophy is the art of working together with Nature in order to perfect its compounds. The Hermetic



One of the two anatomical machines made, in the mid-18th century, by the Italian scientist and alchemist Raimondo de Sangro, prince of Sansevero, and which can still be seen today in the Sansevero Chapel, in Naples. The two machines invented by de Sangro to explain the circulatory system of the human body, were for many years thought to be the fleshless remains of two of de Sangro's servants, the cruel result of an alchemical experiment on the *metallization of blood*.

Eckartshausen's *higher chemistry* adapted Christian prayer to Hermetic gnosticism, and suggested complex analogies between the *Pater Noster* and the deeper inner forces of Nature. It envisaged a continuous comparison between the essentials of the Faith and the works of Nature. The book of Nature and that of the Revelation (the Bible) were for Eckartshausen the two lights of mankind, to which he added a third flame: that of grace.³⁵

However much Eckartshausen spoke of *chemical catechism*, of *chemical sins* and *chemical happiness*, and however much he insisted on certain concepts borrowed from alchemy, it is clear that his particular theosophy had little to do with traditional alchemy. And yet his *chemical theosophy* was widely accepted and influenced many currents of Hermetic thought during the 19th century, despite the sarcastic comments of early historians of alchemy such as Louis Figuier, who in 1856 indignantly wrote: "This text, entitled THE CLOUD OVER THE SANCTUARY, belongs to the worst kind of alchemical thought, that is to say to those doctrines which stress the occult qualities in their interpretation of material phenomena. It would be hard to imagine anything more ridiculous or fantastic. It talks about the *chemical composition of sin!*"³⁶

Not one history of alchemy recalls Raimondo de Sangro, prince of Sansevero (1710-1771), who lived and worked in the kingdom of Naples, earning himself the reputation of being a great inventor, and somewhat less deserved that of sorcerer and assassin. For a couple of centuries his fame was upheld by two monstrous dummies preserved in the Chapel of the Sansevero palace in Naples. According to popular legend these were the tokens of an experiment in *metallization* conducted by de Sangro, who was reputed to have injected two of his servants, a man and a pregnant woman, with a mysterious liquid which had metallized their blood causing immediate death. Once the blood vessels had been preserved from decay, as they were now made of metal. In actual fact, still today these two *creatures* have the appearance of fleshless bodies, consisting of a knot of blood vessels and primary organs. Only recently has it been established that they are in reality *anatomical machines*, built by de Sangro from wire and string coated with wax and colored with purpurina, smoke grey and methylene blue (red for the arteries and blue for the veins) using a remarkably sophisticated technique. The misunderstood prince was merely trying to provide people, especially surgeons, with a clear example of how the circulatory system was made!

Recent meticulous investigations have led to the discovery of important documents belonging to the prince of Sansevero, which prove that he was indeed well-versed in the art of alchemy.³⁷ Of a brilliant and versatile mind, which he applied with equal success to the medical sciences, military arts and to the concoction of

bizarre, yet practical inventions, de Sangro, who was also Grand Master of a Masonic Lodge, dabbled in alchemical experimentation for some thirty years. His alchemical notes, which came to light about ten years ago in what had probably been de Sangro's underground laboratory, describe among other things tests on what he calls a purple-colored powder that emanated an intense and unknown energy. Scholars have speculated, on the basis of these documents, that in his later years this Neapolitan alchemist was working on radio active material and that his prolonged contact with this particular energy source caused the onset of the disease that led to his death.³⁸ In all events the alchemy of this remarkable prince needs much deeper examination if we are to understand all its amazing intricacies. De Sangro left no alchemical writings, which is why his name is not recorded by the tradition, but his investigation of physical phenomena went hand in hand with his probing of alchemical and magico-Cabalistic writings, his attraction for Masonic ideals and his participation in 18th century esoteric circles. Before his death Raimondo di Sansevero turned the Chapel of his Neapolitan palace into a veritable temple of initiation, where even the smallest detail was intended to arouse in the visitor's soul the supreme truth of Hermetic and Masonic philosophy, in a sort of initiatory voyage.³⁹

Towards the end of the 18th century, with the emergence of the mystical societies of the *Illuminati*, the spread of the Freemasons who saw alchemy only as a symbolic reality, the extravagant speculations of the growing number of Cabalists and the steady evolution of scientific chemistry, traditional alchemy, in the sense *oratory and laboratory*, became a cultural relic of the past.

But only on the surface; in reality the tradition still flourished, at least to a certain extent, but the men who practised it preferred anonymity or the use of fanciful pseudonyms, even more so than in the time of Flamel and Basil Valentine. From the first half of the 19th century only two names worthy of note remain: Cambriel and Cyliani.

Louis-François Cambriel is remembered for his book *COURS DE PHILOSOPHIE HERMÉTIQUE OU D'ALCHIMIE EN DIX-NEUF LEÇONS (A NINETEEN-LESSON COURSE ON HERMETIC OR ALCHEMICAL PHILOSOPHY)*, published in Paris in 1843, but which the author had actually finished writing, according to his comments on the title page, as early as January 1829, during the reign of Charles X. The alchemists of our century, from Fulcanelli to Canseliet, have judged Cambriel an *artist* worthy of respect, despite his perpetration of a rather dubious initiative which even cast doubt on his competence as a philosopher. We learn from Canseliet that Cambriel placed a compassionate announcement in *LES PETITES AFFICHES* begging for financial support for his experiments. Having — so he sustained — labored

at the Great Work for twenty-seven years, he had at last succeeded in discovering the way to transform base metals into gold; in the meantime, however, he had exhausted all his resources and needed 6000 francs to complete the undertaking. Whosoever was willing to help him would be rewarded with a profit of 25,000 francs for every loan of 1000 francs. The sum of 6000 francs was not to be given in immediate cash, but in seventeen monthly installments. Cambriel agreed to provide would-be partners with all the necessary references concerning his moral rectitude. The announcement concluded with the alchemist's address, a sort of post restante c/o one M. Rivet, carpenter, rue Judas n. 8 Paris.⁴⁰

Of a more austere behavior was the other French alchemist who, with the pseudonym of Cyliani, signed a treaty entitled *HERMES DÉVOILÉ (HERMES REVEALED)* published for the first time in 1832. In the *Preface* the author claims to have succeeded in achieving the Philosopher's Stone after twenty-seven years of study and research, dogged throughout by innumerable mishaps and irreparable losses; and it was because of these adversities that he had decided to reveal the knowledge for which he had had to pay such a high price. However, after this encouraging start, Cyliani warned his readers that they would have to find for themselves the *matter, the fire and the labors of Hercules* (the preliminary operations of alchemy). In line with tradition Cyliani played games with his readers' intelligence promising much and revealing little.

HERMES DÉVOILÉ was true to tradition in other ways, too. The author narrated the misfortunes he suffered as a result of the misleading suggestions of incompetent alchemists, the hard times he and his family had to endure when the money ran out, the envy and betrayal of false friends who were only out to steal his secrets. Then, at the moment of deepest despair, came the turning point. A beautiful celestial nymph appeared to him in a dream, explaining the principles of the *Art* and presenting him with a tightly closed pot, inside which was a small amount of the substance Cyliani would need to complete the work. Thanks to the nymph's help, Cyliani now possessed the secret of the *matter and the fire* after which he successfully managed to complete the *labors of Hercules* (the three problems that readers were required to solve for themselves!). Subsequently, he was able to turn his attention to the rest of the operation, which was mere *ludus puerorum* (child's play) or *opus mulierum* (woman's work), and which comprised only four more steps: preparation of the *Philosopher's Mercury*, preparation of the *Sulphur*, the *conjunctio of Sulphur and the Philosopher's Mercury* and *multiplication*. As was the wont of other alchemical writers before him, Cyliani concluded his account with the description of a transmutation he had achieved on Easter Thursday of the year 1831, adding that he had repeated the experiment in the presence of his wife the day after Easter, a day symbolically dear to



A page from the notebook of Villard de Honnecourt, the 13th century French architect. Villard's notebook reveals many of the secrets of cathedral building during the Middle Ages. Among other things it explains the symbolical meaning of some of the sculptures that adorn Gothic cathedrals. Though they are in the main linked to Christian iconography, Fulcanelli, and other alchemists before him, saw them instead as allegories of Hermetic philosophy.

the first and second edition — the few copies available of the two books were bought and sold for astronomical prices. Subsequent editions have made them international best sellers, translated into many languages, and fascinating reading not only for the connoisseurs of alchemy. Fulcanelli adopted a narrative style quite different from that adopted by traditional alchemical writers, from Zosimos to Cylani.

There are no revelatory visions, no mythologic allegories, no symbolic autobiographies, nothing that might appear suspiciously improbable to the modern mind. The classical literary expedients are replaced by concepts of Hermetic philosophy expressed in the form of historical, literary, philological and iconological inquiry. The two books represent a veritable transformation, the result of a sort of cultural alchemy: following the time-honored exhortation to *fix the volatile*, Fulcanelli succeeded in anchoring such a *volatile* subject as the Architecture to something as extremely *fixed* as the stones of Gothic cathedrals and other ancient buildings. Fulcanelli's theory was that certain alchemists had preferred to record the Hermetic secrets in the stones of churches, palaces and castles, rather than in the pages of books; the monuments of Paris, Amiens, Bourges, Lisieux, Nantes are filled with sculptures and inscriptions that hide the mysteries of the Great Work; and they are there for all to see. Fulcanelli accompanies his readers on an alchemical tour of France, explaining the alchemical meanings hidden in the statues and inscriptions they encounter on the way. In so doing he has succeeded in investing alchemy with an exciting new identity, easily understandable to all.

Fulcanelli's theory on the Gothic cathedrals was all the more suggestive in that it evoked an unplaced legend according to which the medieval builders possessed occult knowledge revealed to them by the Knights Templars or handed down by the builders of the Temple of Solomon and the Egyptian pyramids. In reality *LE MYSTÈRE DES CATHÉDRALES*, for the most part dedicated to the Hermetic mysteries of Notre-Dame in Paris, was inspired by *EXPLICATION TRÈS CURIEUSE DES ÉNIGMES DE NOTRE-DAME DE PARIS* (*CURIOUS EXPLANATION OF THE ENIGMAS OF NOTRE-DAME DE PARIS*), a treatise written by Esprit Gobineau de Montluisant, an alchemist who lived and worked in the first half of the 18th century, who believed there was an Hermetic significance to the figures carved on the doors of this famous cathedral. Fulcanelli kept a copy of Gobineau de Montluisant's work in his library.⁴²

The more discerning readers should not take Fulcanelli's interpretation of Notre-Dame too literally. Many of the sculptures he analyses have little or nothing to do with Hermeticism. For instance, he offers an explanation of a medallion located between the central and north porches, portraying an unsaddled rider clinging to the mane of a mettlesome horse. According to Fulcanelli it is an allegory of the *rectification of the spirit* by way of *repeated distillation*. The horse, symbol of speed and agility, represents the spiritual matter; the rider stands for the heaviness of the base metal; at each distillation, the horse unseats its rider, in other words the *volatile* abandons the *fixed*.⁴³ Some seven centuries before Fulcanelli's time, an architect from Picardy, Villard de Honnecourt, made an album of sketches, which still exists today, of possible subjects for carvings for the

¹ Many details of Borri's biography are controversial. These notes are taken in the main from the well-documented and rational account of his life given in: L. Pirrotta, *La Porta Ermetica*, Rome 1979, p. 28-30.

² This is the view held by several historians of chemistry. For instance, J. Read, *Through Alchemy to Chemistry*, New York 1957; F. Sherwood Taylor, *The Alchemists*, London 1976, p. 145 onward.

³ E. J. Holmyard, *Alchemy*, London 1957.

⁴ J. M. Stillman, *The Story of Alchemy and Early Chemistry*, New York 1924 and 1960, p. 160-190.

⁵ For information on Newton and alchemy see: F. E. Manuel, *A Portrait of Isaac Newton*, Cambridge (U.S.A.) 1966, p. 160-190.

⁶ E. J. Holmyard, *op. cit.*

⁷ The biographical notes on Saint-Germain have been taken from various sources, above all: Alexandrian, *Histoire de la Philosophie Occulte*, Paris 1983.

⁸ *Ibid.*

⁹ E. J. Holmyard, *op. cit.*

¹⁰ *Année Littéraire*, 1762, Vol. III, Letter II, p. 24-35.

¹¹ *Ibid.*, year 1758, Vol. VII, Letter XI, p. 259-261.

¹² A. J. Pernety, *Relation de la reconnaissance des îles Malouines, et de l'établissement de la nouvelle colonie française qui y a été faite en 1764*, Paris 1765.

¹³ The notes on Pernety's "Benedictine period" have been taken in the main from: René-Prospér Tassin, *Histoire littéraire de la Congrégation de Saint-Maur*, Paris 1770.

¹⁴ That Pernety was a Freemason is confirmed by several of his biographies, though none of them provide substantial proof. In general he is thought to have been a member from the time of his return from the Malvinas until his departure for Berlin.

¹⁵ This information, missing from all the more laudatory of Pernety's biographies, which attribute Frederick II's invitation to the Benedictine's Hermetic wisdom, is instead to be found in the older biographies, for instance: *Biografia Universale Antica e Moderna*, Venice 1828, Vol. XLIII, p. 290 onwards.

¹⁶ *Biografia Universale Antica e Moderna, op. cit.*, Vol. XLIII, p. 291.

¹⁷ For notes on Grubianka see: J. Ujeski, *Krol Nowego Izraela*, Warsaw 1924.

¹⁸ P. Borellius, *Bibliotheca Chimica*, Heidelberg, 1656, p. 108.

¹⁹ *Theatrum Chemicum*, Strasbourg 1613, Vol. IV, p. 220.

²⁰ Heliophilus a Percis, *Nova Disquisitio de Helia Artista Theophrasteo in: Theatrum Chemicum*, Argentorati 1659, Vol. IV, p. 220-221.

²¹ W. Pagel, *Paracelsus*.

²² I. Philaete, *Introitus Apertus ad Oclusum Regis Palatium*, Amsterdam, 1667, XII:33.

²³ *Nouvelle Biographie Générale*, Paris 1857, Vol. XXI, p. 971.

²⁴ *Biographia Universale, op. cit.*, Vol. XLIII, p. 291.

²⁵ Thiebault, *Souvenirs de Berlin*, Vol. V, p. 90.

²⁶ R. De Felice, *Note e ricerche sugli Illuminati e il misticismo rivoluzionario*, Rome 1960.

²⁷ For notes on Pernety and the *Illuminati of Avignon* see: A. Faivre, *L'Esotérisme au dix-huitième siècle en France et en Allemagne*, Paris 1973; A. Faivre, *Mystiques, Théosophes, Illuminés du siècle des Lumières*, Hildesheim 1977. See also Joanny Bricaud, *Les Illuminés d'Avignon*, Paris 1927, and Alice Joly, *La Sainte Parole des Illuminés d'Avignon*, in *Le Tour Saint-Jacques*, II, III, IV, 1960.

²⁸ Matthew XVII: 1-13; Mark IX: 9-12; Luke IX: 28-36.

²⁹ *The Gospel according to St. Matthew*, XVII: 1-3.

³⁰ R. Oursel, *Routes Romanes*, I, St. Léger 1982.

³¹ The decree is mentioned by Morini, *op. cit.*

³² Jurgis Baltrusaitis, *La Quête d'Isis*, Paris 1985.

³³ A. J. Pernety, *Les Fables égyptiennes et grecques dévoilées*, Paris 1758.

³⁴ K. von Eckartshausen, *Die Wolkeuber über dem Heiligthum*, s.l. 1802. For details on Eckartshausen see: A. Faivre, *Eckartshausen et la théosophie chrétienne*, Paris 1969.

³⁵ K. von Eckartshausen, *Catéchisme de la chimie supérieure*, edited by A. Faivre, p. 174 and 181. In *Alchimie, Cahiers de l'Hermétisme*, Paris 1978.

³⁶ L. Figuier, *L'Alchimie et les Alchimistes*, Paris 1856.

³⁷ C. Miccinelli, *Il principe di Sansevero. Verità e riabilitazione*, Naples 1982; C. Miccinelli, *Il tesoro del principe di Sansevero*, Naples 1984.

³⁸ For notes on this hypothesis see: C. Miccinelli, *Il tesoro del principe, op. cit.*

³⁹ C. Miccinelli, *E Dio creò l'uomo e la Massoneria*, Genoa 1983.

⁴⁰ E. Canseliet, *L'Alchimie expliquée sur ses textes classiques*, Paris 1972.

⁴¹ For details on the transmutation carried out by Canseliet see: J. Sadoul, *Le trésor des alchimistes*, Paris 1970. For details on Fulcanelli's disappearance see: the Preface by Canseliet of the first two editions of *Le Mystère des Cathédrales*. For notes on Fulcanelli and nuclear energy see: L. Pauwels and J. Bergier, *Le matin dei maghi*, Milan 1984, p. 141 onwards. For details on Fulcanelli's return see: W. Lang, the preface to the English edition of *Le Mystère des Cathédrales*.

⁴² E. Canseliet, *Trois Anciens Traités d'Alchimie*, Paris 1975, p. 1.

⁴³ Fulcanelli, *Le Mystère des Cathédrales*, Paris 1964.

⁴⁴ *Album de Villard de Honnecourt*, edited by J. B. A. Lassus, Paris 1858.

⁴⁵ It was Julius Evola (1898-1974) who proposed alchemy as a neo-Tantric spiritual practice, and who explained the principles in *La tradizione ermetica*, Roma 1931.

⁴⁶ See, for example the experience narrated by A. Barbault in *L'or du millième matin*, Paris 1969.

⁴⁷ E. Zolla, *Tre casi alchemici contemporanei*, in: *Abstract n. 49*, p. 17 onwards.

⁴⁸ *Ibid.*, p. 21.



An illuminated page from *Opera chemica* (15th century), a collection of alchemical treatises ascribed to Ramon Lull. An entirely fabulous legend alleged that he turned twenty-two tons of base metal into gold to enable King Edward III of England to finance a crusade against the Turks.

making sure that he has sufficient money to finance the endeavor for as long as it takes.

This does not mean that the adept has to be immensely wealthy, or need money to spend on travelling and experimenting. On the contrary, the adventures of Bernard of Treves and Denis Zachaire, show just how stupid and pointless it is to dissipate a fortune in dissolving and coagulating a thousand different substances, or to follow the misguided advice of spurious experts. The practice of the *Art* requires but a modest output of money; the true *Subject of the Sages* costs little or nothing; the experience of others teaches that whatever is bought at a high price invariably proves to be useless and misleading. But even the wisest and most cautious alchemist has before him a long and arduous path to face, with years of intensive study and research. Much care is needed in conducting the laboratory operations in order to limit the work to a necessary minimum. To waste time and resources needlessly could mean to run out of money at the crucial moment in the Great Work, and be forced to abandon everything or seek the aid of a rich partner, as

much attracted by the thought of easy gold as by the nobility of the *Art*.

The many alchemists who lived and worked in total secrecy, or who disguised their true identity by a clever pseudonym, were probably persuaded to do so for fear of the dangers described in the *LIBELLUS DE ALCHEMIA*. Others were less cautious and faced terrible risks, like Alexander Sethon.

In its advice to alchemists to beware of princes and potentates, the little book ascribed to Albertus Magnus shows a shrewd understanding of the greed and unscrupulousness of the contemporary ruling classes, who were always on the watch for easy money with which to finance wars and personal luxury. The extravagances of the time resulted in the widespread practice of forgery, and it was not unusual for the princes themselves to try their hand at minting coins that contained less than the stated percentage of gold or silver.

The relationship between political power and alchemy was influenced by these problems. Some princes thought alchemy a science to be encouraged, in the hope of being able to replenish the royal vaults with alchemical gold. Others forbade the practice of alchemy and persecuted its upholders, believing it a means to counterfeit money and as such a danger to the State.

According to tradition, Alfonso X of Castile (1221-1284), called the Astronomer or the Wise, was one of the first monarchs to offer protection to the practice of alchemy. He was certainly interested in magic and he caused magical and astrological writings to be translated from Arabic into Spanish, but his interest in alchemy is uncertain.² Another Spanish sovereign, John I of Aragon (1350-1349), saw alchemy as a possible source of precious metal for the minting of coins. He approached a French alchemist, Jacques Lustrach, in the hope of learning the secret of transmutation.³

There is no truth to the story that Ramon Lull turned twenty-two tons of base metal into gold in the Tower of London to enable King Edward III of England (1312-1377) to finance a crusade against the Turks. According to this fabulous legend, Lull was invited to England by John Cremer, a supposed Abbot of Westminster, to teach him the secrets of the *Art*, which apparently he did. Cremer then introduced him to King Edward, who persuaded the Catalan alchemist to make a supply of gold by alchemical means, agreeing to the condition that he would personally fight against the Turks and not expend any of the gold in pride. But the king broke his promise and is said to have had *rose nobles* struck, coins thus called because they bore the impression of a rose.⁴ In reality *rose nobles* were not actually minted until after 1465, by which date Edward III had been dead nearly a century.⁵ The legend of Lull's transmutation contains one element of truth: Edward III was indeed interested in alchemy as a means to fatten the State coffers, for in 1329 he summoned to court two alchemists, Johannes de Rous and Willielmus de

Dalby, who were reputed to know how to make silver and to have already done so. They were instructed to bring with them all the necessary instruments, in order to give a public demonstration of what was hoped would bring great benefit to the country.⁶ They were threatened with immediate arrest should they refuse.⁷ We have no idea how de Rous and de Dalby fared, but their story shows just how judicious were the rules of the *LIBELLUS DE ALCHEMIA*, which advised the alchemist to work in secret, so that no hint of his powers should reach the ears of the unworthy.

For a long time the attitude of the English monarchy towards alchemy was somewhat ambiguous. In 1403-4 Henry IV (1367-1413) promulgated a statute which prohibited the multiplication of gold and silver and banned the art of multiplication, decreeing that transgressors would be charged with the crime of felony, punishable by death and the alienation of all property.⁸ The statute was not rigidly observed and in the course of the 15th century royal permission to practice the art of alchemy was granted on many occasions. In 1436 Henry VI (1421-1471) published an edict inviting scholars of the realm to engage in alchemy in order to supplement the dwindling royal finances.⁹

In 1445 Henry VI granted a royal licence to practice the Art to four alchemists who complained that they were being hindered in their work by those who considered alchemy a useless and unlawful practice. Having decreed that the four alchemists could carry out their activity quite openly because there was nothing illicit about it, the monarch explained that he had granted his authorization out of a curiosity to know the outcome of the alchemists' work.¹⁰ Licences were granted to other alchemists by Edward IV (1442-1483), the king to whom George Ripley dedicated, in 1470 or 1471, his *COMPOUND OF ALCHEMY*.

In 1380 the French king Charles V prohibited the practice of alchemy and the possession of alchemical apparatus. The royal edict was born of the fear that the alchemists might falsify money with their fraudulent gold; the problem of counterfeit money must have been serious, because a special council was set up to track down offenders. Though the edict was rigidly enforced for a while, and counted a handful of unfortunate victims who actually served a term of imprisonment, it was not long before everything was forgotten.¹¹

In the Republic of Venice alchemy was prohibited with a decree issued by the Grand Council on December 17, 1488, which condemned all alchemical practices and threatened severe punishment to professional alchemists, whose art was considered spurious or worse still, outright felony.¹² In 1492 an edict against alchemy was issued by the city of Nuremberg.¹³

Despite these measures, only a small number of alchemists were actually brought to trial. When this happened, the count of indictment was not the practice of alchemy, but the falsification of precious metals by alchemical means. A handful of alchemists in France

and Germany were found guilty of forgery.¹⁴

As had been the case with John XXII's decretal *SPONDENT QUAS NON EXHIBENT* issued in 1317, the measures adopted against alchemy by the secular authorities in the 14th and 15th centuries were the result of a conviction that alchemy was not science at all and that those who practised it should be prevented from deceiving the people and especially from counterfeiting money. But no one condemned alchemy on the grounds that it was an unorthodox doctrine, nor was it suggested that alchemy hid a pagan soul behind its cryptic modes of expression and picturesque symbolism.

The taint of heresy touched alchemy only indirectly, and for quite different reasons. Around 1396, Nicolas Eymeric, an officer of the Inquisition, wrote a treatise *CONTRA ALCHEMISTAS (AGAINST THE ALCHEMISTS)* confuting alchemical theories, and quoting, in support of his accusations, John XXII's decretal which established that alchemy was a fraudulent art.¹⁵ Twenty years earlier, in the *DIRECTORIUM INQUISITORUM (MANUAL OF THE INQUISITORS)*, Eymeric had been much more drastic, insinuating that the Great Work was inspired by Satan. When alchemists fail to achieve their aim — Eymeric maintained — they seek the help of the devil, they beg and entreat his assistance until in the end, either implicitly or openly, they are bound to him forever.¹⁶ It was not a new theory; towards the close of the 13th century even the monastic orders had accused alchemy of being devil-inspired and forbidden the monks to practice it, not that the monks took much notice. In Eymeric's time, however, it was a perilous liability. Witchcraft was considered a form of heresy, and as such came under the jurisdiction of the Inquisition; the ultimate penalty for those found guilty was the stake. To say that the alchemists had commerce with Satan was tantamount to saying that the Art was heresy and that those who indulged in it should be brought to trial for witchcraft. Luckily for the alchemists, Eymeric's theory had few supporters.

When, towards the end of the 15th century, the Inquisitors again turned their attention to alchemy, they did so with quite a different attitude. The celebrated *MALLEUS MALEFICARUM (THE WITCHES' HAMMER)*, published for the first time in 1486-1487 by two Dominicans, Henricus Institor and Jacobus Sprenger, who were appointed inquisitors by Innocent VIII, formulated the doctrine of witchcraft and formed a textbook of procedure for witch trials. In it the two inquisitors discussed whether alchemical gold should be considered the work of the Devil. In agreement with Thomas Aquinas's assertions in *SCRIPTUM IN IV LIBROS SENTENTIARUM*, they came to the conclusion that it was impossible to make authentic gold by alchemical means, because real gold could only be formed by virtue of the sun's heat on a mineral in the mine and never by the heat of a furnace. Being spurious, alchemical gold could in no way be the product of a satanical art.¹⁷



Two alchemical medals. During the 17th century, especially in Northern Europe, many gold and silver medals were struck to commemorate supposed transmutations carried out in the company of kings and princes.

symbolism, tells of a rose hidden in a crystal vase, at the bottom of a fountain, in the middle of a wondrous garden surrounded by a very high wall. The theme of the poem, which supposedly relates a dream the poet had had five years before, is the pursuit of love. The participants in the poem born from de Lorris's imagination are personages representing human emotions and weaknesses; Clopinel, considering the poem unfinished, added Reason, Art and Nature as his chief protagonists, who indulge in long digressions ranging from treatises on scientific subjects and the discussion of natural phenomena such as love, friendship and death. Ninety verses are dedicated to alchemy, which Clopinel defends against the prejudice of sceptics. The author would seem to believe in the possibility of transmutation, but his defence of the Art shows only a superficial understanding of its guiding principles, for which reason he refers readers who wish to enhance their knowledge of the Great Work, to the popular alchemical writings of the time.²⁴

But it was enough to convince his successors that Clopinel was an initiate, and the author of authentic alchemical writings, among which LES REMONSTRANCES DE NATURE À L'ALCHIMISTE ERRANT (THE REMONSTRANCES OF NATURE TO THE ERRANT ALCHEMIST), composed in verse in a style similar to that of the ROMAN DE LA ROSE. In reality LES REMONSTRANCES was written much later than Clopinel, by a certain Jean Perréal (1460-1530), who concealed his name in the initial letters of the first twelve verses.²⁵ The poem is nonetheless interesting, because the protagonist, Nature, reproaches the alchemist for wasting time with bellows, burning charcoal and cooking all manner of substances in a disorderly and confused way. "Poor man", exclaims Nature, "you really are mistaken! You will never get anywhere unless you change your methods." Nature says she is so distressed to see the alchemist behaving like a silly puffer (an uninitiated alchemist so called from his excessive use of bellows stemming from the belief that the Art was only a mechanical business), instead of trying to understand the *good philosophy* of the *Hermetic Art*. After such reproof, the alchemist realizes his mistakes and complains that he had been led astray by many books of spurious alchemy. Nature advises him to follow the one and only book of any account, the one that she herself has written, the secrets of which she has hidden on earth and below the earth's surface. LES REMONSTRANCES DE NATURE belongs to that branch of alchemical literature which makes no secret of the dual spiritual and physico-chemical nature of the Art.

Jean Clopinel's admiration for alchemy mirrored the widespread enthusiasm for the Art when it first reached the West. When, in the 14th century, general opinion began to consider alchemy the occupation of tricksters and impostors, its image in literature changed too. In the DIVINE COMEDY, composed at the beginning of

that same century, Dante Alighieri (1265-1321) included among the damned in the *Inferno* the alchemists Griffolino d'Arezzo and Capocchio di Siena. Griffolino is described as an impudent teaser, burnt at the stake for having convinced the nephew of the Bishop of Siena that he knew how to fly. Griffolino, however, tells Dante that he has ended up in the tenth pit of Hell, not because of his jesting, but because of "the alchemy I practised in the world".²⁶ Even more explicit is Capocchio's crime, which is expressed thus: "...thou shalt see then that I am the shade of Capocchio, who counterfeited metals by alchemy; and thou must recall, if I make thee out aright, how good an ape I was of nature".²⁷ Capocchio, who had once studied natural philosophy with Dante, was condemned for having made precious metals by the tricks and mystifications of alchemy, the *ape* of nature.

If the words spoken by Griffolino could be interpreted as Dante's denunciation of alchemy as an illicit art and his censure of those who practice it, the episode involving Capocchio shows that in reality he saw alchemy as nothing more than a rascally quackery; and in fact Griffolino and Capocchio were assigned by the poet to the pit of the fraudulent. According to one of the oldest commentaries on the *DIVINE COMEDY*, Dante used Griffolino and Capocchio to denounce the fraudulent practice of alchemy for the counterfeiting of money, not the practice of the *Art* in general.²⁸ At the time of Dante Alighieri there must have been much deviousness abroad.

In the *DE REMEDIIS UTRISQUE FORTUNAE* (*REMEDY OF ONE AND THE OTHER FORTUNE*), written around 1366, Francesco Petrarca, or Petrarch, (1304-1374), lashed out in violent warning against the pitfalls of alchemy. He stages a conversation between Hope and Reason; when Hope announces that he is sure of obtaining great benefits from alchemy, Reason replies: "Tell me what you hope to achieve, other than smoke, ashes, sweat, sighs, words, deception and dishonor? These are the fruits of alchemy, with which no poor man has ever been seen to get rich, but many have been seen to fall from wealth into poverty."²⁹

Petrarch saw alchemy as an "illusory science, the art of lying to and deceiving others."³⁰ Its followers fell into two categories: madmen and tricksters. Mad were those blinded by the promise of easy wealth: "You have not eyes to see those poor souls who have become poor (because of alchemy)...Your madness, fostered by avarice, leads you to the belief that what you desire is true, and what you see is false. Have you never seen men who are careful in other things fall victim to this madness? Wealthy men have destroyed themselves for this futility. And while they strive to become ever richer, dedicating their life to this ugly business, they dissipate in vain the riches they have earned well. In the end, having squandered all they possessed, they have not even what they require for basic necessities.

Some, fearful of the converse of fellow citizens, keep to themselves in despair and desperation, unable to think of anything but bellows, pincers and coals, and desirous of the company only of those who belong to the same heretical clique; they become wild almost. Some, having lost the light of reason, have also lost the light of their eyes in this occupation."³¹

These fools are an easy prey for profiteers, the false professors of prodigious deeds and impossible promises: "Beware of he who promises you his gold, for he will run away with yours. And as his quackery, ordained by fire, is rarely punished by fire, you will be the fool to be punished; you will be known as a madman; you will be pointed out in the street as an avaricious, stupid man; you will be burnt dry by the flame, grow thin by fatigue, be covered in soot from head to toe."³² Those who profess to be teachers of alchemy "are nearly always as poor as beggars; and, even though they make no secret of their poverty, they pretend to be able to make others rich, as though the poverty of others were harder to bear than their own."³³ Those who practice the *Art* disrupt their own lives and that of their families: "Your house will be filled with strange guests and bizarre apparatus. And with gluttons and drunkards... liars, impostors and puffers... In every corner of the house will be bowls, fiials and vessels full of fetid water, unknown herbs, strange salts, sulphur, alembics and ovens... There will be much distress, stupidity, squalor in the face and smut in the eyes... You will be ashamed and reproachful of the life you lead, working at night, hiding away like thieves."³⁴

Petrarch's disapproval of the alchemists was echoed in the account Geoffrey Chaucer (c. 1345-1400) gives in one of his *CANTERBURY TALES*, written around 1388. *THE CANON'S YEOMAN'S TALE* is narrated by the yeoman-laboratory assistant of a deluded alchemical canon. The yeoman, having first told his fellow travelers of his master's misadventures in pursuit of the *Art* and of the foolishness of alchemists in general, narrates the story of another alchemical canon, whose infinite deceits to trick the gullible into believing that he held the secret of transmutation were almost too terrible to relate. On one occasion the ruse went like this: the alchemist, whilst the victim was arranging the charcoal above the crucible, let drop into the crucible a small piece of beech-charcoal, in which, by means of a tiny hole sealed with wax, he had hidden some silver filings; as the charcoal burnt, the silver was released into the crucible, where an ounce of mercury was boiling together with a nondescript powder passed off as the *powder of projection*; when the mercury had evaporated the mixture was plunged into a vessel of water, and on the bottom of the crucible was left a small filing of silver. In a second test the dishonest canon had concealed the silver filings in a hollow stick closed with wax, with which he stirred the red-hot charcoal above the crucible until the wax melted and the silver filings

alchemy, because "even Aristotle declared that the shape of things would never change".³⁶

In *ECOMIUM MORIAE (PRAISE OF FOLLY)* (1511), by the Dutch humanist, Desiderius Erasmus (1466-1536), the idea of the swindler fades, while that of the foolish follower of an illusory art remains. The alchemists are: "Those who with new and mysterious arts try to transform the natural species of things and travel the world and the seas in search of a mysterious quintessence. This sweet hope so dominates them that no effort, no expense is too great for them, and with a marvellous ingenuity they think up something new each time, and if they make a mistake, they even revel in their disappointment, until, their wealth all gone, they have not enough left even to build a stove. Despite all this they still do not awaken from their sweet dreams, but seek out others who aspire to their self-same happiness. And even in the end when they are forced to abandon all hope, they still have this to say: "It is enough to have aspired to great things", and they mutter something about how short life is, how inadequate for such an important quest."³⁷

In 1524 Erasmus again made fun of alchemy in *ALCUMISTICA* from his *COLLOQUIA*, a series of familiar dialogues on the social, religious and political topics of his time. It tells of the misfortunes of Balbino, a good man incurably infatuated with alchemy. Even though he has been taken in several times by spurious alchemists, he falls victim yet again to an alchemical priest, who assures him that he knows the secrets of the *wet way*. The two men join forces; Balbino provides the necessary money, the priest offers his supposed knowledge of the Great Work. The months go by, the alchemical priest pretends to be working, but in reality he is doing his best to dissipate the money he extorts from Balbino with a thousand excuses. Sometimes, he says, he needs to buy gold to *summon* the new gold; on another occasion he must make an offering to the Sacred Virgin; then he must bribe the king's guards who have orders to arrest alchemists. The affair drags on, but Balbino still does not realise that he is being duped, not even when he discovers that his partner is spending his money on women: the priest is very clever at inventing excuses and Balbino is blinded by his desire for the Philosopher's Stone. The matter ends with the moral condemnation of Balbino for having believed in an out-and-out rogue who "knew the magic art as an ass might know it."³⁸

Even Leonardo da Vinci (1452-1519) was of the opinion that alchemists were fools; if instead of following the illusion of the artificial generation of gold they actually went to the mine, where nature generates gold, the alchemist would be cured of his folly, having realized that no operations carried out in the fire could ever equal the procedures with which nature generates authentic gold. The alchemist could never create that *vegetative soul* of metals which, within the mine,

causes gold to grow slowly and continuously.

Alchemy's mistake — said Leonardo — is to try to produce artificially the most noble of natural products: gold. Man does not have the power to create even the simplest bodies, he can do no more than manipulate them in order to produce many different compounds. Provided the alchemists do not fall prey to greed, and limit their efforts to the *administration* of nature's products, theirs is a useful art, because they discover things that are of benefit to mankind.³⁹

Leonardo's criticism of the alchemists is expressed in more general denunciation of necromancy. Why should Leonardo have placed alchemy and necromancy on the same level? Evidently there was a revival during his time of the tendency to see alchemy as a magic art, the same tendency which, in 1578, was to lead Francisco Peña to re-examine Nicolas Eymeric's theory that alchemy was inspired by the devil.

It was during Leonardo's time that the Hermetico-Cabalistic mysticism of the Renaissance first flourished, with the Italian philosophers Marsilio Ficino (1433-1499) and Giovanni Pico della Mirandola (1463-1494). Ficino and Pico were not particularly interested in alchemy, even though the former was reputed to have written *DE ARTE CHIMICA* and the latter a manuscript entitled *DE AURO*, but it was not long before the *Art* became part of the new mystical tradition. The two disciplines converged in the philosophy of Cornelius Agrippa von Nettesheim, author of *DE OCCULTA PHILOSOPHIA*. The magical quality of the new alchemy certainly did little to dissipate the image and reputation he had earned as the art of the counterfeiters.

During the 16th century the figure of the Cabalistic magus was often confused with that of the alchemist, as can be seen from the biographies of Paracelsus and John Dee. And it was in this same century that the myth of Faust arose, inspired by a man named Johann or Georg Faust who was born in Knittlingen (Sweden) and lived between the years 1480 and 1540. In the early years of the 16th century there were numerous uncomplimentary references to a dealer in the black arts who journeyed throughout Germany from one town to another claiming to be "the cleverest alchemist ever seen."⁴⁰ He also boasted of having made a pact with the devil who promised him success in exchange for his soul, thus echoing the inquisitor Eymeric's opinion of alchemists expressed almost two centuries earlier.

The mechanism that transformed the true story of Faust into a popular myth, was partly set in motion by the ecclesiastical authorities, both Catholic and Lutheran, who used Faust as an example to convince the populace how important it was to mistrust anyone operating outside the religious institutions.⁴¹ Francisco Peña and other inquisitors of the 16th century saw in Faust the personification of alchemy, and his myth added to new coals to the fire of their attempt to discredit the *Art*. This situation did little to improve alchemy's crumbling image.

bottom of Philippe Galle's engraving is a legend in verse which reads: "DEBENT IGNARI RES FERRE ET POST OPERARI/IUS LAPIDIS CARI VILIS SED DENIQUE RARI/UNICA RES CERTA VILIS SED UBIQUE REPERTA/QUATUOR INSERTA NATURIS IN NUBE REFERTA/NULA MINERALIS RES EST UBI PRINCIPALIS/SED TALIS QUALIS REPERITUR UBIQUE LOCALIS." The literal translation, far from easy due to the lack of punctuation and the occasional errors (*certa* instead of *certe*), reads something like this: "The ignorant must first get hold of the things and then set to work/ The prerogative of the precious stone is to be worthless but nevertheless rare/ The one thing truly base but found everywhere/ Mixed with the four elements abundant in the cloud/ No mineral thing is there, wherever it is supreme/But it is to be found everywhere, from everywhere it comes."

The verses are in no way satirical towards alchemy, on the contrary they express, albeit enigmatically, some of the basic principles of the *Art*. The ignorant mentioned in the first verse are the puffers, or uninitiated alchemists, who must meditate at length in order to understand the secrets of the *Opus* before attempting to set to work. The second and third verses allude to a quality that has always been attributed to the *Subject of the Sages*: that it is something very precious and yet worth little, rare and yet found everywhere. The fourth verse alludes to the theory of the four elements, each of which contains the *prima materia*. The *prima materia* — suggest the last two verses — is present in every thing and it is certainly not in minerals that it is to be found in its pure state.

We do not know who wrote these verses. Perhaps the legend was added afterwards by the publisher or the engraver, but as the prints were almost contemporary with the drawing (in 1558 or 1559) it is plausible that the verses mirrored the true meaning of Breughel's work. The overall message is not therefore an outright denunciation of alchemy. The artist's contempt is directed at the puffers, who manipulate metals on the stove ignoring or forgetting the philosophical aspects of the *Art*. The figure on the right, seated before the open books, could feasibly be the true alchemist, the Hermetic philosopher aware of the fact that all *broileries* are the result of confused ideas (al gemist, all mixed up), that *laboratory* and *oratory* cannot be separated, and that the true alchemist must meditate on the significance of the ancient writings.⁴²

Alchemy and its language lent inspiration to the French satirist, François Rabelais (1494 c. - 1553), for a number of pages of his witty and nonsensical PANTAGRUËL. The voyage of the giant Pantagruel in the *Realm of the Quintessence*, an island named *Entelechia* (*Perfection*), was intended as a grotesque metaphor of alchemy. The mysterious queen of Entelechia is alchemy; she is supposed to be Aristotle's goddaughter, is one thousand eight hundred years old, can cure all ills and is surrounded by officers who *whiten the Ethiopians*

(whiten the Ethiopians meant in alchemical terms to go from the *nigredo* to the *albedo*), prepare the panacea and make old women young again. The highest ranking of these officers has a telling name: Geber.⁴³

The astonishing treasury of wit, wisdom and satire displayed in GARGANTUA and PANTAGRUËL was *invented* by Rabelais from a multitude of technical and theological idioms, classical expressions and dialects. The apparently bizarre terminology of alchemy was one of Rabelais's favorite sources. At the beginning of the first two books of GARGANTUA he introduces himself to his readers as "Maître Alcofribas, abstractor of Quintessence", a play on the alchemical expression "extractor of Quintessence" used by Rabelais in the sense "subtle reasoner."

Rabelais's repeated use of distorted alchemical terminology and the alchemical knowledge he must have possessed to be able to do this, led to the suspicion that he himself was an alchemist.⁴⁴ But the way in which Rabelais presents alchemy in PANTAGRUËL is hardly complimentary. For instance, Pantagruel is accompanied on his journey to the realm of Quintessence by Enrico Cotirail, the personification of Cornelius Agrippa von Nettesheim, a contemporary of Rabelais. Tied to his belt Cotirail carries a large ass's head, in his left hand a dirty cap and in his right a cabbage stalk. "Look!" he says to Pantagruel, "This is the true algamean. (And he holds up the ass's head) This doctor's hat is our one and only Elixir and this (showing the cabbage stalk) is the Lunaria major..." His satire is very evidently aimed not only at Cornelius Agrippa, but at the alchemists' *algamean* and *elixir*. A further detail from PANTAGRUËL establishes beyond doubt Rabelais's true opinion of alchemy: the harbor of the island of Quintessence bears the unequivocal name of *Mateotecnica* (*Vain Science*).

The Hermetico-Cabalistic tradition of the Renaissance which included Paracelsus's new alchemical philosophy, strongly influenced the Italian Hermetic philosopher Giordano Bruno (1548-1600), whose writings, especially during the last twenty years of his life, were pervaded by magical concepts.⁴⁵ But however fascinated he may have been by Hermetic magic, Bruno never delved into the practice of alchemy.⁴⁶ On the contrary, in his comedy *Il Candelaio* (*THE CANDLE-MAKER*), written in Paris in 1587, he narrates the adventures of Cencio, a swindling alchemist who tricks 600 scudi out of Bartolomeo, a naïve character whose craving for gold and silver has started him along the dangerous road of alchemy.

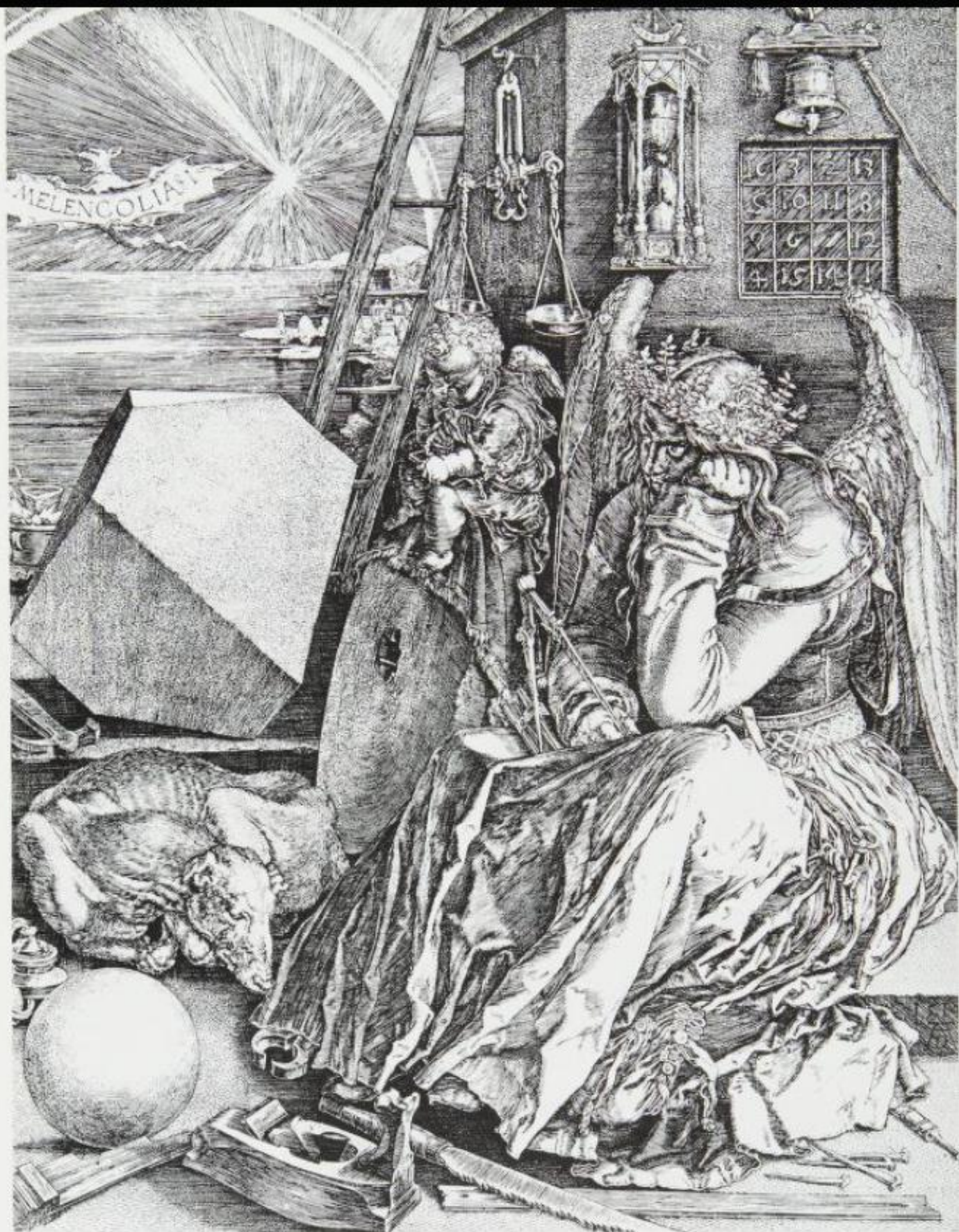
Bruno's narrative situation is built around the popular theme of the imprudent would-be alchemist and the conniving fraudulent alchemist, a theme that had already inspired Chaucer, Petrarch, and Erasmus. Unlike these earlier writers, however, Giordano Bruno had studied and appreciated the Hermetic philosophy from which alchemy stemmed. He probably knew



This painting by Hendrik Heerschop, dating from 1687, shows an alchemist who, having followed the instruction of the book open before him, is the victim of an unexpected result in which all his work goes up with a big bang. In the background, on the right, the alchemist's wife is looking after their children. Heerschop's interpretation of the alchemist, which conforms to the scheme first represented in Breughel's *The alchemist* (the fanatical alchemist and his long-suffering family), is however an exception. 17th century painters generally depicted the alchemist in the guise of a learned old man.



The alchemical laboratory according to the Flemish painter J. Van der Straet, who was commissioned to paint it in 1570 by Francesco I de' Medici, grand-duke of Tuscany, who was a lover of arts and literature and also dabbled in alchemy. The dark haired man with a beard, lower right, is possibly meant to be Francesco I himself.



Melancholia I (1514), by A. Dürer. In *Saturn and Melancholy* (1923) Fritz Saxl and Erwin Panofsky describe this picture as an allegory of one of the four human temperaments, melancholy, linked to the sign of Saturn. But another art historian, Gustav Friedrich Hartlaub, in *Arcana Artis* (1937), expressed the view that *Melancholia I* was instead inspired by alchemical symbolism. Many other studies have explored the relationship between the figurative arts and alchemy.

- ¹¹ L. Figuier, *op. cit.*
- ¹² L. Thorndike, *A History of Magic and Experimental Science*, New York 1923-1934, Vol. IV, p. 349.
- ¹³ R. Halleux, *op. cit.*, p. 127.
- ¹⁴ *Ibid.*, p. 127.
- ¹⁵ L. Thorndike, *op. cit.*, Vol. III, p. 32.
- ¹⁶ N. Eymericus and F. Peña, *Directorium Inquisitorium*, Rome 1587, p. 443.
- ¹⁷ H. Institor and J. Sprenger, *Malleus maleficarum*, Venice 1982, p. 42.
- ¹⁸ N. Eymericus and F. Peña, *op. cit.*
- ¹⁹ Ferraris, *Bibliotheca canonica, iuridica, moralis, theologica*, see under "Alchimia", Rome 1746.
- ²⁰ On the ostracism of alchemy by the universities, see: J.P. Baud, *Le Procès de l'Alchimie*, Strasbourg 1983, Chap. III.
- ²¹ *De iure artis alchemiae*, in: J.J. Manget, *Bibliotheca Chemica Curiosa*, Vol. I, p. 21-212. This text includes the opinions and sentences expressed by other medieval jurists on alchemy.
- ²² *Ibid.*, p. 214.
- ²³ E.J. Holmyard, *op. cit.*
- ²⁴ E. Langlois, *Le Roman de la Rose par Guillaume de Lorris et Jehan de Meung*, Paris 1814.
- ²⁵ A. Vernet, *Jean Perréal, poète et alchimiste*, in: *Bibliothèque d'Humanisme et Renaissance*, 1943, Vol. III, p. 214-252.
- ²⁶ D. Alighieri, *Divine Comedy, Inferno*, Canto XXIX, v. 109 onwards.
- ²⁷ *Ibid.*, v. 136-139.
- ²⁸ *L'ottimo commento alla Divina Commedia. Testo inedito di un contemporaneo di Dante*, Pisa 1827-1828, 1-493.
- ²⁹ Petrarch, *De rimedi dell'una e dell'altra fortuna*, edited by G. Dassaminiato, Bologna 1867, Vol. I, p. 397.
- ³⁰ *Ibid.*
- ³¹ *Ibid.*
- ³² *Ibid.*
- ³³ *Ibid.*
- ³⁴ *Ibid.*, p. 399.
- ³⁵ *Extravangantes communes*, L.V, t. VI, "De crimine falsi".
- ³⁶ S. Brant, *Narrenschiff*, CII, "Von falsch und beschiff".
- ³⁷ Erasmus, *Praise of Folly*.
- ³⁸ Erasmus, *Colloquia*.
- ³⁹ Leonardo da Vinci, *Scritti letterari*, edited by A. Marinoni, Milan 1974, p. 162-163.
- ⁴⁰ A. Dabiezies, *Le mythe de Faust*, Paris 1972, p. 329.
- ⁴¹ J.P. Baud, *op. cit.*, p. 94-101.
- ⁴² For notes on this theory see: J. van Lennep, *Alchimie*, Brussels 1985, p. 349-351.
- ⁴³ F. Rabelais, *Pantagruel*, Book 5, XVIII, XIX, XX, XXI, XXII, XXIII.
- ⁴⁴ Fulcanelli, *Les Demeures Philosophales*, Paris 1965. L. Merigot, *Rabelais et l'alchimie*, in: *Le cahiers d'Hermès*, Paris 1947, I, p. 50-64.
- ⁴⁵ See: F.A. Yates, *Giordano Bruno and the Hermetic Tradition*, London 1964.
- ⁴⁶ *Ibid.*, p. 340.
- ⁴⁷ M. Deirius, *Disquisitionum magicarum libri sex*, Magonza 1606, p. 192.
- ⁴⁸ J. Read, *Through Alchemy to Chemistry*, New York 1957.
- ⁴⁹ F.A. Yates, *The Rosicrucian Enlightenment*, London 1972.
- ⁵⁰ J. van Lennep, *op. cit.*, p. 360.
- ⁵¹ Evidence of the alchemical and spagyric activities of Francesco I dei Medici is given in a letter written by the ambassador of Venice to the Grand Duchy published in: G. Lensi Orlandi, *Cosimo e Francesco de' Medici alchimisti*, Florence 1978, p. 88-90.
- ⁵² See: J. van Lennep, *op. cit.*, p. 360-365.
- ⁵³ *Ibid.*, p. 290-301.
- ⁵⁴ J. van Lennep, *op. cit.*, p. 317.
- ⁵⁵ See: R. Klianski, E. Panofsky and F. Saxl, *Saturn and Melancholy*, Cambridge 1964; J. van Lennep, *op. cit.*, p. 301-303.
- ⁵⁶ For the bibliography of the relationship between literature and alchemy in the XVI and XVII centuries, see: R. Halleux, *op. cit.*, p. 145.
- ⁵⁷ R.D. Gray, *Goethe, the Alchemist*, Cambridge 1952.

- Columella, L. : 26
 Commentary on the Letter Omega : 33
 Compositum de compositis (Compound on Compounds) : 97
 Concert in the Egg : 185
 Confessio Fratemitatis (Confessions of the Brotherhood of the Rosy Cross) : 131, 132, 133, 136, 138, 143, 144, 145
 Consideratio brevis (A Brief Consideration of the Most Secret Philosophy) : 131, 132, 133, 134, 135
 Constant, Alfred Charles (Eliphas Levi) : 164
 Constantin II : 41
 Constantine the Great : 41
 Contra alchymistas (Against the Alchemists) : 172
 Cool, Pieter : 183
 Corbin, Henry : 9, 47, 50
 Corpus hermeticum : 34, 87, 132
 Cosopolite (see : Sethon, Alexander)
 Constitutiones generales antiquae : 65
 Cours de Philosophie hermétique ou d'alchimie en dix-neuf leçons : 164
 Cramoisy, Lord of : 111
 Cranach, Lucas : 185
 Crassellame Chinese, fra' Marcantonio (see : Santinelli, Francesco Maria)
 Crede mihi (Believe Me) (see : Ordinall of Alchemy)
 Cremer, Abbot of Westminster : 170
 Crisopea (Gold Making) : 42
 Croll, Oswald : 138
 Crowley, Alister : 165
 Curus triumphalis antimonii (Triumphal Chariot of Antimony) : 122
 Cylani : 164, 166
 Daedalus and Icarus : 85
 Dalby, Wilhelmus (de) : 170, 172
 Dardarus : 25
 Das haus des alchimisten (The House of the Alchemist) : 187
 Dasteyn, John : 69, 70
 Daulton, Thomas : 118
 De adventu antichristi et fine mundi (The Advent of the Antichrist and the End of the World) : 68
 De alchemia dialogi duo (Two Talks on alchemy) : 85
 De anima (Compendium on the Soul) : 75
 De arte chimica : 178
 De arte metallica (The Art of Metals) : 63
 De auro : 178
 De consideratione quintae essentiae (Concerning the Quintessence) : 71, 93
 De disquisitione Heliae Artistae (Disquisition on Elia Artistal) : 156
 De la pyrotechnia (The Art of Fire) : 148
 De lapide vegetabili (On the Stone that Gives Life) : 63
 De occulta philosophia : 178
 De panaceae : 138
 De re metallica (The Art of Metals) : 148
 De rebus metallicis et mineralibus (On Metals and Minerals) : 62
 De remediis utriusque fortunae (Remedy of One and the Other Fortune) : 176
 De rerum natura : v. Chirocrmeta
 De Sango, Ramondo (Prince of Sansevero) : 162, 164
 De secretissimo philosophorum opere chemico (On the Secret Chemical Work of the Philosophers) : 113, 114, 117
 Dev, John : 122, 123, 132, 133, 135, 138, 157, 160, 178, 181, 183, 187
 Del'impres : 82
 Del Rio, Martin : 183
 Della tramutatione metallica (Of the Transmutation of Metals) : 109
 Democritus of Abdera : 24, 25, 26, 41, 76, 142
 Der Engel vom westlichen Fenster (The Angel of the Western Window) : 187
 Deucalion : 85
 Dictionnaire mytho-hermétique (Mytho-Hermetic Dictionary) : 29, 87, 154, 160
 Dictionnaire portatif de peinture, de sculpture et de gravure (Pocket Dictionary of Painting, Sculpture and Engraving) : 154
 Die chymische Hochzeit des Christian Rosenkreutz (The Chemical Wedding of Christian Rosenkreutz) : 133, 134, 135, 137, 183, 187
 Die Morgenröte im Aufgang (Aurora) : 137, 138
 Die Wolke über dem Heiligtum (The Cloud Over the Sanctuary) : 161
 Dienheim, Wolfgang : 123
 Diocletian : 41
 Diogenes : 24
 Dionysus the Areopagite : 135
 Dioscurus : 41
 Directorium inquisitorum (Manual of the Inquisitors) : 172, 173
 Disquisitionum magicarum : 183
 Divine Comedy : 174, 176
 Divine Love and Wisdom : 157
 Divoine, Court of : 159
 Donne, John : 185
 Düter, Albrecht : 185
 Ecclesiasticus : 71
 Eckhart, Meister : 135
 Ecomium mortae (Praise of Folly) : 177
 Ephantus : 54
 Edward III, King of England : 170
 Edward IV, King of England : 118, 172
 Eliade, Mircea : 9, 15
 Elias of Cortona : 57, 58, 59, 65
 Elias : 85, 159
 Elizabeth I, Queen of England : 122
 Empedocles : 54, 85
 Encausse, Gerard (Papus) : 165
 Encyclopédie : 83
 Epistola de secretis operibus Artis et Naturae (Letters on the Secret Works of Art and Nature, and on the Vanity of Magic) : 67, 68, 80
 Epistola Solis ad Lunam crescentum (Epistle of the Sun to the Crescent Moon) : 54
 Erasmus of Rotterdam : 177, 178, 180, 185
 Escalier des Sages (The Sages' Step) : 85
 Eve : 12
 Evola, Julius : 9
 Exodus : 30
 Explication très curieuse des énigmes de Notre-Dame de Paris : 166
 Eymeric, Nicolas : 69, 172, 178
 Fabre, Jean-Pierre F. de Castelnaudary : 85
 Fama Fratemitatis (Revelation of the Brotherhood of the Noble Order of the Rosy Cross) : 129, 131, 133, 134, 135, 136, 137, 138, 142, 143, 144, 145
 Fasciculus chemicus : 144
 Faust : 185
 Faust, Johann or Georg : 178
 Feliciani, Lorenza : 153
 Ferdinand III, Emperor of Austria : 173
 Ferdinand I : 142
 Ferraris, L. : 173
 Festugière, André-Jean : 9, 23
 Ficino, Marsilio : 90, 133, 178
 Figuier, Louis : 161
 Final Account : 12
 Flamel, Nicolas : 30, 87, 99, 108, 109, 111, 112, 113, 114, 117, 118, 122, 154, 159, 164, 165
 Flamel, Pernelle : 30, 109, 111, 112, 113
 Flos florum (Flower of Flowers) : 69
 Fludd, Robert : 138, 140, 143, 144
 Foeman, Simon : 183
 Francis of Assisi : 57, 58, 59, 66, 82
 Frederick II, King of Prussia : 152, 156
 Frederick II, King of Sweden : 58, 59
 Frederick III, King of Denmark : 147
 Frederick-William II, King of Prussia : 157
 Fulcanelli : 27, 76, 79, 82, 96, 98, 101, 102, 113, 164, 165, 166
 Gaëlle, Philippe : 179, 180
 Ganymede : 85
 Gargantua : 180
 Geber (Jabir ibn Hayyan) : 45, 47, 48, 49, 50, 52, 76, 90, 104, 107, 114, 115, 138, 142, 148, 150
 General Reformation of the Whole Wide World : 129
 Genesis : 11, 13, 96, 132
 Gerald of Aquitaine : 118
 Gerard of Cremona (Brother) : 58
 Gerber (Latin) : 76, 80
 Gobineau de Montluisant, Esprit : 166
 Goethe, Wolfgang : 185, 187
 Gold Making of Kleopatra : 89
 Gorgon : 85
 Gospel According to St. Matthew : 157
 Gott is die reinste liebe (God, the Purest Love) : 161
 Grabianka : 156, 159
 Great and Small Books of the Scroll : 45
 Gregory IX, Pope : 57, 58
 Griffolino of Arezzo : 176
 Grosseteste, Bishop Robert : 59, 66
 Guaita, Stanislas (de) : 165
 Gustav III, King of Sweden : 159
 Güstenhoyer : 124
 Guyton de Morveau, Jean Louis (Bruno-rel) : 156
 Guyton de Morveau, Louis Bernard : 156
 Halleux, Roger : 76
 Harbach, Gaspar : 173
 Haselmayer, Adam : 129
 Haussen, Jacob : 124
 Heaven and Hell, from things heard and seen : 157
 Hegel, G.W.F. : 187
 Heintich von Ofterdingen : 187
 Helvetius (Johann Friedrich Schweitzer) : 125, 126, 127, 137, 152, 157
 Henry IV, King of England : 172
 Henry of Prussia : 157
 Henry VI, King of England : 172
 Hephaestus : 13, 14
 Heracitus : 24
 Hercules philochymicus (Hercules Lover of Chemistry) : 85
 Hercules : 85
 Hermès dévoilé : 164, 165
 Hermes Trismegistus : 11, 12, 24, 33, 34, 43, 52, 76, 77, 78, 79, 95, 132, 137, 142
 Herodotus : 45, 102
 Histoire critique de Nicolas Flamel et de Pernelle sa femme (Critical History of Nicolas Flamel and his wife Pernelle) : 154
 Histoire de la philosophie hermétique (History of Hermetic Philosophy) : 154
 Historia septem tribulationum : 58
 Holmann, J.P. : 173
 Holmyard, E. John : 127
 Honnecourt, Villard (de) : 166
 Hortulanus (Ortholanus or Orotolanus) : 107, 108, 114
 Horus : 11

- Patanjali : 51
 Patrarich, Francesco Petrarca : 176, 180
 Péladan, Joséphin : 164
 Pelagius : 41
 Peña, Francisco : 173, 178
 Pernety, Antoine-Joseph : 29, 83, 85, 93, 153, 154, 155, 156, 157, 159, 160
 Pernety, Jacques : 153, 156
 Perréal, Jean : 174
 Peter the Venerable : 54
 Philalethes, Eirenaeus : 127, 157
 Philochemicus a Percis, Heliophilus : 156
Philosophia reformata (Philosophy Reformed) : 142
Physica subterranea : 150
Physika kai-mystika (On Natural and Initiatory Things) : 11, 26, 27, 29, 30, 34
Physiognomische Fragmente (Essays on Physiognomy) : 156
 Pico della Mirandola, Giovanni : 132, 133, 178
 Pirra : 85
 Plato : 24, 43, 76
 Pliny the Elder : 25, 26, 30
 Plutarch : 45
Poimandres : 95
 Pontano, Giovanni : 101
 Ponte, Oldrado (da) : 173
 Poenic, Kerđanec (de) : 99
Pretiosa margarita novella (The New Pearl of Great Price) : 107
 Price, James (James Higginbotham) : 153
Probleme der Mystik und ihrer Symbolik (Problems of Mysticism and its Symbolism) : 165
 Proverbs : 71, 89
 Psalms : 71
 Psellus, Michael : 42
 Pythagoras : 25, 26, 43, 54, 141
 Rabelais, François : 180, 185
Ragguagli di Parnaso : 129
 Reginald of Piperno : 63, 65
 Reuven, C. J. C. : 23
Révélation des mystères des teintures essentielles des sept métaux : 141
 Revelations : 157
 Rhazes (Abu Bakr ar-Rhazi) : 48, 54, 59, 91, 114
 Richthausen : 173
 Ripley, George : 102, 118, 172, 183
 Robert of Chester (Robert of Ketton or Robertus Castrensis) : 54, 55, 57
Roman de la Rose : 173, 174
Rosarium Philosophorum (The Rose Garden of the Philosophers) : 68, 80, 102, 117, 177
 Rosate, Albericus (de) : 173
 Rosenkreutz, Christian : 129, 131, 133, 134, 136, 143
 Rous, Johannes de : 170, 172
 Rudolf II of Hapsburg : 123, 124, 125, 138, 173
 Rupescissa, John of : 7, 66, 71, 72, 92, 93, 107, 114, 119
 Sacrobosco, John of : 114
 Saint-Germain, Claude Louis (Count of) : 152, 153
 Salimbene of Adam : 57, 58, 59, 65
 Santinelli, Marquis Francesco Maria : 77
 Sara : 50
 Schopenhauer, Arthur : 187
 Scoto, Michael : 58, 59
Scriptum in IV libros sententiarum magistri Petri Lombardi (Comment of the Sentences of Peter Lombard) : 60, 172
Secreta alchimiae magmalia (The Secret Wonders of Alchemy) : 63
 Selena : 43
 Sendivogius, Michael (Michael Sedzinwoj) : 123, 125, 142
 Senior Zadh (Muhammad ibn Umail) : 54, 177
 Sethon, Alexander : 124, 125, 137, 170
 Shakti : 51
 Shiva : 51
 Silberer, Herbert : 9, 165
 Socrates : 76
 Solomon : 30
Somnum bonum : 144
Song of Songs : 65
Speculum alchemiae (The Mirror of Alchemy) : 7, 102
Speculum maius : 59
Speculum naturale : 60
 Spinoza : 127
Splendor Solis (The Splendor of the Sun) : 99, 185
Spontent quas non exhibent : 69, 70, 71, 107, 172, 177
 Sprenger, Jakob : 172
 Stael, Baron of : 159
 Stahl, Georg Ernest : 150
 Stephanos of Alexandria : 29, 42, 45
Stockholm papyrus (Papyrus Holmiensis) : 23, 24
 Stoick, Daniel (Stolcius) : 142
 Suavius, Leo : 109
 Suda : 26
 Sulat, Jacobus : 76
 Sull'Imuth : 11
Summa perfectionis (The Sum of Perfection) : 75, 76, 80
Summa theologicae : 60, 65
Super illius specula : 70
 Swedenbourg, Emmanuel : 157
Symbola aureaemensae duodecim nationum (Symbols of Gold) : 85, 142
 Syncellus : 45
 Synesius : 41
 Syrus, Ephrem : 44
 Tao Hung-ching : 18
Tabula chimica (Chemical Tablet) : 54, 177
Tabula Smaragdina (Emerald Tablet) : 50, 52, 89, 90, 96, 107
Tao te ching (Book of the Way and of the Virtues) : 16
 Teiresias : 82
 Teniers, David : 185
 Thales : 24
The Alchemist (drawing by Bruegel) : 183
The Alchemist : 181, 183, 185
The Canon's Yeoman's Tale : 176, 177
The Compound of Alchemy : 118, 172
The Fortunate Isles : 183
The Garden of Desire : 185
The Last Judgement : 185
The Marriage in Cana : 185
The Ordinal of Alchemy : 118, 119, 138, 140
The Sceptical Chemist : 150
The Silvery Water and the Starry Earth (see: Tabula chimica)
The Temptation of St. Anthony : 185
Theatrum chemicum (Chemical Theatre) : 75
Theatrum chemicum britannicum (English Chemical Theatre) : 75, 144, 152
 Theosebese : 30, 34, 36, 38
Thesaurus alchimiae (Treasure of Alchemy) : 63
 Thiebault : 157
 Thomas of Bologna : 114
 Thomas of Celano : 58
 Thomé, Marquis of : 159
 Thorndike, Lynn : 118
 Thoith : 11, 33
Tractatus de esse et essentia mineralium (Treatise on the Being and Essence of Minerals) : 63
Traité curieux des charmes de l'amour conjugal : 157
Treatise on Instruments and Furnaces : 36
Treatise on the Three Principles : v. Chou t'an t'unh ch'i
 Trevisanus, Bernardus (Bernard of Treves) : 94, 95, 101, 104, 113, 114, 117, 118, 170
 Trismostin, Salomon : 99
 Tubal-caïn : 13
Turba Philosophorum (Crowd of Philosophers or Code of Truth) : 52, 54, 77, 114, 115, 117
Utriusque cosmi historia (Physics and Technics of Two Worlds) : 143
 Vadis, Egidius : 118
 Valentine, Basil : 76, 85, 104, 122, 134, 141, 148, 164, 187
 Van der Borch, Pieter : 183
 Van der Bossche, Balhazar : 185
 Van der Linden, A. : 124
 Van der Straet, Jean (Stradanus) : 183
 Van Eyck, Jan : 185
 Van Hellemont, Mathieu : 185
 Van Helmont, Joan Battista : 125, 126, 127, 137, 152, 187
 Van Helpen, Barent Coenders : 85
 Van Osatde, Adrien : 185
Verae alchemiae artisque metallica (Of True Alchemy and the Art of Metalwork) : 75
 Vernetti of Vaucroze : 159
 Villain, Abbot : 154
 Vincent of Beauvais : 59, 60, 66, 173
Vindanium chymicum (Chemical Garden) : 142
Visio Ripley (Ripley's Vision) : 118
 Vitruvius : 26
 von Anhalt, Christian : 138
 von Eckartshausen, Karl : 160, 161, 167, 187
 von Franz, Marie-Louise : 9, 63, 65, 71
 von Mynsicht, Adrian : 76, 77, 143
 Wei Po-yang : 16, 18
 Weishaupt, Adam : 159
 Wen : 15
 Wu Ti : 18
 Xenophanes : 54
 Yourcenar, Marguerite : 187
 Zachaire, Denis : 117, 118, 170
 Zanetinis, Hieronymus (de) : 173
 Zeus : 13
 Zoroaster : 30, 34
 Zosimos of Panopolis : 11, 12, 24, 26, 30, 33, 34, 36, 37, 38, 39, 41, 42, 45, 89, 92, 102, 104, 118, 134, 147, 148, 166, 187
 Zwinger, Jakob : 124

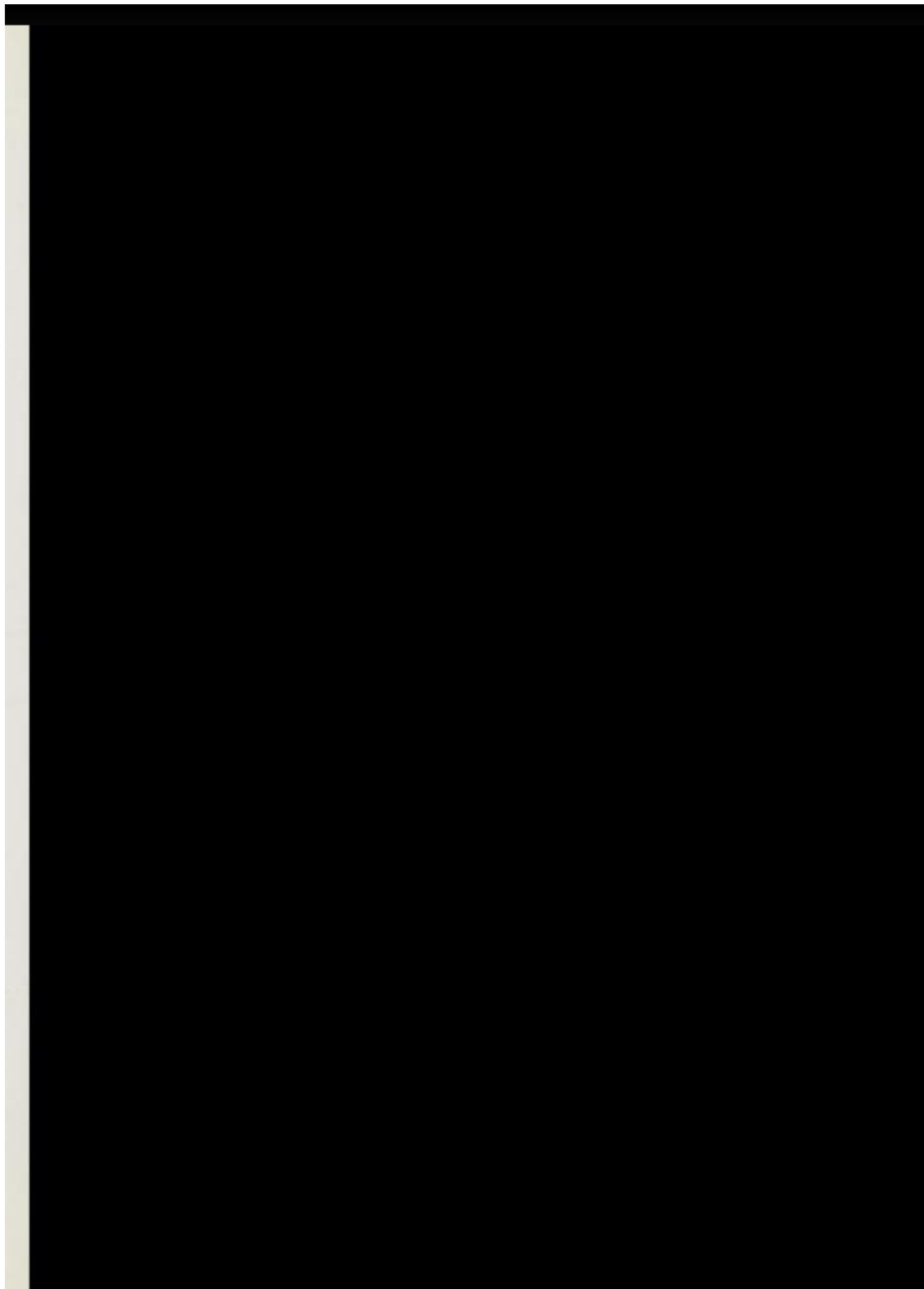


The myths, the vicissitudes, the personalities, the theories, the language, the symbols and the meaning of alchemy, the oldest and most enigmatic form of knowledge that has been handed down to us from antiquity, in a historically accurate account that is at once authoritative, fascinating and highly readable.

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emetic tarter, used a Latinized version of his name, Hadrianus a Minsicht, the two "i's" of which he changed respectively into an "e" and a "u" to create the anagram Henricus Madathanus, to sign his work *AUREUM SECLUM REDIVIVUM* (THE GOLDEN CENTURY RENEWED). Not content with this, at the end of the preface he included an epigram signed with another anagram: Hermannus Datichius, "authoris famulus" (servant of the author).

The *LUX OBNUBILATA SUAPTE NATURA REFULGENS* (THE DIMMED LIGHT THAT SHINES BY ITS OWN NATURE), published for the first time in Venice in 1666, was a poem consisting of three songs written in Italian verse, accompanied by an anonymous commentary. The poem was signed with the exceptionally long name of Fra Marcantonio Crassellame Chinese. In order to unravel the mystery of the origin of this text, we must again take recourse to an anagram, transforming Fra Marcantonio Crassellame Chinese into Marchese Francesco Maria Santinelli. In the change from one name to the other, the transposition of the thirty-two letters is almost perfect, the only exception being an "o" which becomes an "i". According to Eugène Canseliet, the reason for this was to capture the attention of the initiated reader so that he would run one vowel into the next to obtain Φ , symbol of *salpetrae*. In everyday life, Santinelli was a noble scholar of Pesaro (1627-1697), author of poetry, songs and musical dramas and the founder of an artistic coterie which bore the bizarre name *Accademia de' Disincanti* (Academy of the Disillusioned).

These strategies were not employed simply to titillate the reader's intelligence. Writers of alchemy had more than one reason for hiding behind total anonymity or a pseudonym, for they as much feared the derision of unbelievers, as they did of being pestered by the greedy or inquisitive; there was probably also a desire to efface themselves personally from history. They argued that if a writer remained anonymous, his work might eventually assume a value in its own right: no longer the work of a single man in a historical context but an impersonal and living symbol of tradition.

For first-time readers of alchemy, trying to make some sense of the subject can be a frustrating experience: enigmas, contradictions, allegories, symbols, interruptions, veiled meanings and apparent absurdities are enough to make even the most indefatigable neophyte wonder if he is not the victim of some bizarre joke. How could it be otherwise when faced with a recipe that begins thus: "How to extract the soul of an ass in twenty days: take a male or female ass, beat it vigorously until no trace of dregs remains, then take half of a wise armed soldier and mix them together in the basin..."¹³ or alternatively: "Take as much as you please of some unknown substance..." In one of the numerous editions of the *TURBA PHILOSOPHORUM* are to be found some passages written in an even more



The opening table of the *Mutus liber*, an essentially graphic alchemical book, published for the first time in 1677 and bearing the pseudonym of Altus. The illustration refers to the biblical story of Jacob's dream (*Genesis*, XXVIII: 10-22). It is an extremely difficult book to understand; it has been suggested that the first line of the text accompanying this picture, "MUTUS LIBER IN QUO TAMEN", is meant to be completed with its own anagram "SUM UT LIBER IN QUO MANET", thus becoming: "(I) *Mutus liber* I am like the book (the Bible) in which (Jacob) spends the night", meaning that the *Mutus liber* is for the alchemist a text as sacred as is the Bible for the Christian.

irritating style: "You all speak too much and too obscurely. But I wish to disclose the Matter completely, without all this obscure chat. I order you, Sons of the doctrine: Freeze the Quick Silver. Of many things make two, three and three, one. One with three is four. 4,3,2,1. from 4, to 3, there is one, from 3, to 4, there is 1, thus 1, and 1,3 and 4. from 3 to 1 there is 2. from 2, to 3, 1. from 3, to 2, 1, 1, 2, and 3, and 1, 2, of 2 and 1, 1. from 1, to 2, 1,1. hence 1. I have told you everything."¹⁴ As we know, the alchemists produced several thousands of books. It is obvious that they loved writing and wanted their works to be read, but they preferred not to be understood. This was because alchemy was a Sacred Art, the Secret of Secrets, a knowledge obtained by revelation and as such in need of protection

from the unworthy, the inquisitive and the uninitiated. Said the mythical Hermes Trismegistus to his son Tat: "Keep to yourself all that you have learned from me about this virtue and reveal to no one the regeneration I have handed down to you, so that you shall not be numbered among the divulgers of the Art."⁵

And so the reader finds his way barred by a thousand stratagems which hinder his understanding, or worse still lead him deliberately astray. In reality, each book can be read on two levels, corresponding to the two faces of alchemy: the exoteric, which is easily comprehensible to anyone; and the esoteric, which is comprehensible to the initiated alone. The uninitiated grasps only the apparent meaning which, however eccentric, is nonetheless seemingly quite clear; the expert alchemist moves on a different, deeper level of understanding in which the true secrets of the *Art* are revealed. All alchemical works echo the words of Hermes Trismegistus: "To all those who will have the opportunity to read my books, the writing will seem clear and simple, yet verily it is dark and obscure, hiding the true meaning of the words..."⁶

And yet the alchemists, in a tone somewhere between sarcasm and defiance, often warn their readers of the necessity of distinguishing between exoteric and esoteric meaning. Writes Artephius: "And in truth do you not know that ours is a Cabalistic Art? I mean it is an art that is revealed by word of mouth alone, and is full of mysteries. And you, poor fool, are stupid enough to think that we would clearly and openly reveal the greatest and most important of all Secrets? In good faith I tell you (for I am not in the least envious like other Philosophers), indeed I assure you that whosoever tries to explain in a common and literal tongue the words of the Philosophers, will soon find himself in the darkest passages of a labyrinth from which he will never again free himself..."⁷

For the writers of alchemy the task was to elucidate while keeping silent, never going beyond the limits where explanation would have become tantamount to denunciation, an unforgivable betrayal, the breaking of an oath. Fulcanelli writes: "We would like to be able to say more if only there were not such insurmountable restrictions ... we have discovered the greatest secret of the Work and we wish to keep our oath."⁸ The oath by which the disciple promises his master not to reveal the secrets of the doctrine is a constant factor even in the most ancient traditions of magic, both astrological and alchemical. Over the centuries the formulae of this oath have changed only outwardly. In the ancient Graeco-Egyptian alchemical text *ISIS THE PROPHETESS TO HER SON HORUS*, the goddess Isis describes to her son Horus how the angel Amnael revealed to her the secret of the *Art* after which she was required to take the following oath: "I beseech you for the sky, the earth, the light and the darkness, I beseech you for the fire, the water, the air and the earth; I beseech you for



The alchemist teacher initiates a disciple, handing him the closed book of the *Divine Art* and uttering the words: "Take this divine gift which is closed with a consecrated seal". The disciple vows: "In secret I will preserve the secrets of alchemy". (From *Theatrum Chemicum Britannicum*, 1652).

the high vault of the Heavens and the depth of the Sea and the Underworld; I beseech you for Hermes, for Anubis, for the bronze voice of Cerberus, the guardian serpent; I beseech you for the ferry and helmsman who crosses the Acheron, I beseech you for the three Necessities, for the whips and for the sword.' Having made me take this oath, he then forbade me to reveal the knowledge to anyone but my child, my legitimate son (Horus), so that he (the angel) be you (Horus) and you be he."⁹ But a 12th century manuscript preserved in Venice discloses that somewhere during the course of the next thousand years, the Holy Trinity had become the object of the initiate's oath to guard the secret doctrine from the eyes of the profane.¹⁰

While all alchemical writers are careful not to totally infringe the limits of secrecy, some tend to be more open than others in confiding information, and it is on the basis of their restraint or frankness that they are often judged. The writer who uses every means in his power to deliberately lead his readers astray is considered to be either reluctant or overpossessive; he who instead offers willing explanations on key points of the



The Hermetic androgyne according to the *Splendor Solis* (16th century). Its garments are black, and it has one white wing and one red, alluding to the three phases of the Opus (*nigredo*, *albedo*, *rubedo*); in its right hand is a sort of circular plate, reminiscent of the symbol for gold, in which is reflected Nature, while in its left hand is the *Philosophical Egg*, underlining the bond between the Great Work and the processes of Nature.

great virtuosities. This is done because it is not right that such noble things be known to fools, who would scorn and deride them, and deem the philosophy to be madness, while the ignorant masses would not understand how to fulfill the principles of virtue and justice.¹²⁰

Many symbols are drawn from the animal kingdom, and compound a rich alchemical bestiary including not only real animals but mythical creatures (the phoenix, unicorns, dragons, winged horses etc.) too. All these symbols have a precise meaning: two animals of the same species but opposite sex represent Sulphur and Mercury; a land animal together with a winged creature represent the Fixed and the Volatile; two animals of different sexes, portrayed one beside the other symbolize the *Conjunctio*, or mystic marriage, but if they are shown fighting they instead represent the Fixing of the Volatile, or the Volatilization of the Fixed; winged animals, especially the eagle, stand for Volatilization; the raven means Nigredo; the swan or the dove Albedo; the lion is Sulphur; the wolf Antimony; the serpent devouring its own tail the unity of matter; while the phoenix is the Rubedo.

Sometimes the symbol has a dual meaning, as in the case of the pelican. In ancient *Bestiaries* this animal is described as so loving its offspring that it would wound itself with its long sharp beak in order to draw blood on which to feed them. In alchemical symbolism the pelican represents the Philosopher's Stone, which multiplies by drawing on its own strength. At the same time it also represented the alembic, from whose beak dripped the liquid being distilled. To complicate matters even further, the pelican is also an archetypal symbol for Christ who sacrifices himself and redeems mankind (the offspring) with his own blood.

Astrology plays a fundamental role in alchemical symbolism. The correspondence between planets, divinities and metals must have been established in very ancient times although it is not entirely clear how certain analogies, known to the Sabeans of Harran, came to be part of the alchemical tradition: Sun = Apollo = Gold; Moon = Diana = Silver; Mercury (Hermes) = Quicksilver (mercury); Venus = Copper; Mars = Iron; Jupiter = Tin; Saturn = Lead. The metals are arranged in a hierarchy based on their degree of purity. At the top of the scale come Gold and Silver, frequently portrayed as the King and Queen of the metal family; at the bottom is Lead, a metal so imperfect as to have earned the names *aurum leprosum* (leprous gold) or *corpus immundum* (foul body); in fact, it was sometimes depicted as a leper.

The twelve signs of the zodiac correspond to twelve phases of the Great Work, and indicate the time of year in which each phase must be carried out. But even here we must make a distinction, as abbot Pernety warns us: "The zodiac of the Philosophers is not the same as the celestial zodiac, though it is closely related. The signs of the Philosophers' zodiac represent the



An extract from the alchemical bestiary: lion (Sulphur of the Sages), eagle (Mercury), serpent (Mercurial Solvent), dragon (Subject of the Sages), crow (*nigredo* or putrefaction), peacock (colours of the rainbow representing the multi-coloured stage of the *Opus*), swan (*albedo*), phoenix (Philosopher's Stone).

graded path of the Work along which the alchemist proceeds to the autumn of his endeavor, this being the final season of his year, the time in which he will harvest the fruits of his work.¹²¹

Of the symbols of a non-astrological origin, some occur more frequently than others. They illustrate alchemical manuscripts and books adding to their fascination but, as we have already pointed out, they are rarely intended as pure decoration. Conceived as they are as a complement to the written word, more often than not they merely deepen the mystery. And of course there is the unique case of the *MUTUS LIBER*, composed entirely of illustrations. The fifteen drawings of the book represent a man and a woman working to achieve the Great Work, both inside the laboratory, before the *athanor*, and outside in the fields, gathering essential cosmic influences. Despite its apparent simplicity, the *MUTUS LIBER* has proved to be a veritable brain twister for would-be interpreters and its fifteen illustrations have still to yield all their secrets.

In Latin alchemy metals, compounds and operations are represented by conventional signs. We know little of their origin: the majority were unknown in the Middle Ages and did not appear until the second half of the 15th century. From then on they gradually became more and more complex and numerous, as can be seen from the many lists that were made over the decades. The great literary monument of the age of enlightenment, the *ENCYCLOPÉDIE*, edited by Diderot and D'Alembert and completed in the mid-18th century, enumerates roughly five hundred.

In the end the alchemists gave up playing games with their signs and catalogued them in a straightforward manner in reasonably simple tables. Unfortunately, the same cannot be said for the way they trifled with the names of the substances they used for their experiments, with which they delighted in creating acrostics (phrases in which the initial letters of each word, read in sequence, form names or mottoes). The most famous of these is Basil Valentine's acrostic *Visita Interiora Terrae, Rectificando Invenies Occultum Lapidem* ("Visit the inner earth, purifying you will find the hidden stone"), the initial letters of which form V.I.T.R.I.O.L., the name of the alchemists' secret solvent.

Acrostics are to be found more frequently in 18th century manuscripts. The culmination of this genre is the *ESCALIER DES SAGES* (THE SAGES' STEP), published anonymously in 1689 by the Flemish publisher Barent Coenders van Helpen, which comprises some twelve acrostics each accompanied by a strongly symbolic illustration. For instance, the term *ALCHIMIA* is interpreted by van Helpen as the motto *Ars Laboriosa Convertens Humiditate Ignea Metalla In* ("Difficult art, which converts metals into mercury by way of igneous humidity"); *MERCURIUS* reads as *Medicinam Ego Rubeam Creo Universalem Regiamque in Utero Solis* ("I create a red and regal universal medicine in the uterus of the Sun"). Acrostics like those of van Helpen belong to a later stage of alchemy and add nothing new to the tradition.

Christian alchemists naturally paid considerable attention to the Scriptures, in which they sought allegorical parallels with the Great Work. The myth of the Creation as told in Genesis became a focus for alchemical speculation and Adam a key figure. They drew a parallel between Yahweh creating Adam from dust and the alchemist creating the Philosopher's Stone from base matter. The episode in which Elijah is swept into heaven in a fiery chariot, was thought to symbolize the alchemist who, having achieved the Great Work and thus been transformed, vanishes into nothingness. For this reason the prophet is often mentioned in alchemical texts as *Elia Artista*, a sort of holy protector of the alchemists. As far back as early Latin alchemy we find a parallel between "Christ born of the Virgin Mary and the Philosopher's Stone born of Mercurial Water," a parallel which subsequently resulted in the entire

Christian mystery being interpreted according to the Hermetic tradition. This is particularly clear in Michael Maier's *SYMBOLA AUREAE MENSÆ* (SYMBOLS OF GOLD), published in 1617, which presents alchemy as the celebration of Mass. The priest performing divine service at the altar is the alchemist at work at the *athanor*, the Philosopher's Stone is the Host, through which man receives the grace of God and eternal life; the Elixir of Life achieved through the Great Work is the sacramental wine; the transmutation of a base metal into gold is likened to the way in which the Host is transubstantiated into the body of Christ.

In the same way they drew from Greek mythology. It is impossible to establish exactly when in time they first sought to envisage Greek mythology as a cryptogram of the Great Work, but by the mid-16th century there existed a solid tradition in this sense, as we learn from the words of Giovanni Bracesco in *DE ALCHEMIA DIALOGI DUO* (TWO TALKS ON ALCHEMY, 1548): "The ancients concealed the art behind a veil of poetic myths. The myth of Hercules and Antaeus represented the preparation of sulphur. When they told of Jupiter turning himself into golden rain, they were really describing the distillation of philosophical gold. In the hundred eyes of Argos, distributed by Hera over a peacock's tail they saw alchemical sulphur, as it passed through the color spectrum. The myth of Orpheus concealed the sweetness of quintessence and gold that could be drunk. And just as we believe in Empedocles, we must also believe that the ancients hid the practice of their art behind the myths of Pyrrha and Deucalion. The story of the Gorgon, who turned to stone all who looked upon her, masked the fixing of the Elixir. The process of distillation was hidden in the story of Zeus taking the form of an eagle to carry off the fair Ganymede. The myth of Daedalus and his son Icarus represented putrefaction and distillation..."²²

The Hermetic interpretation of these mythological tales became increasingly detailed and complex during the 17th and 18th centuries. Without exception the great mythological sagas were re-told. The twelve labors of Hercules were proposed as alchemical allegories by Jean Pierre Fabre de Castelnau in *HERCULES PHILOCHYMICUS* (HERCULES LOVER OF CHEMISTRY, 1656). The alchemists were particularly captivated by the story of Jason and the Golden Fleece, which they re-told thus: the Golden Fleece, which brought fabulous opulence to its possessor, was the Philosopher's Stone; Jason setting forth on his quest in the Argo was the alchemist who ventured on the *Wet Way*; the Garden of the Hesperides was the garden of alchemy, beneath whose surface the gold was hidden; each of the hero's labors was an allegory of the alchemical operations that lead to achievement of the Great Work. In order to explain these and other myths in the light of Hermetic philosophy, as it was conceived in the 17th and 18th centuries, Abbot Antoine-Joseph Pernety

(1716-1801) wrote *LES FABLES ÉGYPTIENNES ET GRECQUES DÉVOILÉES* (EGYPTIAN AND GREEK MYTHS UNVEILED, 1758). In 1758, this same author, in an attempt to clarify alchemical literature to a certain extent compiled the *DICTIONNAIRE MYTHO-HERMÉTIQUE* (MYTHO-HERMETIC DICTIONARY).

Not always, however, is the allegory taken from the Scriptures or from mythology. Sometimes it is even more enigmatic, taking the form of a biographical or autobiographical account which has all the earmarks of a true story. This, as we shall see, is the key to one of the celebrated alchemical texts of the 15th century, *LE LIVRE DES FIGURES HIÉROGLYPHIQUES* (BOOK OF HIEROGLYPHIC FIGURES) by Nicolas Flamel.

As the oral transmission of the doctrine from master to pupil, propounded in the Hermetic tradition, began to die out, the corpus of alchemical writings grew apace. Simultaneously, the alchemists devised new stratagems to conceal the true meaning of their works. The two circumstances are probably related: at a time when the teaching tradition and personal contact between alchemists were becoming more and more the exception, it is possible that the masters, obliged to entrust their knowledge to the written word, and afraid that these manuscripts might fall into the wrong hands, saw fit to invent more complex methods of hiding the truth. Today as yesterday, aspiring alchemists who seek to unveil the esoteric meaning of these writings without the guidance of a master, have no choice but to ponder the ancient alchemical motto: "Pray, read, read,

read, re-read, work and you will find."

In reality, these stratagems were not only to hide the truth from the curious and the unworthy, they were also meant to transform the mental processes of the reader by upsetting the structure of logical thought and awakening within his mind regions of obscure conscience, the only regions capable of understanding the essence of the Great Work. Alchemy is not (or not just) a rudimentary form of chemistry, as science historians like to believe. Within its veins runs the sap of Hermetic mysticism, of a form of gnosticism aspiring to victory over the dark forces of matter and the acquisition of a level of conscience different from that of reason.

While the breakdown of rational thought is necessary in order to achieve illumination and liberation of the active spirit, the ambiguity of alchemical literature and pictures, the multitude of absurdities scattered along the reader's path are reminiscent of the *koan* of Zen philosophy. They are traps designed to break down the logical processes of the mind and to open the door to direct intuition of the truth.²¹

The most difficult code to break in alchemy is not, therefore, that which is external to the text which, when present, can in the end be broken, albeit with some difficulty. The truly impenetrable code is the non-conventional one, arising from the reality it is meant to conceal. As Michel Butor tells us: "It is pointless to try to understand which aspect of the symbolism is intended to avert attention. Everything misleads and reveals at the same time."²⁴

¹ R. Halleux, *Les textes alchimiques*, Turnhout 1979, p. 97-98.

² J. Holmyard, *Alchemy*, London 1957.

³ G. Carbonelli, *Sulle fonti storiche della chimica e dell'alchimia in Italia*, Rome 1925, p. 10.

⁴ W. Salmon, *Bibliothèque des Philosophes Chimiques*, Paris 1741, Vol. II, p. 25.

⁵ *Corpus Hermeticum*, Treatise XIII. Italian edition edited by Carlo Tondelli, Milan 1988, p. 138.

⁶ *Ibid.*, Treatise XVI, *op. cit.*, p. 149.

⁷ W. Salmon, *op. cit.*, Vol. II, p. 144-145.

⁸ Fulcanelli, *Le Mystère des Cathédrales*, Paris 1967.

⁹ A. J. Festugière, *Hermétisme et mystique païenne*, Paris 1967.

¹⁰ M. Berthelot, *La Chimie au Moyen Âge*, Paris 1893, Vol. I, p. 27.

¹¹ R. Halleux, *op. cit.*, p. 112.

¹² G. B. Nazari, *Dalla Tramutazione Metallica Sogni Tre*,

Brescia 1599, p. 169.

¹³ G. Carbonelli, *op. cit.*, p. 9.

¹⁴ J. J. Manget, *Bibliotheca Chemica Curiosa*, Geneva 1702, Vol. I, p. 557.

¹⁵ *Ibid.*, Vol. I, p. 624.

¹⁶ Fulcanelli, *op. cit.*, p. 68.

¹⁷ Fulcanelli, *Les Demeures Philosophales*, Paris 1965.

¹⁸ R. Graves, *Greek Myths*, London 1955.

¹⁹ Fulcanelli, *Le Mystère*, *op. cit.*, p. 164.

²⁰ G. Carbonelli, *op. cit.*, p. 9.

²¹ Dom Antoine-Joseph Pernety, *Dictionnaire Mytho-Hermétique*, Paris 1758.

²² I. Bracesco, *Alchemia dialogus*, in: J. J. Manget, *op. cit.*, Vol. I, p. 566.

²³ M. Butor, *L'alchimie et son langage*, Paris 1960.

²⁴ *Ibid.*

CHAPTER VI

THE GREAT WORK

Alchemists have always been convinced that the *Divine Art* is a time-honored science, founded on concepts that have remained unchanged throughout history. They believe that, as with all forms of revealed truth, alchemy is untouched by time; that the journey through the centuries and many different countries and cultures may have influenced the style used to express the alchemical theories, but it has neither added nor subtracted anything from the esoteric essence of the doctrine which, being the fruit of divine wisdom, was perfect from the start.

However, the alchemists' claim that their *Art* is immutable does not hold up under examination. The theories and processes described in the alchemical manuscripts of different eras bear witness to a constant transformation of the *Art* from the time of Ostanos and Zosimos to the modern age. And yet as they progressed, the alchemists were not just pushing blindly on, adapting their science to the idiosyncrasies of their generation; they never once lost sight of certain fundamental principles which we must now examine more closely if we are to understand the aims of the alchemical tradition.

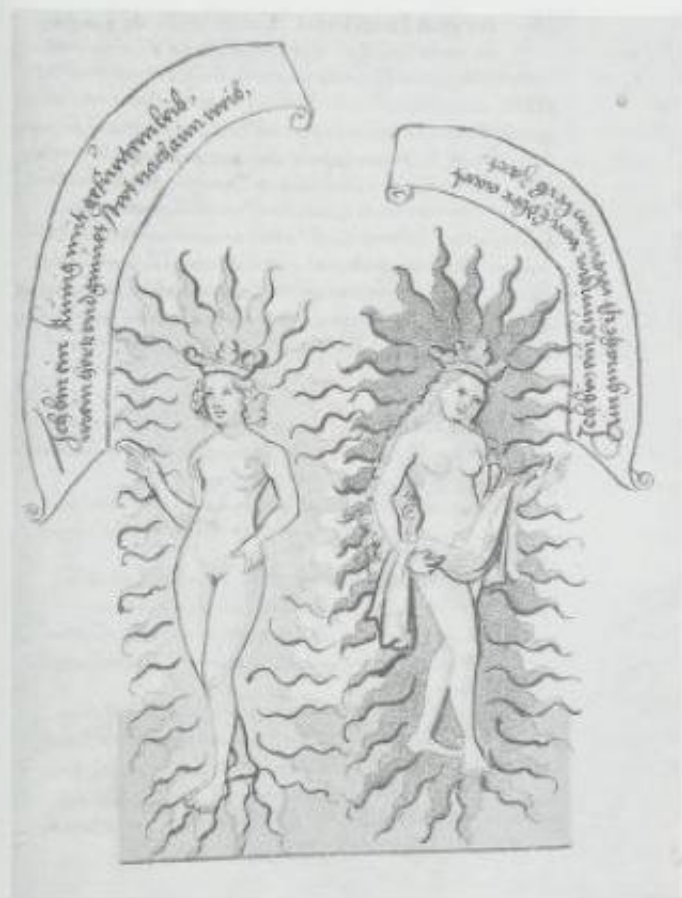
The Unity of Matter

As we have already seen in Chapter II, the alchemy of Hellenistic Egypt was in part influenced by Aristotelian philosophy. Aristotle held that all objects present in nature, indeed in the entire cosmos, were derived from an initial *prima materia*, in itself immaterial, mere potentiality without actuality and incapable of existing by itself, but which, when united to a particular form, would produce a physical object. The *prima materia* could assume any form without altering its essence.

The alchemists embraced these concepts confirming that "all things were born of the same seed" and that by discovering the way in which "all things can be reduced to prime matter, or prime essence, then from the prime matter it is possible to derive the last, and from the last the first."¹

Even the *TABULA SMARAGDINA* in its opening lines speaks of the unity of matter: "...miracles of one thing." In the suggestive world of alchemical symbolism the *prima materia* was sometimes called *Chaos* and portrayed as *Ouroboros*, the dragon or serpent devouring its own tail. *Ouroboros* was an emblem of magical origin. The Gnostics used to engrave it on gem stones and talismans, believing it to have a cosmic force capable of intensifying the effect of magic spells. In alchemy *Ouroboros* acquired a different significance,² as can be seen from the manuscript known as the *GOLD-MAKING OF KLEOPATRA*, in which a serpent is drawn biting its tail and the text reads: "One is the All and by it the All and in it the All and if it does not contain the All it is nothing."³ The alchemical *Ouroboros* which feeds on himself, fertilizes himself and gives birth to himself, is thus an ideal symbol for the unity underlying the diversity of the cosmos. In alchemy the *prima materia* is symbolized in other ways, too. It is *the sea*, because it contains all forms; it is *the earth*, because it nourishes every living thing; it is *the virgin*, because it is infinitely pure and receptive; it is *the prostitute*, because it yields to every form; it is *the mine of all metals*, because it is the origin of everything and therefore of all metals.⁴

Christian alchemists, taking inspiration from the Scriptures, likened the *prima materia* to the *Sapientia Dei* (Wisdom of God). For instance, they attributed an alchemical significance to the following passage from the *BOOK OF PROVERBS*: "The Lord possessed me in the beginning of His way, before His works of old./ I was set up from everlasting, from the beginning, or ever the



The two principles of western alchemy: *Sol* and *Luna*, or Sulphur and Mercury (16th century miniature). The existence of a third principle, Salt, first postulated by Islamic alchemists, was finally given prominence in the 16th century by Paracelsus.

of the Sulphur present in each metal and in the terrain where the metal is found and its position in relation to the heat of the sun.¹⁰ Jabir's theory was adopted by Islamic alchemy and later by Latin alchemy.¹¹ The timehonored concept of the evolution of metals and of transmutation, found "scientific" support in the Mercury-Sulphur theory. However, in Latin alchemy the distinction between Sulphur and Mercury was not always as clear as one might have thought. Indeed, Mercury and Sulphur were not always taken as two separate things, in that Mercury contained a little Sulphur, and Sulphur a little Mercury.¹² The famous Persian physician, Rhazes, was the first to suggest the existence of a third constituent of matter, a saline element which served to join the two principles.¹³ Initially early Latin alchemy virtually ignored the idea of a third constituent, which began to make fleeting appearances in the 14th and 15th centuries under the name of *Arsenico*.¹⁴ It was not until the beginning of the 16th century that a new proposal on the theory of the generation of metals was put forward. The

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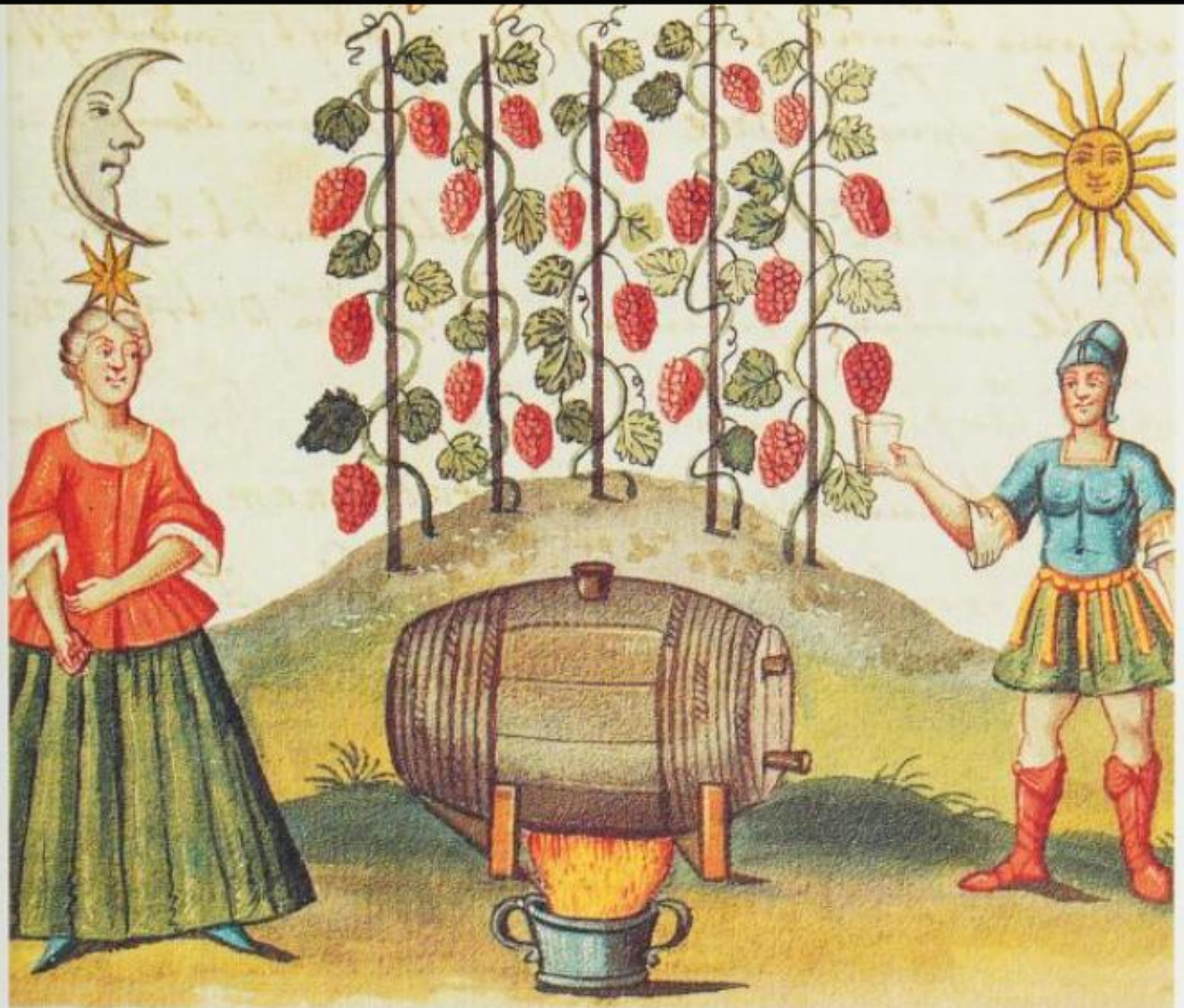
Pater, Filius, cum ductore sibi sunt juncti manibus,
Corpus, Spiritus & Anima, hic subintelligitur,

UNDECIMA FIGURA.



The three principles expressed as Body, Soul and Spirit. The caption presents the triad as Father, Son and Guiding Angel. (From *De lapide philosophico*, by Lamsprink, 1625).

innovation was advocated by Paracelsus who wrote: "You should know that all of the seven metals are derived from three substances, namely Mercury, Sulphur and Salt, though each is of a different color. This is why Hermes claimed, not incorrectly, that all of the seven metals are born and made of three substances in the same way as the tinctures and the Philosopher's Stone. He calls these three substances Spirit, Soul and Body, but he fails to explain exactly what he means... It is not unreasonable to assume that the substances he calls Spirit, Soul and Body are none other than the three principles Mercury, Sulphur and Salt... Mercury being the Spirit, Sulphur the Soul and Salt the Body."¹⁵ Naturally Paracelsus was not talking about real substances when he spoke of Mercury, Sulphur and Salt, but rather of abstract principles which endowed each metal with its specific characteristics, depending on the proportions in which the principles were present. Salt was the fixed principle, weighty and solid, yielding neither to iron nor fire; Mercury was the vaporous



Sol and Luna participate in the boiling of grape must (17th century miniature). In their attempts to extract the quintessence from wine, the alchemists ended up with pure alcohol. In the 13th century the *aqua ardens* was used for medicinal purposes, but it was probably first discovered several centuries earlier.

The methods for extracting the quintessence are described also in a manuscript entitled *DE CONSIDERATIONE QUINTAE ESSENTIAE* (ON THE QUINTESSENCE), ascribed to the Franciscan John of Rupescissa. The book outlines the stages of a distillation process for extracting from wine first the *aqua ardens* and from this the quintessence. Explains the author: "The good Lord created the quintessence which can be extracted from the body of nature created by God, by way of the human art. And I will call it by the three names established by the Philosophers. They called it Burning Water, the Soul and Spirit of Wine and the Water of Life. And when you wish to keep it secret and hidden you will call it Quintessence, because it possesses the nature of the Quintessence."²⁰

In the last sentence of the passage Rupescissa gives the

impression that the alchemists might be using the term *quintessence* to conceal ("keep it secret and hidden") something other than a distillate of wine which, at the time of Rupescissa was already very popular and widely consumed; moreover, production methods were sufficiently well-known that any attempt to keep them secret would have been ridiculous.²¹ A century or so later Abbot A. J. Pernety, in a reference to the two treatises on quintessence ascribed to Lull and Rupescissa, wrote: "Both of them make fun of the ignorant when they talk about the quintessence as though it were something obtained from the spirit of common wine, when they really intend the philosophical wine."²² On another occasion Pernety explained that the *philosophical quintessence* (i.e. the true quintessence, different from that extracted from wine) is in part principle, derived from *red wine*, in part matter, derived from *white wine*.²³ Of course, Pernety's *red wine* and *white wine* were only symbolic terms. As we shall see further on, his vision of alchemy retained almost nothing of the chemical aspect, and was essentially a strange spiritual discipline, mixed with magic and the occult. It is therefore possible that Pernety, when speaking of *red wine* and *white wine*, was referring to bodily fluids.

tradition: lead, tin, copper, iron, mercury, silver and gold. All alchemists agreed that gold and silver were the only two perfect metals, but they did not always establish the same hierarchy for the other five. In general, lead was held to be the least perfect of metals and therefore placed at the bottom of the scale, followed by tin, copper and iron, while the fascinating, volatile and elusive mercury was often allocated different positions in the metal sequence. On the contrary, the age-old alchemical concept of the equation of metals and planets has remained unchanged since the time of Harran. The *POIMANDRES*, a text ascribed to the mythical Hermes Trismegistus, describes how the immortal soul returns to its source after death: "And thus man begins his ascent through the harmonious assembly of the celestial spheres. In the first belt he frees himself of the energy that prompts both growth and diminishment; in the second belt of the expedients of iniquity, artifices of which he has no further use; in the third of the temptations of desire, by now deprived of their former vigor; in the fourth of the vanity of governance, robbed now of all ambition; in the fifth of profane audacity and brazen recklessness, their power now sapped; in the sixth of the corrupt desires prompted by wealth, the thirst for this now gone; in the seventh belt, the last, he sheds all vicious falsehood, it too, robbed of all vigor. Laid bare at last by the influence exerted by the harmonious assembly of the celestial spheres, man achieves the divine nature (i.e. the eighth heaven), and filled by its power alone, signs hymns in honor of the Father together with the other beings."²⁶ The seven celestial spheres through which man's spirit ascends are governed by seven planets, corresponding to the seven metals of alchemical tradition. In each sphere the spirit is freed of a human impulse or passion, and thus liberated can partake of the divine nature.

During the early centuries of Christianity the process of enlightenment or liberation in seven stages was applied not only to the way of the spirit after death; in the Mysteries of Mithra, for instance, the mystic was assigned seven degrees or successive steps, each marked by a symbolic name, through which he had to pass to achieve purification and spiritual regeneration. According to the Mithraic faith, for the worthy soul there was ascent through the seven spheres into highest heaven. Access to each sphere was by a door made of a different metal and this ascent was also represented by a stairway of seven metal steps. By what may, or may not have been a strange coincidence, alchemy, too, often related the succession of alchemical operations to a seven-step stairway. The 2nd century philosopher Celsus tells us that the first step of the Mithraic system was made of lead and corresponded to the heaven of Saturn, in which the mystic was ridden of laziness; the second step was of tin (Venus, erotic desires); the third was of bronze (Jupiter, ambition); the fourth was of iron (Mars, rage and passion); the fifth was of coinage alloy (Mercury, lust); the sixth was of



The seven metals within the mine: in the center is Apollo, who personifies gold. Outside the mine sit three women: the two outer figures bear respectively the symbols of Fire and Water, the centre figure holds the symbols that indicate the stability of the elements. The scene is framed by a circle in which are inscribed (first in the light of day and then in the darkness of night), the symbols of the seven planets. Outside the circle, in the four corners of the picture, the four elements are represented: the salamander is Fire, the puffing angels are Air, the sea with the sailing vessel is Water, the country scene is Earth. (From *Musaeum hermeticum reformatum*, 1678).

silver (Moon, excessive love of life); the seventh was of gold (Sun, intellectual abilities).²⁷

Hermeticism and Mithraism were not the only religions propounding the ascent of the soul through the seven planetary heavens, but there were notable differences in the way in which these ancient doctrines fixed the sequence and the parallels between the planets and the metals on the one hand, and the passions and emotions on the other. Apart from these differences, it is interesting to note that the process of spiritual regeneration was applied to the realm of both the living and the dead, with obvious analogies between the purification of man and that of the metals. All the important alchemical writings confirm this dual key of alchemical symbolism.

Microcosm and Macrocosm

Bernard of Treves's theories on the way in which the stars and planets influence the formation of metals deep

The Phases of the Great Work

By the term "Great Work" the alchemists intended the series of operations resulting in transmutation. Just what these operations were, how many there were of them and the sequence in which they were to be carried out is a closely guarded secret. All alchemical texts speak of this, but it is almost impossible to find two that agree completely. In comparison with the Hellenistic tradition, Medieval alchemy contemplates a greater number of operations. In the *COMPOSITUM DE COMPOSITIS* (COMPOUND ON COMPOUNDS), one of the many texts ascribed to Albertus Magnus, the *Magistry of the Great Work* envisages five steps: converting the substances to the state of prime matter; extracting from the prime matter Sulphur and Mercury; purifying the Sulphur so that it becomes similar to the Sulphur of gold and silver; preparing a White Elixir; refining the White Elixir till it becomes a Red Elixir. These five stages are achieved by submitting a suitable substance to four operations: decomposition, washing, reduction, fixation.³¹

The parallel between the Great Work and the seven days of the creation, and the repetition of the number seven in the metals-planets equation, has led some writers to identify seven alchemical operations, though these may vary from one text to another. In an interesting illustration of 1616 alchemy is portrayed as seven steps leading to a temple where the marriage of *Sol* and *Luna* is being celebrated. In this particular case the seven steps represent: calcination, sublimation, solution, putrefaction, distillation, coagulation, coloring.³² Certain other manuscripts speak of twelve operations, linked to the twelve signs of the zodiac in a sequence such as this: calcination, solution, separation, conjunction, putrefaction, coagulation, cibation, sublimation, fermentation, exaltation, multiplication, projection.³³ Each of these terms embodies a number of complex and ambiguous meanings. Even if we consult one of the rare alchemical dictionaries, it is impossible to gain more than an elementary understanding of the terms:

Calcination: reduction of the solid metal or mineral to a powder by means of roasting.

Solution: the process by which the powder of earth is dissolved and *thinned*. The generic term *solution* can be applied to a number of different operations.

Separation: consists of the separation of the spirit or watery vapor from the body or earthy matter by means of a dissolvent.

Conjunction: this is also known as *copulation* and is often portrayed as sexual intercourse by a King and Queen. It is a combination of qualities, the joining of opposites, such as the mystic marriage of *Sol* and *Luna*, of Sulphur and Mercury, of the Fixed and Volatile.

Putrefaction: this involves the death of the product of the mystic marriage by the action of heat.

Coagulation: this is the condensation of things of the same nature from an initial tenuously fluid state to a solid state.

Cibation: the solid matter is *fed* with a liquid.

Sublimation: the matter is dissolved, converted into its principles and thus purified.

Fermentation: this is achieved by adding to the matter a *ferment*, whose *virtue*, in the form of a *spirit*, penetrates the matter and perfects it.

Exaltation: this is identical to sublimation. It is also the operation whereby the transmuted matter is endowed with "greater dignity as a substance and a virtue."



The seven steps leading to the Philosopher's Stone: calcination, sublimation, solution, putrefaction, distillation, coagulation, tincture. This copper engraving from *Cabala, speculum artis et natura in alchymia*, by S. Michelspacher, 1654, also bears some of the most important alchemical symbols: the King and Queen, the Sun and Moon, the phoenix, the seven metals, the twelve signs of the zodiac, the four elements.

famous medieval alchemist Nicolas Flamel tells of an ancient and mysterious volume describing all the secrets of the *Art* composed of three groups of seven pages. Flamel was obviously alluding to the twenty-one operations. The Great Work is illustrated in twenty-two handsome miniatures in the *SPLENDOR SOLIS* (THE *SPLENDOR OF THE SUN*) by Salomon Trismosin (16th century). The first miniature is of a generic nature and introduces the philosophy and the scope of the *Art*, while the other twenty-one describe the phases of the Great Work.³⁶ The *BOOK OF 22 HERMETIC PAGES* written by Kerdanek de Pornic sometime after 1763, mentions twenty-two operations, but it is possible that the author added an extra one in order to achieve a comparison between the phases of the Great Work and the twenty-two Major Arcana of the Tarot Cards, which were extremely popular in esoteric circles in 18th century France. It was not by chance that Kerdanec de Pornic referred to the alchemical operations as *Arcana*.

The Subject of the Sages

The most jealously guarded secret of alchemy is the *Subject of the Sages*, namely the substance that serves as the basis for the beginning of the Great Work. According to alchemical theories an *imperfect* metal can be transmuted into a *perfect* one by reducing a certain substance to its *prima materia* which is then submitted to chemical treatment until it yields the Philosopher's Stone or Powder of Projection capable of transmitting a golden nature to the base matter with which it has come into contact. But what exactly is the substance from which the prime matter is derived?

The first alchemical manuscript to be translated into Latin, the *LIBER DE COMPOSITIONE ALCHEMIAE*, written in the form of a dialogue between Prince Khalid and the Christian hermit Morienus, gives one answer to this question: "The first, principal substance and matter of the Magistry is one alone; from it comes one thing; nothing need be added and nothing be taken away"; "This Magistry is derived from a single root...many names has this root"; "The philosophers have expounded this Magistry in a way both patent and secret at the same time, calling it by a thousand names. The way to it is sealed and will open to the Sages alone; ardently do the Sages seek it and in the end they find it, and once they have found it they love and honor it. In truth fools deride it and think little or nothing of it. In fact they do not understand what it is..."; "Before it is transformed it (the smell of the Stone) is strong and unpleasant, but after it has a sweet smell, in accordance with the words of the Sage: in truth this water takes its smell from a dead and lifeless body. In fact its smell is abhorrent and similar to that of a tomb"; "The Sages said that if you find what you are

looking for in a dunghill, you must take it; if you have not found it in a dunghill, you must take your hand from your purse. Anything you pay dearly for will prove useless and deceptive. Let these words suffice. Be careful you spend nothing for this Magistry..."; "As the Sage says, this thing you seek is to be found with the rich and with the poor, with the generous and the miserly, with he who walks and with he who remains seated. In fact this thing is thrown into the streets and trampled in dunghills; many men have rummaged in the dunghills in search of this thing and they have been deceived."³⁷ In brief, the *Subject of the Sages* is a single thing, but has many different names; it has a bad smell; it costs nothing; it is found everywhere, even in dunghills, yet it cannot be found by rummaging through dunghills.

Latin alchemy borrowed these same concepts: "The nature or matter of the Philosopher's Stone is a thing of little value, that can be found everywhere; it is a viscous water like Quicksilver which comes from the earth. Some Philosophers have said that this same viscous water can be drawn from latrines, because it is to be found everywhere. Many fools, taking the Philosophers' words literally, have sought among excrements."³⁸ Morienus's symbolism was still accepted in the 17th century: "The matter is one thing alone, possessed by rich and poor everywhere; unknown to all, yet there for all to see; despised by the common folk, who sell it for a pittance as though it were mud, it is prized by the Philosopher who understands."³⁹

But how should we interpret the words of Morienus? Despite the warnings clearly given in the manuscript, the more frivolous Latin alchemists took the instruction of Prince Khalid's reputed teacher literally and began to calcinate and distill all manner of obnoxious substances, such as dung and urine. The allusion to a bad smell induced other alchemists to operate with metal sulphides, particularly cinnabar, because these metals when heated release sulphur with its characteristic unpleasant smell. The more judicious Philosophers, however, sought a deeper meaning in the *LIBER DE COMPOSITIONE ALCHEMIAE* having realized that Morienus was merely suggesting that the prime matter — from which could be extracted the two principles, Sulphur and Quicksilver — was to be found in all substances, even the most unsavory.

As is always the case with alchemical literature, the conversation between Morienus and Khalid can be interpreted in different ways. Even so, we are still left wondering whether they are discussing a series of chemical operations or something else. In answer to his pupil's query as to which mine contained the *Subject of the Sages*, Morienus, after much reflection and hesitation, replies: "Oh Prince, the truth is that this thing, by the will of God, is fixed in the creation. Not one of God's creatures could exist without it"; and when questioned further adds: "I will answer you briefly. This thing comes from you; you are also its

The alchemists were probably aware of the symbolism attached to the cosmic egg, and what more suitable symbol for the *vas hermeticum* than the hermetically sealed egg inside which an embryo is brought to life by the gentle heat generated by the body of the mother hen.

The Fire

The fire burning in the athanor had to be of just the right *quality* in order to generate the gentle, continuous heat required to accomplish the process of transmutation within the *Philosophical Egg*. Alchemical texts discuss this problem at length, but when they talk of the fire they do not always mean the same thing. There was the *common fire* at the bottom of the furnace, and the *fire of ashes*, which referred to the gentle heat



An alchemical furnace built in the form of a castle. The words at the top explain what it was used for: furnace for distillation, fixation, separation and rectification of the elements (15th century miniature). The alchemists called their furnace an *athanor*.

given off by the layer of ashes or sand placed in the turret of the athanor. There was also the *rotational fire*, this being the name given to the strong steady fire that had to be kept alight for the length of time it took to accomplish a given series of operations (the term *rotational* is used to describe the succession of operations). Lastly, there was the *secret fire* or *philosophical fire*, about which the alchemists give no further information other than that it was different from the *common fire*. There is a legend that certain inexperienced aspiring alchemists, in a frenzy of excessive enthusiasm, took their instruction rather too literally and thought they had solved the problem of the *secret fire* by burying the *Egg* in a heap of warm dung! There exists a brief alchemical epistle on the *secret fire* bearing the signature of one Giovanni Pontano, reputed by some to have been the Italian poet and humanist of the same name (1426-1503). Having first admitted how difficult it was to understand the mystery of the *secret fire*, the author of the epistle explains: "Our instrument, therefore, which produces a being from the first, second and third Work, is not a fire bath or a fire of dung, or of ashes, or of anything else of which the Philosophers speak in their books. What then is this fire that governs the entire work from start to finish?... It is mineral, equal, continuous, does not evaporate unless agitated to excess, it partakes of Sulphur, it is derived not from matter, it destroys, dissolves and coagulates all things. It is the purpose of the Art to discover it, and it is available at little or no cost. It is a fire of modest flame, for it is with a modest fire that the Work may be achieved, and all the sublimations carried out..."⁴³ Other alchemists give the same warning: the *secret fire* has nothing to do with a charcoal fire or with the heat of burning dung, but without it nothing can be achieved because: "In truth the Art is governed by the fire that nature uses, and we can do no more than this."⁴⁴

What then did the alchemists mean by *philosophical fire*? As we have seen earlier, Bernard of Treves gives us an inkling when he expresses his theory on the generation of metals. He explains that the heat developed by the celestial spheres has lost much of its force by the time it reaches earth, and it is thus a tenuous heat that penetrates to the metals in the mine. This awakens and excites the natural heat within the metals which is the chief agent in the process of transformation rather than the direct action of the celestial spheres. It would seem then that metals possess their own heat which must be activated and fed. At this point the words of Fulcanelli are clarified: "We are no longer talking about an elementary fire, but of a potential fire, the secret flame of the matter itself, which writers have tried to hide from the eyes of the profane..."⁴⁵

But as we should know by now, in alchemy explanations are never univocal. In virtually the next stroke of his pen, Fulcanelli again becomes allusive and with characteristic wordplay, announces that the *fire of the sages* is also

White Elixir and a *Red Elixir*, capable respectively of transforming any metal and not just Mercury into silver and gold. They were more powerful than those described by Villanova. In fact, one part of the Elixir, correctly mixed with a thousand parts of the metal, provided it was not too impure, was all that was needed to guarantee success.⁵² However, the *SPECULUM* makes no mention of the Elixir's medicinal properties.

As time passed the Latin alchemists came to agree that the end products of the Great Work were the *Elixir of Life* and the *Philosopher's Stone*. As the tradition matured the powers attributed to these two preparations increased. The Elixir was no longer just a medicine to cure the illnesses of mankind, it was a magical potion endowed with the power to defeat the ravages of time. Legends were born of men who, having taken the Elixir, had lost their old teeth and hair, which promptly

The Mercury of the Philosophers pours its quintessence on an old man for whom, thanks to the miraculous effects of the *Red Elixir*, the passage of time (the hourglass) will soon be reversed. The *Philosopher's Stone* was said to have the power to turn the "old dotard" into a "lusty youth" again (17th century miniature).

grew again as those of youth. Other stories told how the Elixir had blessed those who drank it with immortality. These fortunate people had assumed a new and secret social identity and journeyed the world over placing their newfound wisdom at the service of the needy.

Those who were lucky enough to possess the Stone held the key to unlimited wealth. The multiform stories of transmutation of which the alchemical tradition abounds, describe the Stone as either a yellowish, red or greyish powder, a pinch of which was placed in a ball of wax and then cast into a crucible containing lead. The contents of the crucible were exposed to a violent heat and after a while there appeared a mass of gold and silver in place of the lead. The purpose of the ball of wax is easily discerned: its particular characteristics make it highly suitable for all manner of tricks and "special effects."

Yet from their writings the alchemists seem quite the opposite from men who sought personal riches. The pursuit of the *Philosopher's Stone* was for them a goal rather than a means, for being of a divine nature the *Art* did not contemplate the use of the Stone for the fabrication of gold. The alchemist who had achieved





A famous illustration from the *Amphitheatrum sapientiae aeternae*, by H.C. Khunrath (1604), which portrays the alchemist's workshop as half oratory, half laboratory. The alchemist is kneeling in prayer before a tabernacle bearing words in praise of the Lord; beneath the canopy the inscription reads: "Do not speak of God without illumination". On the other side is the laboratory, with furnaces, bellows, tongs, flasks and alembics.

from the same *prima materia*, their *conjunctio* was also known as *philosophical incest*.

The alchemists had no qualms about using such frank terms as *menstruum*, *uterus*, *sperm* and *coitus*. In Latin alchemy the custom of describing the phases of transmutation as copulation, conception and gestation of a foetus naturally produced some very explicit illustrations. The theme of the mystic marriage is a key concept of the *Opus* dating back to the dawn of the *Art*; even the early alchemists of Hellenistic Egypt likened the furnace and the vessel to the female womb and expressed the concept in terms such as: "Virgin earth will be found in the vagina of the virgin."⁵⁵

This particular style of language and symbolism has led modern occultists to wonder if a significant portion of alchemical literature should not be interpreted as a sort of magico-sexual discipline.⁵⁶ It is not beyond the bounds of reason that Latin alchemy, or at least a part of it, pursued the same goal as Taoist and Tantric alchemy and mixed a practical tradition based on the study of the transformation of metals, with a spiritual tradition involving knowledge of the self and sublimation of the vital energies, especially the sexual energies.

Let us examine the *conjunctio of Sol and Luna*, the key concept of Latin alchemy. So far it has been interpreted

in three different ways, that is to say a symbol deriving from:

- a pre-chemical technique in which the two opposing principles of matter (Sulphur and Mercury, Fixed and Volatile etc.) were fused together inside the *Philosophical Egg*;
- a mystical technique the purpose of which was to fuse within the human body the vital principle (soul) and the transcendent principle (spirit);
- a psychic process in which the personal and rational side of the human conscience was fused with the impulses generated by the unconscious.

Taoist alchemy also used the *alchemical coitus* symbol to indicate the moment in which unity was achieved between spiritual energy and sublimated sexual energy. The Great Work of Western alchemy was fed by a *secret fire*, known also as the *rotational fire* in reference to the fact that it had to be kept constant throughout the operation. Similarly, in Taoist alchemy a *fire* kindled by opportune breathing techniques, permitted the *circulation* of the *pneuma*, or sublimated sexual essence.⁵⁷ Not unreasonably, Latin alchemy could be similarly interpreted as a psycho-physical technique purporting to sublimate sexual energies. After all, alchemy more than any other form of knowledge, is the science of a thousand faces.

CONIVNCTIO SIVE

Coitus.



© Luna durch meyn umbgeben/vnd suße mynne/
Wirstu schdin/flard/vnd gewaltig als ich byn.
© Sol/du bist eber alle liecht zu erkennen/
So bedarffstu doch mein als der han der hantten.

ARISLEVS IN VISIONE.

Coniunge ergo filium tuum Gabricum dilectiorem tibi in omnibus filijs tuis cum sua sorore

Wood-engraving of the *Rosarium Philosophorum*, 1550, which shows the marriage of Sol and Luna as a King and Queen having sexual intercourse. In the Latin text the philosopher Aristeas explains to readers what to do: "Unite your son Gabrico, the favourite of all your children, with his sister Beya...". The alchemists claimed that the Great Work was achieved through the *incestuous relation* of brother and sister. In this union Gabrico represents the Fixed, Beya the Volatile.

CHAPTER VII

SOME FAMOUS ALCHEMISTS

By the early years of the 13th century alchemy had become part of the culture of Medieval Europe. Having completed the translation of Islamic alchemical manuscripts and produced an initial crop of original writings echoing the style of the Islamic works (for instance, the Gerber manuscripts which were at first thought to have been written by the Arabic alchemist Jabir), Western alchemy began to engender its own masterpieces of alchemical literature, ascribing authorship to such famous figures as Albertus Magnus, Arnald of Villanova, Ramon Lull. Not even John XXIII's decretal SPONDENT QUAS NON EXHIBENT and the many injunctions uttered by the monastic orders were able to halt the spread of this new science and by the mid-14th century it was widely studied and practised by the laity as well as by men of the church such as John of Rupescissa. And as alchemy became more popular there was less need to impress people with lofty names and writers with no special claim to fame began to publish important alchemical manuscripts.

In 1330 the Italian physician Petrus Bonus of Ferrara completed one of the most celebrated medieval works on alchemy, the PRETIOSA MARGARITA NOVELLA (THE NEW PEARL OF GREAT PRICE). This voluminous book echoes the lines of general debate expressed by the medieval culture for and against alchemy. Little is known about Bonus the man, except that he wrote this vast work while practising medicine at the town of Pola. He is thought to have belonged to the wealthy Avogadrus family and was a cultured man of wide interests. He had a deep understanding of medicine and a certain knowledge of medieval magico-alchemical works.¹

PRETIOSA MARGARITA is pedantic and monotonous, totally lacking the intriguing mysteries that characterize the majority of alchemical writings. But there again, Petrus Bonus was not an alchemist. In the opening lines of the book he admits he has never tried his hand

at the Great Work, though he expresses a hope that he be able to do so in the future, after he has further meditated on the multiform aspects of the *Art*. At the time of writing, he was merely a man of science attracted by the alchemical doctrines he had studied in the writings of the great Islamic philosophers. He was fascinated by the ambiguity of alchemy and he composed his book of argument and counter-argument in the hope of clarifying his own and other people's ideas on the subject. He was not concerned with the metaphysical and symbolic aspects of the *Art*, his only interest being to discover if alchemy stemmed from any rational basis and if the laboratory tradition could be put to any useful purpose. Nonetheless, PRETIOSA MARGARITA is still held to be one of the fundamental medieval texts on alchemy because it provides an insight into the debate persisting at the time of Bonus.

Hortulanus, Ortholanus or Ortolanus was the pen name adopted by an anonymous alchemist, who probably flourished in Paris around 1358, to sign a commentary on the TABULA SMARAGDINA. Unlike those who continued to sign their works with such illustrious names as Ramon Lull or Thomas Aquinas, Hortulanus preferred to remain anonymous hiding his true identity in a name seeped in alchemical symbolism. *Hortulanus* means *Gardener* and in his commentary our unknown writer describes himself as "Ortolanus ad ortis maritimis nuncupatus" or "Hortulanus dictus ob horto maritimo" ("He who takes his name from the garden of the sea").² It has been argued that this strange name refers to the place where the author was born, which might have been called *Orte Maritimi* or *Horto Marino*, but it is more likely that the name was a pseudonym alluding to the *prima materia*, which the alchemists often called *the sea*, and the Hermetic vessel of the Great Work, which was symbolically likened to a *garden* in need of cultivation.³ Alchemical tradition recognizes Hortulanus as an author worthy of the highest consideration.

building all that remains today is a memorial stone bearing an inscription in Gothic letters and composed with the abbreviations typical of medieval writing. It reads: "NOUS HOMES ET FÈMES LABOUREURS DEMOURANS OU PORCHE DE CETTE MAISON QUI FU FÇE EN LAN DE GRACE MIL QUATRE CENS ET SEPT. SOMES TENUS CHASCÜ EN DROIT SOY DIRE TOUS LE IOURS UNE PATENOSTRE ET I AVE MARIA EN PRIANT DIEU Q DE SA GRACE FACE PARDÖ AUS POVRES PECHEURS TRESPASSEZ. AMEN". ("We, men and women who live and work in this house, built in the year of grace 1407, are bound each day to recite the Lord's Prayer and the Ave Maria, praying to God that by his grace he may forgive the deceased their sins"). The inscription contains nothing to link it to Flamel, but according to popular tradition it was indeed he who built the house and then left it to the poor on the condition that they prayed for his soul and that of his wife, Pernelle. This tradition was officially acknowledged in 1900 when an inscription was placed beside the restored memorial stone announcing: "Here stood the house of Nicolas Flamel and his wife Pernelle. In memory of their pious work the city of Paris has, in the year 1900, restored the primitive inscription dated 1407." Apart from this, of the life and work of Nicolas Flamel there remains today no more than a handful of transcriptions and drawings of a later date, the authenticity of which is thus doubtful. In any case, they add nothing to the true story of Nicolas Flamel the scribe.

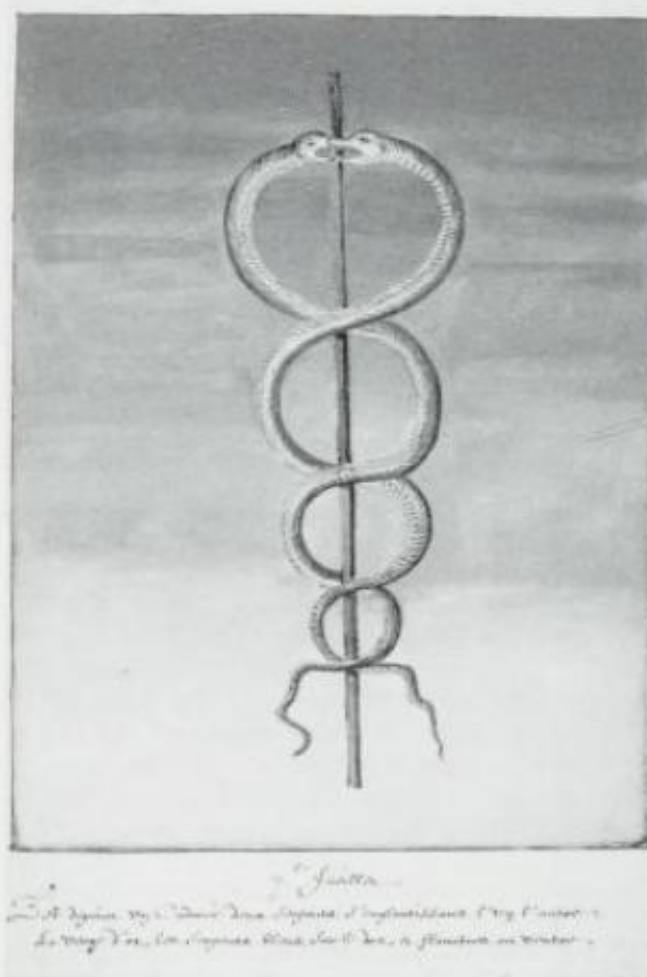
The legend of Nicolas Flamel the alchemist begins where the story of Nicolas Flamel the scribe ends. By the mid-15th century Flamel was already recognized by the alchemical community of Paris as a fellow practitioner of the *Art*.⁸ In 1567 we find Flamel's name in the list of famous alchemists compiled by Leo Suavius,⁹ but this is an exception rather than the rule, for not one of the major alchemical manuscripts of the 15th and 16th centuries mentions him and he is also absent from the list given in *DELLA TRAMUTATIONE METALLICA* (OF THE TRANSMUTATION OF METALS) by Giovan Battista Nazari, published in 1599. In actual fact, Flamel did not become famous until 1612, the year in which Pierre Arnaud, a gentleman of the Cavalleria Pittavina, published three hitherto unknown alchemical manuscripts, one of which was entitled *LES FIGURES HIÉROGLYPHIQUES DE NICOLAS FLAMEL* (THE HIEROGLYPHIC FIGURES OF NICOLAS FLAMEL).¹⁰

The first part of *LES FIGURES HIÉROGLYPHIQUES* is written in the form of an autobiography covering the period 1399 to 1413. The author introduces himself as Nicolas Flamel the scribe, citizen of Paris, resident in rue des Écrivains, in the vicinity of the Chapel of Saint-Jacques-la-Boucherie. He claims to be the son of a well-respected couple of modest means and to have had a limited formal education including a spattering of Latin. On the death of his parents he successfully made a living in the art of writing, compiling inventories,

dressing accounts, summing up the expenses of tutors and pupils.

He goes on to narrate how his interest in the mysteries of alchemy was first aroused. One day, during the course of his daily work, he came across a large and very old gilded book. He recalls: "It was not of paper or parchment, as other books are, but, as it seemed to me, of the thin bark of tender shrubs. Its cover was of copper, very delicate, and engraved all over with strange letters or figures. I thought they might be in Greek or some other ancient language, for I had never seen them before and therefore could not read them. They were certainly not in either Latin or Gallic, both of which are familiar to me. The leaves of bark inside were covered with beautiful and very clear Latin letters, which had been inscribed with a steel point and colored."¹¹

The mysterious book — continues Flamel — was composed of three times seven leaves, according to the



The Hermetic caduceus, miniature of a manuscript copy of *Le Livre des Figures Hiéroglyphiques* by Nicolas Flamel, 17th century.

numbering at the top of each. The seventh leaf was always without writing, but instead on the first seventh leaf had been painted a rod, with two serpents swallowing one another; on the second seventh leaf was a cross on which a serpent was crucified; on the last were painted deserts, in which ran beautiful fountains, whence issued many serpents running hither and thither. On the first page was written in large gold capital letters: "Abraham the Jew, Prince, Priest, Levite, Astrologer and Philosopher, to the Nation of the Jews, by the Wrath of God dispersed among the Gauls, sendeth Salutation". After this it was filled with great execrations and curses against any person that should cast his eyes upon it, unless he were Sacrificer or Scribe.¹² Only after this long introduction does the author of *LES FIGURES HIÉROGLYPHIQUES* begin to narrate his alchemical quest.

Fascinated and puzzled by his latest purchase, and convinced of a parallel between his own trade and that of a Scribe, which would guard him from the curse, Flamel embarked upon his search for the book's meaning and the way to achieve the transmutation of metals. Unfortunately, though the *BOOK OF ABRAHAM THE JEW* clearly describes the steps necessary to achieve the Great Work, it omits the most important element, the name of the first agent. Our aspiring alchemist was tormented by this problem, and although the lady he had just married, a widow named Pernelle, did her best to console and encourage him, there was nothing she could do to help him decipher the mystery. He was equally unsuccessful in the laboratory and in the end had to admit that all he had achieved were "a thousand broileries." Over twenty years elapsed until one day he had the inspiration that as the book was written by Abraham the Jew for the Jewish race, perhaps no one but a Jew could understand it. He vowed to make a pilgrimage to St. James of Santiago de Compostela, near Corunna in Spain, hoping to receive the favor of meeting some learned Jew in a Spanish synagogue who could explain the meaning of the symbolic figures.

"And so I set off on my long journey — wrote Flamel — and at last I reached Montjoye and then Santiago where, with great devotion, I fulfilled my vow."¹³ Flamel makes no mention of what must have been an arduous and sometimes dangerous journey along the "milky way", as the pilgrims called the route to Santiago, nor does he speak of making the acquaintance of any learned Jews, which had been the purpose of his pilgrimage.

Our alchemist-pilgrim had reached Leon on his way home when he happened to meet a fellow countryman, a merchant of Boulogne, who introduced him to a converted Jew named Maître Canches, a learned Cabalist. Flamel showed him copies of the drawings of the book and told the story of his alchemical adventures. Maître Canches's excitement knew no bounds and he immediately agreed to return to France

with Flamel by the quickest possible route. They embarked on a ship at Sanson, but Maître Canches proved a bad sailor and was very seasick. They landed at Orleans but the sickness only grew worse and at the end of a week Maître Canches died. Luckily, however, he had revealed enough information to Flamel to enable him, once safely back in Paris with his beloved Pernelle, to embark afresh on his alchemical quest.

After three more years of unremitting labor he had almost reached the final stage, and all that remained to be done was test the product he had made. A passage from *LES FIGURES HIÉROGLYPHIQUES* reads: "Monday, January 17, 1382, he achieved his first *projection*: in the presence of Pernelle alone, about half a pound of lead was converted into silver, purer than the silver of mines." On 25 April of that same year he made *projection* of the *Red Stone* upon half a pound of mercury, which was thus transmuted into about the same amount of pure gold, "most certainly better than ordinary gold, being more soft and more pliable." "I may say it with truth — adds Flamel — I have made it three times, with the help of Pernelle, who understood it as well, because she helped me in my operations, and without doubt, if she had undertaken to do it alone, she would have attained the end and perfection thereof."¹⁴

At this point, the author of *LES FIGURES HIÉROGLYPHIQUES* hints that he has become rich: "At the time when I write this commentary, at the close of the year 1413, after the death of my beloved wife which I shall lament all the days of my life, she and I together had already founded and endowed fourteen hospitals in the city of Paris, built three new chapels and enriched with great gifts and good rents seven churches, with many repairs in their churchyards, and have made similar benefactions at Boulogne. Not to mention what we have done together for the benefit of the poor, especially widows and poor orphans..."¹⁵

According to popular opinion, Flamel's fame and wealth were such as to arouse the suspicions of King Charles VI's officials, one of whom, Lord of Cramoisy, is said to have visited Flamel's house in order to verify the truth about rumors circulating throughout the city that Flamel and his wife possessed the Philosopher's Stone. The official found nothing of the kind, but could not help remarking the couple's modest life style. With shrewd insight, the Flamels had continued to live discreetly even after they had achieved the Philosopher's Stone! According to another version, Flamel confided to the Lord of Cramoisy that he possessed the Projection Powder, but he swore the royal dignitary to silence, winning the man's complicity with his rectitude and a quantity of the famous Powder.¹⁶

As time went by the legend of Nicolas Flamel the alchemist became colored with some amazing tales. Rumors told of how, on March 22, 1417, Flamel faked his own death. In reality he had attained immortality

lived and worked in Paris and that he suddenly became richer than his modest trade would normally have permitted. So rich that he was able to donate considerable sums of money to charitable deeds. Some critics maintain that his wealth came from usury, or that it was money left to his wife Pernelle from her two previous marriages. Whether the money came from legal or illegal activities, it was an easy matter to convince simple-minded people that it was the fruit of alchemical practices. As regards the book, it is possible that the true author was some unknown alchemist, living and working in more or less the same period as Flamel, who was astute enough to realize the advantage of attributing his manuscript to the pen of his more illustrious contemporary. Something similar happened even to Pope John XXII.¹⁷

The theory is plausible: *LES FIGURES HIÉROGLYPHIQUES* reveals a number of minor contradictions which to a certain extent cast doubt on its authenticity. For instance, the author professes to have achieved his first transmutation on January 17, 1382, after twenty-five years of ceaseless endeavor, twenty-one of which spent in "futile broileries", at least one for the pilgrimage to Compostela, and a further three spent in perfecting technique. But Flamel is supposed to have purchased the mysterious *BOOK OF ABRAHAM THE JEW* in 1357. We know that the real Nicolas Flamel married Pernelle sometime between 1368 and 1370, eleven to thirteen years after, yet in *LES FIGURES HIÉROGLYPHIQUES* Flamel writes that he married Pernelle "shortly after" he had come across Abraham's book.¹⁸ There is a second error: January 17, 1382, the day of the first transmutation, was not a Monday, but a Friday. Lastly, Flamel writes that he carried out the second projection on "the five-and-twentieth day of April following, the same year" which is not possible because in 1382 the year began on April 6 (up until the mid 16th century the year began on Easter Day).

These contradictions have led some critics to the conclusion that Nicolas Flamel the alchemist was none other than a popular myth and the *LES FIGURES HIÉROGLYPHIQUES* had been written by Pierre Arnaud de la Chevalerie, the man who first published the work in 1612. The theory does not hold up to examination. Firstly because the name and works of Nicolas Flamel were already known to French alchemists in the first half of the 15th century. Secondly, *LES FIGURES HIÉROGLYPHIQUES* mentions another earlier book by Flamel, *LE SOMMAIRE PHILOSOPHIQUE* (THE PHILOSOPHICAL SUMMARY). *LE SOMMAIRE* has been closely studied at the University of Graz where it has been established beyond doubt that the book dates back to the early 15th century or late 14th century.¹⁹ Once again it seems that the manuscripts ascribed to Nicolas Flamel the alchemist were indeed written during the lifetime of Flamel the notary, though it is unlikely that these two men were one and the same person.

Despite these contradictions, the alchemists still considered *LES FIGURES HIÉROGLYPHIQUES* a work of great value. When all is said and done, it matters little who the true author was, all that really matters is what can be read between the lines. Any attempt to interpret an alchemical text on the basis of its literal meaning alone, without trying to penetrate the secret of its symbolism, is doomed to failure from the outset. In the first volume of *LES DEMEURES PHILOSOPHALES* Fulcanelli provides an interpretation of *LES FIGURES HIÉROGLYPHIQUES* in the light of alchemical symbolism. He informs us that the very old, large gilded book supposedly written by Abraham the Jew was in reality the symbol of a knowledge as old as Abraham the biblical patriarch himself. The gilt finish and size of the book alluded respectively to the metallic-transmutatory nature and boundlessness of this knowledge. The twenty-one pages of the book and the twenty-one years it took to decipher it stood for the twenty-one phases of the Great Work.

According to Fulcanelli, Flamel's pilgrimage to Santiago de Compostela was only a symbolic event, an allegory of the Great Work. In the 14th century it was common practice to equate the pilgrimage to Santiago and the Great Work. This derived from the alchemical legend of Ramon Lull, one of the most influential philosophers of his time, according to which Lull's activity as an alchemist stemmed from a pilgrimage he made to Santiago in 1264-1267. This correspondence between the pilgrimage and the Great Work probably arose from a number of similarities in their symbolism. Even the three objects that distinguished the pilgrimage to Compostela (the staff, the empty pumpkin skin which was used for holding water and the shell) had a special meaning in alchemical symbolism.²⁰

Fulcanelli explains other details of *LES FIGURES HIÉROGLYPHIQUES*. The trio who meet at Leon (Flamel, the merchant of Boulogne and Maître Canches) symbolize the *Mercury of the Philosophers* (Flamel, the pilgrim), *White Sulphur* (Maître Canches) and the *intermediary* essential for sublimation (the merchant of Boulogne). The sea journey back to France represents the choice of the *wet way* as an alternative to the *dry way*, while the death of Maître Canches at Orleans stands for the dissolving of the *prima materia*. Similar interpretations are given for other events in the story.²¹

In the light of this allegorization, chapter one of *LES FIGURES HIÉROGLYPHIQUES* reveals itself for what it really is: neither an autobiography nor a fake, but a cleverly devised imaginary biography in which every detail has a specific meaning.

Alchemical literature abounds in "symbolic biographies." Another example is the celebrated book *DE SECRETISSIMO PHILOSOPHORUM OPERE CHEMICO* (ON THE SECRET CHEMICAL WORK OF THE PHILOSOPHERS), ascribed to one Bernard of Treves. He was initially thought to have been Count of the March of Treviso, in Italy and his birth and death dates were set in 1406

Wood-engraving dating from c. 1520 by an anonymous German artist, which portrays two alchemists at work in their laboratory in the midst of great chaos. The figure on the right runs his hand through his hair as though it were all too much for him; he quite evidently feels that this approach to the Great Work is not the best one. The picture mirrors the haphazard experimentation described by Bernard of Treves in his *De Secretissima Philosophorum Opera Chémico*.



knocked me out with quartan fever for fourteen months. We left the mixture to stand for one year, but without success, for once again we had used the wrong matter.

"One day a man of learning told us that the Emperor's Confessor, whose name was Master Henry, almost certainly knew the magisterium of the Stone. We resolved to talk to him at once, but were obliged to spend 200 crowns in order to gain an introduction through friends of ours. He operated thus: he mixed a paste of silver and mercury with sulphur and olive oil which he then cooked over a slow heat in a pelican sealed with a strong adhesive, mixing it all together with a wooden spatula. But even after two months the mixture still had not fused into a single mass. In the end we placed the mixture in another glass flask, again sealed with adhesive. We buried the flask in hot ashes for a long time and lit a fire all around it to keep it warm, estimating that in 15 to 21 days the mercury, by virtue of the sulphurous content, would be transformed into excellent quality silver. Once the decoction phase was completed, Master Henry added a certain amount of lead, according to his own judgement, to the contents of the flask and over a strong heat melted everything together into a single mass. He then removed the flask from the heat and left it to cool. At this point there should have been three times the amount of silver. In order to participate in this experiment I had contributed a share of 10 silver marks, while the others had put in 32 marks, from which we expected to make 130 silver marks. But what really happened? Of their 32 marks my companions received only 12, and of my 10 I received 4. Strong in the conviction that the Father Confessor would have revealed to me the secret of the Stone, I had spent, first to gain his friendship and then as my contribution to the experiment, a total of 400 crowns. Bitterly regretting all that had occurred, I abandoned

the Art for about two months, during which time I did not even wish to talk about it or hear it mentioned, especially as my relatives continued to laugh at me for my folly. I was so upset that I could hardly eat or drink and became so thin that everyone thought I had been contaminated by some infectious poison.

"Nevertheless, I regained my spirits and determined to work a thousand times harder than before, because I could not afford to waste time, being over 58 years old by now. Unfortunately, I was still doing something wrong, and not using the right matter; all that I achieved were sophisticated things, that is to say things of puff and wind. Because, as Gerber says, an imperfect metal (such as lead, tin, iron and copper) even if mixed with perfect matter, will never become even one bit more perfect (...). The vulgar bodies which have reached completion in the mine thanks to the work of nature alone, are as though dead and incapable of perfecting imperfect bodies. But if, by means of the Art, they are induced to increase by seven, ten or twelve times their degree of perfection, then they can go on tinging forever, for they are more penetrating, more suitable for tinging, more perfect and alive than vulgar bodies (...). Our finished gold is more than alive. Our gold and our white silver are not vulgar metals: in fact they are alive, while the others are dead, having no strength at all, as can be learned from the precious book of the TURBA and in many other places.

"I have seen many men, indeed an infinite number of men, who have toiled in the amalgamations and multiplications of the white work and the red work, using all manner of things. I myself have faced hardship and fatigue, but have never seen my gold or silver increase threefold, or twofold or indeed by any degree at all. I have also watched and experimented many whitenings, reddenings, recipes and sophistications in many countries, from Rome to Navarre, from Scotland to

Turkey, Greece to Alexandria, Barbary to Persia, Messina, Rhodes, France, Spain, the Holy Land, Germany, England and almost the world over. All I have come across were people who worked with sophisticated things, that is to say herbs, animal and vegetable matter, plants, minerals, salts, alums, solutive waters, engaging in distillations, the separation of elements, sublimations, calcinations, congelations of quicksilver, and with herbs, waters, oils, gems, fires and strange vessels. Never have I met anyone who worked with suitable matter and things. On my travels I have heard tell of people who knew how to make the Stone, or were reputed to know how, but never was I able to make their acquaintance. And thus, going from place to place, searching and experimenting, I spent 10,300 crowns and even had to sell my estate for 8000 German florins. My relatives scorned me, because I had reduced myself to poverty, having little money left and being by now over 62 years old. These endless torments had broken me in mind and body, but the worst penalty I had to face was shame. I felt a desperate need to leave my country.

"Trusting as always in God's mercy and his help, which he never denies to anyone who has the will to work, but fearful of being recognized I travelled to the island of Rhodes. I again took up the search for someone who could console me. At last I found a learned man of religion who was believed to hold the secret of the Stone. I went to him and with much difficulty gained his friendship, but it cost me dear, for in order to work with him, I was obliged to borrow 800 florins from a man who knew my family. This was his working method: he took fine beaten gold and put it with 4 parts of sublimated mercury; he then buried the mixture in horse dung for 11 months, after which he distilled it over a very strong heat. We were left with a water, while on the bottom of the flask there remained a deposit which we calcinated over a violent flame. We distilled the water six times and the deposit resulting from each operation was mixed with the first. We carried on the distilling process until no deposit was left. Having collected all the deposits in a vessel and all the waters in another, we then poured the water very slowly back onto the deposit. But however hard we tried, we could not get the deposit to mix with the water. The water continued to stay on top. We left it thus for seven months, without noticing any change whatsoever. All was in vain, and I had thus spent 500 crowns and a further three years of my life.

"He (the friar of Rhodes) had some magnificent books on alchemy, such as the ROSARIUM and others. Having once again been duped, I went to read and study there. I re-read Arnauld of Villanova, the books of Maria Prophetissa and many more. I reflected deeply on what I had read and realized that everything I had done until then was worthless. I studied these books for four years, and I found them full of sound philosophical reasoning. When it became clear that all

my past efforts had been completely futile, I contemplated this motto from the TURBA: Nature rejoices in nature; nature charms nature; nature triumphs over nature; and nature masters nature; and this is not from one nature opposing another, but through the one and the same nature, through the alchemical process with care and great effort. This book taught me a great deal and turned me from my sophistications and false operations. All this I contemplated afresh so as to avoid further costly and fruitless endeavor. I spent many sleepless nights, reasoning with myself and I came to this conclusion: "What is the purpose of asking other men about this Art, tormenting myself in vain? If a man knows the Art, he will not tell me anyway; if he does not know, then what is the point of seeking his friendship at such a high price?" So as I studied I paid special attention to those points over which the books seemed to agree and decided that herein lay the truth, for the truth is to be found where there is agreement, not controversy(...). I believe that all those who have written in parables and metaphors, speaking of hair, urine, blood, sperm, herbs, vegetable and animal matter, salts, alum, couperose, ink, vitriol, borax, magnesia, different stones and waters, have never had any real understanding of this science..."²³

The story of the vicissitudes of Bernard of Treves ends shortly after. The alchemist, having realized the futility of all these broilings, continued his reading and at last understood how to obtain the Stone. But his comment is a bitter one: "When I achieved it (the Stone) I was seventy-four years old. When I began my quest I was only seventeen."²⁴ Having once and for all deemed "ignorant" those alchemists who wasted time manipulating herbs, animal and vegetable matter, plants, minerals, salts, alums, waters and other substances, Bernard of Treves gives the impression that he regards alchemy as much more than a simple chemical science. On another occasion, too, the author of DE SECRETISSIMO PHILOSOPHORUM OPERE CHEMICO confirms the theory that he considers alchemy as a secret way of achieving spiritual transmutation.²⁵

Another amusing autobiography similar to that of Bernard of Treves has been left to us by a man called Denis Zachaire, who lived in the 16th century. He describes himself as a gentleman of Guyenne (Guienne, south-west France), and says that he first became interested in alchemy when he was about twenty years old. He dissipated a small fortune in a thousand fruitless attempts, undertaken on the advice of supposed experts, and finally achieved success on Easter Day 1550, at the age of forty after having purchased and meditated deeply on some "good books on philosophy." Zachaire's book, OPUSCULUM PHILOSOPHIAE NATURALIS METALLORUM (PAMPHLET ON THE NATURAL PHILOSOPHY OF METALS) bears a strong resemblance to the account by Bernard of Treves (which incidentally is quoted as one of the "good books"), but it also evokes the symbolism of Flamel's LES

story of another unfortunate adept, Thomas Daulton, a good man of God who had a store of the red elixir. He was living a peaceful life at an abbey in Gloucestershire, when he was carried away against his will and threatened with all manner of unpleasantries should he refuse to reveal the secret of the elixir. THE ORDINALL also gives advice to would-be alchemists. Norton insists that the neophyte will only ever learn the intricacies of the science if he is taught by a master; only a master can help him solve his doubts and prevent him from making errors, even though he is bound by an oath of secrecy to reveal only a part of his knowledge; the neophyte must trust his master alone, because many men are evil; especially he must never trust servants, who are negligent, unwilling, disobedient, cowardly and even when they seem to be faithful and sensible, are in reality stupid and false.³¹

Like many other alchemical texts, the author of THE ORDINALL builds the narrative to fit the symbolism. For instance, the forty days he spends learning the secrets of alchemy are strongly symbolical. In the Bible the number forty is attached to many exceptional events: the forty days of the Flood; the forty years it took the people of Israel to reach the Promised Land; the forty days Moses spent on the mountain and Jesus in the desert.

There is no doubt about the life and works of this picturesque figure, a man named Theophrastus Bombastus von Hohenheim, who rose to fame in medical and alchemical circles as Philippus Aureolus Theophrastus Paracelsus, and who appears to have assumed the last name, meaning "greater than Celsus", the celebrated Roman writer on medicine, as an expression of his own eminence. It is also possible that this strange name was not actually invented by Paracelsus himself, but by his followers.

Paracelsus was born in 1493, or perhaps May 1, 1494, in the mountain town of Einsiedeln, near Zurich.³² In his youth he travelled the length and breadth of Europe and may even have journeyed as far afield as the East, Russia, the Balkans and the Middle East. He studied alchemy and natural magic and gained a degree in medicine. In 1526 he earned fame as a medical practitioner in Strasbourg, and the following year moved to Basle and became Professor of Medicine at the University there, extolling the powers of new therapies based on medicines derived from minerals. His originality led him to make outspoken attacks on the old-fashioned herbal remedies universally employed by his contemporaries and he soon became an object of hatred to all apothecaries and physicians in the city. Things got worse when he was involved in a legal dispute over the non-payment of a fee for services rendered and he was obliged to leave Basle hurriedly after only two years. He took up his wanderings again, though continuing to practice his profession and write books. In 1541 he settled in Salzburg where he died on September 24th of that same year at the age of

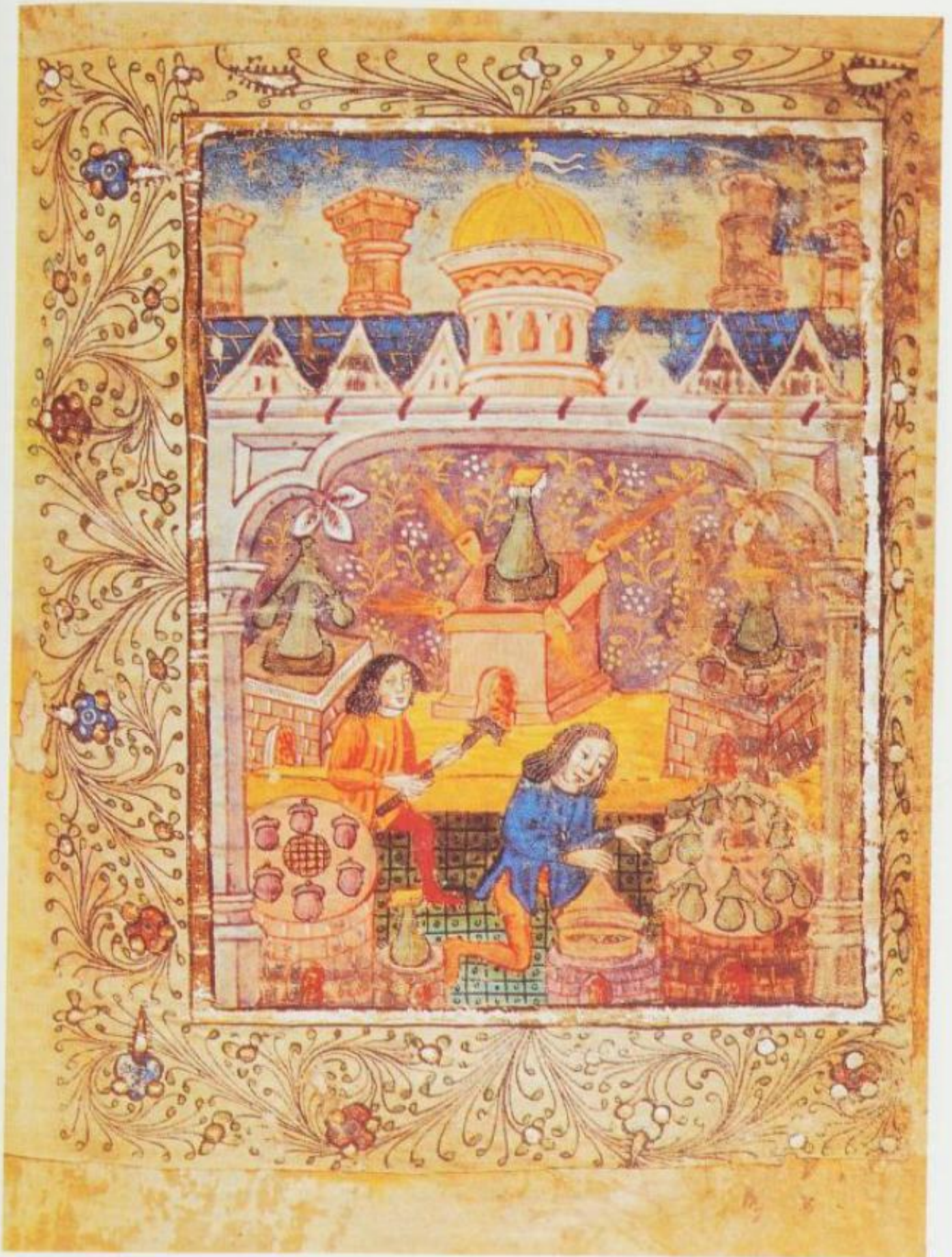
forty-eight. Three days before his death, realizing that the end was near, he made his will leaving a part of his meagre assets to the poor.

The alchemical theories of Paracelsus are very different from orthodox alchemy. Without doubt he was in contact with other alchemists who taught him the theory of transmutation. Although he did not totally deny this possibility, he maintained that the true purpose of alchemical research was the discovery and production of new remedies. Alchemy, he claimed, was one of the three pillars of medicine (together with philosophy and astronomy), its purpose being to prepare *arcana*, the volatile, spiritual principles of a medicine, and direct them against disease. And as sickness and health are controlled by astral influences, physicians had to know about the stars in order to know the cause of sickness, and about alchemy in order to prepare the *arcana*. Then they had to know which *astrum* was in each *arcantum* so as to be able to prepare the correct *arcana* for each disease.³³

Paracelsus called his alchemical philosophy based on the curing of disease *spagyria* (from the Greek words *spao* and *ageiro* meaning "tear apart" and "gather together"). As time went by the name *spagyrist* came to be used disdainfully by traditional alchemists to describe those who limited their practice of the *Art* to experiments on matter ignoring the philosophical aspects of the Great Work. Later alchemical tradition did not look kindly on Paracelsus, suspecting him of being the first of the *spagyrist*s. In fact, this Swiss physician contributed little to the advancement of orthodox alchemy, though his modification of the old Sulphur-Mercury theory, according to which he believed that all material substances were composed of three, and not two, bodies: Salt, Sulphur and Mercury, or *tria prima* as they were known, was widely accepted.

In reality Paracelsus did not forsake medieval alchemy, the premises of which he accepted, he merely laid the emphasis on the naturalistic and medical aspects.³⁴ His alchemy was formed more on ideas gleaned from the books of Lull and Villanova, than on his own discoveries. It was from the writings of Lull, Villanova and Rupescissa, that Paracelsus formed the theory that the *quintessence* was a principle that could be extracted from material substances and used in the preparation of medicines. But it is also true that, while medieval alchemists used the physiological processes of the body to explain the phases of the Great Work (from which derived the use of such terms as *digestion*, *cibation*, *transudation*, *menstruation*, etc.), Paracelsus took an opposing view, seeking in the chemical operations the explanation of physiological processes.³⁵

Paracelsus's innovative scientific intuitions were mingled with gnostic and neoplatonic concepts. In all probability Paracelsus was inspired by Cabalistic speculations on the *golem*, an artificial creature with human features modelled in clay that could be brought to life



house in Mortlake, announcing that he was a serious student of the occult. His suave tongue had its effect on the unsuspecting doctor and he was assumed as a scribe or medium.

In February 1584 Dee and Kelly went to Prague on the invitation of Emperor Rudolf II, a notorious patron of magicians and alchemists, who had heard of their reputation. Kelly claimed to be in possession of a *powder of projection* found in the ruins of Glastonbury Abby and reputedly prepared by St. Dunstan himself. With this powder he performed a number of transmutations, apparently with success. Precisely what strange manipulations the former forger used is hard to tell, but eventually the Emperor's suspicions were aroused for in 1588 he had Kelly arrested and thrown into prison. He was released after four years, but Rudolf imprisoned him again a year later, and he was killed while trying to escape. Dee had better luck; he returned to England and was again received by the Queen who awarded him a pension and in 1595 gave him wardenship of Manchester College. He returned to Mortlake in 1604 and died there in 1608.

It seems almost certain that Dee was to some extent a dupe of his astute assistant Edward Kelly who persuaded him into undertaking the adventure in Poland on the strength of the special powers and ability to produce amazing physical phenomena during magical séances that he claimed to possess. Kelly's influence over Dee knew no limits and the good doctor allowed himself to be dragged into an embarrassing episode that had little to do with magic. At the time when the two men met Dee, having lost his first wife some time earlier, was newly married to a woman much younger than he. In 1587 Kelly managed to convince Dee that a female spirit had appeared naked to him in a crystal advocating wife-swapping. Even Dee hesitated at first, but on the May 3, 1587 he gave his written consent to the transaction.³⁶

As we shall see in a later chapter, John Dee is considered more the point of convergence between Renaissance Hermetic magic and alchemy than a pure alchemist in the orthodox sense of the term.

In 1604 a book entitled *NOVUM LUMEN CHEMICUM* (A NEW LIGHT OF ALCHEMY) was published in Prague under the pseudonym of *Cosmopolite*. Wrote the anonymous author: "If you wish to know who I am, I am the *Cosmopolite*; If you have understood what I mean, and desire to be good and honest men, then you will be silent; if you have not understood, do not seek me. As long as I live, I will tell no mortal being more than I have already said in this public account."³⁷ Following in the footsteps of Thomas Norton and other alchemists, the *Cosmopolite* hid his identity behind a web of ingenious riddles. In the first editions of *NOVUM LUMEN CHEMICUM*, sometimes known as the *LIBER DUODECIM TRACTATUUM* (BOOK OF THE TWELVE TREATISES), the name of the author was hidden in the

motto: "Divi Leschi Genus Amo" ("I love the race of the divine Pole", which referred to Lech, the legendary founder of the kingdom of Poland). The anagram unravels to reveal the name "Michael Sendivogius". At the end of another of his treatises, *DE SULPHURE* (OF SULPHUR), this same alchemist, adapting the Latin syntax to his own purposes, wrote: "Authoris Anagramma: ANGELUS DOCE MIHI JUS" ("The anagram of the author is: O ANGEL, TEACH ME WHAT IS RIGHT"). The phrase in capital letters again gives us "MICHAEL SENDIVOGIUS."³⁸

For several decades after the publication of these two works, the *Cosmopolite* was thought to be a Moravian gentleman named Michael Sedzinwoj (1566-1546), whose name in Latin was, in fact, Sendivogius. The truth came to light a couple of years after the death of Sendivogius, when it was discovered that the true author of *LIBER DUODECIM TRACTATUUM*, the real *Cosmopolite*, was a mysterious English alchemist of the Catholic faith, who had been tricked by Sendivogius into revealing the secrets of transmutation and into giving him the manuscript of his book.³⁹ The identity of the Englishman and the rest of the story was disclosed in 1742, thanks to the investigations of Nicolas Lenglet-Dufresnoy.



Portrait of John Dee at the age of 67. A man of science and letters, Dee also had a strong interest in the occult arts. Somewhat under the influence of his friend and scribe, the dubious Edward Kelly, he was involved in a number of alchemical mishaps at the court of Rudolf II in Prague. His writings include the *Monas Hieroglyphica*, which provided inspiration, in the early 17th century, for the Rosicrucian manifestos.

renewed his invitation to Sethon. Hamilton, perhaps sensing that dealings with such a cruel prince as Christian could only lead to trouble, left his employer, returned to England and was never heard of again. Sethon could not refuse the second bidding and went to court. After the introductory pleasantries were over, it became clear that Christian would not be content with mere transmutation for he at once demanded to know the method for making the *powder of projection*. The Cosmopolite steadfastly refused and he was thrown into prison and cruelly tortured. He still would reveal nothing and would have surely died there had not Sendivogius come to his rescue.

At that time Sendivogius, a gentleman of Moravia and a rather unsuccessful student of the Hermetic science, was travelling in Saxony. The story of Sethon's imprisonment came to his attention and with the help of some influential friends, he was granted an interview with the prisoner, during which he outlined a possible escape plan. Severely weakened by the tortures, Sethon promised his would-be rescuer that if the escape was successful, he would in return give him enough *powder of projection* to make him a rich man. Generous tips and even more generous quantities of alcohol persuaded the prison guards to close their eyes for a while and the two men were not challenged as they made their way to safety. Collecting Sethon's wife on the way, they set off at a gallop and did not stop until they reached Cracow. Sendivogius tried in vain to convince Sethon to reveal the procedure for making the powder, but the Scot refused saying that the promise had only referred to a quantity of the powder sufficient to keep Sendivogius comfortably off for the rest of his life. He died only two years after his ordeal as a consequence of the injuries he had suffered, explaining to his rescuer that although the powder had powerful therapeutic properties, these were only effective against natural diseases and could do nothing to alleviate the consequences of torture.

Determined to succeed in his quest for the transmuting agent, Sendivogius married Sethon's widow, hoping that she had shared her late husband's secrets. But this was not so, and Sendivogius had to be content with an autographed copy of Sethon's book, *LIBER DUODECIM TRACTATUUM*, which Sendivogius published as the work of the Cosmopolite and with the addition of the famous anagram, giving his readers to understand that he, Michael Sendivogius, was the author.

Exploiting the supply of *powder of projection* left to him, Sendivogius adopted Sethon's nickname of Cosmopolite and travelled throughout Europe performing transmutations. On one of these occasions he gave a little of the powder to Rudolf II together with the instructions for use. The Emperor, being himself an expert alchemist, carried out in his own laboratory an amazing transmutation. To commemorate the event a stone was fixed on one of the walls of the room where the "chemical miracle" had been achieved. The stone

was reputedly still in place in the mid-18th century.

Mindful of the fate of the unfortunate Scot, Sendivogius was not the slightest bit ashamed to admit that the powder had been given to him and that he had no idea how to actually make it. Obviously, the supply could not last forever, but Sendivogius, who was rather enjoying his newfound popularity and had no intention of losing it, turned to the tricks of a charlatan, selling fake *elixirs*, extracting money from the credulous with false promises, counterfeiting gold and silver by obviously fraudulent means. His reputation was irreparably damaged and he died a poor and pitiful figure in 1646 in Cracow at the age of eighty.⁴⁰

What are we to make of these incredible alchemical adventures? The disciples of alchemy have never been in any doubt: Sethon had succeeded in making the Philosopher's Stone. According to more rational thinkers, the Scot was simply a clever trickster who had excogitated some artful ruse for performing impossible transmutations. As for the witnesses who swore to the authenticity of these experiments, they were nothing but fanatics of alchemy who, eager to exploit Sethon's reputation, were quite prepared to invent stories of supposed meetings with him and of spurious alchemical operations, indeed anything to add credibility to their beliefs and to the Art. Other episodes, such as that of the transmutation achieved by Rudolf II, were mere legends with no basis in historical fact. Moreover, when Rudolf II acquired his taste for the occult sciences, he was already the victim of a mental disorder.⁴¹

Other similar episodes, involving many different figures, occurred throughout Europe up until the mid 17th century. Two in particular are worthy of attention.

The first involves a most important scientific personality, Johann Baptista van Helmont (1577-1644), a Belgian physician, strongly influenced by the Paracelsian tradition and author of many innovative scientific discoveries, among which the existence of other aeriform substances apart from air itself (he in fact invented the word *gas*). One day in 1618 a stranger came to his door. The two men engaged in a conversation about alchemy and the stranger, sensing van Helmont's scepticism, left him a small quantity of a strange saffron-yellow powder which appeared to be in the form of minute chips of glass. He claimed it was capable of turning a common substance into gold. As soon as the visitor had left, van Helmont began to experiment with the powder, scrupulously following the instructions he had received, and succeeded in turning a quantity of mercury into gold. He repeated the experiment several times successfully until all the powder had been used.⁴²

Van Helmont left a detailed written account of the episode and the circumstances in which the experiments took place. His experience as a chemist leave little room for fraud. So what is the explanation? Historians of chemistry have pointed out that van Helmont's description of the experiment makes no mention of

ounce of lead in a crucible on the fire. As soon as the metal had melted, he threw in the ball of wax which immediately began to hiss and bubble and after fifteen minutes, to their amazement, the lead had turned into gold.

"And indeed — wrote Helvetius — had I lived in Ovid's age there could not have been a rarer metamorphosis than this, by the art of alchemy. Yea, could I have enjoyed Argus's eyes, with a hundred more, I could not sufficiently gaze upon this so admirable and almost miraculous a work of nature; for this melted lead, after projection, showed us on the fire the rarest and most beautiful colors imaginable; yea, and the greenest color, which as soon as poured forth into an ingot, it got the lively color of blood; and being cold shined as the purest and most refined resplendent gold."⁴⁴ Helvetius took the aurified lead to a goldsmith who judged it "the most excellent gold in the whole wide world", and offered to buy it for fifty florins an ounce. During the days to come Helvetius continued his experiments. On one occasion he mixed one part of alchemical gold with three or four parts of silver and a certain quantity of *aqua fortis*. The result was again "excellent gold." This was assayed several times but the result was irrefutable: "the said medicine (or elixir) had transmuted six drams and two scruples of the lead and silver into most pure gold."⁴⁵

Helvetius's narrative is so circumstantial as to astound historians of chemistry even today. Helvetius was no advocate of alchemy and he was by no means convinced that its pretensions were justified. Writes E. J. Holmyard: "A man of culture, education and discernment, he can scarcely be suspected of having lied or of wilfully misreporting the remarkable events he describes in his narrative. In most accounts of transmutations it is not difficult to perceive where trickery could have entered, but in the case of Helvetius no one has yet discovered the loophole. Even the 19th century German chemist and historian of chemistry, Hermann Kopp, preferred to

reserve judgement."⁴⁶ Another detail only adds to the mystery: the Dutch philosopher, Spinoza (1632-1677), having heard of these occurrences, and believing them to be utter nonsense, personally questioned Helvetius and all those who had assayed the gold, but all he got in reply was unanimous confirmation.⁴⁷

According to an unconfirmed tradition, Helvetius's mysterious visitor was none other than the anonymous alchemist who, in 1666, delivered to an Amsterdam printer named Lange a treatise entitled *INTROITUS APERTUS AD OCCLUSUM REGIS PALATIUM* (OPEN ENTRANCE TO THE LOCKED PALACE OF THE KING), published in 1667. The author hid his true identity in the pseudonym of Eirenaeus Philalethes (Lover of the Truth). Like Sethon the Cosmopolite, Philalethes was reputed to be a sort of alchemical missionary, wandering the world and preaching the wonders of alchemy to the sceptics. Of the many stories concerning this figure, one suggests that he lived for a time in New England where he became acquainted with a chemist named George Starkey, the inventor of oil of turpentine, whom he initiated into the mysteries of transmutatory alchemy.

Seventeenth century chronicles report other episodes similar to those narrated by van Helmont and Helvetius: mysterious figures who appeared from nowhere seeking with their experiments to convince men of science and authority of the authenticity of their alchemical operations. In most cases they were merely very astute charlatans whose main concern was to squeeze as much money as possible out of their unsuspecting victims. On other occasions these strangers behaved like true disciples of alchemy who endeavored to convert the enemies of the *Art*. In order to understand just why these people, whether tricksters or fanatics, found so many willing ears to listen to them, we should next examine the fervor that accompanied the arrival on the scene of the enigmatic Brothers of the Rosy Cross.

¹ For biographical notes see: Petrus Bonus, *Preiosa Magaria Novella*, edited by C. Crisclant, Florence 1976, p. XLIV.

² L. Thorndike, *A History of Magic and Experimental Science*, New York 1923-1934, Vol. III, p. 176-190.

³ See, for example, the entry "Jardin" in: A. J. Pernety, *Dictionnaire Mytho-Hermétique*, Paris 1738.

⁴ The biographical notes on Flamel are taken from a number of different sources, among which: the historical study by E. Canselier in *Le Livre des Figures Hieroglyphiques* by N. Flamel, Paris 1971, the preface by Elie-Charles Flamand to *Oeuvres* by N. Flamel, Paris 1973; M. Caron and S. Hutin, *Les alchimistes*, Paris 1962. These works sum up the historical research carried out in earlier years on the life and work of Nicolas Flamel, such as the *Histoire critique de*

Nicolas Flamel et de Perronne sa femme, published by Abbot Villain in 1761.

⁵ E. C. Flamand, *op. cit.*, p. 24.

⁶ The blind of the hospital of the same name.

⁷ In one of the medieval *Carmina Burana*, the holiness of Jerusalem is expressed thus: "Tanta lucis claritate superatur Sol et Luna..." ("The Sun and the Moon are surpassed by such brilliant light...").

⁸ E. Canselier, *op. cit.*, p. 25, observes that a number of references to Flamel are made in the manuscripts of three Norman alchemists — Grosparmy, Valois and Vicot — who worked together at Flers towards the close of the 14th century and early 15th century.

⁹ L. Thorndike, *op. cit.*, Vol. V, p. 637-638.

CHAPTER VIII

THE CENTURY OF THE ROSICRUCIANS

In 1614, in the German town of Kassel, a pamphlet was published in German bearing this long and somewhat ambitious title: *THE GENERAL REFORMATION OF THE WHOLE WIDE WORLD. APART FROM THE FAMA FRATERNITATIS OF THE MERITORIOUS ORDER OF THE ROSY CROSS, DEDICATED TO ALL LEARNED MEN AND TO THE SOVEREIGNS OF EUROPE, A SHORT RESPONSION SENT BY MR. HASELMEYER, WHO FOR THIS REASON HAS BEEN THROWN INTO PRISON BY THE JESUITS AND CHAINED TO THE GALLEYS. NOW PRINTED FOR ALL SINCERE PERSONS TO SEE.*¹ As the title shows, the book was comprised of three different writings: *GENERAL REFORMATION OF THE WHOLE WIDE WORLD*; *FAMA FRATERNITATIS*; *SHORT RESPONSION* to the *FAMA FRATERNITATIS* attributed to an alleged Adam Haselmeyer.

The focal point of the book is the second document, an anonymous pamphlet of no more than a few pages, the complete title of which was: *FAMA FRATERNITATIS OR REVELATION OF THE BROTHERHOOD OF THE NOBLE ORDER OF THE ROSY CROSS*. In actual fact, there had been talk in Germany of the *FAMA FRATERNITATIS* and its authors, the members of the Brotherhood of the Rosy Cross, as early as 1610 when a handwritten version of the *FAMA* appeared. Even though the manuscript had a limited circulation, it led to much discussion, including Adam Haselmeyer's *SHORT RESPONSION*, first published in 1612.

The Kassel manuscript opens with a mild literary theft, which went unnoticed at the time: the first of the three texts, *GENERAL REFORMATION OF THE WHOLE WIDE WORLD*, is none other than a German translation of a chapter of *RAGGUAGLI DI PARNASO*, a satirical commentary on politics and literature by the Italian writer Traiano Boccalini, published in Venice in 1612-1613. *RAGGUAGLI* tells of how a group of famous people, concerned with the degradation of the world in general

and desirous of seeking a remedy, turned for help to Apollo, who resided on Mount Parnaso. The sad story they poured out to the god was merely a pretext for describing the multifold problems that afflicted society at that time.

The passage chosen by the Rosicrucians as an introduction to the *FAMA FRATERNITATIS* narrates how Apollo, having realized that the conditions of the world were so terrible that men were driven to suicide, decided to reform human affairs. With this in mind, he consulted the seven sages of ancient Greece, each of whom suggested his own personal remedy. For one reason or another, none of these remedies proved to be a viable prospect and in the end Apollo was forced to abandon his idea of reformation, while the seven sages, having prattled on inconclusively about nothing, turned to tasks more suited to their true abilities, such as fixing the price of cabbages, sardines and pumpkins.²

The passage alluded to two of the beliefs upheld by certain intellectuals of the early 17th century. The first was the need for widespread political and social reform and the promotion of human wellbeing. The second was that such a reformation could not be achieved on the basis of current cultural parameters. It is evident that there is nothing mysterious, magical or esoteric in this account.

The style and content of *FAMA FRATERNITATIS* were quite another matter, and the document soon gave rise to the more suggestive aspects of the legend of the Brotherhood of the Rosy Cross. The *FAMA* narrates the imaginary vicissitudes of the mythical founder of the Brotherhood, Christian Rosenkreutz, who was supposedly born in Germany in 1378 and brought up in a monastery. As a young man he traveled throughout the Middle East, where he observed that the wise men of these places were in the habit of discussing their knowledge with each other, whereas Western scholars preferred to keep their thoughts to themselves. During

his wanderings, Rosenkreutz had occasion to study magic, the Cabala, mathematics, physics and many oriental sciences. This newly acquired knowledge only served to strengthen Rosenkreutz's belief in the harmony that dominated all things and the entire world: "In the same way that each seed contains the whole plant or fruit, so in the humble body of each human being is contained the whole universe; religion, politics, health, limbs, nature, language, words and works of man, all is in harmony and concord with God, the Heavens and the earth..."³

Upon his return to Europe, Rosenkreutz tried to communicate his discoveries to European scholars, in the hope of bringing about a general cultural reform which would hopefully also influence men of power. But the learned men of Europe only laughed at him and his ideas. So he returned to his home in Germany and founded the reforming, humanitarian brotherhood of secret learning known as the Order of the Rosicrucians. The first four members were entrusted with the task of creating a language and a magic script for the Brotherhood, and of writing a book of knowledge, known as the LIBER M (a probable abbreviation of LIBER MUNDI, BOOK OF THE WORLD). Later, four other members joined the Order. When they had all received sufficient instruction, the Brotherhood members split up and went out to spread the truth. Each member went to a different country, his task being to inform the intellectuals of that country of the Rosicrucian doctrine and to seek experimental verification of his learning.

In the meantime, the Order had established certain fundamental rules which members were bound to observe during their travels. Firstly, they were forbidden to carry out any activity other than caring for the sick free of charge; they were to wear the same clothes as those worn in the country they were visiting; they were to meet once a year, on a preestablished day, at the mother house or *House of the Holy Spirit*; each member was obliged to designate a person worthy of inheriting his place in the Order; they were to preserve the Rosicrucian precepts as the one and only truth; they were to keep the Brotherhood secret for one hundred years.

According to the FAMA FRATERNITATIS, Rosenkreutz died in 1484 at the ripe old age of 106, and was buried in a secret place, a strange grotto hidden from the rays of the sun but permanently lit by an *artificial sun*. The walls of the tomb were decorated with enigmatic figures; the entire structure, including the floor, was based on geometrical shapes; there were treasures everywhere, rare books, mirrors, lamps, bells and other mechanisms that played delightful music. All these wonders were still in their original state some 120 years after the burial, when members of the Brotherhood, guided by a divine hand, re-discovered the long-forgotten tomb.

After having described Rosenkreutz's tomb and its symbolism in great detail, the FAMA FRATERNITATIS

concludes with the assertion that very soon there would be a general reformation of all divine and human things. And in inviting all men anxious to accelerate this reformation to contact the Brotherhood, the FAMA confirmed the Rosicrucians' obedience to the politics of the Holy Roman Empire and their aim of a religious reformation.

This manifesto, the first dated document of the Rosicrucians, makes many allusions to alchemy. It frequently derives its general concepts from alchemical theories and on several occasions describes Paracelsus as a man of great learning who had diligently read the LIBER M and developed a philosophy similar to that of Christian Rosenkreutz. The manifesto makes frequent recourse to alchemical symbolism and expressions and in the closing passages speaks explicitly of alchemy, explaining what it meant to the Rosicrucians.

It opens by condemning the "sacrilegious and cursed art of making gold, which today is considered so important, and which many rogues and knaves exploit in order to commit contemptible deeds, breaching the trust granted them..."³ This rebuke was also intended for those scholars who had mistakenly believed that alchemy's main objective was the unlimited production of gold, whereas the true philosophers of the past had attributed little importance to this aspect. According to the FAMA the true scholar did not care about making gold or commanding demons, but he was delighted to see the heavens open and the angels of God descend. "Moreover", conclude the mysterious authors of the document, "we are witness to the fact that many books have been written on what they call Chemistry that offend the glory of God..." It was the scholars' duty to guard against the dissemination of these mendacious writings.⁵

The authors of the FAMA FRATERNITATIS obviously agreed with the new alchemy of Paracelsus, which was not concerned with the fabrication of gold, but based its philosophy on the unity of all things in the Heavens and on Earth. The affirmation that the true alchemist delights only when he sees the angels of God descend and ascend to the heavens, clearly shows that the authors of the manifesto saw alchemy as a magico-mystical means to attain celestial visions. In this respect, as we shall see, the Rosicrucians had a number of illustrious predecessors.

In 1615 the Rosicrucians published, this time in Latin, a second manifesto consisting of three separate parts: the SECRETIORIS PHILOSOPHIAE CONSIDERATIO BREVIS (A BRIEF CONSIDERATION OF THE MORE SECRET PHILOSOPHY) attributed to the undoubtedly fictitious name of Filippo da Gabella; the CONFESSIO FRATERNITATIS R.C. (CONFESSIONS OF THE BROTHERHOOD OF THE ROSY CROSS); a preface to the CONFESSIO.

The CONSIDERATIO BREVIS was strongly inspired by the ideas of the English Cabalist alchemist, John Dee. In particular, it is a précis of some of the theorems of

(3rd-4th century), he had actually prophesied the advent of Christ. The CORPUS was translated by Marsilio Ficino on the urgent commission of Cosimo de' Medici, and the event aroused great enthusiasm, blossoming into the Hermetic tradition of the Renaissance. It was an erudite tradition, which soon replaced the shamanistic practices hitherto popular amongst the common people. Strongly influenced as he was by Hermeticism, neoplatonism and the Cabala, the Renaissance magus strove to attain supreme knowledge through such culturally sophisticated practices as meditation and speculation on the symbolism of numbers and the letters of the alphabet. Giovanni Pico della Mirandola and Heinrich Cornelius Agrippa, whose philosophy profoundly influenced John Dee, were among the fathers of Renaissance natural magic.

Dee's MONAS HIEROGLYPHICA is more a Cabalistic than truly alchemical work, being a structure of Cabalistic numerology, the meaning of which eludes us today. The *hieroglyphic monad*, or Monas-symbol, invented by Dee is compounded of the alchemical-astrological symbol for Mercury with the sign for Aries added below. He who meditates on the hieroglyphic monad — explained Dee in the preface to the MONAS sent to Maximilian II of Hapsburg — will discover that it contains a light and a force that are in some way mathematical.⁶

Even earlier than John Dee, Paracelsus, too, had derived his system of alchemical theories from the Hermetic and Cabalistic tradition of the Renaissance. But the MONAS HIEROGLYPHICA ignores the practical side of Paracelsian alchemy concerning the preparation of mineral medicines, and instead conducts its readers through a labyrinth of obscure speculations on the hidden meaning of the letters of the alphabet, numbers, geometric shapes and astrological signs. In one passage from the MONAS, Dee, while underlining the importance of his new philosophy, explicitly repudiates traditional alchemy, claiming that the "poor alchemists must therefore learn to recognise their many errors."⁷

The Rosicrucian manifestos are inspired by John Dee's new alchemy. The CONSIDERATIO BREVIS quoted whole passages from the MONAS HIEROGLYPHICA, and confirmed Dee's theory that, through meditation of alchemical, astrological, numerical and geometrical symbols, the magus could go through a metamorphosis, entering into contact with angelic creatures from whom he would obtain hidden knowledge. Once again, there is a clear reference to the origins of alchemy, namely the myth expressed in the ancient BOOK OF ENOCH, which attributes to the angels' revelations the spread of magical practices and the *art of tinctures* throughout humanity.

Another manifesto published together with the CONSIDERATIO BREVIS, the CONFESSIO FRATERNITATIS, quotes many of the postulations expressed in the first Rosicrucian manifesto, the FAMA FRATERNITATIS, and

confirms the authenticity of this document. The CONFESSIO endorses the belief that had Christian Rosenkreutz's philosophy been universally accepted, it could have reformed the entire world, and led to man's victory over famine, poverty, illness and old age. Basically, the Rosicrucian philosophy promised the same results as those attributed to the Philosopher's Stone and the Elixir of Life.

The CONFESSIO FRATERNITATIS promised a new golden age, upholding alchemy as one of the cornerstones on which to develop the reformation of science and philosophy. But, like the FAMA FRATERNITATIS, it strongly attacked the fraudulent alchemists, those who "deceive with the transmutation of metals."⁸ The document continued: "In no way do we belittle such a great gift of God, but as transmutation does not necessarily require a knowledge of nature, and it is precisely this (knowledge of nature) that not only produces medicine, but reveals to us many of its other secrets and wonders, it is only right that we should consider it more important to acquire a deeper understanding of its philosophy and we invite the men of higher intellects to forget about the transmutation of metals until they have acquired a deeper understanding of nature."⁹ It is evident from this that the Rosicrucians did not completely reject the possibility of the transmutation of base metals into gold, they merely stated that the true intellectual should leave such matters to others and concentrate on the study of nature. The CONFESSIO was critical above all of the fraudulent alchemist, who spent his time "beguiling people with strange emblems, obscure expressions and declarations, and extorting money from the simple-minded."¹⁰ The CONFESSIO concluded: "Their books should be considered blasphemous and misleading, because they associate the Holy Trinity with vain things such as riches and power; it is far wiser to place yourselves in divine hands, the only ones that promote true human well-being."

The meaning of Rosicrucian alchemy was even better described in a third manifesto DIE CHYMISCHE HOCHZEIT DES CHRISTIAN ROSENKREUTZ (THE CHEMICAL WEDDING OF CHRISTIAN ROSENKREUTZ), published anonymously in the German language in Strasbourg in 1616.

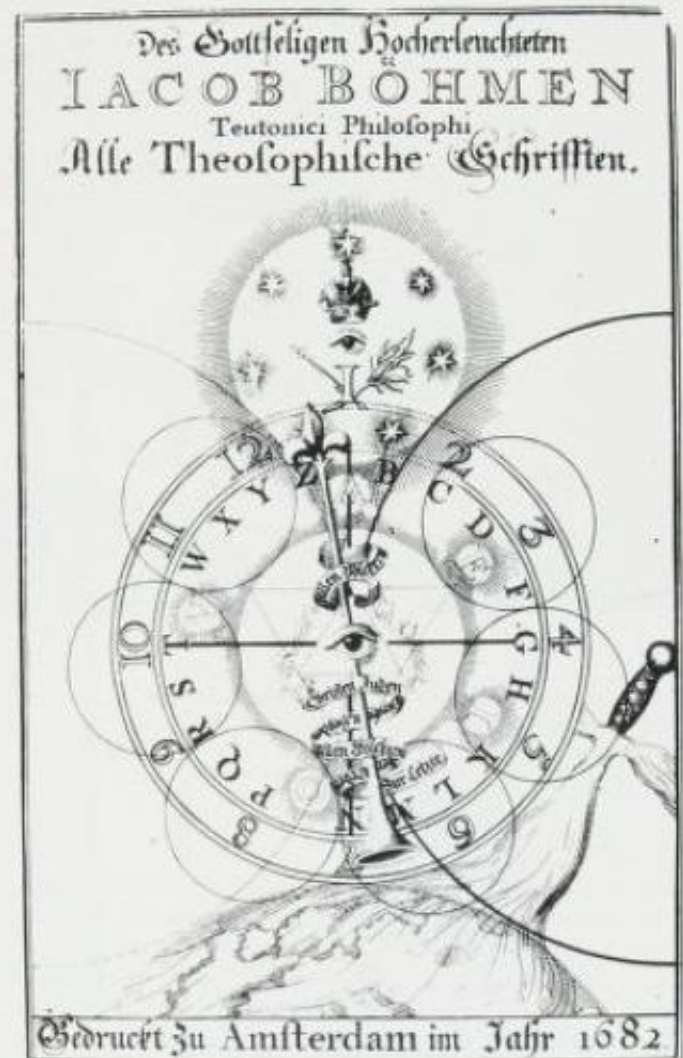
The story of the festivities of the CHEMICAL WEDDING, described with intricate symbolism, is divided into seven days. On the first day the hero, recognisable as Christian Rosenkreutz himself, is informed by a celestial being who appears to him in a vision, that in a distant land, the name of which is not revealed, there is soon to be a royal wedding, and that he is invited to attend. On the second day is described the hero's journey to the place of the wedding, which is to be held in a castle where the guests are accommodated. On the third day Rosenkreutz explores the castle and attends a banquet. During the fourth day he visits the castle gardens, where he sees for the first time the royal couple.

greater truth which embraced many arcane doctrines; they certainly appreciated iatrochemistry and other alchemical practices, and they accepted in principle the possibility of transmutation, but they considered these arts of little importance. In the minds of the mysterious members of the Brotherhood, the only true ideal was supreme truth, in which the spirit was united with the dominant forces of the Universe resulting in the spiritual transmutation of the human being. This was achieved through the study of nature (the LIBRO M mentioned in the FAMA), contemplation of Renaissance magic, the observance of certain moral rules, a commitment to the political ideals of liberal Protestantism and the religious aspirations of the Lutheran reformation, and the elimination of social injustices such as poverty and starvation. Having abandoned the idea of the transmutation of metals, the alchemy of the Rosicrucians had every right to claim to be a form of Christian mysticism.

Did the secret Brotherhood of the Rosicrucians really exist? Who really founded the Rosicrucian philosophy and described it in the FAMA FRATERNITATIS, the CONSIDERATIO BREVIS and THE CHEMICAL WEDDING? The first two manifestos were probably written by the group of reformist intellectuals from Tübingen in Protestant Württemberg, led by the Lutheran pastor Johann Valentin Andreae (1586-1654), who claimed authorship of the THE CHEMICAL WEDDING. Being deeply concerned with social problems, the members of the group dreamed of the spiritual and material regeneration of humanity. They were widely read in the works of famous mystics such as Dionysius the Areopagite (5th-6th century) and Meister Eckhart (1260-1328), scientists such as Paracelsus and philosophers and occultists such as Tommaso Campanella and John Dee. Their reformation project rested on the idea of concentrating in a single regenerated science the quintessence of Oriental and Western learning, including Cabalist alchemy. Well aware of the dangers of such innovative ideas, they invented the story of Christian Rosenkreutz and the Brotherhood of the Rosy Cross, the name of which was probably inspired by the emblem of Johann Andreae, which consisted of a Saint Andrew's cross of roses, or by Luther's emblem, which was a cross and four roses. The story of Rosenkreutz, his travels, his fabulous tomb and the invisible Brotherhood of which he was the anonymous hero, served to focus attention on the reformist proposals of Andreae and his friends.

The weak point in this otherwise plausible theory is Johann Valentin Andreae himself. In 1617, just a year after the anonymous publication of THE CHEMICAL WEDDING, Andreae published another work, the MENIPPUS, in which he held that the entire business of the Rosy Cross was nothing but a *ludibrium*, a literary hoax devised to discipline curious minds and throw dust in the eyes of those attracted by the teachings of false prophets, instead of the way of Christ.¹² In 1618, in MITHOLOGIAE CHRISTIANAE LIBRI TRES (CHRISTIAN

MYTHOLOGY), Andreae develops an allegorical dialogue between Truth and the Lover of Truth, in which Truth claims: "I have absolutely nothing to do with the Brotherhood. When, not long ago, certain people of the literary scene put on an ingenious drama, I kept my distance but observed what they were doing, as I believed that it is right to contemplate new and exciting ideas. What I saw, not without a certain enthusiasm, was a battle of books. At a certain point I noticed that the actors had all been replaced. But as, at this point, the theater had become the scene of a violent controversy and clash of opinions, while the battle continued with vague allusions and malevolent conjectures, I decided to leave in fear of becoming involved in a treacherous matter of dubious value."¹³ If we translate the



Frontispiece of *Theosophische Wercken*, by Jakob Böhme, published in 1682, almost sixty years after the death of this German theosophist. In this picture, as in the others of the book, alchemical symbolism is used to express spiritual concepts, which establish complex correspondences between Macrocosm and Microcosm.

manner of stories on the supposed activities of the mysterious Brotherhood whose learned members, while preferring to remain anonymous, watched over the world and its destiny, ready to intervene in favor of human well-being and science. There were also tragicomical episodes of tricksters pretending to be Rosicrucians and wealthy dupes who believed their stories of miraculous cures and magical powers.

Also belonging to this period are the legends of actual transmutations described by Van Helmont and Helvetius, similar to so many other contemporary stories which narrated the adventures of enigmatic, itinerant *apostles of alchemy*. Possibly the wonders attributed to Alexander Sethon had influenced the Tübingen reformists to such an extent that they decided to create the romantic legend of a reforming, humanitarian Brotherhood of secret learning. What is certain is that the spread of the Rosicrucian legend inspired many accounts of sudden appearances of mysterious emissaries of alchemical knowledge.

Whether or not it was an authentic proposal or merely a literary hoax, Andreae's *ludibrium* played a vital role in the transformation of western alchemy into a magico-

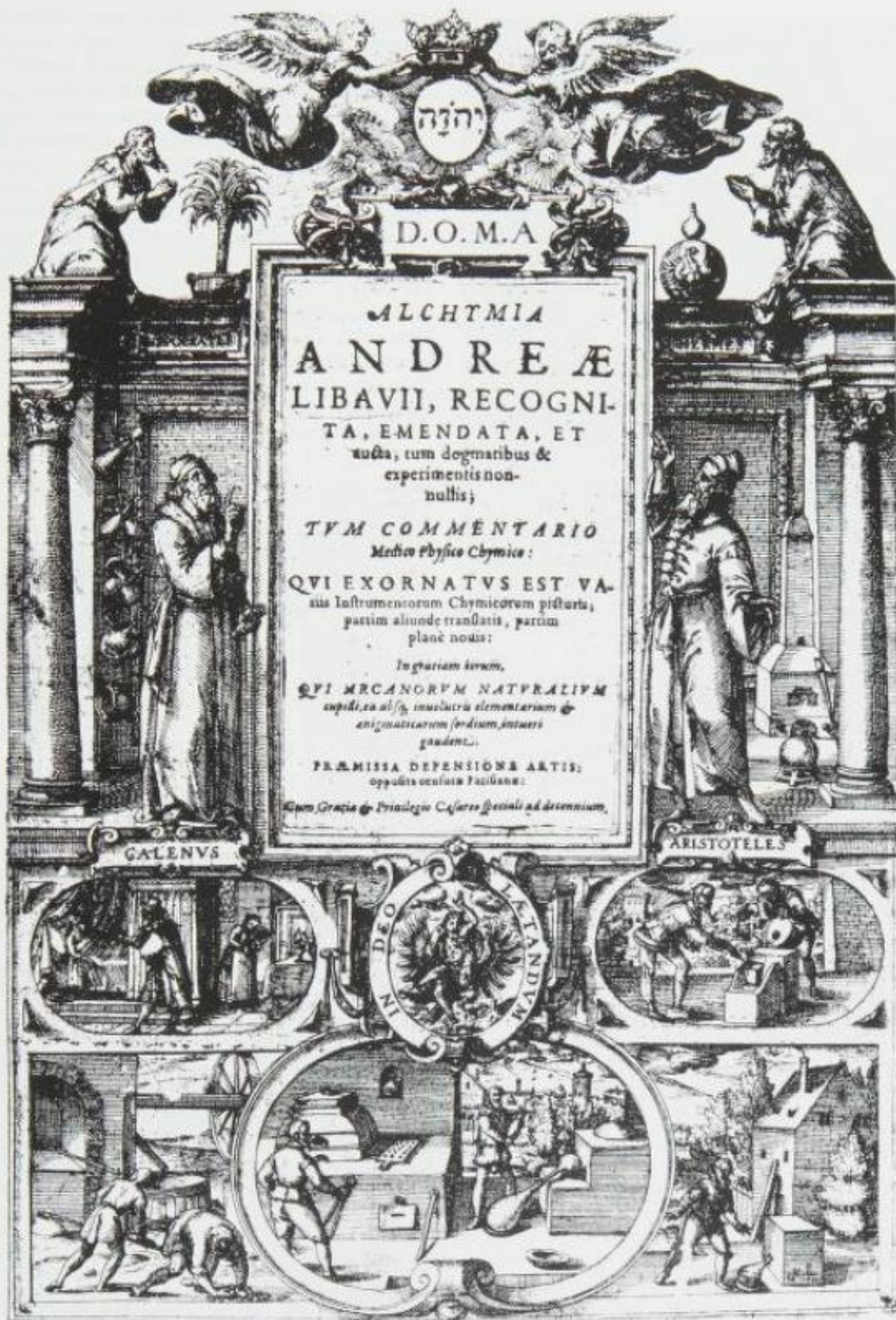
mystical practice. Other contemporary events also prompted this evolution. In 1614 the famous classical commentator Isaac Casaubon revealed that the works attributed to Hermes Trismegistus were not as old as they were thought to be, having probably been written during the first centuries of Christianity. Casaubon's discovery robbed the Hermetic tradition, and therefore alchemy and Hermetic magic, of its aura of *prisca theologia*, and from a supernatural system of Mosaic antiquity it suddenly became a human invention dating from a specific time in history.

In 1612, just before publication of the *FAMA FRATERNITATIS*, Jakob Böhme (1575-1624), a shoemaker from Görlitz in Prussia, wrote *DIE MORGENRÖTE IM AUFGANG* (RED SKY AT MORNING) as a direct result of an experience in a prolonged state of mystical enlightenment. In this work he laid the foundations of his own mystical system, based on revelations and meditations upon God, man and nature and in part inspired by Paracelsian alchemical philosophy. Böhme, the *philosophus teutonicus*, as he became known, aimed at explaining the origin of things, especially the existence of evil. According to Böhme, man had forsaken God and in so doing had lost sight of

The spiritually regenerated man in this two-part drawing from *Eine kurtze Eröffnung und Anweisung der drey Principien und Welten in Menschen*, by J.G. Gichtel (1638-1710).

The two drawings establish correspondences between regions of the human body and transcendent principles: the forehead corresponds to the Holy Ghost; the nape of the neck to Feeling / Thought; the larynx to Intellect / Sophia / Mirror of Divinity; the area between the shoulder blades to Reason / Constitution / Soul or sidereal memory; the heart area to Jesus; the abdomen to Jehovah; the genitals to the World of Darkness / Center of Nature, Root of the Soul of the Three; the anal region to Hell / Saturn.





Frontispiece of *Alchymia*, by Andreas Libavius (1606). Over the title hover two angels who embody the Tetragrammaton, or Divine Name. To the sides stand Galenus, the symbol of medicine and Aristotle, the symbol of alchemy. In the lower part of the page are illustrated numerous chymico-medical operations.

the Great Work, they established ties between these proportions and musical notes, as can be clearly seen from the words of Thomas Norton: "Join your elements mathematically with numerical proportions... join them musically."²¹ In the picture of the AMPHITHEATRUM SAPIENTIAE AETERNAE, the mystical alchemist is shown kneeling in prayer, his gaze fixed on a musical staff. On top of a table are various musical instruments, and fixed to the side of the table is an inscription bearing the phrase: "Sacred music dispels sadness and drives out evil spirits, because the Spirit of God sings happily in a heart pervaded by holy joy."

The musical fugues of ATALANTA FUGIENS were three-part musical canons: two parts bore the respective names of *voice that flees* and *voice that pursues* (reminiscent of Atalanta and Melanion), while the third part was the *voice that delays* (the golden apple that slowed Atalanta down). From the point of view of alchemical symbolism, the three voices were meant to represent the Philosopher's Stone which eludes the alchemist, the alchemist pursuing it, the obstacles hindering the Philosopher's progress. The score of ATALANTA FUGIENS presents so many musico-technical difficulties that it would be as arduous to interpret as it would be to carry out the Great Work. Nonetheless, in 1935, Maier's music was sung at the Royal Institute of London by the choir of St. Andrew's University. It did not, however, make a very lasting impression.²²

As there were seven musical notes and seven alchemical metals, correspondences were established between them.

One of the illustrations of the treatise *RÉVÉLATION DES MYSTÈRES DES TEINTURES ESSENTIELLES DES SEPT MÉTAUX*, printed in Paris in 1668 and bearing the name of Basil Valentine, portrays seven organ pipes each bearing the sign of a metal; it established the alchemical musical scale thus: do/silver, re/mercury, mi/copper, fa/gold, sol/iron, la/tin, si/lead. It is possible that certain alchemical scores used these correspondences to hide sequences of laboratory operations. It has been suggested that the alchemists, especially the mystical ones, believed that melodies and songs would encourage and facilitate the experiments they were conducting in the athanor.²³ It seems more probable, however, that Maier and his colleagues attributed cathartic properties to music. This idea was not new. Almost two thousand years earlier, Pythagoras had taught that music purified the soul permitting it to aspire to the supreme harmony of the celestial spheres.²⁴

And an anonymous Philosopher of the Hellenistic age had written a treatise on CHEMISTRY AND MUSIC, which proposed an enigmatic relationship between the Sacred Art and the art of music.²⁵ The use of music and singing in support of magical and mystical practices is well known in many religious orders. In certain cases, such as Sufism, music was one of the principal ways of retreating from the real world, of overcoming the dimension of time and achieving a higher level of spiritual perfection. The musical fugues of ATALANTA had a dual purpose: on the one hand to hide information on the numerical proportions of the Great

The theme of a relation between music and alchemy is developed not only by Michael Maier, but by many other Rosicrucian authors. On the right is a graphic image of the relation between musical notes (the organ pipes) and the seven planets and metals. Beneath the viola da gamba are the words "The sacred Harmony flees from the evil spirits, it is the Medicine against anxiety". The sign of Saturn precedes the word "anxiety", perhaps to show that it alludes to the melancholy temperament of the Saturnine personality. (From *Révélation des mystères des teintures essentielles des sept métaux*, by B. Valentine, 1668).



This illustration is a reference to Melchior Cibinensis, the Hungarian chaplain of kings and emperors, who in 1526 or thereabouts wrote a treatise explaining the symbolism of the Mass in an alchemical key. The priest celebrating Mass is the alchemist, probably Cibinensis himself; behind him is the Virgin Mary suckling the divine child, an allegory of the nourishing of the Philosopher's Stone. (From *Symbola Aureae Mensae*, by M. Maier, 1617).



members of the "Chief Council of the Brothers of the Rosy Cross."²⁵ At the same time, alarming rumors spread throughout the country of the imminent arrival of the Rosicrucians, bent on creating an underground current to persuade the population to forsake Catholicism or, even worse, convert to Satan worship.

We know little about what happened in Catholic Italy. Rosicrucian alchemy must have been known there to a certain extent because in 1680, Marquis Maximilian of Palombara had carved on one of the secondary doors leading to his garden, in Rome, an emblem copied from the frontispiece of *AUREUM SECLUM REDIVIVUM*, a book written in 1622 by Henricus Madathanus, alias Adrian von Mynsicht, a Rosicrucian physician and alchemist.²⁶

One of the foremost defenders of Rosicrucian philosophy was Robert Fludd (1574-1637), the English physician, alchemist and Hermetic philosopher. He had enthusiastically greeted both *FAMA* and *CONFESSIO*, which invited intellectuals to contact Christian Rosenkreutz's successors. In the hope of doing just this, he published two brief apologies for the mysterious Brotherhood, which he seriously believed to be inspired by God. In them he rejected insinuations that the Rosicrucians were a band of revolutionaries, motivated by anti-Christian ideals and with a propensity for black magic, arguing instead that Rosicrucian magic was good and pious, based on mathematics, the Cabala and astrology. He went on to examine the arts and sciences, from architecture to algebra, from music to law, from economy to theology. All of which, he

concluded, were in need of improvement and reform, which was precisely the opinion expressed in *FAMA* and *CONFESSIO*.

Fludd, of course, received no reply from the Rosicrucians, but their silence in no way modified his opinion of their apparent ideals. Fludd developed his own philosophy, which was, in fact, a reflection of the Rosicrucian dream of understanding nature, and he thus became largely responsible, together with Michael Maier, for the spread of Rosicrucian philosophy in Europe. His best-known work is *UTRIUSQUE COSMI HISTORIA* (*PHYSICS AND TECHNICS OF TWO WORLDS*), published in Germany in 1617-1618. It was divided into two parts: *MACROCOSMI HISTORIA* (*HISTORY OF THE MACROCOSM*) and *MICROCOSMI HISTORIA* (*HISTORY OF THE MICROCOSM*). In it he expounded the secret analogies, both physical and spiritual, between the heavenly world and the human world, a perfect example of which was to be seen in one of the book's beautiful engravings. It was entitled: "Picture of the Art and Mirror of all Nature".²⁷ The illustration incorporated alchemical, astrological and magico-Cabalist symbols. The *Art*, portrayed as a naked woman from whose right breast gushed a fluid that invaded the earth, was proposed as the link between God and the animal world.

Like the other supporters of Rosicrucian thinking, Fludd considered alchemy a science strictly related to Hermetic magic and the Cabala. When the French philosopher Marin Mersenne (1588-1648) openly condemned all forms of magic, criticising Fludd's Cabalistic and Hermetic speculations, Fludd replied with a book

inspired by motives of patronage and curiosity for the legends surrounding the trade of the freemason.²⁹

It has been suggested that speculative freemasonry was born as a consequence of the desire to reform the arts and sciences expressed so clearly in the FAMA and CONFESSIO.³⁰ According to Masonic tradition, exactly the opposite occurred. In other words, it was the Rosicrucian philosophers, such as Elias Ashmole, who introduced Rosicrucian ideals to the freemasons. Whatever the case, the fact remains that Masonic rituals still today bear more than a few traces of

Rosicrucian ideas. That alchemy in some way influenced Masonic symbolism, is evident from one detail in particular: for the alchemists, the Great Work was the means by which imperfect matter could be transformed into the Philosopher's Stone, while the freemasons saw in the work of the lodge the means to transform the *Rough Stone* (novice) into a smooth and perfect *Cubic Stone* (the craftsman who had earned the title of *Master*).

Meanwhile, the seeds of scientific chemistry were beginning to germinate.

¹ *Allgemeine und general Reformation, der gantzen weiten Welt. Beneben der Fama Fraternitatis, dess löblichen Ordens del Rosenkreutzes, an alle gelehrte und häupter Europæ geschrieben...* Kassel 1614.

² T. Boccalini, *Ragguagli di Parnaso*, Venice 1612-1613, Centuria I, Ragguaglio LXXVII.

³ *Fama Fraternitatis* in: F.A. Yates's, *The Rosicrucian Enlightenment*, London 1972. F.A. Yates book includes an unabridged translation of the first two Rosicrucian manifestos.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ J. Dee, *La Monade Hiéroglyphique*, Milan 1975, p. 11.

⁷ *Ibid.*, p. 36.

⁸ F.A. Yates, *op. cit.*

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ J.V. Andreae, *Die Chymische Hochzeit des Christian Rosenkreutz*, Strasbourg 1616.

¹² F.A. Yates, *op. cit.*

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ G. Wehr and P. Deghaye, *Jakob Böhme*, Paris 1977, p.183.

¹⁶ *Ibid.*, p. 211.

¹⁷ G. Scholem *Die jüdische Mystik in ihren Hauptströmungen*, Zurich 1957.

¹⁸ F.A. Yates, *op. cit.*

¹⁹ J. Read, *Through Alchemy to Chemistry*, New York 1957.

²⁰ A.J. Pernety, *Les Fables égyptiennes et grecques dévoilées*, Paris 1758.

²¹ J. Read, *op. cit.*

²² *Ibid.*

²³ *Ibid.*

²⁴ Giamblico, *Vita pitagorica*, XV, XXV.

²⁵ M. Berthelot, *Collection des anciens alchimistes grecs*, Paris 1888, Vol. III, p. 409 onwards.

²⁶ F.A. Yates, *op. cit.*

²⁷ For notes on Palombara see: M. Gabriele, *L'alchimista Massimiliano Palombara: un Rosacroce nella Roma controriformista* in: *La città dei segreti*, Rome 1985.

²⁸ R. Fludd, *Utriusque Cosmi*, I, p. 4-5, Oppenheim 1617.

²⁹ H. Josten, *Elias Ashmole*, Oxford 1966, Vol. I, p. 34.

³⁰ D. Koop and G.P. Jones, *The Genesis of Freemasonry*, Manchester 1949.

³¹ F.A. Yates, *op. cit.*, chap. XV.

CHAPTER IX

DECLINE AND RESURGENCE

Towards the second half of the 17th century the *Art*, in the traditional sense of *oratory-laboratory* discipline, came to a turning-point. On the one hand were the adepts of the magico-mystical alchemy proclaimed by the Rosicrucians which had relinquished the obscure world of the laboratory; on the other were the advocates of practical chemistry who were concerned with neither philosophy nor religion. They fell into two distinct categories: the explorers of an alchemical adventure and the pioneers of scientific chemistry.

An Italian named Giuseppe Francesco Borri earned a reputation as an adventurer. Born in Milan in 1627, Borri studied at a Jesuit seminary in Rome, where the lively intelligence he was seen to possess was somewhat marred by his innate libertine nature. Having been expelled for disobedience, he was admitted into the Vatican where he studied alchemy and medicine. He later moved to Milan and established there a secret, politically oriented society possibly inspired by the Rosicrucian movement. When, in 1659, a group of his disciples was arrested, he fled to Switzerland. The Inquisition found him guilty of heresy and sentenced him to death by default. On 3 January 1661, in the absence of the physical person himself, his effigy and his writings were burnt.

Heedless of the threat, Borri embarked on a long journey throughout Europe, visiting Strasbourg, Frankfurt, Dresden, Leipzig, perfecting his knowledge of chemistry and medicine. He settled in Amsterdam where he soon became renowned for his healing powers. It was said that he could heal all ailments by means of a mysterious art. But old habits die hard and his love of affluence and self-indulgence soon plunged him into debt. In 1664 he left Holland for Copenhagen, where King Frederic III generously agreed to finance his experiments in transmutation. Shortly before, with the

same pretext, he had obtained money from Queen Christina of Sweden, a patron of learned men and alchemists, before her abdication in 1654. Upon the death of the Danish king in 1670, and sensing hostility growing around him, Borri left for Turkey. The flight was short-lived, for he was arrested in Moravia and conducted before the Papal authorities.

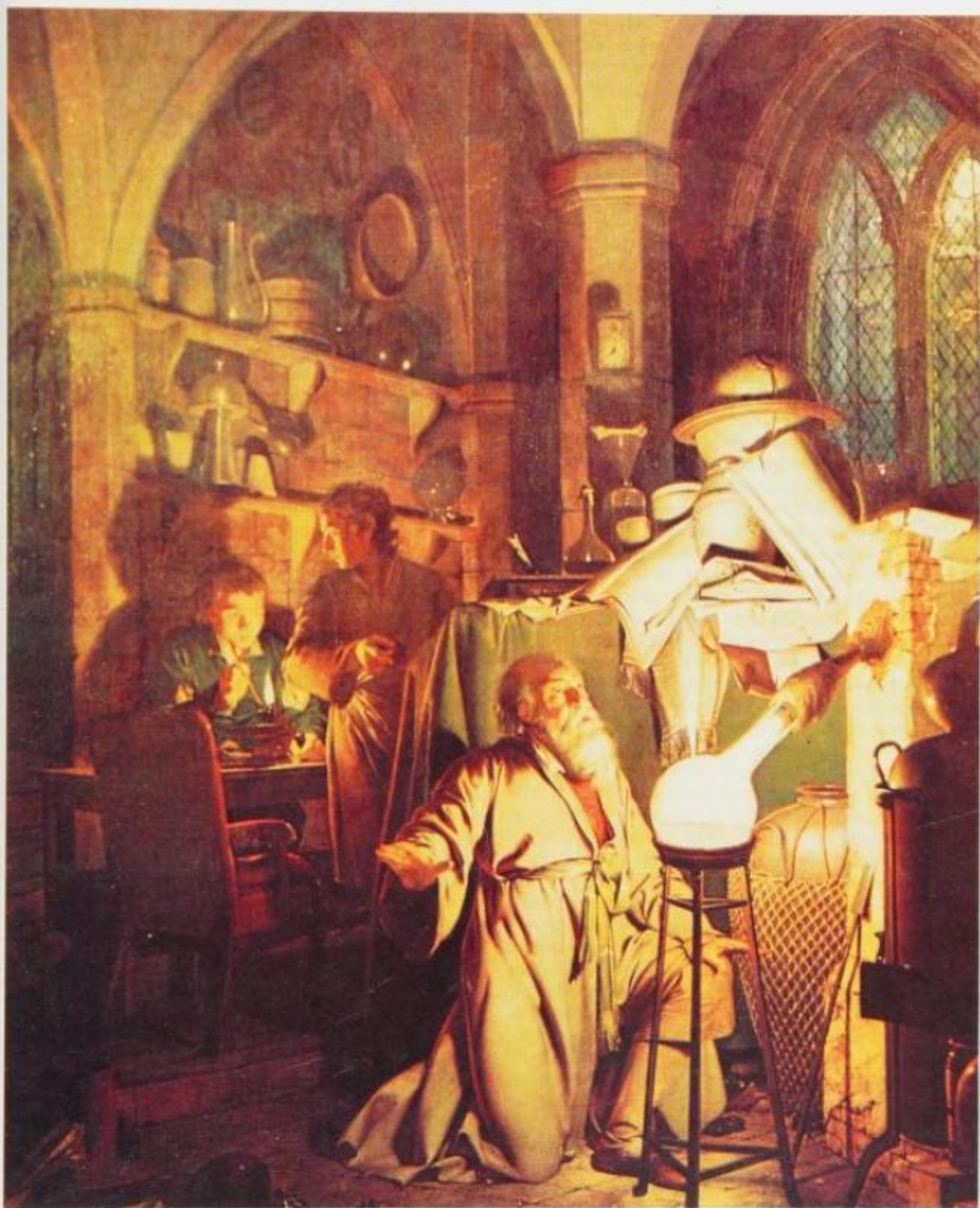
Once Borri had been persuaded to retract his earlier statements, the death sentence was commuted into life imprisonment. But this was not to be the end of the story. He was imprisoned in Castle Sant'Angelo near the Vatican, where for a while he enjoyed relative freedom and was even allowed to set up an alchemical laboratory in the Castle cellars. He was also permitted to leave and return to the prison at will in order to continue his studies and practice his profession. He attended the court of Christina of Sweden, who was then living in Rome. Her death in 1689 followed by the election of Pope Innocent XII two years later, marked the end of Borri's career. The intolerant Pope refused to allow him any further concessions and confined him within the walls of his prison, where he died on 13 August 1695.¹

Borri is a controversial figure. For some critics he was an astute adventurer, who yearned for luxury and success and squeezed money out of rich and poor alike with promises of miraculous healings and even the Philosopher's Stone itself. For others he was a respectable alchemist and a talented physician, unjustifiably persecuted by the Catholic authorities. However, his debts, his hasty retreats from many places, his general life style are more in keeping with an adventurer than a genuine adept of the Hermetic tradition.

As the Leiden and Stockholm papyri show, Egypt was the theater for the contemporary development of pre-chemistry techniques in which mystical practices had no part, and the *Sacred Art of Zosimos and Kleopatra*.



Frontispiece of *Physica subterranea* (1668) by J. J. Becher, which introduced the theory according to which all mineral substances were composed of three earths: *terra lapida*, *terra pinguis*, *terra mercurialis*. Even though these terms were new, Becher's theories were based on Paracelsian alchemy.



The waning popularity of alchemy in the 18th century is mirrored in this painting by Joseph Wright (1734-1797), which shows an alchemist who, having in his quest for the Philosopher's Stone discovered phosphorus, prays for the successful outcome of his experiments, in the manner of the ancient chemical astrologers.

Louis, Count of Saint-Germain, became for the adepts of the occult sciences a sort of immortal sage worthy of the tradition of the Rosicrucian Invisibles. Saint-Germain is sometimes thought to have written a book entitled LA TRÈS SAINTE TRINOSOPHIE (THE HOLY TRINITY), which is almost certainly apocryphal and generally shunned by alchemical tradition.⁷

A supposed pupil of Saint-Germain was a Sicilian named Giuseppe Balsamo, born at Palermo in 1743. He showed an early interest in the occult sciences and the theory of *animal magnetism*, and in 1776 he became a Freemason. Using the name of Count of Cagliostro, he travelled throughout Europe, flaunting divinatory powers and professing to effect marvellous cures. He made powerful friends, but unlike Saint-Germain he was always ready to renounce his lavish life-style to assist the poor without reward. Today we know that his medicines contained nothing extraordinary, and simply conformed to the spagyric pharmacopeia of the time.⁸ It is more than likely that Cagliostro's successes as a healer were due to the *placebo effect* of his pills and his magnetic personality. In 1784 Cagliostro founded a Masonic lodge of "Egyptian freemasons" for the practice of Egyptian rites. It came in the wake of the craze for ancient Egypt that swept through France during the 17th and 18th centuries, and which gave rise to occult practices inspired by fanciful interpretations of ancient Egyptian philosophy. Having founded the lodge, Cagliostro proclaimed himself *Grand Copt*, or supreme chief of the order, and bestowed on his pretty wife Lorenza Feliciani the title of *Queen of Sheba*, making her responsible for the initiation of female members (women were excluded from the real Masonic lodges). Cagliostro promised his adepts a longer life and renewed physical vigor. All this, together with his medicine-making soon earned him the reputation of an alchemist. In Paris he and his wife were involved in the affair of the "Diamond Necklace", a notorious case of fraud at the court of Marie Antoinette, and they were imprisoned for a time in the Bastille. He left France and travelled in Europe again but in 1789 while in Rome he was arrested by the Inquisition and accused of founding "some feeble ghost of an Egyptian lodge." He was sentenced to life imprisonment in the fortress of San Leo, near Urbino, where he died in 1795.

Not always did the adventurers of alchemy lead such ambiguous lives, though sometimes they came to a tragic end. James Higginbotham (1752-1783), who at the age of thirty or thereabouts changed his name to James Price in order to comply with the wishes of a relative who had bequeathed him a large sum of money, was a highly respected London physician, a member of the Royal Society and expert chemist. Thanks to the legacy, Price abandoned the medical profession and settled in a country house in the county of Surrey where he built and equipped a laboratory and dedicated

his efforts to chemical research. Before long he announced that he had succeeded in transmuting mercury into gold and he invited some eminent men to witness the experiment. Inexperienced as they were in scientific matters, they were much impressed when Price added a white powder to fifty times its weight of mercury, mixed them with borax and nitre and heated them in a crucible. When the mass had cooled and was turned out it seemed to be a silver ingot equal in weight to the mercury. A similar operation, carried out with a red powder produced gold. Price agreed that the gold and silver should be submitted to assay, but he refused to divulge the secrets of his discovery.

These experiments caused a great sensation. Perhaps worried about the way things were going, Price declared that although his experiments were indisputable, he did not believe in the Philosopher's Stone; he added that his stock of *powders of projection* had run out and that it was far too expensive and demanding on his health to prepare a further supply. Not everyone was willing to believe his word and he was openly suspected of fraud. In the light of so much controversy, the Royal Society insisted that the experiments should be repeated before three officially appointed members who were experts in chemistry. At first Price refused but so much pressure was brought to bear on him that in the end he was obliged to agree, and promised that he would have more *powder of projection* ready in six weeks. At the end of this time the three delegates arrived at Price's house and he conducted them to the laboratory. Making an excuse to leave them for a moment, he drank a concoction of hydrocyanic acid, returned to the laboratory and collapsed and died before their eyes.⁹

The alchemical tradition of the 18th century produced but a handful of prominent figures. Perhaps the most representative of these was Antoine Joseph Pernety, though he is most often thought of as a learned scholar of Hermetic philosophy rather than a true alchemist.

Antoine Joseph Pernety was born at Roanne, in the Forez region, on February 13, 1716. He came from a well-educated family, his uncle, Jacques Pernety, being an acclaimed historian who acquired fame throughout Europe with his book *LETTRES PHILOSOPHIQUES SUR LA PHYSIONOMIE (PHILOSOPHICAL LETTERS ON PHYSIOGNOMY)*, published in 1746. Antoine Joseph abandoned his studies early to embrace an ecclesiastical career. On June 29, 1732 he professed allegiance to the Rule of St. Benedict and joined the Congregation of Saint Maurus at the Abbey of Saint-Allire de Clermont. He soon distinguished himself for his acute intelligence and was sent to the Abbey of Saint-Germain-des-Près, in Paris, where he was able to continue his studies. It was presumably during this period that he began to show an interest in alchemy, having at his disposal all the major works of the great alchemists of the past. At that time in France



An 18th century version of the alchemical bestiary: the central figure, composed of Ouroboros, lion and phoenix, forms a sort of stylized dagger. Failing as it did to introduce practical and philosophical innovations into its discipline during the Age of Enlightenment, alchemy merely revived old theories.

be revealed, which would otherwise have remained a mystery to the uninitiated forever.

According to Heliophilus a Percis, Paracelsus's affirmation was inspired by a number of passages from the Holy Scriptures on the end of world. In the BOOK OF MALACHI (III:23) it was written: "Behold, I will send you Elijah the prophet before the coming of the great and dreadful day of the Lord". In the GOSPEL ACCORDING TO ST. MATTHEW (XXIV:14) Jesus, when questioned by his disciples as to what would be the signs of his coming and the end of the world, replied: "And this gospel of the kingdom shall be preached in all the world for a witness unto all nations; and then shall the end come". In REVELATIONS (V:1-5), the beginning of the *Great Day of the Lord* began with the opening of the book of divine secrets. In alchemical terms, these passages were quoted to support the theory of the coming of Elias, a prophet of the chemical arts, an *Elia Artista* who would announce the gospel of alchemy to the entire world, breaking the seals of the divine secret of the Great Work.²⁰

In truth Paracelsus, apart from being a physician and an alchemist, had also shown a lively interest in religion and theology. He had nurtured Messianic ideas of a realm of justice, a Golden World that was to follow the destruction of the present world. That future era would see the accomplishment of the alchemical ideal of the transmutation of base metals into gold, which would thus be *redeemed* from their original imperfect state. The advent of *Elia Artista* — Elias was one of the *patrons* of alchemy — was to herald the end of the world.²¹

At the time of Rosicrucian alchemy Paracelsus's allusions to *Elia Artista* and subsequent speculations on the theory were still being discussed. Perhaps people were waiting for an Hermetic revelation that would open the door to a new age of greater wisdom and peace. In the INTROITUS APERTUS AD OCCULSUM REGIS PALATIUM, the masterpiece of Rosicrucian alchemy written by Eirenaeus Philalethes, an author quoted frequently by Pernety, the alchemical Elias was depicted as the precursor who "prepares the regal way of the Lord".²² Helvetius, in his account of the supposed transmutation, refers to the stranger who come to his house to reveal to him the virtues of the Philosopher's Stone as "this Elias." In using the name *Elias* Helvetius surely meant that his visitor's knowledge of the Hermetic art was equal to that of the patron of alchemy. But it is also possible that in Helvetius's time, when the would-be apostles of alchemy were spreading their credence throughout Europe, the anonymous authors of spectacular transmutations were seen as an army of *Elia Artistas* charged with revealing the secrets of alchemy to men of science and authority, in preparation of the coming of the age of alchemy. A century after the episode narrated by Helvetius, at the time of Brumore and Pernety, when real changes were hovering on the threshold of history

(the French Revolution and the scientific revolution), the notion of *Elia Artista* had come to light again and was probably discussed in the esoteric circles that had sprung up far and wide.

While Pernety was in Berlin, a new doctrine had appeared on the horizons of Europe, developed by the Swedish scientist, philosopher and theologian Emanuel Swedenborg (1668-1772). He taught how to achieve angelic visions with open eyes, using a technique that included breath control. Pernety was so deeply impressed by Swedenborg's writings that he translated a couple of them into French, HEAVEN AND HELL, FROM THINGS HEARD AND SEEN (1782) and DIVINE LOVE AND WISDOM (1789), which certainly helped to divulge this philosophy in France. At the same time Brumore edited a work composed of a number of extracts by Swedenborg: TRAITÉ CURIEUX DES CHARMES DE L'AMOUR CONJUGAL, published in the French language, in Berlin, in 1784.²³

Taking his inspiration from the theories of both Brumore and Swedenborg, and presumably from the rites of the Freemasons, Pernety founded his own *Hermetic Rite*, or brotherhood, the adepts of which practised divine magic in order to obtain the revelations of angelic spirits. The initiates questioned the Holy Word, a sort of hypostasis of the Supreme Intelligence, and carefully noted down the answers. Pernety's *Rite*, based on Hermetic magic and the pretension of entering into contact with the angels, in some ways resembled John Dee's alchemy. Many illustrious figures were said to belong to the society: Henry of Prussia, Charles-Adolf of Bruhl, the future Frederick-William II, the queen of Prussia.²⁴

While Swedenborg's doctrine was frowned upon by the Lutheran Church, Pernety's *Rite* was seen as an added danger. It was not long before Frederick II was persuaded to relieve Pernety of all responsibility. The Frenchman took his leave of the monarch and returned to his homeland. Thiebault has left us with this impression of Pernety as he was during his stay in Berlin: "Pernety was a highly learned man, but his science was nothing but rudis indigestaque moles (a shapeless, disorderly mass of notions); and he had such a moderate and affable character that he never made an enemy of anyone, and he was delightfully considerate in company. He believed in the Cabala, in spirits, in spells etc.; and what is more, despite such stupidities, everybody loved him..."²⁵

In 1783 Pernety was once again in Paris, but not for long. Perhaps because of problems with the religious authorities, he left the capital and went for a while to the house of his brother, who was chief contractor at the town of Valence, and where in October 1786 he accepted the title of Permanent Secretary of the local Civic Society. Immediately afterwards he settled at Avignon.

The choice was not a chance one. During the Berlin meetings of the *Hermetic Rite*, Pernety had apparently

learnt from the Holy Word that he was destined to become the prophet of a new era, the high priest of a new people of which Grabianka was to be the sovereign. Brumore had been informed by the Holy Word that Avignon was the place where this new sect was to settle. Brumore had died in 1786 and already by the following year Pernety and Grabianka were in Avignon, ready to summon their followers. The headquarters were set up in a country house near to Bédarrides, seat of the Marquis Verneti of Vaucroze, located on a rise known by the name of *Tabor*. Pernety and his companions called their house *Temple of Tabor* while they themselves assumed the name of *Illuminati of Avignon*.

During the second half of the 18th century there were many sects calling themselves *Illuminati*. The most famous of these was the order of the *Illuminati of Bavaria*, founded in 1776 by Adam Weishaupt, professor of canon law at Ingolstadt. Detesting Jesuitism, he sought, like the Rosicrucians, to fight ignorance, superstition and tyranny by founding an association for rational and religious enlightenment, but the society cherished political aims as well in that the higher members were pledged to the furtherance of republican opinion. The methods advocated to achieve these aims were far from pacific: princes and ecclesiastics were to be overthrown and nationalistic fanaticism eliminated. All religious dogmas and forms of worship were rejected in as much as they divided, rather than united mankind, and a form of deism was to take their place. The Order of the *Illuminati of Bavaria* was officially suppressed in 1785, though it remained active until 1789. Other groups of *Illuminati*, including the sect founded by Pernety, were more of a mystico-esoteric nature professing to have special knowledge of God and things divine, though they were not completely detached from Masonic and revolutionary ideals.²⁶

In 1787 the *Illuminati of Avignon* counted some one hundred members, all of whom participated in the magic rites and ceremonies during which each member conversed with his own special angel (Pernety was assisted by the angel Assadai). As in Berlin, the Avignon sect included among its initiates a number of illustrious names: the brother of Gustav III of Sweden, the Baron of Stael, Morinval the banker, the Marquis of Thorné, Esprit Calvet, professor of medicine at Avignon University, the Count of Divonne, the Duchess of Wurtemberg.²⁷

Why should the *Illuminati of Avignon* have called the rise on which their meeting place was located *Tabor*? According to ancient Christian tradition Tabor, a hill in southern Galilee, was the place where the Transfiguration of Christ took place, as described in the Synoptic Gospels.²⁸ "And after six days Jesus taketh Peter, James, and John his brother, and bringeth them up into a high mountain apart. And was transfigured before

them, and his face did shine as the sun, and his raiment was white as the light. And, behold, there appeared unto them Moses and Elias talking with him..."²⁹ Two of the protagonists of this episode were dear to the alchemists: Elias, who was carried into heaven by a whirlwind, and James the Apostle, *Son of Thunder*, whose sepulchre at Santiago de Compostela was a shrine for pilgrims from all over the world, and the goal of the symbolical pilgrimage described by Flamel and many other alchemists. In medieval times the pilgrimages ended at the western door of the cathedral, now no longer standing, which portrayed the scene of the transfiguration on Mount Tabor. Even for the most humble of pilgrims the final goal of this long and difficult quest for sanctification was transfiguration, an irreversible event of the soul ascending to heaven in a paroxysm of ecstasy.³⁰

The transfiguration, the sudden splendor that penetrates the entire body, and changes the human being into a *man of light*, was the final objective of all forms of spiritual alchemy, and a phenomenon experienced and described, though in different terms, by mystics of all ages the world over. There was also a physical transmutation, in which the original physical body was transformed into a new one, which, with its renewed vitality (as was achieved by the *red elixir*), became a *Body of Glory*. Perhaps with the intention of underlining this aspect of physical transmutation, the Greek version of the Gospels, when describing the transfiguration on Mount Tabor, uses the term *metamorphosis*, transformation. In view of the many allusions made in alchemical philosophy to the transfiguration experience, it is possible that in choosing the name *Mount Tabor*, the *Illuminati of Avignon* were referring to their attempts to undergo an experience of transfiguring enlightenment.

In the *Temple of Tabor*, beset by visions and angelic revelations, Pernety's mystical impulses began to concentrate more and more on the figure of the Holy Virgin, who in Pernety's eyes was worthy of the same esteem accorded to the Father, the Son and the Holy Ghost. Pernety imposed his own personal point of view on the entire community of the *Temple* and for the *Illuminati of Avignon*, the Trinity became a Quaternary. The result of so much Marian love was Pernety's last book *LES VERTUS, LE POUVOIR, LA CLÉMENTCE DE LA GLOIRE DE MARIE, MÈRE DE DIEU* (THE VIRTUE, THE POWER, THE CLEMENCY AND THE GLORY OF MARY, MOTHER OF GOD (Paris 1790). Grabianka, who was against the new cult, quarrelled with Pernety causing a split in the community and then broke away together with a group of followers to found *Le Nouvel Israel*. The head of the new group was Ottavio Capelli, a Roman who claimed to communicate with the Archangel Raphael, and who fell into the hands of the Inquisition shortly afterwards. The *Illuminati of Avignon* must also have roused the attention of the Inquisition, for mention was made of Pernety's group in a decree

art is incomparably greater and more noble than chemistry, but this does not mean that we should not appreciate chemistry and praise those who spend their time studying it; the new science will bring many advantages to medicine, and its discoveries will help to make life more comfortable; our scorn should be directed not towards the new chemists, but towards the puffers, the "idolaters of Hermetic philosophy", who bring ridicule to the *Art*; but however useful this new chemistry may be, we must not fall into the trap of believing that it is the one and only true chemistry, in other words it must not lead us to scorn and abandon Hermetic chemistry.³³

Another worthy alchemist of the 18th century was Karl von Eckartshausen (1752-1803), generally remembered as a Christian theosophist and author of religious books. His best-known work, a veritable best seller reprinted many times and in many languages — was a short book of worship, *GOTT IS DIE REINSTE LIEBE* (GOD, THE PUREST OF LOVE), in which readers were invited to open their hearts to divine love.

Eckartshausen was the natural son of a Bavarian count, Karl von Heimhausen and Marianna Eckart, who died in childbirth. The death of his mother and the knowledge that he was illegitimate strongly affected Eckartshausen's character. He earned a degree in philosophy and law, was appointed *member of the Aulic Council* and enjoyed the patronage of the Elector of Bavaria, who assigned him the post of Library Censor. A pious man, always ready to help others, he married three times and had six children. He was the author of seventy-nine works on many different subjects and was interested in the Christian and Jewish Cabala, chemistry, animal magnetism and arrhythmia (the study of the rhythms of the human body and the universe by way of complex calculations). He died of an incurable disease.

The basic principles of von Eckartshausen's mysticism were recorded in a little book of just a few pages entitled *DIE WOLKE ÜBER DEM HEILGTHUM* (THE CLOUD OVER THE SANCTUARY), and composed of six chapters in letter form. He opposed the rationalism of the Age of Enlightenment, maintaining that true wisdom did not come from the observation of the perceptible world, but from deep within man himself and from the development of his perception of the Divine Nature. According to Eckartshausen the key to true knowledge and wisdom was not possessed by the sages of the profane world, but by the members of an inner community, a company of chosen people which had been in existence ever since the first day of the creation. Its members were scattered throughout the world, but remained united in spirit and in truth. This was the Community of the Light, the invisible inner Church, which bore within it the essence of the most ancient of human sciences, including the primordial mysteries of all sciences and all techniques. The intrinsic strength of this

Church was enhanced by superior forces and included members from many worlds, forming a theocratic republic which would one day rule supreme. With the fall of Adam, immortal man had become mortal, but there existed the possibility of Regeneration, the secret of which was revealed by Jesus to his disciples. Within our blood was hidden a viscose substance called *gluten*, which was the essence of sin, the *quid* of man's animal nature. In its most fermented state, this *gluten* generated presumption, pride, avarice, egotism, anger, lust and other similar sins. This ferment of sin was to be found in all mankind in varying degrees and was transmitted from father to son. However, man was endowed with the possibility of modifying it through communion with the world of light. This deeply-rooted corruptible essence could be destroyed and the subsequent regeneration was achieved by virtue of the *tinging force* of the blood of Christ; by becoming one with Him mortal man would become divine. Rebirth took place in three phases: in the first and second there was spiritual regeneration, in the third physical regeneration.³⁴

In chemistry *gluten* (from the Latin *gluten*, meaning glue) is the nitrogenous part of the flour of wheat and other grains. Borrowing the term and endowing it with a spiritual meaning, Eckartshausen laid down the foundations of his *internal chemistry*. Already in *THE CLOUD OVER THE SANCTUARY* he had proposed other analogies between the Christian faith and chemistry or alchemy, stating that the blood of Christ regenerated man just as the alchemical *tincture* regenerated metals; that regeneration occurred in three phases, as in the Great Work; that regeneration involved both the body and the spirit.

The German theosophist expressed his spiritual alchemy in even more detail in *CHEMISCHE VERSUCHE* (CHEMICAL ESSAYS), published in 1802. Subsequently he set down the basic principles of his alchemical gnosis in the form of a series of questions and answers in a booklet entitled *KATECHISMUS DER HÖHEREN CHEMIE* (CATECHISM OF HIGHER CHEMISTRY). In order to achieve spiritual and physical regeneration — wrote Eckartshausen — man must know the light, become an enlightened being by joining the ranks of the *community of the light*. To do this man must first awaken and activate an invisible force within, the only one capable of attaining inner perfection. There are seven ways to do this, just as there are the seven sacraments: the seventh consists in the perfect association of light and fire thanks to an intermediary being emanating from the light and the fire and capable of forming the most perfect of all associations. The *community of the light* has its own law, expressed in ten commandments (like Moses's tables), the ultimate aim of which is to ensure that the light penetrates the matter until the fire is totally united with the light, and the spirit — released as a consequence of the uniting of the fire and the light — has brought new vigor to the matter.



The *ludus pudorum*, child's play, one of the last miniatures of the *Splendor solis* (16th century). The Latin alchemists sometimes put the expression *ludus pudorum* at the end of their books to underline the extreme simplicity of the Great Work. On other occasions it was used to refer to the final stages of the alchemical experiment, when the alchemist's only task was to mind the fire. The term was still being used in this sense by Cyliani, the 19th century French alchemist, in *Hermès dévoilé*.

the alchemists in that it was synonymous with resurrection. HERMES DÉVOILÉ echoed the style and contents of the classical works of alchemical tradition, punctuated with visions and other strange occurrences, rich in an exaggerated symbolism, astutely blending in an inextricable knot chemical metaphors and spiritual allegories. His efforts, however, were not enough to revive the faded identity of the *Sacred Art*. On the contrary, the years to come were characterized by the confused pretences of the craze for the occult launched by Alfred Charles Constant, better known as Eliphas Levi (1810-1875), Joséphin Péladan (1858-1918), Stanislas de Guaita (1861-1897) and Gerard Encausse, nicknamed Papus (1865-1916). One of the successors of 19th century occultism, Alister Crowley (1875-1947), in his *magia sexualis* revived some of the notions of Tantric alchemy, envisaging alchemy as the practice of sexual magic.

In the second half of the 19th century the studies conducted by the French chemist Marcelin Berthelot and other historians of science once again brought the age-old *Sacred Art* to the attention of the general public, albeit relegated to the role of an ingenuous pre-history of chemistry. Not that it could have been presented in any other way, for the disparaging comments of the occultists were still fresh in the minds of everyone. It was Herbert Silberer, a psychoanalyst of the Viennese School, who first liberated alchemy from some of the debris in 1914 when he published *PROBLEME DER MYSTIK UND IHRER SYMBOLIK* (*PROBLEMS OF MYSTICISM AND ITS SYMBOLISM*), which included and analysed several extracts from alchemical texts, and presented alchemy as a spiritual discipline worthy of the highest consideration. Of this same opinion were Carl Gustav Jung and his followers.

While Herbert Silberer was widening his knowledge of alchemical literature, the *Art* launched its final challenge, its final mystery: Fulcanelli. The man who hid his identity behind the pseudonym of Fulcanelli (possibly derived from a combination of *Vulcain* and *Elie*) lived in Paris during the first three decades of the 20th century, and succeeded where others had failed to arouse a renewed and lasting interest in the more traditional aspects of the *Art*. His name appeared on the cover of two books: *LE MYSTÈRE DES CATHÉDRALES*, written in 1922 and published in 1926, and *LES DEMEURES PHILOSOPHALES*, published in 1929.

Fulcanelli's true identity has never been discovered. Some have speculated that he was the painter Jean-Julien Champagne (1877-1932), or Eugène Canseliet, one of Fulcanelli's disciples from the year 1915 onwards and recipient of the royalties from the sale of his books, but neither theory is backed by substantial proof. As in the case of Nicolas Flamel and other western alchemists, the mystery only added to the myth of Fulcanelli, who became the protagonist of incredible stories. Sometime during the Twenties, in the presence

of two witnesses, in a laboratory of the Sarcelle gas works, he is reputed to have allowed Canseliet to carry out the transmutation of a piece of lead into gold thanks to a small quantity of the *powder of projection*; another story claimed that, having at last obtained the Philosopher's Stone, Fulcanelli voluntarily disappeared, and changed his identity in order to better guard his secret; in 1937, during the course of a conversation with the physicist and writer Jacques Bergier, he was supposed to have expressed prophetic ideas on the atomic bomb and the risks of nuclear energy; then in 1945 the allied secret services were supposedly on his tail because he knew too much about atomic energy; and he was reported to have been seen alive and looking no older than thirty during the Fifties and Sixties.⁴¹

Even if Canseliet was not Fulcanelli, he certainly did much to enhance the Fulcanellian myth. Canseliet's Prefaces to many editions of *LE MYSTÈRE DES CATHÉDRALES* and *LES DEMEURES PHILOSOPHALES* were the first and most substantial source from which the mystery arose. Canseliet was the sole witness, and a far from reticent one, to many of the main events of the legend: the successful transmutation at the gas works, Fulcanelli's disappearance, his reappearance as a young man some thirty years later. In reality, Canseliet's accounts are full of discrepancies, not least among which are the dates he quotes. In the Preface to the first edition of *LE MYSTÈRE DES CATHÉDRALES*, issued in October 1925, Canseliet wrote: "Much time has passed since the Author of this book was with us". In the Preface to the second edition, written in 1957, he affirmed: "When *LE MYSTÈRE DES CATHÉDRALES* was written, in 1922, Fulcanelli had not yet received the Gift of God... As soon as the first part of his book was completed, my teacher expressed his wishes — final and absolute — that his true identity should remain a secret..." If Fulcanelli died after 1922, how was it then that in 1925 Canseliet asserted that "much time has passed" since his death? Is it possible that Canseliet was unaware of these and other minor incongruities? Was it merely carelessness, or a desire to astonish people, to increase the Fulcanelli mystery, and perhaps sell more copies of *LE MYSTÈRE DES CATHÉDRALES* and *LES DEMEURES PHILOSOPHALES*? Like his teacher, Canseliet was an alchemist; it is a mistake to read alchemical literature according to the canons of logic, for everything in it is a pretext to tease the reader's intellect, to reveal and conceal at the same time. In playing games with his teacher's biography, whether authentic or imaginary, Eugène Canseliet achieved an otherwise impossible result: to awaken a passion for traditional alchemy in many people, by showing that even an age-old science like the *Art* could still hold surprises for the 20th century mentality.

Fulcanelli's books have enjoyed widespread success. For nearly half a century — the time that lapsed between

walls of a cathedral. One of these depicted a rider being thrown from his horse; it was intended as an allegory of the downfall of pride.⁴⁴ The same scene is to be found in other medieval churches, again representing the defeat of pride, and is generally part of a series portraying human vices and virtues.

Was Fulcanelli deliberately telling lies? Before accusing him of dishonesty there are two points we should consider. The exact meaning of a particular statue or carving in terms of Christian iconography was really of little interest to Fulcanelli. The sculptures of the French cathedrals were for him no more than the pretext for a symbolic dissertation which concealed and revealed at the same time. The second observation is this: as with all major alchemical writings, *LE MYSTÈRE DES CATHÉDRALES* is open to more than one explanation. Let us go back to Fulcanelli's definition of the horse and rider. The fall of the rider represents the *rectification of the spirit*; the horse portrays the spiritual matter, the rider the heaviness of the base metal; at each distillation the horse unseats its rider, the *volatile* abandons the *fixed*. Let us forget for a moment the possibility that Fulcanelli is describing chemical operations and is instead talking of the purification of humanity, using a language in which *metal body* stands for *human body*. According to early Hermetic gnosticism, in order to purify the spirit (Fulcanelli says *rectification of the spirit*) one first has to relinquish pride: in renouncing his corrupt and sinful ways, man permits the spiritual essence (the *horse* to *distill* itself (rise upwards), thus breaking free of the weight of corrupt matter (the *rider*, the *base metal*). In this manner Fulcanelli's interpretation coincides perfectly with that of Christian iconography, the only difference being that the alchemist conceals the process of spiritual transmutation behind a description of the transmutation of a metal.

To the eyes of the expert Fulcanelli's books are truly alchemical; as such, they are open to different interpretations, though it is not always easy to distinguish one from the other. Fulcanelli achieved this thanks also to the *phonetic Cabala* examples of which are given in Chapter V.

Fulcanelli's efforts and the excitement aroused by his books and his legend, have given traditional alchemy a new lease of life in the very middle of the 20th century. Contrary to what one might think, Fulcanelli was not an isolated case. *LE MYSTÈRE DES CATHÉDRALES* and *LES DEMEURES PHILOSOPHALES* both bear a telling dedication: "To the Brothers of Heliopolis". Fulcanelli founded or revived an Hermetic Brotherhood, obviously secret, which bore this very name. And the same dedication is to be found in the books of his disciple Canseliet; not only

this, Canseliet actually signed his writings: Eugène Canseliet, F.C.H., (*Frère de la Confraternité d'Héliopolis*) So the Brotherhood evidently outlived its founder and probably still exists today.

Why should Fulcanelli have chosen the name *Brothers of Heliopolis*? Heliopolis (City of the Sun) was an ancient Egyptian city, located to the north-west of what is now Cairo, and the centre of an important Sun cult. In alchemy the Sun was synonymous with gold, while the alchemical symbol for gold was a hieroglyphic of a deified Sun. The choice of the name Heliopolis might therefore have been an allusion to the Egyptian origins of alchemy, but it could also have been a reference to von Eckartshausen's *KATECHISMUS DER HÖHEREN CHEMIE*, the 1819 edition of which, for some strange reason, gave Heliopolis as the fictitious place where the book had been published, whereas in actual fact it had been published in Munich. Less likely, but not impossible, is the hypothesis that the Brotherhood of Heliopolis was already in existence in Eckartshausen's time and that this German theosophist had actually been one of its members.

Eugène Canseliet was not Fulcanelli's only heir. The renewed interest in alchemy gave rise to numerous groups, associations and brotherhoods dedicated to the study of alchemy. Their approach to the subject varies from school to school: some see alchemy as a form of meditation and spiritual enlightenment that has nothing to do with chemistry, similar to the theosophy devised by Böhme and von Eckartshausen; others see the *Art* as a practice for the sublimation of sexual energy, in line with late Taoist and Tantric alchemy;⁴⁵ others, the inheritors of the spagyrist, are concerned only with the chemical aspects of the Great Work;⁴⁶ a small minority follow the path of traditional alchemy, an inseparable duality of *laboratory and oratory*, in which there is a close and continual interrelationship between the adept and his materials.⁴⁷ To be an upholder of traditional alchemy in this day and age is no easy matter. In our noisy overcrowded cities how could we ever hope to study the secrets rhythms of Nature? And where could we find, even in the countryside, an unpolluted environment with which to "harmonize". And how could we possibly detect the deeper vibrations within us when we are bombarded by radio waves from morning till night? And yet, asserts an anonymous contemporary alchemist, it takes very little to get some remarkable results: "As far as the recipe goes all that you need are a small well-insulated stove, a Bunsen burner, a lot of patience and the ability to recognise the right moments... Work at it and you will see some amazing and wonderful things!"⁴⁸ It seems that the golden dream of the Philosopher's Stone enriches the nights of many an alchemist even today.

CHAPTER X

THE ALCHEMIST IN EUROPEAN SOCIETY

In the *LIBELLUS DE ALCHEMIA* ascribed to Albertus Magnus, the author states eight rules to be observed by the adept, if his endeavors are to lead to a successful outcome.

"The first rule is that the alchemist should be silent and discreet and not reveal to a living soul his secret; not for any reason whatsoever, being strong in the conviction that should others learn the secret it would surely be divulged; and once the secret has been divulged, the alchemist would be called an impostor, set on the road to ruin and the Work would never be perfected.

"The second rule is that the artist should live in a special place and lodgings, out of the sight of his fellow men; the house should have two or three rooms wherein to carry out sublimations, solutions and distillations, as I will later explain to you.

"The third rule is that the alchemist should chose the right time to operate, the most suitable hour of day for the sublimations, the solutions and the distillations; because sublimations carried out in the winter would be ineffective, while in truth the solutions and calcinations can be carried out at all times, but all these things I will explain clearly when I describe the operations.

"The fourth rule is that the artist should be solicitous and assiduous in his work, and not become impatient but persevere till the end; for if he begins and does not persevere, he will waste time and money.

"The fifth rule is that he should operate according to the precepts of the Art; carrying out first of all the triturations, secondly the sublimations, thirdly the fixations, followed by the calcinations, the solutions, the distillations, the coagulations and so forth, in the correct order. If instead he tries to tinge before sublimation, or to coagulate and dissolve before distillation, he will lose his powders; because when they are projected, he will achieve nothing from them and will very quickly go backwards instead of forwards. If he tries to tinge with fixed powders, which have not

been soluted or dissolved, these will neither permeate nor mix with the bodies.

"The sixth rule is that all the vessels which are to contain the medicines, the waters, the oils, whether they are to be placed on the fire or not, must be made of glass or vitrified. In fact, if acute waters are placed in a copper or lead vessel, they turn black and foul. If they are placed in an earthenware vessel, they will penetrate right through it and everything will be destroyed.

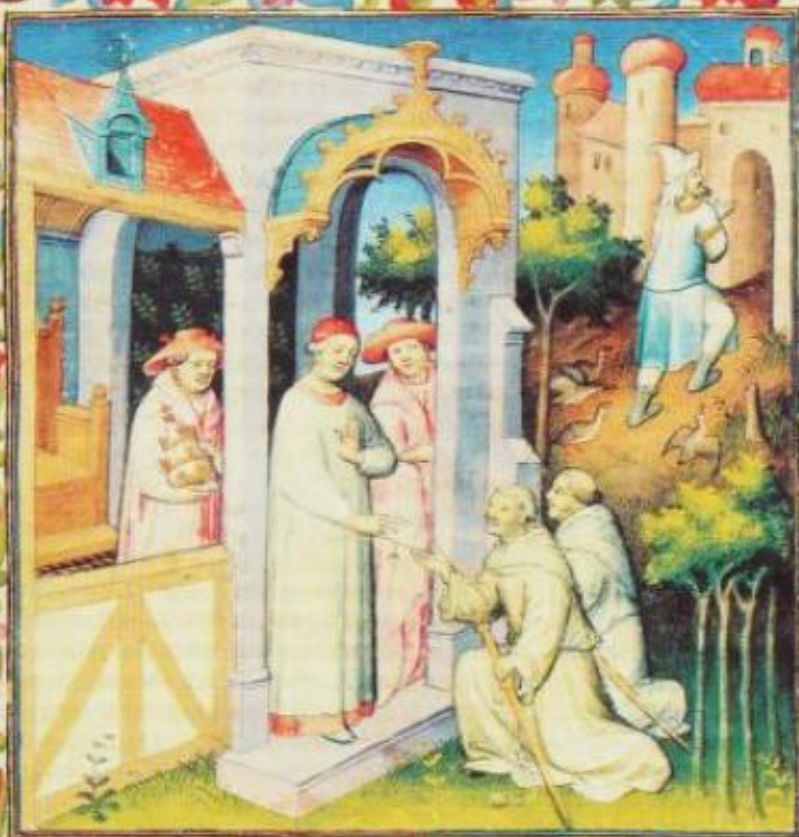
"The seventh rule is that you take heed above all not to go before princes and potentates, for two reasons: if you do go before them, every now and then they will summon you and ask: "Maestro, how will you succeed? When will you show us something new?" And being impatient to see the end of the Work, they will say it is worthless, and a fraud etc., and you will be very bothered. And if the Work is not successful, you will receive their disapproval for ever. If instead it is successful, they will see fit to keep you there, and never permit you to leave. Thus you will have been imprisoned in the ties of the words spoken by your own mouth and trapped by your own arguments.

"The eighth rule is that no one should embark upon these operations if he does not possess sufficient money to be able to buy all that is necessary to approach the Art; if having once begun the Work his money runs out, he will have wasted all his money and everything else as well."¹

The first and seventh rules concern the social behavior of the would-be alchemist, who is to keep well away from indiscreet eyes, living a quiet, modest existence, being careful not to attract the attention of inquisitive, avid people and above all refusing the opportunistic protection offered by princes and other people in high places. The importance of working alone without any outside help inspires the eight rule, which warns the would-be alchemist to work out his expenses carefully.

Cy comence le liure s'exte au d'ic de lord'ic des freres menours .

97



Y comence le chemin de la p'grinacion ce ou
 voyage que fist un bon homme de lo'dic des freres
 menours nomme frere odric de force nully. ne de vne
 terre que on appelle poir de bouffe qui par le com'ce
 du pape ala oultre mer pour prechier aux m'ltar
 ans la foy de dieu. Et sont en ce liure contenuz les
 merueilles que li dis freres vnt p'f'ouvent et aus
 sy de plusieurs autres lesquelles il oy compter en ces
 parties sus d'icte de gens dignes de foy. Mais ceulz qui oy raconter ce
 qual ne vit point ne raconter il point pour vne foye pour oir dire ce le to
 ne en son langage quant a ce vint. Et fu ce liure fait en latin par ce frere de
 vant nomme en lan de grace mil. CCC. xxx. y'ans le. xij. iour de iouuer

15th century miniature showing Pope John XXII receiving homage from two Franciscan monks. It was John XXII who issued the decretal *Spondent quas non exhibent* (1317) against the coining of alchemical gold.

But the suspicion that alchemy was devil-inspired was never entirely overcome. In 1578 it was again unearthed by the Dean of the Sacred Rota Francisco Peña, who published a new edition, including a commentary, of Eymeric's *DIRECTORIUM INQUISITORUM*. "Eymeric's opinion of the alchemists is not to be taken lightly — warned Peña — for there are many examples that bear him out; we know, for instance, that Arnald of Villanova was an alchemist and he was also a great heretic and invoked demons."¹⁸ Once again this cry to incriminate alchemy for heresy and devilry fell on deaf ears, but some two centuries later, in 1746, the *BIBLIOTHECA CANONICA, IURIDICA, MORALIS, THEOLOGICA* written by Ferraris, reviewing the theories of the Inquisition, added that "the art of alchemy is open to the risks of fraud and very often the Devil has a hand in these operations."¹⁹

How is it then that alchemy, hailed in the 13th century as a great new science, in the two centuries to follow, lost most of its credibility and was hallmarked the art of counterfeiters? The crisis was surely due in part to the bragging and mystification of professional tricksters, in part to the fact that the alchemists were unable to produce substantial results. It is also possible that alchemy was penalised for being shunned as a science by the medieval universities, though they were quite prepared to teach astrology. The biggest obstacle to its acceptance by the universities was not so much alchemy's claim to transmute base metals into gold, but rather its Islamic roots and above all the fact that, being a laboratory science, it involved a great deal of dirty, arduous manual work.²⁰

Alchemy continued to be ostracized by the universities even after it had been lawfully recognised as a legitimate practice. 13th century theologians such as Vincent of Beauvais and Thomas Aquinas believed in the possibility of transmutation, though admitting that the art was a difficult one. In the 14th century it was the jurists who raised the question of the legality of alchemy, and whether it should be tolerated as a legitimate science. The matter was examined by Oldrado da Ponte (died 1335), who arrived at the conclusion that alchemy was not based on magic arts and other reprehensible activities, but on a natural working method. It would have been illicit to try to transform one species into another, but the alchemists limited their experiments to one species alone, and were merely trying to convert one metal, such as tin, into another, such as gold. There is nothing exceptional in this, said Oldrado, for it is only what nature itself carries out in the mine. Alchemy imitates nature, therefore the alchemists commit no sin. They do no more than seek the hidden virtues of plants and stones, adapting them to their own purposes; and as they believe that God is the creator of these virtues, they can be accused of nothing sinful.²¹

Oldrado's opinion was accepted and became a guideline

for the future. Up until the end of the 15th century jurists would quote Oldrado, and pass favorable judgement on the practice of alchemy. Among the jurists who championed the alchemical cause were such illustrious names as Albericus de Rosate, Joannes Andreae, Panormitanus, Andrea of Isernia, Baldus of Perugia, Fabianus de Monte Sancti Savini. Towards the end of the 15th century Hieronymus de Zanetinis, grappling with the same problem, recognised that alchemy had been accepted as a lawful pursuit for over two centuries, and that such a long-standing tradition could not be dismissed lightly. He concluded: "In truth I am of the same opinion, according to which this art is licit."²²

The upper classes began to show renewed interest in alchemy after the Paracelsian revolution, and with their patronage it soon became a fashionable thing to dabble in. During the 16th and 17th centuries it was a welcome sport in many European courts. Cosimo I de' Medici (1519-1612) and his son Francesco (1541-1587) conducted alchemical research in Florence. Rudolf II of the Hapsburgs (1552-1612) was deeply involved in alchemy, and in the closing years of his life is known to have conducted experiments at his castle in Prague, where he was visited by alchemists of many different nationalities. Another patron of alchemists, especially after her exile to Rome, was Christina of Sweden (1625-1689), while Christian IV of Denmark (1577-1648) enlisted the aid of an alchemist named Gaspar Harbach in his attempts to transform base metals into gold; according to the king the experiment was successful and the alchemical gold was supposedly used to mint Danish ducats from 1644 to 1646. At about the same time, in 1647, Ferdinand III, Emperor of Austria, had a medal struck to commemorate a transmutation that had been performed in his presence by an adept named J.P. Hofmann, at Nuremberg. On January 15, 1648 Ferdinand III again witnessed a perfect transmutation, carried out on this occasion by a certain Richthausen. The emperor caused another medal to be struck, which bore the inscription: "Like as rare men have this art, so cometh it very rarely to light. Praised be God forever, who doth communicate a part of His infinite power to us His most abject creatures." In 1650, using some of Richthausen's powder, the emperor himself made a transmutation, and again had a medal struck, this time with the inscription: "Aurea Progenies plumbo prognata parente" ("A golden daughter born of a leaden parent").²³

Literary circles, however, were somewhat less impressed with alchemy. In the 13th century the *Art* inspired a number of verses of the famous allegorical poem entitled *ROMAN DE LA ROSE* (*STORY OF THE ROSE*). The poem was written by two different authors, Guillaume de Lorris, who composed the first part (c. 4000 lines) between 1225 and 1230, and Jean Cloupinel de Meung, who completed it between 1269 and 1278. The *ROMAN*, written in a style efflorescent with



Miniature of *Les remonstrances de Nature à l'alchimiste errant* by J. Perreal (1516). Inside the tower can be glimpsed the alchemist's laboratory, on the doorstep of which are the words: "mechanical work". For Perreal this is not the true alchemy: Nature, seated on a hollow tree, inside which a small fire is burning, rebukes the alchemist: "You melt metals, burn atramentum, seal and break different vessels, build furnaces both large and small. In truth, I can assure you I am ashamed of your folly..."



The poem *Narrenschiff* (1494), by Sebastian Brant, portrays the alchemist as a fool who believes he can transmute the species of things by fraudulent means, using such things as wine dregs and cooking wierd concoctions in the fire.

fell into the crucible. For his third trick the canon had astutely hidden up his sleeve before the experiment an ingot of silver the same size and shape as the mould into which he poured the molten metal that had been subjected to the usual treatment in the crucible. When he put his hand into the water in which the mould was cooling, he removed the original metal ingot and substituted the silver one for it. Having thus *transmuted* silver three times, the canon had no trouble in selling his miraculous *powder* for the modest sum of forty pounds.

Through *THE CANON'S YEOMAN'S TALE*, Chaucer expresses his own distaste for alchemy, and not just for the out-and-out swindlers, but for the entire *Art*, a damned and unsavory business which brings ruin to those who practice it. The alchemists are described as people who can be instantly recognised wherever they go because of the smell of sulphur they emit and for their generally shabby appearance, which they explain is mere pretence, a guile to help them escape the attention of those who would not hesitate to kill in order to steal the wonderful secrets of gold making.

In *THE CANON'S YEOMAN'S TALE* the description of alchemical materials and processes reveals that Chaucer had studied the *Art* with some attention. He mentions Arnold of Villanova and quotes his *ROSARIUM PHILOSOPHORUM*; he also quotes a passage from the *TABULA CHIMICA* of Senior Zadith, affirms the Sulphur-Mercury theory, lists the planet-metal correspondences, correctly names alchemical processes (calcination, coagulation, fermentation), apparatus (crucibles, stills, alembics) and many substances (alkalis, tartar, sal ammoniac, saltpetre, vitriol etc.). The impression is that the author was well versed, and may even have had a direct experience, in alchemical matters. And probably the tricks he attributes to the wily alchemical canon were suggested to Chaucer by the stratagems used by the puffers of 14th century England.

The archetype of the quack alchemist went hand in hand with that of the ignorant, stupid alchemist. In his description of the shabby tricks of the alchemical canon, Chaucer generically brands the alchemists the followers of a senseless and evasive science, brought to ruin by their useless dabbling, and yet never missing an occasion to sing their own praises as great philosophers and the saviours of wondrous secrets.

While the accusation that alchemy was a devil-inspired science and as such morally illicit failed to gain headway, the general opinion in the 14th and 15th centuries was that the alchemists were either just plain mad or fraudulent. Often the two accusations went together. This attitude had an illustrious precedent in the decretal of John XXII, *SPONDENT QUAS NON EXHIBENT*, in which the alchemists, though deemed worthy of punishment, were dismissed as poor fools, victims of their own ignorance: "Poor themselves, the alchemists promise riches which are not forthcoming; wise also in their own conceit, they fall into the ditch which they themselves have digged. For there is no doubt that the professors of this art of alchemy make fun of each other because, conscious of their own ignorance, they are surprised at those who say anything of this kind about themselves..."³⁵

The archetype of the mad alchemist gained credence in the decades spanning the 15th and 16th centuries. In 1494 the German poet and humanist Sebastian Brant published his satirical poem *NARRENSCHIFF* (*SHIP OF FOOLS*) in Basle. It was a satire on the follies and vices of his times, full of sound sense and moral teaching, embellished with elegant wood-engravings by a talented anonymous artist. The poem also considers the madness of those who desire to make wealth by "the ugly lie of alchemy", but who succeed only in turning their riches to dust and ashes. Brant, who had evidently read Chaucer, described the alchemists as impostors, quick to conceal gold and silver in the hollow stick used to stir the charcoal and which they then would cause to fall into the crucible. No one — Brant concluded — will ever achieve success with



The alchemist's laboratory in a drawing (1558) by Pieter Brueghel the Elder. The first impression is that of a place of chaos and folly which will soon be the ruin of the alchemist and his family. But a closer look reveals that the picture is not as straightforward as it seems. The artist's criticism is aimed more at the confused manipulations of the puffers than at the experiments of the adepts of Hermetic philosophy.

The archetype of the foolish alchemist and squanderer of fortunes, would seem to have inspired the picture that Peter Bruegel the Elder (c. 1520-1569) sketched in 1558, from which the publisher Hieronymus Cock and the engraver Philippe Galle prepared a series of prints.

The picture describes the inside of an alchemical laboratory. On the left is the alchemist, bent over a stove bustling about with his crucibles and alembics. On the hood of the stove is a slip of paper bearing a single word: "wretched." In the center of the scene a woman is seated, probably the alchemist's wife, holding open an empty purse, to show that the costly alchemical experiments have drained the family budget. Kneeling beside her is a man with a haunted, crazed look working the bellows in an attempt to liven up the fire in the brazier on the floor. Behind the woman the alchemist's three children are playing on the empty

dresser. From the window can be glimpsed a foresight of the future that awaits the unfortunate family: poverty-stricken, they are forced to take shelter in the poorhouse. On the extreme right of the picture is another figure, dressed in the robes of a sage. He is seated at a table on which are a number of open books. With his right hand he indicates the folly and the confusion that reign supreme in the alchemical laboratory, while with the index finger of his left hand he points to one of the books before him, on whose pages can be read "Alge mist."

The message of the drawing is all too clear. Echoing the intentions of the illustrator of the *NARRENSCHIFF* over half a century before, Brueghel was exposing the stupidity and futility of alchemical research, which he obviously deemed was nothing but a waste of time and money and could only lead to failure. The sage in the picture was the embodiment of reason; as the representative of orthodox academic culture, he was indicating with his right hand the deplorable consequences of reading the alchemical literature to which he points with his left index finger. The motto "Alge mist" is clearly a wordplay signifying that the alchemist (alchemist) is he who embarks on the road to confusion (al gemist, in German *all gemischt, all mixed up*).

This interpretation is not the only one possible. At the



The painting portrays a scene from Ben Jonson's comedy *The Alchemist*, written in 1610. The main characters of the play are: Sir Epicure Mammon, a wealthy dupe whose better judgement is effaced by his desire for the Philosopher's Stone, Subtle the trickster and his servant Face. Jonson expressed his distaste for alchemy in other satirical works, too.

something of Paracelsus's and John Dee's new alchemical disciplines, the first of which had abandoned the quest for transmutation, while the second was envisaged as a magico-mystical practice that had totally forsaken the laboratory. It is possible that the satire of *IL CANDELAIO* reflected the refusal of Hermetic magic

to accept the manipulations of practical alchemists. A few years after the death of Giordano Bruno the scheming alchemist turned up again to delight theater audiences in *THE ALCHEMIST* written by Ben Jonson (1572-1637). The protagonist of the comedy, written in 1610, is Subtle, a thorough scoundrel who claims to be an alchemist. With the help of two accomplices, a prostitute named Doll Common and a servant called Face, Subtle extorts large sums of money from Sir Epicure Mammon, a rich dupe to whom he has promised the Philosopher's Stone. Subtle keeps up the pretence for over a month. Whenever the victim asks

how things are going, the blackguard suavely offers abstruse explanations crammed with highfalutin alchemical terms and then asks for more money in order to speed up the process. Blinded by greed, Mammon will accept anything. He even believes Subtle when he is told that some retorts and alembics have suddenly exploded because of his unchaste interest in Doll Common, a transgression for which he agrees to pay 100 pounds, which Face promises will be given to charity, but which of course end up in his own pocket.

The plot of *THE ALCHEMIST* clearly reflects that of Erasmus's *ALCUMISTICA*. But whereas Erasmus's work had moral undertones and warned the reader against the falsity of alchemy and the risks of using it to become rich, Ben Jonson's play was pure entertainment. The character of Subtle gave Jonson the opportunity of airing his knowledge of alchemical matters: as authorities on the subject he names Paracelsus, Maria Prophetissa, John Dee, Ramon Lull, George Ripley, Isaac the Dutchman; he lists and briefly describes certain alchemical operations and often uses alchemical jargon.

In Act II, Scene III, Subtle presents the theory of the generation of metals drawn almost entirely from *DISQUISITIONUM MAGICARUM* (*DISQUISITIONS ON MAGIC*) by the inquisitor Martin Del Rio (1552-1608), published in 1599-1600. Del Rio had been openly hostile to alchemy, maintaining that it was pointless to dispute the legitimacy of the *Art*, because it had already been condemned by a pope (John XXII), in other words by the highest authority of Christianity.⁴⁷ But the theological preoccupations of the Inquisition are not felt in *THE ALCHEMIST*, because Subtle has nothing to do with the devil; he is simply a small-time fraud who pretends to be a magician and an alchemist, but who in reality practices neither magic nor alchemy. It is suggested that Jonson may have modelled Subtle on a real person who lived in London at the time of James I, one Simon Forman, a sock maker who claimed to be a necromancer and a magician, and who attempted to make the Philosopher's Stone apparently with some very amusing results.⁴⁸

Ben Jonson's opposition to alchemy was in fact motivated by certain philosophical considerations. In 1616 he wrote a *court masque*, *MERCURY VINDICATED FROM THE ALCHEMISTS AT COURT*, in which he openly accused alchemy of abusing nature, sustaining that the true purpose of the arts and sciences was to serve nature. But even in the *court masque* Jonson confirmed his opinion that, aside from these theoretical aspects, alchemy was the art of tricksters and frauds.

THE ALCHEMIST preceded by a few years the flourishing of the Rosicrucian manifestos and *DIE CHYMISCHE HOCHZEIT DES CHRISTIAN ROSENKREUTZ* which instead proposed alchemy as a spiritual discipline. The controversy that broke out between the champions and the critics of the Brotherhood soon caught the attention of European intellectuals, who forgot about alchemy for a time. This included Ben Jonson who, in another of his

masques, *THE FORTUNATE ISLES* (1622), makes a series of satirical allusions to the Rosicrucians, whose politico-religious ideas he apparently did not share.⁴⁹ Once the hue and cry over the Rosicrucians had died down, it was the fathers of experimental chemistry who took up the cause against the alchemists and the iatrochemists.

Breughel the Elder's drawing of the alchemist-puffer was copied by other artists with minor variations. A print by Pieter Cool (1532-1603) portrays the foolish alchemist-puffer blowing on the coals of his fire in the middle of a chaotic laboratory, totally indifferent to the tattered garments of his family, while a legend reads: "Voi comme ce folastre en ses fioles distille/Le sang de ses enfants, ses tresors et ses biens/Voy comme il cherche après le recherche inutile/du Mercure, son peün avecque ses enfants" (Look how this fool distills in his vessels/the blood of his children, his treasures and his resources/Look how he searches on after the futile search/for Mercury, for his punishment with his children...)⁵⁰ In another print, by Pieter van der Borcht, which differs even less from Breughel's original, the alchemical family has an ape-like appearance, evidently to remind people that alchemy is the *ape of nature*.

In the 16th and 17th centuries the alchemical laboratory inspired many paintings, too. In the little study of Francesco I dei Medici, at the Palazzo Vecchio, in Florence, visitors can admire a painting by Jan van der Straet (1523-1605) of a crowded alchemical laboratory. Van der Straet, a Flemish painter like Breughel, completed the work in 1570, only twelve years after Breughel's *THE ALCHEMIST AT WORK*. However, his alchemical laboratory is not a place of chaos and folly, but a hive of industry where the adepts move in an orderly fashion amongst stoves, alembics and mortars. An older man, clad in a fur-trimmed coat and wearing spectacles, authoritatively directs the operations of a group of assistants. Each has his own duty to carry out: one guards the fire, one is climbing a ladder to fetch a glass vessel, another is decanting a liquid while others chop, squeeze and mix. To the left, in the background, can be seen a bearded man wearing a hat, seated at a desk, thoroughly immersed in his writing. To the right, behind the fur-coated man, is an open book resting on a table; on its pages can be seen drawings of vases and alembics.

Van der Straet was commissioned to work for Francesco I dei Medici, who nurtured a deep passion for alchemy and often amused himself by making medicinal preparations, chinaware, fake jewellery and gunpowder; under the circumstances it is quite likely that the painter sought to respect his patron's vision of the *Art*.⁵¹ But van der Straet's picture is not of a laboratory-workshop, manned by puffers. The fur-coated man has the look of a learned philosopher, hardly the sort of man who would dirty his hands with manual work. Other details, such as the open book and the

man writing at the table, suggest that the alchemical laboratory is also a place of meditation, where adepts are encouraged to study and reflect.

The alchemist at work in his laboratory provided subject matter for many other painters, such as Balthazar van der Bossche (1518-1580), David Teniers (1610-1690), Adrien van Ostade (1610-1685), Mathieu van Hellemont (1623-c.1679).⁵² In some of these paintings the alchemical laboratory is again envisaged as the realm of total disorder, but the alchemist himself is almost always invested with a certain dignity. He is depicted as an aged, bearded man, who works at his bellows and his fire, heavy books open beside him, intimating that he has studied for many long years before. His garments are in perfect order, his expression is calm and serious; he is a long way from the shabby, poverty-stricken alchemist described by Geoffrey Chaucer.

During the first half of the 17th century, alchemy still exercised a strong influence on contemporary culture: kings and princes filled their courts with alchemists and incredible stories of transmutations carried out by *missionaries of alchemy* spread far and wide. When, in the following decades, the gap between alchemy and the upcoming science of chemistry began to widen, painters assumed a different attitude which they transferred onto their canvases depicting alchemical laboratories shattered by disastrous explosions and other mishaps caused presumably by careless machinations.

Some painters went beyond a mere pictorial representation of the alchemist at work. At least two famous artists, Jean van Eyck (c. 1390-1441) and Parmigianino (1503-1540), were known to have practised alchemy.⁵³ Van Eyck used his alchemical knowledge to improve the quality of his paints. Parmigianino dreamed of achieving transmutation, neglecting his artistic talent and ending up a victim of the distressing condition described so well by Chaucer: the unkempt beard, the shabby clothes, and the sad, wild look.

Van Eyck and Parmigianino practised alchemy as a laboratory technique, but it is almost impossible to find traces of this passion in their works. We have no sure proof that other painters, namely Hieronymus Bosch (1450-1516), Albrecht Dürer (1471-1528), Lucas Cranach (1472-1553) and even Peter Bruegel the Elder, were ever actively interested in alchemy, even though Bruegel was obviously influenced in some of his works by alchemical symbolism.

The philosophical egg, the sphere, the alembic, the flask and the athanor are all portrayed, more or less explicitly, in Bosch's paintings THE GARDEN OF DESIRE, THE TEMPTATION OF ST. ANTHONY, THE LAST JUDGEMENT, THE MARRIAGE IN CANA, CONCERT IN THE EGG. Bosch's *alchemy* is not limited to a symbolic representation of the *technical* instruments of the *Art*, instead the entire picture is permeated by alchemical philosophy.⁵⁴

Whole volumes have been dedicated to analysing the

influence of Hermetic philosophy on MELANCHOLIA I, a copperplate by Dürer which shows a sulking angel, seated beside a *putto* and a dog and surrounded by numerous objects such as a ladder, scales, a crucible, a *magic square*, an hour-glass, a bell, a sphere, a polyhedron, a wick, a grindstone, a ruler and compass, a plane, nails and a saw. The plate clearly illustrates one of the four human temperaments, melancholy, which ancient cultures linked to the influence of Saturn. The ladder, the scales and the other objects symbolize the attributes of the saturnine temperament. In reality many of these objects belong to alchemical symbolism, too, especially the seven-rung ladder, often used as an allegory of the seven phases of the Great Work. MELANCHOLIA I could be intended as an illustration of the *nigredo*, the *black work* of alchemical operations, the putrefaction of matter, symbolized by lead, the metal of Saturn. From the point of view of speculative alchemy the *nigredo*, or state of melancholy, expresses the condition of darkness, of *death* and *putrefaction* after which comes the road to *resurrection*.⁵⁵

Even more explicit is Lucas Cranach's interpretation of MELANCHOLIA. The painting again portrays an angel, a dog, a sphere and some *putti*. But the *putti* are playing with the sphere, in a way very similar to that seen in the illustrations of the SPLENDOR SOLIS and other alchemical texts depicting *ludus puerorum*, or *child's play*. The Great Work is not at all difficult, on the contrary it is *child's play*, said the alchemists, with the usual dose of good-humored irony. What they were probably trying to say is that it was impossible to achieve the Great Work unless the adept assumed the spiritual innocence typical of a child. This motto perhaps echos a precept expressed in the gospel: "Verily I say unto you, whosoever shall not receive the kingdom of God as a little child, he shall not enter therein" (St. Mark: 10, 15).

Peter Bruegel, creator of the drawing which made fun of the *al-ghemist-puffer*, was greatly influenced by the style of Hieronymus Bosch, and this is why in many of his works we find the alchemical symbolism so dear to Bosch. But Breughel's alchemy may not have been pure imitation. The subtle allusions evident in THE ALCHEMIST suggest that Breughel had a deep understanding of the subject.

Erasmus of Rotterdam, Rabelais and Ben Jonson gave alchemy a tough time in their satirical writings, and in the end this severely compromised the image of the *Art* in the minds of many men of culture. Nonetheless, in the 16th and 17th centuries alchemy provided inspiration for a number of important literary works. Several poems by the English poet John Donne (1572-1631), for instance, reveal a symbolism similar to that of alchemy; and even the works of John Milton (1608-1674) show traces of alchemical philosophy.⁵⁶

The total rehabilitation of the alchemist was achieved in the drama of FAUST, the masterpiece of Johann

Wolfgang Goethe (1749-1832), which transforms the Faustian alchemist-magician-necromancer myth into a romantic hero in search of knowledge. In this drama, the disillusioned scholar, Faust, son of an alchemist, makes a pact with Satan, but only to achieve knowledge, having realized that all his previous learning is insufficient to permit him to penetrate the ultimate nature of things.

Goethe was only eighteen years old when, in 1768, an illness brought religious introspection and an interest in alchemy and the mystic philosophers such as Paracelsus, Agrippa, Basil Valentine and Van Helmont. During the next two years at least most of his reading matter was on alchemy, which he later defined as his secret passion⁵⁷. By this time, however, alchemy was no longer the discipline practised by Paracelsus and Basil Valentine; having long abandoned chemical research and dreams of transmutation, it was now a mystical discipline alone. German intellectuals looked to the theosophy of Jakob Böhme, which made recourse to alchemical metaphors and was imbued with Hermetical philosophy; it was during these same years in Bavaria that Karl von Eckartshausen developed his *internal chemistry*.

Like Novalis, Hegel and Schopenhauer, Goethe, too, was influenced by Böhme's theosophy. And he was particularly impressed by *OPUS MAGO-CABBALISTICUM ET THEOSOPHICUM (MAGICO-CABALISTIC AND THEOSOPHIC STUDY)*, ascribed to Joseph Kirchweger, which presented the quest for the Philosopher's Stone as the attempt to attain perfect unity between God and Nature. However, Goethe's involvement in alchemy included some laboratory work: in 1769 he attempted to make *liquor silicum*, a potion of which Basil Valentine speaks, obtained by boiling powdered flintstones in potassium hydroxide. In 1786 Goethe read the famous memorial of Rosicrucian spiritual alchemy, *DIE CHYMISCHE HOCHZEIT DES CHRISTIAN ROSENKREUTZ*, which provided the impulse for *FAUST*.

In *HEINRICH VON OFTERDINGEN*, an incomplete work by Novalis, pen name of the German romantic poet Friedrich von Hardenberg (1772-1801), alchemical undertones are evident in the parallel between the process of the purification of gold and the liberation of the

soul. In the works of Victor Hugo (1802-1885) vestiges can be found of the tradition according to which the gothic sculptures of Notre Dame cathedral in Paris have an alchemical significance. Claude Frolo, the alchemist-deacon of Notre Dame de Paris is a solitary, mysterious figure, half magician, half scientist, whose magical aspirations mingle with a burning desire for knowledge and freedom.

Balthazar Claes, the protagonist of *LA RECHERCHE DE L'ABSOLU* by Honoré de Balzac (1799-1850) has one foot in the new age of chemistry and the other in the alchemical past. He dissipates the family fortune in the laboratory not to achieve the *Philosopher's Stone*, but the principle of the creation of the Absolute, the discovery of which will bring wealth and eternal scientific renown.

This new-style alchemist remained unchanged throughout the second half of the 19th century; on the one hand, were the science historians who judged the revival of alchemy as that of a primitive collection of ancient techniques, on the other were the occultists who embraced alchemy in their own confused theories.

Literature continued to look kindly on the alchemist. In *DAS HAUS DES ALCHEMISTEN (THE HOUSE OF THE ALCHEMIST)* Gustav Meyrink (1868-1932) describes the adventures of Güstenhover, an alchemist who can control time and transmute the souls of men; in *DER ENGEL VOM WESTLICHEN FENSTER (THE ANGEL OF THE WESTERN WINDOW)* Meyrink revives the legend of John Dee's magician-chemist.

Still today alchemy stimulates the imagination and creative genius of 20th century writers. In *L'ŒUVRE AU NOIR*, published in 1968, Marguerite Yourcenar gives as an extraordinary portrait of the alchemist. Zenone, physician, alchemist and philosopher simultaneously embodies the personalities of Paracelsus and Giordano Bruno. Zenone is the restless standard-bearer of a new science, the "subversive dynamism" of which clashes with the dominant culture. But he is also the spokesman of a different philosophy, which recognises God in everything. So, after almost twenty centuries of confusion, we at last encounter a figure in whom are reconciled the two spirits of the time-honored alchemical philosophy of Zosimos of Panopolis.

¹ A. Magnus, *De alchemia*, in: *Theatrum Chemicum*, Vol. II, Argentorati 1659, p. 427-428.

² R. Halleux, *Les textes alchimiques*, Brepols 1979, p. 122.

³ *Ibid.*, p. 122.

⁴ J. Cremer, *Testamentum*, in: *Musaeum Hermeticum*, Frankfurt 1749, p. 533 onwards.

⁵ E. J. Holmyard, *Alchemy*, London 1957.

⁶ F. Sherwood Taylor, *The Alchemists*, St. Albans 1976, p. 101.

⁷ R. Halleux, *op. cit.*, p. 123.

⁸ *The Statutes of the Realm*, London 1816, Vol. II, p. 144.

⁹ L. Figuier, *L'alchimie et les alchimistes*, Paris 1854.

¹⁰ The text of the royal licence is quoted in: F. Sherwood Taylor, *The Alchemists*, St. Albans, 1976, p. 102.

INDEX

- Aaron : 30
 Abraham : 30, 43, 50
 Abu al-Biruni : 51
 Abu al-Iraqi : 48, 54
 Abu Sebekteguïn : 47
 Adam : 33, 49, 85, 161
 Agathodaimon : 24, 37, 43, 76
 Agricola, Georgius (Bauer, Georg) : 148
 Agrippa of Nettesheim, Cornelius : 132, 178, 180, 187
 Albertus Magnus (Albert of Bollstaedt) : 62, 63, 97, 107, 142, 169, 170
 Alchemiae quam vocant (Doctrine of the Metallic Art they call Alchemy) : 75
 Alchymia : 138
 Alcumistica : 178, 183
 Alexander the Great : 52
 Alfonso X, King of Castile : 170
 Alighieri, Dante : 174
 Alkîmia minor (Minor Alchemy) : 63
 Alleau, René : 9
 Alliette (Ettella) : 152
 Altus (see : Sulat, Jacobus)
 Al-Barmaki, Yahya : 48
 Al-Farabi : 7
 Al-Magriti (Maslama ibn Ahmad) : 54
 Al-Rashid, Hanum : 43, 44
 Amleic ou la graine d'hommes : 82
 Amphitheatrum sapientiae aeternae (Amphitheatre of Eternal Wisdom) : 104, 138, 141
 Anastasis, Johann, d' : 23, 24
 Anaxagoras : 54
 Anaximander : 54
 Anaximenes : 54
 Andrea of Isernia : 173
 Andreae, Joannes : 68, 173
 Andreae, Johann Valentin : 135, 136
 Antaeus : 85
 Anthologium by Stobaeus : 34
 Anthony of Abbatia : 118
 An-Nadim : 45, 47
 Apollonius of Tyana : 52
 Aquinas St. Thomas : 60, 62, 63, 65, 66, 71, 107, 142, 172, 173
 Arcana arcanissima hic est hieroglyphica aegyptio-graeca (The Most Secret of Secrets, or the Graeco-Egyptian Hieroglyphics) : 160
 Archelaos : 54, 76, 114
 Aristicus : 80
 Aristotle : 24, 26, 43, 76, 89, 92
 Armaros : 12
 Arnald of Villanova : 66, 68, 69, 80, 102, 103, 104, 107, 117, 119, 142, 173, 177
 Arnaud de la Chevalerie, Pierre : 109
 Ars transmutatoria metallorum (The Art of the Transmutation of Metals) : 70
 Artephius : 79
 Asclepius : 34
 Asclepius : 43
 Ashmole, Elias : 118, 144, 145, 150, 152
 Ashur-bani-pal : 14
 Astradel : 12
 Atalanta fugiens (Fleeing Atalanta) : 96, 140, 141, 142, 160
 Atalanta : 140
 Aureum seculum redivivum (The Golden Century Renewed) : 143
 Auriferae artis (Of the Auriferous Art) : 75
 Aurora consurgens (The Rising Dawn) : 63, 65, 71, 72
 Avicenna (Abu Ali ibn Sina) : 51, 54, 62, 63, 75, 142
 Azazel : 12
 Bacon, Roger : 7, 66, 67, 68, 82, 102, 103, 138, 142
 Baldus : 173
 Balzac, Honoré (de) : 187
 Basilica Chemica : 138
 Basilus Valentinus (see : Valentine, Basil)
 Becher, Johann Joachim : 150, 152
 Bergier, Jacques : 165
 Berthelot, Marcelin : 9, 23, 165
 Bibliotheca chimica : 63
 Bibliotheca canonica, iuridica, moralis, theologica : 173
 Bibliotheca chimica contracta (Abridged Chemical Library) : 75
 Bibliotheca chimica curiosa (Library of Curious Chemicals) : 75
 Bibliothèque des Philosophes Chimiques (Library of the Philosopher-Chemists) : 75
 Biringuccio, Vannoccio : 148
 Boccacini, Traiano : 129
 Böhme, Jakob : 137, 138, 167, 187
 Bolos of Mendes (Bolos-Democritus) : 26, 27, 29, 30, 34, 41, 42
 Bonaventura d'Isèo : 65
 Boniface VIII, Pope : 68
 Bonus, Petrus : 107
 Book of 22 Hermetic Pages : 99
 Book of Abraham the Jew : 111, 113
 Book of Amulets : 45
 Book of Komarios : 31, 33, 34
 Book of Malachi : 147
 Book of Natural Tinctures : 12
 Book of Oriental Mercury : 48
 Book of the Balances : 48, 49
 Book of the Synthesis : 48
 Book of the Testament on the Art : 45
 Book of Wisdom : 71
 Books of Enoch : 11, 12, 13, 133
 Borellius, Petrus : 63
 Borri, Francesco Giuseppe : 147
 Bosch, Hieronymus : 185
 Bougainville, Louis-Antoine (de) : 154
 Boyle, Robert : 148, 150
 Bracresco, Giovanni : 85
 Brant, Sebastian : 177
 Brethren of Purity : 47
 Bruegel, Pieter the Elder : 179, 180, 183, 185
 Bruhl, Charles-Adolf : 157
 Bruno, Giordano : 180, 181, 187
 Brunshwig, Hieronymus : 148
 Burckhardt, Titus : 9
 Butor, Michel : 87
 Cagliostro, Count Alessandro di (Giuseppe Balsamo) : 152, 153
 Cain : 13, 14
 Calvet, Esprit : 159
 Cambriel, Louis-François : 164
 Campanella, Tommaso : 135
 Canselet, Eugène : 76, 77, 96, 164, 165, 167
 Canterbury Tales : 176
 Cantilena : 118
 Capelli, Ottavio : 159
 Capocchio of Siena : 176
 Caraka Samhita : 51
 Casaubon, Isaac : 137
 Catalogue des manuscrits alchimiques grecs : 73
 Catalogue des manuscrits alchimiques latins : 73
 Celsus : 95
 Cerularius, Michael : 42
 Champagne, Jean-Julien : 165
 Charles II, King of Spain : 152
 Charles Martel (Charles the Hammer) : 42
 Charles V, King of France : 172
 Charles VI, King of France : 111
 Chaucer, Geoffrey : 70, 176, 177, 180, 185
 Chemical Wedding, The : 133, 135, 136
 Chemistry and Music : 141, 142
 Ching, Emperor of China : 15
 Chirocmeta : 26
 Chou i ts'an t'unh ch'i (Treatise on the Three Principles) : 16, 18, 19, 21
 Christian II, Elector of Saxony : 124, 125
 Christian IV, King of Denmark : 173
 Christina, Queen of Sweden : 147, 173
 Christine de Pisan : 114
 Chronicles of Salimbene of Adam : 57, 58
 Cibirensis, Melchiorre (Szebeni, Nicholas Melchior) : 142
 Clarena, Angelo : 58
 Clement of Alexandria : 33
 Cock, Hieronymus : 179
 Colloquia : 178

- Hosea : 30
Huang ti chiu ting shen tan ching (Explanation of the Yellow Emperor's Manual of the Nine-Vessel Magical Elixir) : 16
 Hugo, Victor : 187
I Ching (Book of Changes) : 16
 Ibn Hayyan, Jabir = V. Geber
 Ibn Khaldoun : 49
Il candelajo (The Candle-Maker) : 180, 181
In hoc volumine de alchemia (A Volume of Works of Alchemy) : 75
In IV libros metereologicorum expositio (Comment on Aristotle's Metereologica) : 62
 Innocent IV, Pope : 58
 Innocent XII, Pope : 147
 Institor, Heinrich : 172
Introtus apertus ad oclusum regis palatium (Open Entrance to the Locked Palace of the King) : 127, 157
 Isaac the Dutchman : 183
 Isaac : 30
Isis the Prophetess to her Son Horus : 11, 79
 Isis : 11, 24, 76, 79
 Izz-Eddaula : 47
 Ja'far al-Sadiq : 45, 47, 49
 Ja'far ibn Yahya : 47
 Jacob : 30
 James I, King of Scotland : 183
 Jason : 85
 Jerome of Ascoli : 67
 Jildaki, Ayudamar : 54
 Joachim of Fiore : 66, 71
 John I of Aragon : 170
 John of Parma : 66
 John XXII, Pope : 69, 70, 71, 107, 113, 172, 177, 183
 Jonson, Ben : 181, 183, 185
 Joseph Maximilian I, Archduke of Austria : 152
 Juan de la Cruz : 102
 Jung, Carl Gustav : 9, 63, 71, 165
 Jupiter : 85
 Kanishka : 22
Katalog der arabischen alchemischen Handschriften deutschlands (German Catalogue of Arabic Alchemical Manuscripts) : 73
Katechismus der hoheren chemie (Catechism of Higher Chemistry) : 161, 167
 Kelly, Edward (Edward Talbot) : 122, 123, 132
 Kha'id ibn Yazid : 45, 55, 99
 Kirchweger, Joseph : 187
Kitab al-Asrar (Book of the Secrets) : 54
Kitab al-Fihrist (Book of the Catalogue) : 45, 47
Kitab al-Idlah (Book of Explanations) : 48, 90
Kitab al-Majid (Book of the Glorious) : 47
Kitab al-Rahma or Liber Misericordiae (Book of Mercy) : 47, 48, 76
Kitab al-Sab'in or Liber de Septuaginta (The Seventy Books) : 48
 Kleopatra : 24, 30, 31, 33, 41, 76, 102, 147
 Kobabel : 12
 Kopp, Hermann : 127
Kore Kosmu (Daughter of the Cosmos) : 34
 Kunrath, Heinrich : 104, 138
Kutub al-Mawazin (Books of the Balances) : 48, 49, 50
La connaissance de l'homme moral par celle de l'homme physique (Knowledge of the Moral Man by Means of That of the Physical Man) : 156
La recherche de l'absolu : 187
La très sainte trinité philosophique : 153
 Lactantius : 132
 Ladislaus II of Hungary and Bohemia : 142
 Lady of Tai : 15, 18
 Lao Tzu : 16
 Lavater, Johann Caspar : 156
 Lavoisier, Antoine Laurent : 150
Le bréviaire (The Breviary) : 154
Le livre des figures hiéroglyphiques (Book of Hieroglyphic Figures) : 87, 98, 109, 111, 112, 113, 118, 154
Le mystère des cathédrales : 82, 165, 166, 167
Le sommaire philosophique (The Philosophical Summary) : 113
Legenda prima (Life of Saint Francis) : 58
Leiden papyrus : 23, 90
 Lenglet-Dufresnoy, Nicolas : 123, 153
 Leonardo da Vinci : 178
Les Demeures philosophales : 82, 113, 165, 167
Les fables égyptiennes et grecques dévoilées (Egyptian and Greek Myths Unveiled) : 85, 154, 160
Les origines de l'alchimie : 9
Les remontrances de Nature à l'alchimiste errant : 174
Les vertus, le pouvoir, la clémence de la gloire de Marie, mère de Dieu : 159
Lettres philosophiques sur la physionomie : 153, 156
 Leucippus : 25, 54
 Libalit-Marduk : 14
 Libavius, Andreas : 138
Libellus de alchimia (Little Book of Alchemy) : 63, 169, 170, 172
Liber compostella : 65
Liber de arte distillandi de simplicibus (The Art of Distilling Simples) : 148
Liber de compositione alchemiae (Book on the Composition of Alchemy) : 55, 99
Liber de les maravais (Book of Wonders) : 69
Liber de septuaginta : 48
Liber duodecim clavium philosophiae (Book of the Twelve Keys of Philosophy) : 76, 122
Liber duodecim portarum (Book of Twelve Gates) (see : The Compound of Alchemy)
Liber investigationis (The Investigation of Perfection) : 76
Liber laureatus : 58
Liber lili benedicti (Book of the Blessed Lily) : 63
Liber M : 131, 135
Liber Misericordiae : 48
Liber trium verborum (Book of Three Words) : 75
 Li Chao-kiun : 18
 Loris, Guillaume (de) : 173, 174
 Lucas, Paul : 111, 112
 Lucian of Samosata : 25
 Lull, Ramon : 69, 92, 93, 107, 119, 138, 142, 148, 170, 183
 Lustrach, Jacques : 170
 Luther, Martin : 135
Lux obrubilita suapte natura refulgens (The Dimmed Light that Shines by its own Nature) : 77
 Madathanus, Henricus (see : von Mynsicht, Adrian)
 Magnus Albertus : 62
 Maier, Michael : 85, 96, 138, 140, 141, 142, 143, 152, 160
Malleus maleficarum (The Witches' Hammer) : 172
 Manuel Bénédicte : 154
 Marduk : 14
 Maria Prophetissa : 24, 30, 36, 76, 92, 100, 104, 117, 142, 183
 Maurice of Hesse : 138
 Maximilian II of Hapsburg : 133
 Medici, Cosimo I : 173
 Medici, Cosimo : 132, 133
 Medici, Francesco I : 173, 183
Medulla alchimiae (The Marrow of Alchemy) : 118
 Melancholia I : 185
 Melanion : 140
 Menippus : 135
Mercury Vindicated from the Alchemists at Court : 183
 Mersenne, Marin : 143
 Meung, Jean Clopinel (de) : 173, 174
 Meyrink, Gustav : 187
 Milton, John : 185
Mithologiae christianae (Christian Mythology) : 135
 Mithra : 95
 Mohammed : 42, 49
Monas hieroglyphica (Hieroglyphic Monad) : 132, 133
 Monte Sancti Savini, Fabianus (de) : 173
 Morienus : 45, 55, 99, 100, 138, 142
 Moirval : 159
 Moses : 24, 30, 76, 119, 159, 161
Musaeum hermeticum (Hermetic Museum) : 75
Mutus liber (Silent Book) : 76, 83
 Mylius, Johann : 142
Narrenschiff (Ship of Fools) : 177, 179
 Nazari, Giovan Battista : 109
 Neuburg, Maria Anna (di) : 152
 Nevill, George : 118
 Newton, Isaac : 152
 Nicolas of Prussia : 118
 Nicolas of Spain : 118
 Norton, Thomas : 118, 119, 123, 140
Notre-Dame de Paris : 187
Nova disquisitio de Hella artista theophrasteo : 156
 Novalis : 187
Novum lumen (New Light), by Arnald of Villanova : 69
Novum lumen chemicum (New Light of Alchemy) or Liber duodecim tractatum (Book of the Twelve Treatises), by the Cosmopolite : 123
 Numbers : 30
Observations sur les maladies de l'âme : 156
Oeuvre au noir : 187
 Olympiodorus : 24, 41, 42
On Virtue : 36, 38
Opus mago-cabbalisticum et theosophicum (Magico-Cabalistic and Theosophic Work) : 187
Opusculum philosophiae naturalis metallorum (Pamphlet on the Natural Philosophy of Metals) : 117
 Orpheus : 85
 Osires : 76
 Ostanes : 24, 26, 29, 30, 34, 43, 89, 122
 Palombara, Massimiliano : 143
 Pantagruel : 180
 Pao Pu'tzu (Ko Hung) : 16, 18, 19
 Paphnutia : 30, 36
 Papyrus Holmiensis : v. Stockholm Papyrus
 Paracelsus (Theophrastus Bombastus von Hohenheim) : 91, 92, 104, 122, 125, 131, 134, 135, 138, 142, 148, 150, 156, 157, 173, 178, 180, 183, 187
 Parent, Brother John : 57
 Parmigianino (Mazzola, Girolamo Francesco Maria) : 185
 Parvus Albertus : 62



threshold of modern times. Contrary to what one might think, alchemy is not a relic of the past. The alchemists are still among us, working as always in secret to achieve the Great Work. This is a further reason for trying to understand the *Golden Art* and how it can still provide fascinating food for thought for the 20th century intellect.

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