

CHAPTER XXIX

ON NON-ARISTOTELIAN TRAINING

If the preliminary experiments described above should be fully upheld, an important fact in the physiology of the cortex will be disclosed—namely, that new connections can be established in the cortex, not only in the areas of optimal excitability, but also in those areas which are in one or another phase of inhibition. (394) I. P. PAVLOV

That wretched monosyllable “all” has caused mathematicians more trouble than all the rest of the dictionary. (23) E. T. BELL

. . . these observations . . . point to the view . . . that the mechanism of development of a conditioned reflex and the mechanism of external inhibition are somehow similar, and that the process of external inhibition bears some relation to the development of new connections between different cortical elements. (394)I. P. PAVLOV

In particular the factor of duration of time was shown to act as a real physiological stimulus, and experiments were described in which definite time intervals appeared as effective stimuli. (394) I. P. PAVLOV

The procedure for training in the present system by the aid of the Differential follows directly from the theoretical considerations which have been explained in the foregoing chapters. The contentions of the system have been verified experimentally in all cases where it has been consistently applied.

The main aim is to acquire the coveted ‘consciousness of abstracting’, on which non-delusional evaluation is based, and which becomes the foundation for non-pathological *s.r* and sanity. As we deal with different aspects of an organic process which inherently works as-a-whole, all these aspects appear strictly interrelated. We have found by analysis two main aspects which underlie the others. It appears that the A structure leads to semantic states which can be formulated as the feeling of ‘allness’, and that, through the ‘is’ of identity, it leads to the confusion of orders of abstractions. Thus, for training, the program is readily sketched: we must first eliminate the ‘allness’; then we must impart this peculiar stratification of ‘human knowledge’ which follows from the rejection of the ‘is’ of identity; in other words, eliminate identification. It becomes also obvious that a theory of sanity cannot be separated from a \bar{A} -system.

Since the organism works as-a-whole, all nerve centres should be trained so as to impart a permanent, lasting, and ingrained feeling of abstracting. Once this has been achieved, the recognition of the vertical and the horizontal stratification of human knowledge becomes, also, a

permanent semantic state. This gives us a kind of semantic co-ordinate system, in which we can represent any life situation or scientific situation, or any difficulty, with great clarity, and so evaluate them properly. In verbal theoretical explanations this procedure appears complex; in practice, it is not so. It is extremely simple, provided we persistently follow the instructions, which are based on theory and practice. Above all, we must not expect results too quickly.

For reasons already explained, students should not only hear and see the explanations, but should also *perform for themselves*, should handle the labels and indicate with their hands the different orders of abstractions. After preliminary explanations, the children should be called to the Differential, and, using their hands, they should explain it. This applies, also, to grown-ups and to patients. The Differential is not only a permanent structural and semantic reminder which affects many nerve centres; it is more, for, in training, it conveys the *natural order* through all centres. Any reader who refuses to use his hands in this connection handicaps himself seriously, because *ordering* abolishes identification.

Fundamentally, there is no structural difference between the use of language and the use of any other mechanical device; they all involve reflex-action. It is well known that any pianist, telegraph operator, typist, or chauffeur would not be a successful performer if he had to meditate about every move he makes. As a rule, *verbal* explanations of the working of the respective machines are necessary at first, yet the structural reflex-skill required is actually acquired by prolonged practice, where again all nervous centres are involved. We all know what amazing *unconscious* reflex-adjustments a good driver of a car can make in case of unexpected danger.

A similar semantic reflex-skill is required in handling our linguistic apparatus, and, in case of danger, of sudden turns and twists, our orientation should also work unconsciously. That is why the structural *feeling* for the working of the apparatus is required. All nerve centres should be trained to employ the most effective means to affect the organism and its working as-a-whole.

The semantic training of grown-ups and that of children do not differ in essentials. Children have fewer established habits, have more fluid *s.r* than adults, and, therefore, the results with children are achieved more quickly and last better.

I shall now explain how to train children. A similar method applies to adults, also; but an adult should not trust himself too much that he has completely acquired 'consciousness of abstracting'. He must train very thoroughly. I speak from personal experience. Although I have

the Differential before my eyes practically always and am the author of the present system, yet every once in a while I catch myself with one of the old vicious semantic habits. Habits, and particularly linguistic habits, may be very pernicious and difficult to change.

We do not need to start with profound theoretical considerations; we may start with any familiar daily-life objects and a microscope or magnifying glass. We bring the Differential into the classroom, with labels (except one) detached, but do *not* proceed to explain it. We start with a little semantic *experiment* upon the subject of 'allness'. We take any actual object, an apple, a pencil, or anything else which is familiar to the children. The principles involved are entirely general and apply to all objective levels in a very similar way. We tell them that we will have some fun. Then we ask them to tell us 'everything' or 'all' about the object in question; in this case, the apple. When the children begin to tell us 'all' about it, we write the characteristics down on the black-board. *This last is vital.* We must have a visual and extensional record of the ascribed characteristics.

When the children have exhausted their ingenuity in telling 'all' about the apple, we should *not* be satisfied. We should make them doubt, urging them that, perhaps, they did not tell 'all' about it, using the word 'all' continually. The term 'all' should be stressed and repeated to the point of the children's being thoroughly

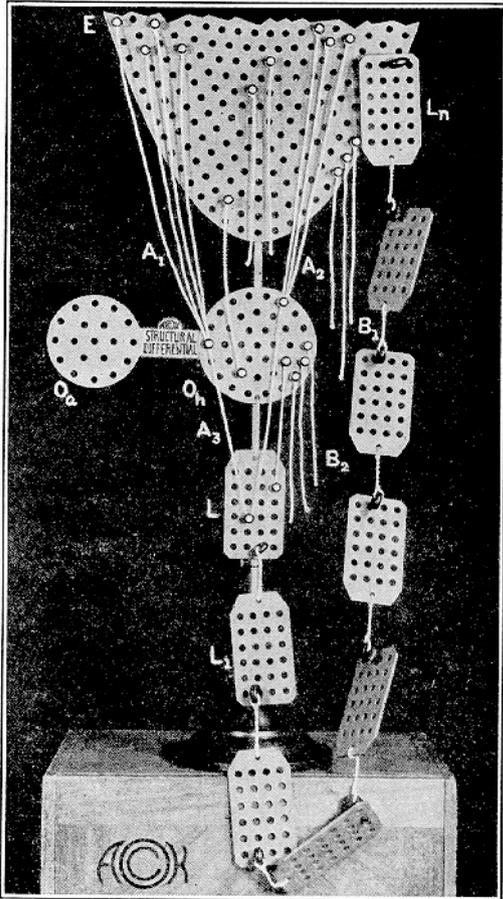


FIG. 1
THE STRUCTURAL DIFFERENTIAL

annoyed with the term. The more they learn to dislike this term, the better. We are already training a most important *s.r.*

We should *not* be satisfied with the best answers made by the most intelligent children. In a large class there may even be a child who tells us bluntly that it is impossible to tell 'all' about the apple. We should concentrate on the *less* intelligent children and deal particularly with them. There are many and important reasons for this. For one thing, the children become more eager and more interested in their own achievement. Then, too, they easily learn by example what a difference in intelligence means. This understanding of the shortcomings of others has an important semantic, broadening effect. In life, numerous serious 'hurts' occur precisely because we do not appreciate some natural shortcomings and expect *too much*. Expecting too much leads to very harmful semantic shocks, disappointments, suspicions, fears, hopelessness, helplessness, pessimism, .

The less bright children benefit also. The experiment is conducted on their level, so that they also have the maximum chance to benefit. Soon the children begin to argue about the new method and to explain it to each other by themselves; for we have touched very vital and complex semantic processes of 'curiosity', 'achievement', 'ambitions' . , characteristics strongly represented in the child's life. We evade, also, the danger of taking clever, yet shallow, replies as standard. The last error would be fatal, as the issues are fundamental, and we should not rest content with mere verbal brilliancy.

When the subject seems exhausted, and the list of characteristics of the apple 'complete' (we repeatedly make certain that the children assume they have told us 'all' about it), we cut the apple into pieces and show the children experimentally, using eventually a microscope or a magnifying glass, that they did *not* tell us 'all' about the apple.

It may appear to some educators that such training might involve some undesirable psycho-logical results. But later, when consciousness of abstracting is acquired as a lasting semantic state, this fear appears entirely unjustified, as explained further on. The first step in dealing with 'reality' seems to demand that we abandon entirely the older delusional methods.

When the children have become thoroughly convinced of the non-allness and the *impossibility* of 'allness', we are ready to explain to them what the word abstracting means, using again the terms 'all' and 'not all'. We show them a small rotating fan and explain to them about the separate blades which when rotating we see as a disk. In such demonstrations we can go as far as desired. All science supplies data

(e.g., the dynamic structure of seemingly solid materials). We must select the data according to the age of the children or the knowledge of the grown-ups. Everything said should be demonstrated empirically from a structural point of view.

The next step is to demonstrate practically that an object taken from different points of view has different aspects for different observers. We may use different objects or wooden geometrical figures painted with different colours on different sides. We may place the object in different positions and ask the children their descriptions, which should be written down. The descriptions will, of course, be different, and the children should be made thoroughly aware of this. In all these preliminary exercises the ingenuity of the teacher has a vast field for exercise, and we do not need to enter into details.

When all these results have been accomplished on the level of the *least developed* child, we then proceed to explain the Differential as a structural diagrammatic summary of the above results. It is a *positive condition* that the new language be used, and that an object be described as an *abstraction* of some order. If this vital structural point is disregarded, most of the psycho-logical semantic benefits of 'non-allness' are either lost or greatly lessened. We should make this term clear to the child, and should train him in its use, as it appears uniquely in accordance with the structure and the functioning of his nervous system. The child should be warned that the old languages are not structurally suitable for their future understanding and semantic adjustment. This warning should be repeated seriously and persistently.

Having eliminated 'allness', we begin to eliminate the 'is' of identity, which, at the primitive and infantile stages of racial human development, happens to be extremely ingrained in our *s.r.*, embodied, as it is, in the structure of our daily language. As was explained before, identification is a natural reaction of the animal, the primitive man, and the infant, reflected and systematized in the *A* and older linguistic systems, which, through the ignorance or neglect of parents and teachers, is not counteracted and so is continued into the lives of children and grownups, until, finally, it becomes embodied in the structure of what we call 'civilization' (1933). In a theory of adjustment or *sanity* we must counteract this animalistic, primitive, or infantile *s.r.* by building a \bar{A} -system, which entirely rejects the 'is' of identity.

In the *A*-system, through the use of this 'is', different orders of abstractions were unconsciously identified in values, in obvious contradiction to empirical facts. In other words, being identified in values, they were treated as of one order or on one level and so did not necessitate

indefinitely many expanded orders of horizontal and vertical differences. Similarly with the objectively meaningless 'infinite velocity' of a process, it does *not* allow *order*. But once we have a finite velocity of a process, *order* makes its appearance as an indispensable aspect of a process. *The finite and known velocity of nerve currents on the physico-mathematical levels results in ordered series on physiological levels; in non-identity and proper evaluation on semantic levels, and in orders of abstractions and a non-aristotelian system and general semantics on verbal levels.*

Once we abolish in our language the always false to fact 'is' of identity, we automatically stop identifying different orders of abstractions. We do not assume that they represent one level, which becomes expanded into a natural ordered series of indefinitely many different orders of abstractions, with different values. Adjustment, therefore, sanity and adulthood of humanity, depend on proper evaluation, impossible under conditions of delusional identification of fundamentally different orders of abstractions. We must then train the *s.r* in the natural *physiological order* of the process of abstracting which, on the psycho-logical levels, become non-pathological semantic evaluation.

In the case of training in the 'non-allness', it was necessary to start with the analysis of an ordinary object, to give the child a simplified theoretical explanation, and then to demonstrate it empirically. The child will be easily 'convinced', but this conviction is not enough, because it will not affect permanently his *s.r*. We explain this difficulty very simply, telling him that, although he 'agreed' with our presentation, he will very soon 'forget' it, and so we need a permanent visual reminder which is supplied by the strings, freely hanging from the event and from the object, and indicating those 'characteristics left out', or not abstracted.

In the elimination of the 'is' of identity, we have also structurally interconnected aspects. The rejection of this 'is' becomes an equivalent to the stressing of the *stratification* in the structure of 'human knowledge'. To facilitate training, we should *stress both aspects* by all available means, and should involve as many nerve centres as we can. Thus, through the ear we stress verbally the formula of the rejection of the 'is' of identity by indicating with our finger the different orders of abstractions, in the meantime, affecting the eye while we repeat 'this *is not* this'. We utilize the kinesthetic centres, not only by pointing the finger to different levels, but also by making broad motions with our hands, indicating the stratifications. We should train in both horizontal and vertical stratifications, always using the hands. The horizontal

stratification indicates the difference, or ordering of different order abstractions; the vertical stratification indicates the difference between 'man' and 'animal' and the differences between the different absolute individuals. In both cases, the semantic effect of the 'is' of identity is counteracted.

The above procedure in training has an important neurological foundation. Besides what has been explained already, we find that a word has four principal characteristics with corresponding cortical representations. A word can be heard, seen, spoken, and written. Language, thus, involves many nervous functions; e.g., auditory, visual, and diversified motor nerve centres, interconnected in a most complex network of 'horizontal' and 'vertical' fibres. The use of the Differential involves all available nervous channels; we see, we hear, we speak, we move our hands, indicating stratification, 'non-allness', engaging large cortical areas, and so have the maximum probability of affecting, through *non-el* methods, the organism-as-a-whole. The Differential gives us a special, simplified, yet advanced interracial *structural symbolism* (1933), which affects wide nervous areas of the illiterate, or nearly illiterate person, or of the infant, which otherwise could not be affected. It is known that extensive reading and writing, as well as speaking a number of languages, has a very marked cultural effect and helps visualization and consciousness of abstracting. The reason can be found, perhaps, in the fact that a learned polyglot, or a scholar, utilizes many nerve centres in co-ordination. In the older days, unless one became a scholar of some sort, it was extremely difficult to train these nerve centres in co-ordination. With the Differential we can train simply, and comparatively quickly, all necessary nerve centres, and so impart to children and to practically illiterate persons the cultural results of prolonged and difficult university training without any complicated technique. This last should always be regarded as a means and not as an end.

In my experience with children, and with men from the lowest 'mentality' to the highest, the non-identity of different orders of abstractions is usually taken lightly. It all seems so simple and self-evident that no one assumes that there could be serious, unconscious, structural, semantic, linguistic, and neurological delusional mechanisms involved, which cannot be reached without specially devised non-identity training. The delusional feelings of 'allness' and 'identity' are peculiar in that, like other pathological states, they tend to appear as all-pervading. It is the most difficult in daily, as well as in medical, experience to make a breach in this all-pervading tendency, but once this delusional state is even partially replaced by glimpses of *m.o* reality, the further elaboration

tion and training in adjustment to 'reality' becomes comparatively simple. Thus, in practice, if we *start* with ordinary objects, feelings, and words, and train in the non-allness and non-identity, any child, or any grown-up, even an imbecile, can follow this easily. Once this feeling has been acquired, and in most cases it is only a matter of method and persistence to acquire it, the main *semantic* blockage has been eliminated, and the rest is comparatively easy. I have had no opportunity yet to verify it, but I am convinced that even a superior imbecile could be trained to differentiate between descriptions and inferences, after he has learned to differentiate between the objective levels and words. In such a training with imbeciles we can go in simplicity as far as desired; thus, if the given individual is hungry and says he wants 'bread', we hand him a label which is attached to the objective bread, and he would be quickly made to realize that the symbol *is not* the thing symbolized.

It should be realized that in the training we should impart the obvious fact that words or labels represent conveniences, and *are not* the objects or feelings themselves. We should carry the labels in our pockets, so to say, as we carry our money, or checks for hats or trunks, and not identify them 'emotionally' with what they eventually stand for, because monetary standards change, and hats and trunks get exchanged, lost or burnt. To accomplish this, we must have *objective labels*, which we may handle and carry in our pockets, and also an objective something to which we can attach the labels. In the present \bar{A} -system the rejection of the 'is' of identity is complete and applies to all levels. Thus, the event *is not* the object; the object *is not* the label; description *is not* inference; a proper name *is not* a class name. ; the characteristics ascribed to events, objects, or labels *are not* identical, an object, a situation, or a feeling *is not* identical with another object, situation or feeling. , . , all of which establishes a *structure of horizontal and vertical stratification*. At an early stage of the training. we must begin with what appears the simplest and most obvious to the child; namely, the absence of identity between the word and the object, or that the word *is not* the object. We accomplish this by stressing that one cannot sit on the *word* 'chair', that one cannot write with the *word* 'pencil', or drink the *word* 'milk', . These simple facts should always be translated into the *generalized form*, indicating with the hand the two levels on the Differential, conjointly with the fundamental formula 'this *is not* this'. We should always tell the child that the formula is entirely general, but for the present we should not go into any further details.

At this stage we can advance one step further, still using *only* ordinary objects as examples, and explain the un-speakable character

of the object; namely, that whatever we can see, taste, smell, handle. , is an absolute individual (demonstrated empirically) and *un-speakable*. We then take the apple, bite it (actually performing), and explain that, although the object is *not words*. , yet we are very much interested, and traditionally so, in this un-speakable level. Then we explain repeatedly and at length, emphasizing the important principle of evaluation, that to live we must deal with the objective level; yet this level cannot be reached by *words alone*. As a rule, it takes a few weeks, or even months, before this simple *s.r* is established, the old identification being psychophysiologically very much ingrained. Once this is established, we stress the fact that we must handle, look, and listen. , never speak, but remain silent, outwardly as well as inwardly, in order to find ourselves on the objective level. Here we come to one of the most difficult steps in the whole training. This 'silence on the objective level' involves checking upon neutral grounds of a great many 'emotions', 'preconceived ideas', . This step, in the meantime, appears as the first, the simplest, most obvious and most effective psychophysiological 'reality-factor' in eliminating the delusional identifications.

Once the child is thoroughly aware of the absence of identity between words and objects, we may attempt the expanding of the notion 'object' to the 'objective levels'. Such training requires persistence, even though it seems fundamentally simple. We demonstrate and explain that action, actual bodily performance, and all objective happenings, *are not* words. At a later stage we explain that a toothache, or demonstrate that the actual pain of a prick. , *are not* words, and belong to the *objective un-speakable levels*. Still later, we enlarge this notion to cover all ordinary objects, all actions, functions, performances, processes going on outside our skin, and also all immediate feelings, 'emotions', 'moods'. , going on inside our skins which also *are not* words. We enlarge the 'silence' to all happenings on the objective levels and the animalistic, 'human nature' begins to be 'changed' into quite a different *human* nature.

When this is accomplished the rest is much simplified, although much more subtle. We explain, as simply as we can, the problems of evaluation and *s.r*, stressing and making obvious the fact that our actual lives are lived *entirely* on objective, un-speakable levels. We illustrate this all the time by simple examples, such as our sleeping, or eating, any activities, or pain, or pleasure, or immediate feelings, 'emotions'. , which *are not* words. If words are not translated into the first order un-speakable effects, with the result that we do not do something, or do not feel

something, or do not learn or remember something. , such words take *no effect* and become useless noises.

One fact should be stressed; namely, that the problem is *not* one of ‘inadequacy of words’. We can always invent ‘adequate words’, but even the most ideal and structurally adequate language will *not be* the things or feelings themselves. On this point there is *no possible compromise*. Many people still utter quite happily, pessimistic expressions about the present *language*, based on silent assumptions connected with unconscious delusional identification, and believe that in an ‘adequate’ language the word by some good primitive magic would be identical with the thing. The more the denial of the ‘is’ of identity is driven home, and the sooner it becomes a part of one’s *s.r.*, the sooner the ‘consciousness of abstracting’ is acquired.

We are now ready to go further into the theory of *natural evaluation* based on natural *order*. As a preliminary step, we must show repeatedly the difference between descriptions and inferences, using simple examples. We must stress the fact that words, as such, must be divided into two categories: a first, of descriptive, in the main, functional words; and a second, of inferential words, which involve assumptions or inferences. Thus, ‘A does not get up in the morning’ may be considered as descriptive. If A explicitly refuses to get up, the statement ‘A *refuses* to get up in the morning’ may also be considered as descriptive. If A did not explicitly refuse, this statement becomes inferential, because A may be dead or paralysed. If we would say simply, ‘A is lazy’, such a statement represents an illegitimate inference of high orders based on ignorance, because in 1933 it is known that ‘laziness’ represents a symptom of physico-chemical, colloidal, or semantic disturbances. It should be stressed that this discrimination between descriptive and inferential words, although extremely important, is not based on any ‘absolute’ differences, but, to a large extent, depends on the context. I shall not analyse this problem further, because any parent or teacher who has acquired the consciousness of abstracting himself will find more examples at hand than are needed.

We should notice here a very vital, yet generally disregarded, structural fact—that *human* life is lived under conditions which establish a *natural order* of importance between different orders of abstractions. This natural order should be made the basis of natural adaptive evaluation and so survival *s.r.* As our lives are lived *entirely* on the *un-speakable level*, which includes not only scientific objects and ordinary objects, but, also, actions, functions, processes, performances, feelings, ‘emotions’ . . . this level is obviously first in importance, and the verbal level,

which is only auxiliary, comes next in importance. The analysis of the relative evaluation between description and inferences appears extremely complex and would require a separate volume, beyond the scope of the present work. Here we may assume the generally accepted opinion that the reliability of inferences depends on the reliability of the descriptive premises, and that description is more reliable than inference. In importance and in temporal and neurological natural *order*, description comes first; inferences, next. If we consider different orders of inferences, or inferential words, inferences or inferential words of lower order are more reliable and so more important than inferences of higher orders (inferences from inferences of lower orders).

As science is a *racial* product and so represents structural descriptions and inferences of an enormous amount of constantly revised observations and formulations of past generations, this racial product, 'science', is more reliable and important *in principle*, particularly in its negative results, than the individual abstractions of individuals. If some individuals happen to be 'geniuses', who upset racial scientific abstractions, they are under the scrutiny of other scientists who, no matter how biased or slow, remain judges of their products. In 1933 the opinion of scientists is the most dependable opinion we have. We must accept at a given date, the racial, particularly negative, abstractions as more reliable, establishing in evaluation the event (scientific object) first, and the ordinary object next. It should be stressed that the 'object' of daily experience, in human life, is by far not so reliable as that in the life of animals entirely without human interference. Thus, a high tension wire, or a third rail, or high explosives are not found in unaided nature and do not forewarn us as ordinary objects do. These 'objects' possess characteristics concealed or not obvious on the objective level of our ordinary inspection of, let us say, sight, hearing, or smell; yet these characteristics appear just as 'real' and dangerous as ever. It appears, then, that the 'scientific object', or the event, in contradistinction to the ordinary object, is more important than the daily object, no matter how important the latter might be. In fact, the only macroscopic importance of objects, outside of aesthetic and symbolic values, may be found in those not obvious physico-chemical, microscopic, and sub-microscopic characteristics. Thus the importance of food, or air, or a chair is found precisely in these physico-chemical effects which result from eating, from breathing, and from resting on a chair, and so again these hidden characteristics, revealed only by science, appear much more important than the gross characteristics manufactured by our nervous systems which we recognize as an object.

We come thus to a *natural scale* of a definite *natural order*, which also establishes the *natural order of genetic importance* and represents the *natural* base for *survival semantic evaluation*. For our purpose the relative order may be represented as the scientific object or the event first, ordinary object next; the ordinary object first, the label next; description first, inferences next, extended to descriptive and inferential words.

If we use the 'is' of identity and identify in value or importance the different, ultimately non-identical, levels, we nullify in principle the natural order of evaluation, which, by psychophysiological necessity, appears as a *reversal* of natural order in various degrees. We find many reasons for this curious fact, but, for our purpose, it will be enough to suggest that: (1) words are simpler and take less effort to handle than objects; (2) inferences being higher order abstractions than descriptions, are psycho-logically closer to our feelings and easier for any individual to manage than impersonal descriptions which require developed linguistic training, power of observation, self-mastery, and, in general, consciousness of abstracting. The reversal of the natural order must lead to non-adjustment and results in pathological symptoms in different degrees. The natural order consists of asymmetrical relations expressed by an ordered series, not only as to space-time, but as to values. All our experiences and all we know indicate definitely that ordinary materials ('objects') are extremely rare and very complex special cases of the beknottedness of the plenum; that the organic world and 'life' represent extremely rare and still more complex special cases of the material world; and, finally, so-called 'intelligent life' represents increasingly complex and still rarer special cases of 'life'. When we identify the members of these series, we disregard the asymmetrical character of this series and transform it into a fictitious, or delusional, or false to facts symmetrical relation of identity. It becomes also obvious why in the A-system, which did not allow asymmetrical relations, proper evaluation, adjustment, and sanity in general were, in principle, impossible.

Although the language used in this connection is not familiar, it is not entirely arbitrary. It appears experimentally that four-dimensional order has physiological importance on the one hand; on the other, that on the psycho-logical levels it involves the semantic factors of evaluation. In training in the *physiological natural order*, we train the *evaluation* or appropriate human and adult *s.r* on the *psycho-logical levels*.

In the difference between the un-speakable 'scientific object' and the ordinary object, the objective level and the verbal level, we find the precise spot at which we differ most radically from the animals. If we

disregard these differences and retain the 'is' of identity, we must somehow copy animals in our nervous processes. Through wrong evaluation we are using the lower centres too much and cannot 'think' properly. We are 'over-emotional'; we get easily confused, worried, terrorized, or discouraged; or else we become absolutists, dogmatists. . The results of such copying of animals are usually tragic, as might be expected. Owing to wrong evaluation we add self-made semantic difficulties to the difficulties which we actually find in nature. When we live in a *delusional* world, we multiply our worries, fears, and discouragements, and our higher nerve centres, instead of protecting us from over-stimulation, actually multiply the semantic harmful stimuli indefinitely. Under such circumstances 'sanity' is impossible.

It seems that here in the elimination of the 'is' of identity we have put our hands on an extremely powerful reflex-mechanism for the education, or re-education, of our 'emotional' life. As has already been said, suppressing or repressing our feelings is dangerous, and should be avoided. The old animalistic educational systems were built on repression and suppression, with sad results. But since we had no other means of education, we had to use the older means or else abandon this special education altogether. Not so in the new \bar{A} way with the Structural Differential. We *do not* repress or suppress. We teach silence on the objective level *in general*, which is a most impressive '*emotional*' education, on perfectly *neutral* grounds, one of the consequences of the elimination of the 'is' of identity. Any bursting into speech is not repressed; a gesture of the hand to the labels reminds us that words are *not* objects, or action, or happenings, or feelings. Such a procedure has a most potent semantic effect. It gives a semantic jar; yet this jar is *not repression*, but the realization of a most fundamental, natural, structural fact of evaluation in which we should all be well trained. Disturbing *s.r* subside, and no one is 'hurt'. It takes long and persistent training, but the results are most beneficial.

We must note an important difference between a statement involving the 'is' of identity, that 'we are animals'—which has nothing to do with the actual facts; all of us (the animals, too) *are not* words, but represent absolute individuals and all different—and the statement that we 'copy animals' in our nervous reactions. In the first case, nothing can be done. In the second case, although the results are *equally sad*, we can stop 'copying animals' the moment the mechanism is discovered and we begin to realize that we are doing so. Thus, the old hopeless becomes hopeful.

I have already mentioned that some educators may assume the eventual harmfulness of training in the consciousness of abstracting on the ground that children should be kept 'close to reality'. The answer to such an argument can be found in the recognition that what in the older days seemed 'reality' must now, in the light of new knowledge, be considered delusions, and the older training as preparatory for acquired un-sanity. The modern conditions of human life appear much more complex than those of animal life, or of the primitive man. Every year, perhaps even every month, new human 'realities' make their appearance; complexities arise and our educational systems do not equip the children semantically to meet these new conditions. After investigation one may find by himself that the older 'allness' and identifications represent delusional factors found nowhere in the empirical world, and thus have to conclude that if we train children in such delusions, adjustment to the actual world is made extremely difficult, if not impossible. It is true that some beneficial results do not appear at once, but only after the full consciousness of abstracting is acquired. Thus, at an early stage of the training, when the student begins to realize the delusional character introduced by the 'is' of identity, the general and well-known tendency may struggle hard to *retain* the *delusions*. His *first* reaction may be that of disappointment, with its many concomitants, depending on his temperament, metaphysics. ; but when he acquires the freedom of the full consciousness of abstracting, all levels will be evaluated properly and he will be able to adjust himself to conditions of *m.o* reality described in the present work, which cannot be avoided by any one. 'Knowledge' or 'intelligence' is only possible with abstracting, and, therefore, it fundamentally involves 'non-allness'. 'Omniscience' would involve a 'knowledge' of every point-event. These are fundamentally different, and such a world would be one of chaos, where knowledge would be impossible. Life, *m.o* abstracting, and *m.o* intelligence start together and are *conditioned by the m.o process of abstracting*.

Among the many semantically beneficial results of such training, besides the training in sanity and, therefore, in adjustment, a few other benefits should be mentioned. Our life, our *m.o* mentation, the structure of our language, with its syllogisms, fallacies. , consist for the most part of the constant utilization of the different levels of abstractions. This appears as an inherent characteristic of 'human knowledge', and, therefore, we cannot abolish it without abolishing *m.o* intelligence altogether. Intelligence requires the passing from level to level in both directions. All the benefits we possess follow from this; but also many semantic dangers are hidden in it. Similar remarks could be made about an auto-

mobile, . A great many beneficial results follow from the use of automobiles. , but there are also great dangers involved. For instance, at present we have regulations for the driving of an automobile. A driver has to pass his examination, demonstrate his practical reflex-ability in driving. , before he is allowed to drive in public. Similarly with our language; we find the greatest benefits in it, and we should utilize them. Proper training in the use of language should teach us how to avoid dangers. Obviously, ‘consciousness of abstracting’ teaches us how to avoid these dangers; likewise, once we become trained in the passing to higher and higher order of abstractions, we become capable of the performance of what we call ‘high intelligence’. The difference between ‘high intelligence’ and ‘low intelligence’ consists in the fact that a ‘high intelligence’ has a larger outlook backwards as well as forward; a ‘low intelligence’, as suggested in Fig. 2, sees only a little backwards (ignorance) and foresees only a little. A ‘high intelligence’ has a larger span or field; it knows more about the past and looks further into the future.

It is no mystery that when we want to look further into the past and the future we need higher and higher order abstractions. By training in this passing to higher and higher abstractions we train the ‘mind’ to be more efficient; this ‘mental’ expanding should be the structural and semantic aim of every education.

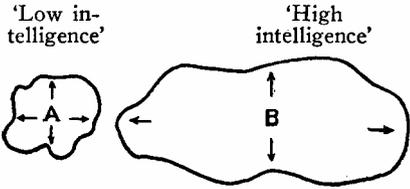


FIG. 2

Once we eliminate identification, we must accept *structure* as the only possible content of ‘knowledge’ and also realize that no ‘knowledge’ is ever free from some structural assumptions. Sometimes it is pathetic to watch the metaphysical performances of some otherwise very eminent scientists, who seem entirely innocent of these facts. They often attempt to divorce their metaphysics from science, and miss the point that primitive metaphysics represents ‘science’ or the structural assumptions of that period, whereas modern science represents structural assumptions or metaphysics of modern ‘times’, which cannot be reconciled with the older ‘science’. The difference appears in dates, not in kind. The real problem before mankind presents itself in the selection of a structural metaphysics. If we select the primitive structural assumptions and have to live under present conditions, we must become a split personality which cannot adjust itself. If we accept modern structural assumptions called science, we may adjust ourselves. In no case can we free ourselves

entirely from some structural assumptions. The problem becomes one of *dates*, and of un-sanity versus sanity. These problems appear of unusual importance, because the difficult scientific technique does not enter into this field at all, and the few structural data (1933) can be given in the simplest form to children and even to the feeble-minded. In the older days this problem was entirely misunderstood. We tried to 'popularize' science in the sense that we translated structurally correct language into the daily language of *primitive structure*; this resulted only in bewilderment; we did not analyse the structure of language and its role in our lives and *begin* with a structural linguistic revision. Once this revision is accomplished, and we build a \bar{A} language, the semantic background is prepared for a natural acceptance of modern *structural* metaphysics (science) of each date and the older 'popularization' becomes unnecessary. Such procedure would help to integrate the individual, while the older methods only help to split him.

Let us recall that the animal stops somewhere in his abstracting. When we come to a *stop*, and consider it 'final' or that we 'know all about it', we copy animals in our nervous reactions. Training in passing from order to order of abstractions as such, trains the particularly *human*, fluid, non-blocked *s.r.*, counteracts, and ultimately abolishes, the animalistic blockage. In a language of a given structure we can express ourselves in a definite way; and, if that way is incomplete, we must leave the field open, for in a structurally different language the issues may look entirely different.

It is fundamental to stress that the old 'unknowable' becomes entirely abolished. This 'unknowable' originated in the primitive identification and elementalism. Our ancestors could not miss indefinitely that identification was false to facts; yet somehow the emphasis, which the ecclesiastical authorities (for their purpose) laid on the importance of the *A-system*, prevented them from completely rejecting the 'is' of identity. The un-speakable was called the 'unknowable', a very gloomy term, indeed. The use of this term prevented them from discovering, long ago, that the only content of 'knowledge' appears as structural, with all the following *non-el* consequences. 'Knowledge' was expected to represent somehow more than 'knowledge'—a silent self-contradiction. On this foundation whole systems of delusions were built. With the newer realizations, we understand that the only possible content of 'knowledge' appears as *structural*, so that we can know all which belongs to the structural legitimate field of 'knowledge'. What does not belong to the field of 'knowledge' must be considered meaningless, and making noises about it, one way or another, will not help us at all; quite

the contrary, it involves us in delusional states. Students of the history of 'philosophy' may realize, in this case, particularly, the drama and the dangers which the playing on such *m.o* terms as 'knowledge' may needlessly produce.

Through the semantic mechanism which it involves, 'consciousness of abstracting' abolishes many fears, despairs, and other disturbances which follow from the confusion of orders of abstractions. We become introverted extroverts; in other words, we become affectively well-balanced, and ready to deal with empirical first order effects on their levels, and with verbal problems on their different levels. We learn, also, to *observe*, as soon as we have learned 'silence' on the 'objective levels'. Realizing that we abstract in different orders, we slowly acquire the most creative structural feeling that human knowledge is inexhaustible; we become more and more interested in knowledge; our curiosity becomes aroused; our sporting spirit stimulated and our level of *m.o* intelligence raised.

It is well known that the higher intelligence is characterized by a critical attitude. By training with the Structural Differential until the memory of the characteristics left out and the non-identity become a permanent semantic acquisition with us, this critical attitude is also developed. No one who feels habitually these 'characteristics left out'—'this is *not* this'—will ever *take a word or a statement for granted*. He will enquire, investigate; will always ask 'what do you mean', a question which automatically leads to further investigation, and finally strikes the bottom of the undefined terms which divulge our silent structural creeds and metaphysics.

We should avoid the mistake of assuming that the average man, or a moron, does not 'think'. His nervous system works continually, as does that of a genius. The difference consists in that its working is not productive or efficient. Proper training and understanding of the semantic mechanism must add to efficiency and productiveness. By the elimination of semantic blockings, as in identification, we release the creative capacities of any individual. We release him from the primitive semantic bondage in the daily and constant use of a powerful instrument called language—full of benefits, but also full of dangers—the structure of which he totally misunderstands. Such misunderstanding must lead to inefficiency in the use, and so to the abuse, of this function. Instead of being a semantic slave of the structure of language, he becomes its master.

When we become more civilized and enlightened, no public speaker or writer will be allowed to operate publicly without demonstrating first

that he knows the structure and semantic functioning of the linguistic capacities. Even at present no professor, teacher, lawyer, physician, or chemist, is allowed to operate publicly without passing examination to show that he knows his subject. The above statement does not mean control or censorship. Far from it. Our language involves a much more intricate, beneficial, or dangerous semantic mechanism than any automobile ever had or will have. We do not control the drivers in their destinations. They come and go as they please, but for *public safety* we demand that they should have acquired the necessary reflex-skill for driving, and so we eliminate unnecessary tragedies. Similarly with language, of which the ignorant or pathological use becomes a public danger of a very serious semantic character. At present public writers or speakers can hide behind ignorance (1933) of the verbal, semantic, and neurological mechanism. They may 'mean well'; yet, by playing upon the pathological reactions of their own and those of the mob, they may 'put over' some very vicious propaganda and bring about very serious sufferings to all concerned. But once they would have to pass an examination to get their licence as public speakers or writers, they could not hide any longer behind ignorance. If found to have *misused* the linguistic mechanism, such an abuse on their part would be clearly a *wilful act*, and 'well meaning' would cease to be an alibi.

We must accept the obvious facts which make the older theoretical 'democracy' or the older theoretical 'socialism' a scientific impossibility. If, in 1933, 99% of the population of the globe appear as infantile or 'mentally' deficient, how can any one expect that the majority or the mass could ever have proper evaluation or non-pathological *s.r*? All history shows at present, and this evidence should not be taken lightly by *scientifically enlightened society*, that the majority appears 'always wrong', and that all that we call 'progress', 'civilization', 'science'. , has been achieved by a very small minority. Such an understanding should guide our future conduct if we desire better results than we have at present. Under \bar{A} conditions, not the state, nor different private societies, but professional scientific bodies would have to set the standards and perfect the technique of the linguistic structural examinations. They would also select members who would serve on the examination boards. It might seem that such a \bar{A} innovation would not be important or far-reaching. This would be a mistake. It seems that most of those public writers and speakers may be considered privately as 'honest' men, who do not realize that under A conditions they often impose on defenceless masses delusional states which too often become of a pronounced morbid character. Once such an examination would force them to look into

structural, semantic, and linguistic problems, we may take for granted that a great many of them would become able to evaluate properly their own activities and comprehend the harm they do. As a result, quite probably, a great amount of useless, befogging issues, delusional writings and speeches would *not* be produced, with great benefit to all concerned. No one would censure them. Consciousness of abstracting would accomplish that. They would become their own censors, aided, also, by the newly developed consciousness of abstracting on the part of some members of the audiences or readers.

It would be desirable to experiment and introduce parallel classes in schools for a while; one group continuing in the old *A*-system, the other being trained in the \bar{A} -system. We may expect that at the end of a year the results would be fairly tangible. The ones which acquire the 'consciousness of abstracting' should show a marked improvement in character, should behave better, and should also show better results in scholarship, not to mention, in addition, the *preventive* semantic benefits in their future life and adjustment. Experimenting under various conditions is very desirable, as we deal with such a tremendously broad and fundamental structural problem that it is impossible at present to foresee more than the main results and bearings.

In a school one three-dimensional Differential should be enough, but in each classroom a large printed diagram, which is published also, should be permanently exhibited on the walls and applied in all studies. This is necessary, not only because such a reminder makes the children thoroughly familiar with the 'characteristics left out', 'natural order', but also because the children will discuss it and settle their educational and personal difficulties by its aid and so train themselves in \bar{A} reactions. In my practice, I have found that one of the main difficulties of the learner, or in 'thinking', in general, consists in the fact that in any verbal discussion we must utilize different orders of abstractions and *m.o* terms. If we do not realize this, the problem often seems very involved; once we are conscious of it, however, the problem becomes simple. In fact, it may be said that this special flexibility which is entirely absent in animals and little developed in the primitive man, represents the working mechanism of 'high intelligence', and that this special flexibility can be acquired through proper \bar{A} training.

The dealing with reflex-reactions and with experimental theories in general has one very encouraging characteristic; namely, that no matter how difficult the theoretical side may be, the practical is invariably extremely simple. Thus, a theoretical treatise on the Einstein theory, or the new quantum mechanics, or on an automobile, radio, or piano, or

on music, or the conditional reflexes of Pavlov. , may present, and, in fact, generally does present, difficulties, because it is formulated on purely verbal and analytical levels. But these levels are most important, for we find that on these levels the *full evaluation*, and so the full realization, of existing or possible *relations* and *meanings* is accomplished. In these verbal levels we find also economical and effective means to analyse further developments on which the possible range of applications ultimately depends. Such a treatise can be produced by a single man and thereby becomes available for the rest of us.

A description of the application is, however, very simple; we label the related parts of some structure, describe, mostly in terms of order, their interrelations, and then give instructions how to act, push, pull, or turn a given part to get such and such results. These descriptions, although verbal, refer exclusively to some physical structure, so that men of very low 'mentality' can soon become acquainted with the practical problems concerned. When the reflex-handling of the physical structure is acquired, the experimental and behaviouristic aspects become childishly simple. A child can see the experimental results of any theory, or notice the ease and simplicity of the reflex-adjustments a good driver can make.

But what an infant, a savage, or an ignorant man *cannot* do, is *appreciate* the *meanings* of given occurrences and *evaluate* them; in other words, they cannot *relate* the given occurrences to other occurrences which alone give the *significance* of the happenings. Thus, not only physicists, but even the average man, knew of the equality of gravitational and inertial mass; it took the genius of an Einstein, however, to *evaluate* properly, to have the proper *semantic reaction* toward this 'commonplace fact'. The present work shows clearly that all semantic disturbances exhibit a lack of proper evaluation; or in getting hold of the *meanings*, or *relations*, or *order* of different order abstractions. Only a full *theoretical* understanding can supply us with those meanings and produce in us the proper *s.r* of evaluation—a necessary psychophysiological step for further advance, and for full application of the conquests already made.

As the present work is experimental throughout, and deals with verifiable subjects, such as the structure of languages on record, the natural order of development, the pathological reversal of order, which, if again reversed, restores the natural order. , and, when applied, brings about most beneficial experimental results, all that has been said about experimental theories applies fully in our case.

Just as in other disciplines, the instructions are simple: 'push these', 'pull this', or 'turn that'; so, in our case, this simple descriptive rule which refers to the objective Differential is given as: 'this *is not* this'. Once the reflex-activities have been acquired, we can, for instance, enjoy the pleasure of an automobile trip, the music of a radio, or a semantic trip toward sanity in harmony with ourselves and others, very simply, in spite of the underlying theoretical complexities which are always means and not ends in themselves.

But here we must face an important difference. It is easy to demonstrate empirically to the majority of us the usefulness or pleasurable of automobiles and radios, but it is very difficult to demonstrate the benefits of consciousness of abstracting to those who have not acquired it. Before the experimental data begin to accumulate and become common knowledge, the main evaluation will have to be made on theoretical grounds. Besides, before children can be trained by the simple and easy methods outlined above, adults must first re-train and re-shape their own *s.r.*, which re-training and re-shaping are not easy, and require even more difficult theoretical considerations. Because of this, the present work had to be written in the form of a text-book for parents, teachers, physicians, and workers in 'mental' hygiene, and for future students and research workers in psychophysiology and semantic hygiene.

At the beginning, in the application of the method, a number of difficulties will be discovered which will have to be overcome. As a rule, the training in non-pathological *s.r.* proves to be easiest and simplest with very young children. Most of it, or at least the laying down of the semantic foundations for such reactions, should be accomplished at home by specially trained teachers, if the parents are unable to do that themselves. In countries or communities where the national or local governments show an interest in the health of the population by providing, for instance, specialists in preventive vaccination, specialists to train in preventive measures against semantic disturbances will probably also be provided.

In elementary schools the teachers at first will have to train themselves as best they can with the help of specialists; but in high schools, colleges, and universities, special instructors will have to be employed.

The first concern, then, is to start the education and training of teachers. With this end in view, the present work has been written so as to form a fairly complete outline of the whole problem; reference literature has been indicated, so that any one who wants to specialize in the subject can find some suitable text-book as a primer. As to qualifications for the professional \bar{A} instructors,—it is, at present, very difficult

to foresee details, but, as the full consciousness of abstracting leads to *s.r* which, also, follow unconsciously, or which should so follow, from the study and acquiring the *feel* of the calculus,—students of mathematics would, perhaps, be the most desirable. Any specialist in a new line of work has to learn a great deal, and this cannot be avoided; but it makes a difference what kind of training one has had as a young person. Thus, it is simpler for a student of mathematics to learn about psychiatry, or psycho-logics, than for a psychiatrist or a psycho-logician to learn mathematics. However, for a person with university training, this is less important than a genuine willingness to master the subject. Once the consciousness of abstracting has been acquired by such a student, his semantic blockages will be eliminated. He will then have no difficulties whatsoever with details, or even in doing creative work along this line.

With very young children, in the beginning an hour a day for several months should be devoted to the subject. When they have acquired the consciousness of abstracting, the results should not be entirely trusted as to permanence, but, at least, once a week the problems should be recalled to them. How many hours a week should be devoted to it in high schools, colleges, and universities I shall not venture to suggest, because the working hours in these institutions are already very crowded. The training in consciousness of abstracting automatically eliminates an enormous amount of semantic blockages, and would facilitate the acquisition of learning in all branches of knowledge, and so save ‘time’ and effort—the more so, if the respective teachers themselves were to become conscious of abstracting.

The beneficial results which are to be expected may be found in better scholarship, more interest in studies, improved character, higher *m.o* intelligence, and a better general adjustment. All of this seems quite apart from the *preventive* character of the training as a protection against many semantic disturbances in the future. But when teachers of all subjects acquire consciousness of abstracting themselves, they will probably discover new means and methods of conveying more simply and more effectively what they wish to convey to their pupils. I am convinced that the hours spent on semantic training would actually turn out to be an important *economy of efforts*. Moreover, it would effectively give the children and students the highest grade of *cultural training*, which at present we acquire only occasionally and with difficulty, without the conscious co-operation of our teachers.