

# CHAPTER XIII

## ON RELATIONS

To be is to be related. (266)

CASSIUS J. KEYSER

Science, in other words, is a system of relations. (417)

H. POINCARÉ

Asymmetrical relations are involved in all series—in space and time, greater and less, whole and part, and many others of the most important characteristics of the actual world. All these aspects, therefore, the logic which reduces everything to subjects and predicates is compelled to condemn as error and mere appearance. (453)

BERTRAND RUSSELL

My own investigations in this field, extending over some fifteen years, together with the facts already at hand, as I see them, have forced me to the conclusion that the organic individual is fundamentally . . . a system of relations between a physical substratum or structure and chemical reactions. (90)

CHARLES M. CHILD

The thalamus, which in the lower vertebrates deprived of the cortex ensures the general reactions of the organism and the elementary mental functions, possesses an affective excitability in relation with the profound biological tendencies of the organism; among the higher mammals, indeed, it seems to preserve this role of affective regulation, whose importance in the behaviour of the organism and mental life is so often misunderstood. (411)

HENRI PIÉRON

. . . organic impressions ('interoceptive' sensibility) appear in all cases to arrive at the cortex only when translated by the thalamus, with its own affective elaboration. (411)

HENRI PIÉRON

Nevertheless, the consuming hunger of the uncritical mind for what it imagines to be certainty or finality impels it to feast upon shadows in the prevailing famine of substance. (22)

E. T. BELL

In the foregoing chapters I made use of an expression, 'the organism-as-a-whole', which is employed continually in biology, psychiatry, and other branches of science. This expression is a restricted form of the general structural principle of non-elementalism. This expression implies that an organism is *not* a mere algebraic *sum* of its parts, but is *more* than that, and must be treated as an integrated whole. It was mentioned that the non-additivity and the 'more' than a mere 'sum' are complex problems which call for a new method of analysis. We have already seen that a simple analysis of the expression, 'Smith kicks Brown', involves a full-fledged structural metaphysics, or set of assumptions and terms which are taken on faith, since they cannot be defined, except circularly. In the present chapter, these subjects of great semantic importance will be developed further.

One of the fundamental structural defects and insufficiencies of the traditional A-system was that it had no place for 'relations', since it

assumed that everything could be expressed in a subject-predicate form. As we shall see, this is not true. Restriction to the subject-predicate form leaves out some of the most important structural means we have for representing this world and ourselves and has resulted in a general state of un-sanity. The explicit introduction of 'relations' is rather a recent innovation. A few words may be said about them, although the term 'relation' is one of the terms that we may accept as undefined, or that we may define in terms of multi-dimensional order.

Some relations, when they hold between A and B, hold also between B and A. Such relations are called *symmetrical*. For instance, the relation 'spouse'. If it holds between A and B, it holds also between B and A. If A is the spouse of B, B is the spouse of A. Terms like 'similarity' and 'dissimilarity' also designate relations of this kind. If A is similar or dissimilar to B, so is B similar or dissimilar to A. In general, a symmetrical relation is such that, if it holds between A and B, it also holds between B and A. In other words, the *order* in which we consider the relation of our entities is immaterial.

It is easy to see that not all relations are of such a character. For instance, in the relation 'A is the brother of B', B is not necessarily a brother of A, because B might be the sister of A. In general, relations which hold between A and B, but not necessarily between B and A, are called *non-symmetrical*. In these relations *order* becomes important. It is not a matter of indifference in what *order* we consider our entities.

If a relation is such that, if it holds between A and B, it *never* holds between B and A, it is called *asymmetrical*. Let us take, for instance, the relations 'father', 'mother', 'husband', . We readily see that if A is a father, or mother, or husband of B, B is *never* a father, or mother, or husband of A. The reversal of *order* is impossible in asymmetrical relations, and so any asymmetrical relation establishes a definite order.

Relations such as *before*, *after*, *greater*, *more*, *less*, *above*, *to the right*, *to the left*, *part*, and *whole*, and a great many others of the most important terms we have, are asymmetrical. The reader may easily verify this for himself. For instance, if A is *more* than B, B is *never* more than A, . We see at once that the troublesome little words, which are necessary to express *order* as 'before' and 'after'; terms of *evaluation*, such as 'more' and 'less'; and terms on which elementalism or non-elementalism depends, such as 'part' and 'whole', are in the list of asymmetrical relations.

Relations can be classified in another way, when three or more terms are considered. Some relations, called *transitive*, are such that, whenever they hold between A and B and also between B and C, they

hold between A and C. For example, if A is before, or after, or above, or more. , than B. and B is before, or after, or above, or more. , than C, then A is before, or after, or above, or more. , than C.

It should be noted that all relations which give origin to series are transitive. But so are many others. In the above examples, the relations were transitive and asymmetrical, but there are numerous relations which are transitive and symmetrical. Among these are relations of equality, of being equally numerous, .

Relations which are not transitive are called non-transitive. For instance, dissimilarity is not transitive. If A is dissimilar to B and B dissimilar to C, it does not follow that A is dissimilar to C.

Relations which, whenever they hold between A and B, and between B and C, *never* hold between A and C are called *intransitive*. 'Father', 'one inch longer', 'one year later'. , are intransitive relations.

Relations are classified in several other ways; but, for our purpose, the above will be sufficient.

It is necessary now to compare the relational forms with the subject-predicate form of representation, which structurally underlies the traditional *A*-system and two-valued 'logic'. The structural question arises whether all relations can be reduced to the subject-predicate forms of language.

Symmetrical relations, which hold between B and A whenever they hold between A and B. seem plausibly expressed in the subject-predicate language. A symmetrical and transitive relation, such as that of 'equality', could be expressed as the possession of a common 'property'. A non-transitive relation, such as that of 'inequality', could also be considered as representing 'different properties'. But when we analyse *asymmetrical* relations, the situation becomes obviously different, and we find it a structural impossibility to give an adequate representation in terms of 'properties' and subject-predicates.

This fact has very serious semantic consequences, for we have already seen that some of the most important relations we know at present belong to the asymmetrical class. For example, the term 'greater' obviously differs from the term 'unequal', and 'father' from the term 'relative'. If two things are said to be unequal, this statement conveys that they differ in the magnitude of some 'property' without designating the greater. We could also say that they have different magnitudes, because inequality is a symmetrical relation; but if we were to say that a thing is unequal to another, or that the two have different magnitudes, when one of them was greater than the other, we simply should *not give an adequate account of the structural facts at hand*. If A is greater than

B, and we merely state that they are unequal or of different magnitudes, we *imply the possibility* that B is greater than A, *which is false to facts*. To give an adequate account, and to prevent *false implications*, there is no other way than to say which one is greater than the other. We see that it is impossible to give an *A adequate* account when asymmetrical relations are present. The possession of the 'same' 'property', or of different 'properties', are both *symmetrical relations* and seem covered by the subject-predicate form. But it is impossible to account adequately for asymmetrical relations in terms of 'properties'. In other words, we see that a language and 'logic' based upon subject-predicate structure may perhaps express symmetrical relations, but fail to express adequately asymmetrical relations, because both 'sameness' and difference of predicates are symmetrical.<sup>1</sup> Asymmetrical relations introduce a language of *new structure*, involving new *s.r.* Yet asymmetrical relations include many of the most important ones. They are involved in all *order*, all *series*, all *function*, in 'space', in 'time', in 'greater' and 'less', 'more' and 'less', 'whole' and 'part', 'infinity', 'space-time', . If we are restricted to the use of forms of representation unfitted for the expression of asymmetrical relations, ordinal, serial, functional, and structural problems could not be dealt with adequately. We should also have many insoluble semantic puzzles in connection with 'space', 'time', 'cause and effect', and many other relations in the world around-us, and ourselves.

A very interesting structural and semantic fact should be noticed that in symmetrical relations *order* is immaterial, in non-symmetrical relations it is important, and in asymmetrical relations *order* plays an all-important role and cannot be reversed. Order itself is expressed in terms of asymmetrical relations; as, for instance, 'before' or 'after', which apply to 'space', to 'time', 'space-time', 'structure'. , and also to *all processes* and activities, the activities of the nervous system included. The asymmetrical relations 'greater', 'father'. , imply ordering, while the 'unequal' (having different 'properties') or a 'relative'. , do *not* imply ordering. If we consider subject-predicate forms as expressing a relation between the 'observer' and the 'observed', excluding humans, this last relation is also asymmetrical. Applying correct symbolism: if a leaf appears green to me, I certainly do not 'appear green' to the leaf ! The last remark suggests that any *A* revision of the *A*-system is structurally impossible. To attempt a revision, we must begin with the formulation of a  $\bar{A}$ -system of different structure.

The above simple considerations have very far-reaching consequences, as without relations, and particularly without asymmetrical relations, we cannot have *order*, and without order, in the analysis of

processes, we are bound to introduce explicitly or implicitly some objectively meaningless 'infinite velocities' of the propagation of the process. Thus, the 'infinite velocity' of light, which is known to be false to facts, is at the very foundation of the *N*-system. The equally false to facts silent assumption of the 'infinite velocity' of nerve currents underlies *A* animalistic 'psychology' and results in elementalism. This *el* 'psychology', until this day, vitiates all human concerns and even all science, the newer quantum theories not excluded.

General non-elementalism and, in particular, its restricted aspect, the 'organism-as-a-whole', implies the relation of the 'parts' to the 'whole', for which we need asymmetrical relations. In the statement '*more* than an algebraic sum', '*more*' is also an asymmetrical relation. When we analysed the statement, 'Smith kicks Brown', we saw that the problems of 'space', 'time', 'infinity', entered, the solution of which requires *serial* notions, which evade analysis without asymmetrical relations.

The solution of the problems of 'space' and 'time' are fundamental for a theory of sanity, as they are potent structural factors in all *s.r.* In the majority of 'mentally' ill, we find a disorientation as to 'space' and 'time'. Similar milder forms of disorientation appear in all forms of semantic disturbances, as they are disturbances of evaluation and meanings in the form of delusional 'absolute space' and 'absolute time'. These semantic disturbances can be eliminated only by considerations of multi-dimensional order, which are impossible without asymmetrical relations, and so could not have been accomplished in an *A*-system.

The problems of multi-dimensional order and asymmetrical relations are strictly interdependent and are the foundation of structure and so of human 'knowledge'; and they underlie the problems of human adjustment and sanity. Without going into details, I shall suggest some relational and ordinal aspects as found in the structure and function of the human nervous system and their bearing on semantic reactions and sanity. I shall also apply these considerations to the analysis of a historically very important delusional factor which has influenced, until now, the *s.r.* of mankind away from sanity. I am dealing only with selected topics, important for my purpose, which, to the reader, may appear one-sided and unduly isolated. In fact, all issues involved are strictly interconnected in a circular way, and no verbal analysis of objective levels can ever be 'complete' or 'exhaustive', and this should be remembered. On the *A* silent assumption of the infinite velocity of nervous impulses, that the nervous impulses spread 'instantaneously', 'in no time' (to use an Alice-in-Wonderland expression), order was of no importance. But when we take into account the *finite* and known velocity

of nervous impulses, and the *serial*, chain structure of the nervous system, order becomes paramount. In such a serial structure, the problems of resistance, 'inhibitions', blockage, activation., become intelligible, so that some sane orientation is possible in this maze. It may be added that the intensity and the transformation of nervous impulses must somehow be connected with the paths they travel and are, therefore, problems to be spoken about in terms of order.

What has just-been said may be illustrated by a rough and oversimplified hypothetical diagram. Fig. 1 shows how the normal (survival in man) impulse should travel. It should pass the thalamus, pass the sub-cortical layers, reach the cortex, and return. That the impulse is *altered* in passing this complicated chain is indicated in the diagram by the arbitrarily diminishing thickness of the line of the impulse.

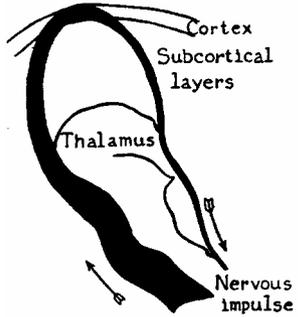


FIG. 1

Fig. 2 illustrates an hypothetical abnormal (non-survival in man) impulse. It emerges from the lower centres. For some nervous reason or other, the main impulse is blocked semantically, or otherwise, and does not reach the cortex; only a weak impulse does. What should be expected in such a case? We should expect regression to the level of activities of organisms which have no cortex, or a cortex very little developed. But this could not be entirely true, as organisms without a cortex have a nervous system adequate for their lives, activities., in their environment, with survival values. But a higher organism with a cortex, no matter how rudimentary, has the other parts of the nervous structure quite different in function, and without the cortex they are *inadequate* for survival, as experience shows. We see that the *order* in which the impulses pass, or are deviated from their survival path, is paramount. A great many different reasons may produce such deviation, too many to list conveniently. A great many of them are known, in spite of the fact that, in general, we know very little about nerve mechanisms. Suffice to say, that we know, on colloidal grounds and from experience, that macroscopic or microscopic lesions, drugs, and *false doctrines* affecting

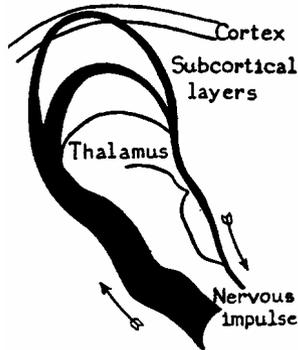


FIG. 2

the sub-microscopic levels, may often produce similar end-results. Here I use the term ‘false doctrines’ in the *non-el* sense, and, therefore, take into account affective and *evaluation*-components, which are usually disregarded when we speak about ‘false doctrines’.

Here we must consider a problem of crucial, general human significance. It seems evident that *evaluation* in life, and particularly in human life, represents a most fundamental psycho-logical process underlying motivation and, in general, *s.r.*, which shape our behaviour and result in collective structures which we may call ‘stages of civilization’.

We may distinguish three periods of human development as characterized by their standards of evaluation:

1) The pre-human and primitive period of literal, general, and unrestricted identification. The semantics of this period could be formulated roughly as ‘everything is everything else’, which might be called one-valued semantics.

2) The infantile, or *A* period of partial or restricted identification, allowing symmetrical relations, to the exclusion of asymmetrical relations. Its semantics involve, among others, the ‘law of identity’—‘everything is identical with itself’, its two-valued character being expressed by the postulate ‘*A* is *B* or not *B*’.

3) The adult, or  $\bar{A}$ , or scientific period based on the complete elimination of identification, by means of asymmetrical and other relations, which establishes *structure* as the foundation of all ‘knowledge’. Its semantics follow the  $\infty$ -valued semantics of probability and recognize ‘equality’, ‘equivalence’, ., but no ‘identity’.

Before analysing the above three periods separately, it must be stated that ‘identity’, defined as ‘absolute sameness’, necessitates ‘absolute sameness’ in ‘*all*’ aspects, never to be found in this world, nor in our heads. Anything with which we deal on the objective levels represents a process, different all the ‘time’, no matter how slow or fast the process might be; therefore, a principle or a premise that ‘everything is identical with itself’ is *invariably false to facts*. From a structural point of view, it represents a foundation for a linguistic system non-similar in structure to the world or ourselves. All world pictures, speculations and *s.r.* based on such premises must build for us delusional worlds, and an optimum adjustment to an *actual* world, so fundamentally different from our fancies, must, in principle, be impossible.

If we take even a symbolic expression  $1 = 1$ , ‘absolute sameness’ in ‘*all*’ aspects is equally impossible, although we may use in this connection terms such as ‘equal’, ‘equivalent’, . ‘Absolute sameness in all aspects’ would necessitate an *identity* of different nervous systems which produce

and use these symbols, an *identity* of the different states of the nervous system of the person who wrote the above two symbols, an identity of the surfaces. , of different parts of the paper, in the distribution of ink, and what not. To demand such impossible conditions is, of course, absurd, but it is equally absurd and very harmful for sanity and civilization to preserve until this day such delusional formulations as *standards of evaluation*, and then spend a lifetime of suffering and toil to evade the consequences. This may be comparable to the spending of many years in teaching and training our children that one and one *never* equal two, that twice two *never* equal four. , and then they would have to spend a lifetime full of surprises and disappointments, if not tragedies, to learn, when they are about to die, that the above statements are always correct in mathematics and very often true in daily life, and finally acquire the sadly belated wisdom that they were taught false doctrines and trained in delusional *s.r* from the beginning.

If we revised these false doctrines, we would not twist the lives of younger generations to begin with. It seems that, for the sake of sanity, the term 'identity', symbolizing such a fundamental false structural doctrine, should be entirely eliminated from the vocabulary, but the term 'identification' should be retained in psychiatry as a label for extremely wide-spread delusional states which, at present, in a mild form, affect the majority of us.

If we investigate the standards of evaluation of animals, the experiments of Pavlov and his followers show that, after establishing a 'conditional reflex' (which means a physiological relating of a signal with food, for instance), the *physiological* effect of the signal on the nervous system of the animal is to produce secretions similar in quantity and quality to those the food produces. We can thus say that, from a physiological point of view, the animal organism *identifies* the signal with food. That represents the *animal standard of evaluation* at that given period. But even the animal nervous system is flexible enough to learn by experience that identification has no survival value, for, if, after the signal, food is repeatedly not forthcoming, he identifies again the signal with the absence of food. In more complex experiments, when both these identifications are interplayed, the result is a real physiological dilemma, culminating, usually, in a more or less profound nervous disturbance, corresponding to 'mental' ills in humans.

Identification represents a comparatively unflexible, rigid form of adaptation, of low degree conditionality, so to say, and, by neurological necessity, represents the processes of *animal* adaptation, inadequate for modern man. On human levels, it is found best exemplified in primitive

peoples and in cases of 'mentally' ill. In less severe cases of semantic disturbances, we also find identification of different degrees of intensity. The milder cases are usually considered as 'normal', which, in principle, is very harmful, because it establishes an animalistic, or primitive, standard of evaluation for 'normal'. 'Identity', as we have seen, is invariably false to facts; and so identification produces, and must produce, non-survival *s.r.*, and, therefore, must be considered *pathological* for modern man.

That identification afflicts the majority of us today is also shown by experiments with conditional reflexes and the psychogalvanic experiments which show clearly that the majority of humans *identify* the symbol with actualities, and *secretions very often follow*. In other words, the reactions are of such a low order of conditionality as we find in animals and in primitive men. In principle, it makes no difference whether a sound (or word), or other signal (symbol) is identified with food or other actualities which are not symbols, and the secretions are produced by the adrenal glands, for instance, resulting in fear or anger, instead of by the salivary or sweat glands. In all such cases, *in experiments* with humans, the evaluation is false to facts, and the *physiological secretion* is uncalled for if the *evaluation would be appropriate* to the situation. In very few instances, the human experiments with conditional and psychogalvanic reflexes break down, in the sense that the signal-symbol is *not identified* with first order actualities, and so such an organism has no uncontrolled glandular secretions for signal-symbols *alone*. In a  $\bar{A}$ -system of evaluation, which involves on semantic levels the consciousness of abstracting, these exceptional persons (1933), with proper evaluation and controlled reactions, *prove the rule* for modern man. In other words, modern man, when he stops the pre-human and primitive identification, will have a much-increased and *conscious control* of his secretions, colloidal states of his nervous system, and so of his reactions and behaviour. The above applies to all *s.r.*, 'logical' processes included.

Identification is found in all known forms of 'mental' ills. A symbol, in any form, or any *s.r.* may be identified in value with some fictitious 'reality' at a given date, resulting in macro-physiological (glandular, for instance) or micro-physiological (colloidal, .) activities or disturbances which result in particular semantic states and behaviour. It is impossible to deny that 'mentally' ill have inappropriate standards of evaluation, and that identification appears always as an important factor in pathological evaluations. Experiments with 'mentally' ill show clearly that this evaluation can be altered or improved by different chemical

agencies which affect the colloids of the nervous system, by environmental changes. , and by *changing the standards of evaluation* which, at present, is usually called 'psychotherapy'. The analysis of the mechanism of evaluation leads, naturally, to a generalized and *simplified* method, which may have not only a therapeutic but also an important new *preventive value*.

Literal identification is found in all primitive peoples and accounts for their semantic states, reactions, their metaphysics, low development. , but it is impossible, for lack of space, to go into details here.

The *A* standard of evaluation departed from literal identification to some extent. We still preserve in our school books as the most fundamental 'law of thought'—the 'law of identity'—often expressed in the form 'everything is identical with itself', which, as we have seen, is invariably false to facts. We do not realize that, in a human world, we are dealing at most only with 'equality', 'equivalence'. , at a given place and date, or by definition, but never with 'identity', or 'absolute sameness', disregarding entirely space-time relations, involving 'all' the indefinitely many aspects which, through human ingenuity, we often manufacture at will. In an actual world of four-dimensional processes and the indefinitely many 'aspects' manufactured by ourselves, adjustment in principle is impossible, or, at best, only accidental, if we retain 'identity'. The *A* evaluation was based on symmetrical relations of 'identity' and also partial 'identity', expressed even in our political, economic. , doctrines and corresponding behaviour, the analysis of which would require a special volume to be written, I hope soon, by some one.

Under the pre-human and primitive standards of evaluation, science was not possible. Under the *A* standards the beginnings of science became possible, but if science had not departed from those standards, we would have had no modern science. Lately, when the persecution of science has increasingly relaxed (not in all countries in a similar degree) and scientists were allowed to develop their disciplines with much less fear of persecution, sometimes even encouraged and helped by public interest, scientists found that they invariably had to build their own vocabularies of a distinctly, although unrealized,  $\bar{A}$  character. The chasm between human affairs and science became wider and wider. The reason for it was that, in life, even at present, we preserve *A* standards of evaluation, and science mainly depends on subtler  $\bar{A}$  means involving asymmetrical relations which alone can give us *structure*. I will return repeatedly, later on, to the  $\bar{A}$  re-evaluation of the *A* standards of values.

The  $\bar{A}$  evaluation is based on asymmetrical and other relations. I shall not attempt to summarize it here because the problems are very

large and this whole volume is devoted to that subject. Here I shall mention, once more, that only with  $\bar{A}$  standards of evaluation does a scientific treatment of man and his affairs become possible. A  $\bar{A}$ -system depends on a complete elimination of identification which affects beneficially all our *s.r.*, as experience and experiments show.

It has been already emphasized that in the human child the nervous system is not physically finished at birth, and that for some years thereafter it is plastic. Hence, the 'environment'—which includes languages, doctrines, with their structure, all connected with evaluation-components—conditions the future functioning of the system. The way in which the nervous system, works, the 'sanity', 'un-sanity' and 'insanity' of the individual depends to a large extent on how this plastic and sensitive apparatus is treated, particularly in childhood. Because of the *serial structure* of the nervous system, the language and doctrines supplied should be of the structure necessary for the adequate representation of serial structures and functions. With the old *A* means this could not be accomplished.

At this point, it will be well to introduce an important semantic subject, to which we shall return later; namely, the connection between the primitive subject-predicate language and identification. For example, the statement, 'the leaf is green', is taken to imply 'greenness', which, by its verbal structure, has the character of a 'substantive' and implies some sort of objective independence. It is *not* considered as an *asymmetrical relation* between the observer and the observed and, accordingly, tends toward an *additive* implication. 'Greenness' is thus objectified and *added* to the leaf in describing a 'green leaf'. The objectified 'greenness' leads to an anthropomorphic mythology, which, in turn, involves and develops the undifferentiated projecting mechanism so fundamental in semantic disturbances. The objectification is evaluated structurally as a 'real' situation, and this introduces the non-survival *reversed* order evaluation in which the use of the 'is' of identity, resulting in identification, is the main factor. The stronger the structural 'belief' in the 'truth' of the representation, or, in other words, the more we identify the higher order abstractions with the lower, which, in fact, are different, the more dangerous becomes the 'emotional' tension in the form of unjustified *evaluation*, which, ultimately, must involve *delusional* factors, no matter how slight, and result in semantic disturbances. *Ignorance*, involving strong faith in the erroneous structural belief, is dangerously akin to more developed symptoms of 'mental' illness called illusions, delusions, and hallucinations. We are mostly semantic victims of the primitive doctrines which underlie the *A* structure of our

language, and so we populate the world around us with semantic phantoms which add to our fears and worries, or which lead to abnormal cheerfulness, well known among some 'mentally' ill.

It should be realized that in the *A* system of evaluation many individuals profit in various ways by what amounts to distracting the attention of mankind from actual life problems, which make us forget or disregard actualities. They often supply us with phantom semantic structures, while they devote their attention to the control of actualities not seldom for their personal benefit. If one surveys the *A* situation impartially, one occasionally feels hopeless. But, no matter how we now conspire one against another, and thus, in the long run, against ourselves, the plain realization that the difficulty is found in the standards of evaluation, establishes the necessary preliminary step to the escape.

It is a well-known fact that, in a large proportion of 'mental' ills, we find a semantic flight from 'reality' (*m.o*) when their 'reality' becomes too hard to endure. It is not difficult to see that different mythologies, cults., often supply such structural semantic 'flights from reality'; and that those who actually help, or who are professionally or otherwise engaged in producing and promulgating such semantic flights, help mankind to be un-sane, to deal with phantoms, to create dream states,. There is no longer any excuse in the old animalistic law of supply and demand—that, because there is a demand for such flights, they should be supplied. That argument is not held to apply to those who peddle drugs or wood alcohol. The flights from reality always have the earmarks of 'mental' illness. Very often such actively engaged individuals are themselves ill to the point of hallucinations; they often 'hear voices', 'see visions', 'speak tongues',. Very often other morbid symptoms occur which are similar to those shown by the 'mentally' ill of the usual hospital types. It is not generally realized that, although the patient suffers intensely, he usually shows marked resistance to any attempt to relieve him of his semantic affliction. Only *after* he is relieved by semantic re-education does the patient realize how very *unhappy* he was.

The situation is very serious. There is a powerful well-organized system, with enormous wealth behind it, based on *A* and pre-aristotelian standards of evaluation which keeps mankind in delusional semantic states. Its members do their best, better than they know, to keep mankind *un-sane* in flights from 'reality', instead of helping to revise the *A* standards of evaluation and to reorganize the horrible 'realities', *all of our own making*, into realities less painful. The comparatively few psychiatrists are naturally not a match for such vast numbers of well

organized men and women who, in their blissful ignorance, work in the opposite direction; and all of us pay the price.

The activities of these individuals often promulgate something similar to the well-known 'induced insanity'. Quite often paranoid or paranoiac and, more rarely, hypomanic patients can influence their immediate companions to such an extent that they join in believing in their delusions and copy their *s.r.* Susceptible associates begin to develop similar delusions and hallucinations and to pass through episodes themselves, perfectly oblivious to contradictions with external *m.o* reality. There are many paranoiac-like semantic epidemics of this kind on record. It is instructive to visit some 'meetings' and watch the performer and the audience. The pathetic side of it is that these performers, themselves not realizing the harmfulness of the situation, often pretend, or genuinely believe, that they are helping mankind by preaching some metaphysical 'morals'. What they *actually* produce is a disorganization of the survival-working of the human nervous system, particularly if they train the structurally undeveloped nervous system of children to delusional evaluations and *s.r.*, and, in general, make sanity and higher and effective ethical standards very difficult or impossible. It is positively known that *s.r.* are inextricably connected with electrical currents, secretions of different glands. , which, in turn, exert a powerful influence on colloidal structure and behaviour, and so condition our neurological and physiological development. There can be no doubt that imposing delusional *s.r.* on the undeveloped child must result in at least colloidal injury, which later on facilitates arrested development or regression, and, in general, leads away from adjustment and sanity.

Lack of space and the essentially constructive aims of the present system do not allow me to analyse many fundamental interrelations in the development of man, but a brief list, worthy of analysis, may be suggested:

- 1) The relation between the pre-human reactions and the reactions of the primitive man, involving always some *copying* by mutants of the responses of the prevailing simpler organisms.
- 2) The interrelation between the reactions of the primitive man, his animism, anthropomorphism, his other *s.r.* and the *structure* of his language and semantics.
- 3) The relation between the structure of primitive languages and the structure of the 'philosophical grammar' formulated by Aristotle, generally called 'logic'.
- 4) The relation between this grammar, the structure of language, and the further development of our structural metaphysics and *s.r.*

5) The influence the last conditions exerted on the structure of our institutions, doctrines, and the *s.r* related to them.

6) The relation between the 'copying animals in our nervous processes' and semantic blockages, preventing an adult civilization, agreement, sanity, and other desirable human reactions.

This brief list suggests an enormous field for further research, but, even now, the formulation of a  $\bar{A}$ -system of evaluations makes a few points dearer.

An infant, be it primitive or modern, begins life with *s.r* of identity and confusion of orders of abstractions, natural to his age, yet false in principle, and structurally false to fact. At present, parents and teachers seldom check or counteract this tendency, mostly not realizing the importance of this semantic factor and its role in the future adjustment of the individual. In the rough, to a baby, his cry 'is' food. Words 'are' magic. This identification is structurally false to facts, but in *babyhood it mostly works*. To the infant, experience proves that the noises he makes, a cry or a word, have the objective value,—food. The semantic identity of the symbol and the un-speakable object level,—food,—has been established. This infantile attitude or *s.r* is carried on into grown-up life.

Under very simple conditions of primitive peoples, in spite of many difficulties, this attitude of identification is not always checked by experience, and experimenting is non-existent at this stage. If it is, then such checking of identification is 'explained' by some sort of demonology and 'good' or 'evil' 'spirits',. Delusional, from the modern point of view, *s.r* are compensated by mythologies, making the two sides of the semantic equation equivalent. This equating tendency is *inherent* in all human *s.r*. It expresses the instinctive 'feel' for the similarity of structure as the base of 'knowledge', and it ultimately finds its expression in mathematical equations. In all psycho-logical processes of 'understanding', we must have some standards of evaluation and 'equivalence'. On primitive levels, this is accomplished by literal identification and delusional mythology of the type, that a storm at sea is 'caused' by a violent quarrel between a 'god' and his 'wife'; or, in contemporaneous mythology, a draught, or fire, or death by lightning, is explained as 'punishment' for 'sins',. Semantic compensation is needed and produced. A similar semantic process produces scientific theories, but with different standards of evaluation. At present, scientific theories do not cover all semantic needs and urges of mankind, owing to the prevailing false to fact identification of different orders of abstractions. With the full consciousness of abstracting, which means proper evaluation or differentiation between orders of abstractions, science will then cover all our non-pathological semantic

needs, and different primitive mythologies will become unnecessary. A very harmful, primitive, delusional semantic factor of blockages would be eliminated.

The 'is' of identity plays a great havoc with our *s.r.*, as any 'identity' is structurally false to fact. An infant does not know and cannot know that. In his life, the 'is' of identity plays an important semantic role, which, if not checked intelligently, becomes a pernicious semantic factor in his grown-up reactions, which preserve the infantile character and with which *adult* adjustment and semantic health is impossible. The infant begins to speak and again he is trained in the 'is' of identity. Symbols are identified with the un-speakable actions, events and objects under penalty of pain or even death. The magic of words begins its full sway. As a rule, parental, crude disciplining of the infant, particularly in former days, trained the *s.r.* of the infant again in the delusional 'is' of identity. The results are semantically and structurally very far-reaching and are found to underlie modern mythologies, militarism, the prevailing economic and social systems, the control by fear (be it 'hell' or machine guns), illusory gold standards, hunger, .

Experience shows that such identification of symbols with the un-speakable levels works very well with animals. With man, it leads only to the misuse of the human nervous system, semantic disturbances of evaluation, and the prevailing animalistic systems in practically all fields, resulting in the general chaos in human affairs.

It should be noticed that the 'is' of predication also expresses a sort of *partial identity*, leading to primitive anthropomorphism and general confusion of orders of abstractions. By an inherent necessity, our lives are lived on the un-speakable objective levels, which include not only ordinary objects but also actions and immediate feelings, symbols being only auxiliary means. The natural ordinal evaluation, which should be the foundation for healthy *s.r.*, appears as the event-process level first, the object next in importance; the objective level first, the symbolic next in importance; the descriptive level first, the inferential level next in importance, . The semantic *identification* of these different levels not only abolishes the natural evaluation, but, in fact, reverses the natural order. Once this is realized, we see clearly that all statements about the objective level, which is made up of absolute individuals, are only *probable* in different degrees and can never be certain. The 'is' of identity underlies, also, the two-valued, too primitive, too restricted, and structurally fallacious A 'logic'.

The crucial semantic importance of asymmetrical relations becomes obvious when we consider that all *evaluation* and *non-el* meanings

depend ultimately on asymmetrical relations. In the technical fields, mathematics and the exact sciences; in the semi-scientific fields, economics, politics, sociology. ; in the as yet non-scientific fields, 'ethics', 'happiness', 'adjustment'. , represent ultimately different forms of *evaluation*, impossible to formulate adequately under aristotelianism.

Obviously, a  $\bar{A}$ -system based on proper semantic evaluation leading to non-pathological reactions, adjustments. , must make relations and multi-dimensional order fundamental for sanity. The semantic connection between mathematical methods and all the other concerns of man becomes also necessary and obvious.

In mathematics, recently, the notion of equality needed a refinement and the notion of 'identity' has been introduced. The present analysis discloses that, although the refinement and the symbol may be retained, yet the name should be entirely abandoned, because it conceals a very semantically vicious confusion of orders of abstractions. If, by definition, we produce new terms, these new terms are of a higher order abstraction than the terms used in the definition, and so the *identification* of them as to the orders of abstractions is *physiologically* and structurally false to facts.

The problems discussed in the present chapter have been felt vaguely for more than two thousand years and found their first historical expression in the rift between Aristotle, the biologist, and Plato, the founder of mathematical philosophy. Mathematics is, in principle,  $\bar{A}$ , and so, in the study of mathematics, we can learn most about the principles of non-aristotelianism. In physics, only very recently, do we begin to eliminate the 'is' of identity and elementalism which resulted in the  $\bar{N}$  systems. All sciences strive to become more mathematical and exact and so  $\bar{A}$ . In fact, all advances in science are due to the building of new  $\bar{A}$  languages, usually called 'terminology'. We can go further and say, definitely, that, to have any science, we must make a  $\bar{A}$  revision of the languages used. Similarly with 'man', either we decide to introduce into human affairs scientific evaluation, and so part company with the  $A$  and pre-aristotelian system of evaluation, or preserve  $A$  structure, and have no science of man, or science of sanity, but continue in the prevailing chaos.