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**FUNCTIONAL
DISTURBANCES
IN BRAIN DAMAGE**



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Functional Disturbances in Brain Damage

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individuals with disintegration of the brain function, it is *not*—as is the case in preservation of the automatisms—a direct effect of an inferior brain function coming to the fore. Preservation of emotional reaction represents the maintenance of this attitude of man toward the world, which, in normal man, exists alongside the abstract attitude. Because the emotional attitude is more closely related to the personality and more important for its self-realization, it shows greater resistance toward damage of the brain function and thus may remain undisturbed when the abstract attitude is disturbed. The emotional instrumentalities are preserved in the same way as are the instrumentalities in general in impairment of abstract behavior. This shows in the possibility of using them in concrete behavior. The odd preservation of emotional language does not present a special problem. Whether a patient is able to produce language or not depends on the attitude under which such language is demanded in a given situation, that is, whether the abstract one or the emotional fits the situation. If the latter is the case, the patient will bring out words; in the former case, he will not. This could be demonstrated by a great number of examples which show that the patient is able to utter a word in an emotional attitude but is not able to do so voluntarily, that is, in the abstract attitude, even immediately afterward. One particularly instructive example concerning a patient of Jackson may illustrate this. The patient responded to the demand to say “no” by saying, “I cannot say ‘no.’ ” He was not able, however, to repeat the word “no.” The speaking of the word “no” in the

sentence is not a voluntary act but belongs to the patient's concrete reactions. The repetition of the word "no" presupposes the voluntary attitude (see ref. p. 71) which he could not assume, therefore he was unable to say the word on demand. From a superficial aspect this would seem to be a contradiction, since the patient was able to say the word "no" with great emphasis when asked to do something which he could not do, that is, when in an emotional attitude. This seeming contradiction is resolved when we realize that the words appear to be the same but actually are not the same, since they represent totally different reactions of the whole organism. The patient was able to utter the word only when the situation induced him to take an emotional attitude. It is obvious that wrong interpretations of the patient's capacities can easily occur if this difference in attitude is not taken into consideration.

I would like to mention, in the latter respect, another very instructive example: it concerns the difficulty in finding words, particularly names of even the most common objects. This is a very frequent symptom of aphasic patients. No matter how similar, on face value, failures of the patients may appear in respect to the finding of words, the defects can be due to a defect of an entirely different function. In one kind of patient, the inability to name is an expression of an impairment of abstraction; in another, it is a sequela of a defect in the instrumentalities of language, a memory defect. The patients of the first kind have not lost the words but are not able to utter them in naming,

because naming, as analysis has revealed, presupposes the abstract attitude. The other kind of patients, with difficulty in finding the name, have no defect in abstract attitude, but their instrumentalities of language are damaged, and therefore they cannot find the words. Only when one considers the whole picture which the patients present does the difference of the origin of the symptom become apparent. As long as one pays attention only to the effective reaction, as has often been done—in this case the difficulty in naming objects—the underlying damage of the brain function may appear the same. This fallacy occurs particularly if one records the results of examination by the plus and minus method and considers the answers only in respect to success or failure. This conclusion from the effective answer, without analysis of the way in which the patient came to the answer, the “fallacy of effect,” is the cause of many mistakes in the interpretation of psychopathological phenomena and in the building of theories. It shows up particularly in failures of retraining when the interpretation was wrong.

Similar observations, as we have mentioned, can be made not only concerning the language of the patients but in regard to other motor activities which belong to emotional situations. An example may illustrate this: The patient was asked to behave as he would in a situation in which he became angry with some one and was menacing him. He was not able to do so. When we demonstrated such behavior to him, he began to laugh, apparently perplexed, not quite sure what was meant. He was not able to perform the

action on demand. But, observed in a situation in which he actually got angry, he behaved instantaneously like a normal individual as shown by the expression of his face, the action of his fists, etc. This example points to the important difference which often exists between the patient's behavior during special examination and during everyday life. Observation under the latter condition, so often neglected, deserves the greatest attention.

Symptoms Due to Direct Damage of the Instrumentalities

Up to now, our description of symptoms in damage of the brain cortex was concerned with effects due to disintegration of the brain function from the higher-level function to the lower one. We have discussed symptoms caused by impairment of the higher-level function, the abstract attitude, and have discussed the effect of the impairment of the abstract attitude on the lower-level function, the motor and sensory activities, the so-called instrumentalities, by which the higher-level function is actualized.

At this point we shall consider symptoms which are the effect of direct damage to the instrumentalities. We have to restrict ourselves here to a *survey* of the different ways in which damage of the function of the brain, concentrated in definite regions, is revealed in modifications of normal behavior. From this point of view, we have to classify the symptoms into two main groups.

Symptoms which Represent Direct Sequelae of Damage to the Substratum of a Definite Region

These sequelae rarely take the form of complete loss of a performance; more commonly, the performances affected undergo modifications. Such modifications can be considered as a result of a systematic disintegration of the concerned function. Structurally, this disintegration invariably exhibits

the same features, regardless of the region involved, be it the spinal cord or the subcortical apparatus, and regardless of whether it concerns reflexes, motility, sensation, speech, thinking, or feeling. A particularly important consequence of this dedifferentiation is impairment of abstract attitude and abnormal concreteness of behavior, about which we have spoken before.

All direct damage causes a rise of the threshold and a retardation of excitation. The receptivity of the patient is reduced in the involved sense organ. It takes him much longer to react. This manifests itself in the fact that patients may succeed perfectly in a task when they are given a sufficiently long time of exposure but fail in the same task when given only brief exposure, for example, when examined by the tachistoscope. (The tachistoscope is an instrument which allows exposure in different short lengths of time.) Pathology consists of a slowing down of the physiological process.

The patient may perceive when the stimulus is strong enough and presented long enough, but he may cease to see it after a certain time, in spite of continued stimulation. Later, the sensation may appear again; it seems that the threshold changes during stimulation. This is also true in stimulation of normal individuals, but it is far more apparent in brain damage.

When excitation takes place despite obstacles, it spreads abnormally

and remains effective an excessively long time. This is due to disturbance of the process of "equalization" by which the effect of the stimulation is regulated (see Goldstein, p. 113). Examples here are phenomena such as tonic innervation, repetition of the same movements, reiteration in reflexes (clonus), etc. A word grasped with great difficulty by an aphasic patient sticks, perseverates, and influences subsequent performances.

Another characteristic effect of the damage is the fact that performances are determined to a much greater extent than normally by stimulating influences, external or internal. We call this abnormal stimulus responsiveness.

Symptoms Due to a Separation of an Undamaged Area from a Damaged One

By such separation or, better, "isolation," the function of the undamaged area, and thus the performance, is modified in a definite way. The pathology can consist in an isolation of parts of the unit which the organism as a whole presents and an isolation of the subunits corresponding to definite performance fields. Isolation can occur in gross anatomical separation or in functional separation; it can also occur in psychological conditions.

It seems useful to give here a brief summary of the functional changes caused by isolation (see Goldstein, p. 133). The reaction appears modified in the following ways:

1. The effect of an adequate “stimulus” is abnormally strong.
2. The effect of an adequate stimulus is of abnormal duration.
3. The reaction is abnormally influenced by inadequate stimuli, external or internal. It is abnormally “stimulus bound.”
4. The individual is forced to react. He appears to be easily fixated when his reaction to the present stimulus is completely successful. If his reaction, however, is not fully successful, he seems to be forced to react to another present stimulus. If, now, the correct reaction takes place, fixation will set in; if the correct reaction does not take place, the patient will again be forced to react to still another stimulus, etc. Thus he may appear very distracted. The patient seems to be driven to achieve an “adequate” reaction by which the entrance of “catastrophe” is eliminated (p. 197). Fixation and distractibility appear so as the two results of the same defect under different conditions.
5. As a result of loss of the normal influence of the rest of the organism on the activity in the isolated part, the reaction appears to be lacking special contents. It appears, or actually is, more “primitive” because it lacks properties belonging to the “nature” of the individual. The degree of primitivity and diminished appropriateness depends on the place and extent of the isolation, on how large a part of the whole organism is excluded from cooperating in the reaction (see p. 148 ff.).
6. Isolation distorts the normal figure-ground organization which is of essential importance for the outcome of any normal reaction.

All the factors mentioned above are responsible for occurrences of abnormal performances, and all of them have to be considered in the evaluation of any one symptom in damage of the brain cortex.

Symptoms Representing the Reaction of the Individual to the Defect

So far, we have discussed symptoms in brain damage only in their relation to defects of structure and function of the brain. Our results were still somewhat unsatisfactory, particularly in regard to *understanding the variability* of the symptoms. We must try, therefore, to go a step further, to regard the phenomena not only in their relation to the damage of structure and function but in their relation to the reaction of the individual and of the whole organism to the defect. Such a step corresponds to the procedure of the organismic approach and often leads to a better understanding of the patient's behavior.

Systematic investigation of the patient's general condition while he is able to fulfill a task and when he is unable to do so reveals another fallacy, which consists of only recording the effect of failure or success in the performance. One observes, particularly in patients with impairment of abstract attitude, that the patient, unable to fulfill a simple, seemingly unimportant task, may be completely changed in his total appearance. The same man who, shortly before, looked animated, calm, in good mood, well poised, collected, and cooperative, while successfully fulfilling a task, appears now to change color, to be agitated; he starts to fumble and becomes unfriendly, evasive, even aggressive. This overt behavior is very reminiscent of that of a person in a state of anxiety. The relationship of this general

condition to the capacity of fulfilling a task becomes particularly evident from the fact that such a general condition can be experimentally produced, in some patients, by presenting them with a task which we know they will not be able to perform.

We call the state of the patient, when he is successful, an ordered condition; the state in a situation of failure, a disordered or catastrophic condition. In the latter condition the patient is incapable of performing tasks in which he is usually successful, which he is able to do very well when in the "ordered" condition. Such failure lasts for shorter or longer periods of time. One observes frequent catastrophic conditions, particularly in patients with impairment of abstract capacity. Since an individual with such impairment is unable to account to himself for what he is doing or experiencing we assume that he is not aware of his failure; as a matter of fact, he is unable to say, when questioned about it, whether or not he has been confronted with something frightening. Hence we come to the conclusion that the catastrophic condition is not a conscious reaction to the failure but, rather, belongs intrinsically to the objective situation of the organism in failure.

Even the smallest failure may have this effect on these patients, since they are unable to decide which failure might be dangerous for them and which might not. They are, so to speak, always endangered whenever their reaction is not adequate. Thus any objective failure can bring the organism

into disorder, into catastrophe, into anxiety.

I cannot, in this presentation, discuss the consequences of our description of these phenomena for a theory of anxiety (see Chap. 7 American Handbook of Psychiatry Vol. 4). Here, we are interested only in the symptoms which these patients show, owing to the occurrence of anxiety, which are not directly related to the damage of the brain. If we do not pay attention to this, we may be deceived about the patient's brain defect and may consider symptoms as being related to it, when actually they are not. Consideration of the phenomenon of catastrophe explains the variability of symptoms under similar conditions.

One factor which is apt to modify the symptomatology considerably is the development of protective mechanisms by which the occurrence of catastrophes is eliminated or at least reduced. It is easy to understand that all patients, when they do not essentially improve, have the greatest desire to get rid of the anxiety, for otherwise they are prevented from using even their preserved capacities and thus from coming, at least partially, to a state of self-realization.

We realize that patients with even severe brain damage and impairment of abstraction show, after a certain time, a diminution of the disordered behavior, of catastrophic conditions and anxiety, and yet, examination reveals no change whatever in the damage to their mental capacities. In such cases

this can occur only if the patient is no longer exposed to tasks he cannot cope with, or is able to take the failure without reacting with catastrophe. Concerning the first point, observation of his behavior in everyday life reveals that he lives apparently in a modified environment, an environment from which far fewer tasks arise which might lead to catastrophes. How does such modification of environment take place? Observation shows that the patient is withdrawn from the world around him so that a number of stimuli, including dangerous ones, do not arise. He avoids company. He is as much as possible doing something which he is able to do well. What he is doing may not have any particular significance for him, but concentration on activities which are possible for him makes him relatively impervious to dreaded stimulation. Particularly interesting is his excessive orderliness in all respects. Everything in the surrounding world has a definite place. Similarly, he is very meticulous in his behavior as to time, whereby the determination as to when he should do something is related to events and to activities of his which always occur at the same time, or to a definite position of the hands of a clock. This orderliness enables him to prevent too frequent catastrophes.

Another interesting protective mechanism is unawareness of the defect. We observe this particularly in patients with impairment of abstract attitude, but also in patients who are incapacitated in a special performance field without mental damage, for instance, in severe hemiplegia. This symptom, called Anton's symptom, described first by Anton in 1899, occurs particularly

when the incapacitation is total (see p. 38), so severe that the patient is not able to use the disturbed capacity at all. The symptom may not take place if the defect is partial and if the patient is able to use the capacity at least to a certain degree, for example, if he can move his paralyzed leg somewhat. This protective mechanism has been described as denial, a procedure which would demand a somewhat conscious activity. I do not think that such an interpretation is correct. Certainly, it can be rejected as far as it applies to patients with impairment of the abstract attitude, who are, owing to this defect, unable to do anything voluntarily. Whether the phenomenon becomes more understandable if one ascribes to it unconscious influences is doubtful. I think it is sufficient to consider it as an effect of a new organization of the behavior of the organism, which, though *not directly related to the defect*, occurs from the organism's tendency to realize the capacities which it has, in pathology those which are preserved. Within this new organization the effect of the disturbance does not become apparent. This would make it understandable that the patient is not only unaware of the defect, but that the defect is so arranged in his behavior, without his knowledge, that the disturbance does not show.

It is not the disagreeable experience of the failure itself which produces the new organization. This becomes evident when lack of awareness or other protective mechanisms disappear under the influence of the physician. As transference develops between patient and physician—when, for example,

under the influence of the physician the patient learns to bear his disturbances and learns through his own experience that, by bearing them, his general contact with the world is improved—then he is more able to realize himself without the shelter of the protective mechanisms. With this added security, he is able to give up his safeguards. Indeed, the more the abstract capacity which makes such deliberation possible is preserved, the more is this the case.

We consider the organization of protective mechanisms as an expression of the attempt of the organism to come to terms with the demands made on it, in such a way that self-realization is guaranteed as much as possible. I would like to stress that these passively originating, protective mechanisms occur not only when the abstract attitude is impaired but also if it is by circumstances diminished, as, for example, in severe anxiety in normal individuals.

There is another way to eliminate danger to self-realization which is produced more actively by conscious interference. One should distinguish these mechanisms, which occur particularly in neuroses, from the passively originating protective mechanisms by terming them differently—by calling them defense mechanisms.

In view of these facts, we should be very cautious in the interpretation

of symptoms; the possibility that some phenomena observed in the patient might not be the effect of a damage but of a protective mechanism always has to be considered. This concerns also the absence of symptoms by “denial,” which might be expected in a special damage of the brain.

Somatic symptoms, resulting from defects of the nervous system, can also bring the patient into general disorder. Here also, we observe after a certain time, a modification of behavior by which, even when the original damage is neither eliminated nor improved it is no longer effective. For instance, a patient may, after damage to one hemisphere of the cerebellum, suffer from disequilibrium, falling, deviations in walking, etc., and from different disturbances in general, subjectively and objectively, and so may be hindered subjectively or objectively in his self-realization. After a certain time the general disturbances improve, without improvement of the pathological condition (which special examination shows existent as before). Concomitantly with the general improvement, however, we see that a deviation of the body has occurred, which seems to bring about a new equilibrium, a better general condition, and thus a better possibility for self-realization. The patient, however, is not aware of his deviation.

That this general improvement is related to the deviation becomes apparent by the fact that improvement disappears immediately when one tries to eliminate the deviation; in other words, such action brings the patient

into the previous condition, into catastrophe. We say that the deviation represents the individual's new, preferred condition (see p. 340). The following few remarks may explain what is meant by this. If we consider an organism by the usual atomistic method as composed of parts, members, and organs which can be used in very different ways, and if we then look at the organism in its natural behavior, we find that many kinds of behavior which, on the basis of the first consideration can be conceived of as possible, are actually not realized. Instead, only a definite selective range of behavior can be observed. Normally, each performance is executed only in a definite or, as we say, preferred manner. Observation of the whole organism in a situation where one performance field—be it motility, perception, language, etc.—shows preferred behavior reveals that all other performance fields exhibit preferred behavior as well. In the above case we say that the organism is in an ordered condition; it performs all its activities in the best way; it can use all its capacities in coming to terms with the demands of the outer world; it has a definite constant visual acuity, an erect position of the body, is able to speak and to act according to its nature, that is, is able to realize itself in the best way.

The organism always tries to achieve such ordered behavior in spite of its defect. It can be reached only through modification of the behavior in the damaged performance field by finding a new preferred behavior which goes along with a somewhat modified but preferred behavior all over. This must be

considered in our evaluation of deviations; we have to distinguish those which are the expression of the defect from those which are an expression of the new, preferred behavior; that is, from those which are means to guarantee the new order. This distinction demands careful study of the influence of the deviation on the behavior of the whole organism, that is, whether or not it is accompanied by order or disorder of the latter. A symptom belonging to a preferred condition is characterized by the fact that any voluntary change of the new preferred behavior brings the organism into general disorder and that it returns involuntarily to that very behavior. So, for instance, should the head be in a tilted position, any attempt to bring it to the normal erect state produces not only general disorder, but the head returns involuntarily to the new preferred condition, in this case a tilted position.

What we have described here concerning the effect of a cerebellar damage can be observed in damage of each performance field in the change of the direction of the performances toward a new preferred order. This new preferred condition can be achieved in two different ways. One way consists of yielding, giving in to the defect; the other, of building a counteracting mechanism by which the effect due to an abnormal condition is compensated. These two ways of eliminating the danger to self-realization do not present equal effects. By the first, the normal functioning is, in principle, unchanged. It is the more “natural” procedure; it occurs more automatically, scarcely demands voluntary activity on the part of the individual, and therefore brings

greater security. By the second way the normal form of functioning in the particular apparatus is changed. It is a more volitional type of behavior; it is not as secure, leads more readily to fluctuation, and admits greater possibilities for catastrophic reactions. Whether one or the other way of adapting to the irreparable defect occurs depends on which offers the best possibility for self-realization under the given conditions. If this is guaranteed by the first procedure, it will occur, since it is the more secure procedure; if, however, this is not possible, then the second way of adaptation occurs.

The significance of the preferred condition for the best performance must be considered most carefully in all therapy, even if that condition deviates from the "normal." Any attempt to bring the patient into the "normal" condition may make all treatment meaningless and inane. The similarity of this situation in organically disturbed patients and in neurotics is theoretically of the greatest interest. Unfortunately, we cannot even touch this point here.

We mentioned before that the symptomatology of a patient with brain damage can become more difficult to understand in direct relation to the defect because of a factor other than the protective mechanisms. This factor is the development of the relation between the physician and the patient. If this relationship is good, the patient will no longer become afraid so easily and the occurrence of catastrophes may be diminished; thus, many defects may come

to the fore which the patient concealed simply by not reacting because he was afraid to let them appear. The development of a kind of transference between the patient and the physician is of the greatest significance for a correct examination, for finding the defects related to the damage, for evaluation of the symptoms, and, not least, for execution of correct therapy. This development of transference in organic patients has not had the attention it deserves. In this respect I would like to refer the reader to my article about organismic therapy.

The Nature of “Distorted” Performances and Their Interpretation as Symbolic Phenomena

The discussion of the protective mechanisms, particularly their consideration as new preferred behavior, has some bearing on the understanding of phenomena which are usually called compensational or distortive. When we observe such phenomena, the question of whether we are actually dealing with pathology always arises. I have in mind particularly some reactions, unusual as to form and content, of aphasic, apraxic, agnostic patients. What does the material which the patient brings to the fore represent? Sometimes it certainly is the expression of disturbances in the field of the instrumentalities. Sometimes, however, one gets the impression that the material corresponds to activities and experiences which have played a particular role in the premorbid life of the personality, and which are now released, so to speak, through pathology. From this point of view such material has been considered as of particular significance for the study of the deeper level of the patient's personality. It seems to me important that we look at these phenomena a little more carefully than is usually done. They deserve attention not only in relation to their interpretative value as symptoms but from a more general point of view as well. They have suggested an interpretation as “symbolic” phenomena, which, in my opinion, is mostly wrong. The error originated because their relationship to the total condition and behavior of the patient was not fully considered.

Some utterances of aphasics, also of such whose symbolic function was generally disturbed, can easily give the impression of symbolic phenomena and often have been interpreted as such. I think they can be understood in various other ways as well which are not in contradiction to the existing basic defect, the defect of the symbolic function. Some are so-called “physiognomic phenomena” and represent normal reactions which occur in a special concrete and not symbolic attitude of the individual. This is easily overlooked because these phenomena are not well known. In our culture particularly, they play a small part in everyday life and are not familiar except in the experience of artists. In normal life they are, so to speak, embedded in our realistic everyday attitude toward the world, and they come to the fore only in special situations. We do not have sufficient studies of the physiognomic behavior of our patients, but I feel justified in assuming, from my experience, that this behavior differs from normal physiognomic experiences which are related somewhat to the symbolic attitude. This relation is lacking in the physiognomic experiences of the patients. They appear particularly when the attitude of abstraction is diminished by pathology, and especially in patients with a premorbid inclination for the physiognomic attitude toward the world. Such utterances should not be considered as symbolic. For these patients, a shifting from the physiognomic attitude to the more usual attitude, which, for normal individuals is easy, becomes almost impossible. Their aspect is, so to say, fixated due to “isolation.”

Other utterances are more difficult to evaluate and frequently give rise to symbolic interpretations. They are outstanding in the sense that they consist of poetic, symbolic, or even newly coined words; they may appear to be utterances of particularly intelligent, cultured, and erudite personalities. I have often observed such “quasi-symbolic” phenomena in aphasic patients. In a recent paper, W. Riese has stressed the occurrence of such phenomena. He has considered them as means “evidently to compensate the naming defect of the patients.” The patients’ neologisms “impress the listener by their descriptive and figurative power.” The language of one of his patients, “a highly educated scientist and humanitarian” before his sickness, became “after a brief initial period of complete loss of speech, formal, solemn, poetical, dramatic, pathetic and ‘Shakespearean,’ frequently using quotations.” He continues: “What the brain injury brought to the fore was that element in his nature which disease could not destroy, but rather released” and “I reached the conclusion that disease may occasionally reveal though in a distorted fashion what is great and noble in man’s nature.” p. 11

It is true that such utterances and behavior may occur in patients with brain defects. I have noted that disease may emphasize the premorbid character of the patient, especially in the way the patient now bears the defect and in what way the untouched part of the personality helps him to overcome his failures. Whether in a patient with impairment of the abstract attitude an interpretation such as W. Riese suggests is justified, I would doubt. In such

cases, I think, we are dealing with phenomena of “quasi-high” value, and I assume that the patient Riese describes belonged to that group. Closer consideration may show that the phenomena represent material which previously belonged to the behavior of a high-level personality, which appears now in the form of protective mechanisms and has lost their previous meaning for the particular individual. These utterances represent the undamaged remnants of the instrumentalities of speaking and thinking, which prevail now because the adequate activities due to the impairment of abstraction are impossible. The previous particular way of speaking, the previous rhythm and preference for poetic, dramatic, pathetic expression of the personality are preserved, but this material no longer is an expression of the attitude to which it originally belonged, the attitude which is lost through damage to the brain. Some abnormalities which these utterances show, and which Riese has carefully reported, reveal that we are no longer dealing with utterances prompted by the premorbid personality of the patient. They reveal “no planning, no effort, they occur passively, apparently without intent.” In all this, they show the characteristics of isolated automatisms. The rapidity and fluence with which they are uttered (which Riese mentions, and which I have often observed on such occasions) may be even better described as being “thrust out.” I think that the patient utters the words in this manner because he wants to get rid as quickly as possible of the distress in which he finds himself when he cannot react correctly but feels forced to do so. As one of my

patients said: "If one is asked, one has to answer," and he brought out something which occurred passively in him by *association* of previous knowledge to the task he had to fulfill now. He said definitely that he did not know and could not say how it entered his mind, but that he was forced to utter it.

Such examples definitely point to the fact that these utterances are not related to the present personality. Certainly, their prominence is an indicator that we are confronted with experiences which the individual has had before, and therefore his utterances may reveal the premorbid character of the personality, but we cannot assume that they represent the old personality as released by pathology. In any case, we must be careful to see whether we are justified in so doing or whether these utterances do not belong to "quasi-high" behavior.

I have discussed these phenomena in some detail because I consider it important for the psychiatrist to be fully aware of this problem. We meet the same problem and the same wrong interpretation in the evaluation of utterances of schizophrenics, which have often been considered as symbolic, as expressions of deep insight into the essential things of human life, which disease has revealed. Here too, I do not want to deny that the particular premorbid personality of the schizophrenic patient may become apparent in some of his behavior. This is understandable, because we assume that the

patient is not totally modified in the typical schizophrenic manner but is partially normal, or, better, in some respects normal. (Federn has stressed this particularly.) Thus he may show normal and even high-level personality behavior under some conditions, but I would deny that this particular high-level behavior is related to the schizophrenic condition. We shall understand the behavior of the patient only when we distinguish sharply between high-level behavior and “quasi” reactions which only appear to be of high-level nature. That the latter occur in schizophrenics is to be expected, particularly when we assume that the patient’s behavior is frequently abnormally concrete.

We know, since Vigotski’s investigation, that thinking in concepts is disturbed in schizophrenic patients, at least in some groups of such patients. This was confirmed by the work of Hanfmann, Kasanin, Bolles and Goldstein, and others. Storch was already doubtful whether one is justified in considering schizophrenic behavior as symbolic. Beck has stressed, on the basis of his Rorschach studies on schizophrenics, that it is an error to assume that the schizophrenic gives the world “a form and outline which the healthier do not see,” that he has “a greater power or superior ability to transmute his experience into something richer.” The author wonders “whether the general belief in the schizophrenic profuse fantasy life is not due to confusing distortion with fantasy.” He adds: “Fantasy actually involves a *creating* of something totally new. . . . The schizophrenics’ misconstructions take on

fantastic form. But this is still not fantasy. It is inaccuracy. . . . Not having the power to apprehend the presented real world is what chiefly distinguishes the schizophrenic's percepts and his thinking."

I have come to the conclusion that in schizophrenia we are dealing not with an organic defect of abstraction but with a nonuse of abstraction which concerns only a definite part of the world, and that this is an effect of the anxiety which the schizophrenic experienced in early youth in relation to his personal environment. This nonuse of abstraction is a protective mechanism against the danger of catastrophe and anxiety.

The fact that the origin of the abnormal concreteness in schizophrenics differs from the origin of such concreteness in organic patients becomes apparent in certain essential differences of the symptomatology. This can be seen, for instance, in the frequent appearances of physiognomic experiences. The schizophrenic's utterances sometimes yield "symbolic" interpretations but are often revealed, by analysis, to be only pseudo-symbolic phenomena. Such phenomena are here particularly suited to appear as symbolic, since the distortion of behavior brings out much of the instrumentalities belonging to the preschizophrenic condition of the patient where the symbolic attitude plays a more or less important role in the thinking of the patient. Further attention must be paid to the fact that schizophrenics often build complex mechanisms to cover their ideas, feelings, etc., which may easily appear to be

of a high-level function, owing to their complexity, but which prove to be only complex associations built on a very concrete basis. This is often difficult to unveil, because the schizophrenic has not only passively originating protective mechanisms, like the organic patient, but also has defense mechanisms, which he produces intentionally, that may give the impression of higher-level function and sometimes may be also an expression of it. The picture of schizophrenic behavior is so complex that its origin may be understood only by a very detailed analysis. In this analysis the distinction between real symbolic and “quasi,” pseudo-symbolic behavior has to be taken very seriously.

The So-called General Mental Functions as Origin of Definite Symptoms

I stressed, in the beginning of my presentation, that in the interpretation of symptoms a distinction has often been made between defects in a special performance field and defects of so-called general functions, and that this distinction is not justified since the general functions appear changed in the same manner as do the specific performances. There is not enough space here to give detailed proof of the correctness of my statement, but I would like to make a few remarks about the changes in these general functions, particularly those which are related to the personality change of the patient owing to impairment of abstract attitude. I have chosen these because analysis of this dependence may be especially useful for psychiatrists.

First, there is the problem of memory. Under certain circumstances the faculty for reproducing facts acquired previously may be about normal in patients with impairment of abstract attitude. Things learned in school, for example, may be recalled very well, but that is the case only in certain situations. The situation must be suited to the reawakening of old impressions. If the required answer demands an abstract attitude on the part of the patient, he may be unable to recollect. Therefore he fails in many intelligence tests which seem very simple to a normal person, and may be amazingly successful in others which appear complicated to us, namely in those which can be executed without the abstract attitude. He is able to learn

new facts and to keep them in mind, but he can learn them only in a Concrete situation and can reproduce them only in the same situation in which he has learned them. Because intentional recollection of experiences acquired in infancy requires an abstract attitude of the adult in relation to the situation at that time, and the events in infancy were not experienced abstractively, the patient is unable to recall experiences of infancy, but we can observe that aftereffects of such experiences appear passively, at times, in his behavior. He is incapable of recollecting when asked to recall things which have nothing to do with the given situation. He can recall only when he is able to regard the present situation in such a way that facts from the past belong to it. Repeated observation in many different situations demonstrates clearly that such memory failures are not caused by an impairment of memory content. The patient has the material in his memory, but he is not able to use it freely. He can use it only in connection with a definite concrete situation.

We arrive at the same results in testing attention. At one time the patient appears inattentive and distracted; at other times, he is attentive, even abnormally so. The patient's attention is usually weak in special examinations, particularly so at the beginning, when he has not as yet become aware of the approach to the whole situation, something he can get only through concrete activity. When he has done so, has entered the situation concretely, his attention is usually satisfactory, and he may even appear abnormally attentive, because under such circumstances he might often be

totally untouched by other stimuli from the environment to which normal persons would unfailingly react. In other situations he will seem to be very distracted, as, for instance, in those which demand a change of approach. He seems distracted because he is incapable of making a choice. Consequently, it is not correct to speak of a change in attention in such patients in terms of plus or minus. The state of the patient's attention is but part of his total behavior and is to be understood only in connection with it.

Another important problem is judgment as to the patients' emotional experiences. Usually, the patients are considered emotionally dull, and often they appear so, but it would be incorrect simply to say that they are suffering from a diminution of emotions. The same patient can be dull under some conditions and very excited under others. This can be explained when we consider the patient's emotional behavior in relation to his entire behavior in a given situation. When he does not react emotionally in an adequate way, investigation may reveal that he has not grasped the situation in such a way that emotion could arise. The patient may have grasped only one part of the situation—the part which can be grasped concretely—and this part may not give any reason for an emotional reaction. His emotional reaction appears to us inappropriate because we grasp the whole situation to which the emotional character is attached, while he reacts only to a part of it. This connection between emotions and total behavior becomes understandable when we consider that emotions are not simply related to definite

experiences but are, as I have stressed before (see p. 190), inherent aspects of all behavior, are part and parcel of behavior. No behavior is without emotion, and what we call lack of emotion is a deviation from normal emotions corresponding to the deviation of behavior in general. From this point of view, the following modifications of reactions, which are of particular interest in respect to the problem of emotions in general, are interesting: We frequently see that a patient reacts either not at all or in an abnormally quick manner. The latter occurs particularly when the patient believes he has the correct answer to a problem. Although this quick behavior might seem to be simply an effect of a change in the time factor of his reactivity, it is actually the effect of an emotional factor. To some extent, the patients are always in danger of coming into catastrophic conditions, and the quick response is an effect of their tension, of which they want to rid themselves by all means. They are forced to release tension because they cannot handle it and cannot bear it. To bear tension presupposes deliberation, considering the future, etc., all of which is related to abstraction. The difference in behavior between these patients and normal people throws light on the nature of the trend to release tension. The patients must, so to speak, follow the "pleasure principle." They must, owing to their abnormal concreteness, react to the stimulus in a way which brings release. The trend to release tension thus appears as an expression of pathology, as an effect of a protective mechanism to prevent catastrophic conditions. The ability to speed up an activity or part

of it, when this corresponds to the requirements of the task, belongs to normal behavior, but in the same way as the capacity to bear tension and even to enjoy it at times, when it is necessary to fulfill a particular task. In contrast to this, patients with impairment of abstraction are only able to experience the pleasure of release of tension. They never appear to enjoy anything, a fact which is often clearly revealed by the expression of their faces. This becomes understandable when we are aware of the fact that in any kind of joy immediate reality is transcended, that joy is a phenomenon which presupposes the abstract attitude and especially the category of possibility. Thus brain-injured patients who are impaired in this attitude cannot feel joy. Experience with brain-injured patients teaches us that we have to distinguish between pleasure through release of tension and the active feeling of enjoyment and freedom so characteristic of joy. Pleasure through release of tension is the passive feeling of being freed from distress, and therefore this feeling lasts, in normals, only until a new situation stimulates new activity. Joy, on the other hand, is something we try to extend, something which admits the possibility of infinite continuation.

The two emotions of joy and pleasure play essentially different roles in regard to self-realization. They belong to different performances or different parts of a performance. Pleasure may be a necessary state of respite, but it is a phenomenon of standstill. It is akin to death. It separates us from the world and the other individuals in it; it is equilibrium, quietness. In joy there is

disequilibrium. But this disequilibrium is productive, leading toward fruitful activity and a particular kind of self-realization. This difference in the significance of the two emotional states for the normal person and the brain-injured patient is an expression of the essentially different behavior of the latter and of the different world in which he lives.

The drive toward release of tension is one of the causes for the strange behavior of brain-injured patients in friendship and love situations. The lack of the experience of future forces them to look for close relationships to other people and to maintain such relationships at all costs. At the same time, close relationships are terminated suddenly should their maintenance necessitate some bearing of tension, that is, should any difficulties arise in the relationship. The following example is illustrative: One of my patients, Mr. A., was for years a close friend of another patient, Mr. X. One day Mr. X. went to a movie with another man. Mr. X. had invited Mr. A. to go along with them, but the latter did not want to go, since he had seen the picture before. When Mr. X. returned, my patient was in a state of great excitement and refused to speak to Mr. X. He could not be quieted by any explanation. He was told that his friend had not meant to offend him and that his friendship had not changed, but these explanations made no impression at all. From that time on, Mr. A. was the enemy of his old friend, Mr. X. He was aware only of the fact that his friend had been companion to another man, and he felt himself slighted. The experience had produced great tension in him. He regarded his

friend as the cause of that tension and reacted to him in a way which is readily understandable in terms of his inability to bear tension and to put himself in the place of someone else.

Another patient never seemed to be concerned about his family. He never spoke of his wife or children and was unresponsive when we questioned him about them. When we suggested to him that he should write to his family, he was utterly indifferent. He appeared to lack all feelings in this respect. At times, according to an established practice, he visited his family in another town and stayed there for several days. We learned that while he was at home he conducted himself as any man would in the bosom of his family. He was kind and affectionate to his wife and children, and interested in their affairs in so far as his abilities would permit. Upon his return to the hospital from such a visit, he would, when asked about his family, smile in an embarrassed way and give evasive answers; he seemed utterly estranged from his home situation. Unquestionably, the peculiar behavior of this man was not actually an effect of deterioration of his character on the emotional and moral side; his behavior was the result, rather, of the fact that, owing to his impairment of abstraction, he could not summon up the home situation when he was not actually there, and therefore he could not show adequate feeling and behavior. Lack of active imagination, which is so apparent in this example, makes such patients incapable of experiencing any expectation for the future. Active imagination depends on the abstract capacity.

This lack is apparent, for instance, in the behavior of a male patient toward a woman whom he later married. When he was with her, he seemed to behave in a friendly, affectionate way and to be very fond of the girl. But when he was separated from her, he did not care about her at all; he would not seek her out and certainly did not desire to have a love relationship with her. When he was questioned, his answers indicated that he did not even understand what sexual desire meant. He could not imagine any sexual situation and did not understand pictures which showed such situations. When he met the girl again, however, when she spoke to him, he was immediately able to enter into the previous relationship. He was as affectionate as before. When she induced him to go to bed with her, embraced him and put his penis into her vagina, he performed an apparently normal act of sexual intercourse, with satisfaction for both. She had the feeling that he loved her. She became pregnant, and they married. The above case also reveals the great significance of speech and voice for any relationship, particularly when other possibilities are destroyed by the defect of the brain function, as was the case here.

Some other so-called general factors which are often mentioned as obstacles to examining such patients consist of fatigue and perseveration. Here, also, observation shows that these phenomena are not always present in the same way, that they change according to the situation, as do all performances. Observation of our patients shows that fatigue is not a simple

function of the duration of continuous performance but depends to a high degree upon whether or not the performance in question is within or somewhat above the capacity level of the patient. Thus a paradoxical situation may occur, where fatigue decreases as the activity continues. This happens, for instance, when a later task is "easy" to perform while the earlier tasks could be executed only with difficulty. Another point is the fact that fatigue does not express itself simply as a slowing down of performance but, especially at the beginning, as a fluctuation of performance (Goldstein, p. 260). Subjectively, the individual feels not only incapacitation but also discomfort, uncertainty, and distress. The phenomena occurring in fatigue show great similarity to those observed in catastrophic conditions and seem to be closely related to them. Patients with severe brain damage tire easily because many normal tasks represent difficult ones for them, thus producing distress. While fatigue in difficult tasks may thus be understandable, we may ask whether the same point of view is appropriate to explain the fact that fatigue occurs also in continuous work consisting of a task which is within the limits of the individual's capacity. I think that is the case. Continuation means consumption of energy which deteriorates the function of the substratum, so that a task which was previously easy to perform may be changed into a difficult one; therefore, mere continuation may produce catastrophe and fatigue. This becomes evident by the fact that fatigue does not set in as early when the task is varied. Boredom and interest influence the fatigue rate. This

must be considered particularly in testing situations. If, after we recognize the onset of fatigue, we should change the task, the patient may then perform without fatigue and may do so better, both subjectively and objectively. This is particularly true if the succeeding task is within the capacities of the individual, and if the change does not demand a voluntary shifting on the part of the individual, which, as we have mentioned previously, is an especially difficult problem for many brain-injured patients. Automatized performances may be continued for a long time without the patient showing and experiencing fatigue. We frequently observe, however, severe breakdowns after excellent performances. This suggests that the symptoms of fatigue are not only signs of catastrophe but also indications of imminent catastrophe—warnings, which, thoroughly considered, may help to prevent the latter. Patients with a mental defect which appears in a lack of planning and foresight are particularly prone to fatigue, since they do not recognize the protective danger signals and thus become abnormally tired.

Perseveration is a frequent phenomenon in brain damage. I am inclined to assume that it is a secondary phenomenon due to incapacitation in some performances, and a means to avoid catastrophe occurring under such conditions. Perseveration occurs particularly when the patient is forced to fulfill tasks with which he is unable to cope. For instance, a patient who has difficulty with arithmetic may be able to answer promptly at long as he has to solve problems which are within his capacity. The moment he is given a

problem which he is unable to fulfill, he may either be thrown into a catastrophic state and not react at all, or he may repeat the last correct result or a part of it, that is, he perseverates. If he is then given an example, however, which he is able to solve, he may again answer correctly, and all perseveration will disappear. The same patient may show perseveration under some conditions and distractibility under others, so that it becomes evident that we are not dealing with a primary defect of rigidity. As we have explained previously, the sick organism tries to react as well as possible to the task set before him. Confronted with assignments which he cannot fulfill, he tries to react to that part of the task in which he is able to succeed by means of his remaining capacity, and he sticks to that rigidly, because thus he can best avoid catastrophe. But under certain conditions he becomes aware that he has not fulfilled the task correctly. Then he gives up the first reaction, I think, because continuing it does not help in overcoming distress. He tries again and may become attached to another part of the situation to which he is able to react, but again may feel that he is not performing the task demanded. Thus he appears abnormally distractible. Neither rigidity, perseveration, nor distractibility is a defect per se; they are phenomena coming to the fore under special conditions which can be defined. They can be avoided—at least to a certain degree—by the same means by which abnormal fatigue can be avoided, because ultimately they originate from the same cause.

Some Remarks Concerning the Method of Examination

I would like to conclude with some remarks concerning the method of examination which follows the rules prescribed by the organismic approach. From our discussion it is evident that only a method can be successful which takes the relationship of each performance of the patient, each success and each failure, to the whole behavior of the patient and the whole organism into consideration, and which particularly keeps in mind that a performance can be evaluated correctly only in respect to the trend of the organism for self-realization. The organismic approach by no means overlooks the significance of the study of details, correct reactions and failures, of the quantitative deviations from the average and the influence of previous capacities of the individual patient; it uses all available quantitative methods and applies statistics to the evaluation. But one should be aware that statistics can be really helpful only when we are confronted with quantitatively different material, and that, in the symptomatology of brain cortex damage, particularly those which are of interest for the psychiatrist, we are mostly dealing with qualitative deviations from the norm. Statistically valid results, therefore, are not too important for the increase of our knowledge of what pathology did to the patient and what we can learn from pathological findings for understanding normal behavior.

According to our evaluation of the significance of abstract attitude for all

performances, the capacity of abstraction should be tested in the beginning of any examination. Whether the abstract attitude is impaired and how much it is impaired can be evaluated by observing the patient under the conditions of various modes of behavior which can be correctly executed only in this attitude. Some tests have been constructed which allow one to judge the patient's capacity in an easier and more correct way. The tests differ as to whether the material used is language or the execution of some performances—matching, sorting, making choices, etc. The results with the first group of tests are sometimes difficult to establish because of the ambiguity of language and because they are not always simple to apply when the patients are suffering from language defects. The advantage of the other group of tests is not only that they do not use language but also that they are so organized that judgment can be based directly on the results of the behavior of the subject in the test.

As an example of the first group of tests, the Proverb-and-Phrases tests by Hadlich, John Benjamin may be mentioned; as an example of the other group, the Vigotski test should be mentioned, particularly in the presentation by Hanfmann and Kasanin; further mention should be made of the various performance tests of Goldstein and Gelb, Goldstein and Scheerer, Weigl, and others. (See also the papers by Von Domarus, Beck, Cameron, and Angyal, and the psychological monograph by Goldstein and Scheerer.)

The use of various tests in examining the same patient is recommended, since each test differs somewhat as to its applicability and definiteness in determining the impairment of abstraction and as to its ability to characterize the various forms of abnormal concreteness. The technique of the Goldstein-Gelb-Scheerer tests enables one, by the use of various materials and by the application of various specified subtests besides the main test, to determine whether or not a patient can assume the abstract attitude, to measure somewhat the degree of the impairment, and to find out the specific type of concreteness to which the patient is confined. This proved to be particularly helpful in distinguishing between the defect in organic patients and in schizophrenics.

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