On Certain Features of the Thought and Language of Schizophrenics

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There are only a few disturbances of speech which are not somehow substantively connected with disturbances of thought. In the vast majority of cases, at least in the psychiatric clinic, it is impossible to study these disturbances in isolation from one another. In this regard, of course, it is essential to consider the entire complex of interrelationships between language and ideation and the diversity of these interrelationships in pathology.

These interrelationships between ideation and language are, to a large extent, distinctively structured in schizophrenia. Even those schizophrenics who are apparently not suffering from speech disturbances as such exhibit a series of distinctive ways of expressing themselves, differences in speech production and vocabulary, etc., all of which are connected with disturbances in thought. Where disturbances in the speech of schizophrenics are more noticeable, they are also always connected with disturbances in thought—here disturbances in speech and thought are one.

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A word, however it might be construed, should not be thought of independently of its meaning for the speaker. This is the notion of the unity of word and thought. Disturbances in the meaning of a word are reflected in the altered relationship of the schizophrenic to the word and the deviant relationship of the word to the phrase of which it is a constituent or to the context in which it is used, in the instability of the meaning of the word, in a dysfunction in generalization, and in other aspects of speech. All the aspects of speech may be disturbed in schizophrenia to a greater or lesser extent. Not infrequently, not all of these aspects of speech are taken into consideration during the course of clinical examination. This reduces both the number of alternative clinical diagnoses of the doctor and the number of alternative physiopathological analyses of his (the patient's—translator) condition.

Our work experience also tells us that it would be incorrect to isolate individual aspects of a speech disturbance while conducting research on the ill without seeing their psychopathological affinity and unified pathophysiological basis.

Of great significance in the study of speech and thought and their disturbances is

the study of the interrelationships between signal systems. Naturally, no one can be satisfied with an excessively general position on the disturbance of the interrelationship between signal systems in one or another mentally ill person. Only going along the path of the differentiated study of this type of disturbance, apparently unavoidable in all types of psychic disorders, can lead to conclusions valuable for the clinic and pathophysiology. Such differentiated study is impossible without considering both the character of the disturbances of speech and thought as well as the functions of the analyzers of the first signal system.

Thus, the study of the speech and thought of the ill demands the discovery of the peculiarities of the interrelationship of their pathology and their study in their totality; such research demands the most painstaking study of not only the processes going on, for the most part, in the second signal system, but those going on in the first signal system as well. It demands the differentiated study of the dynamics of nerve processes. This kind of research has been conducted here by a series of authors (V. A. Giljarovskij, V. P. Protopopov, and E. A. Ruskevic, E. A. Popov, N. N. Traugott, B. V. Zejgarnik, A. A. Perel'man, I. F. Slu-cevskij, and others).

Research studies published earlier indicate that the functions of analyzers in the first signal system of schizophrenics are weakened. We could be certain in this matter, researching the tactile, optic, and aural analyzers. We mention the works of E. A. Popov, V. D. Azbukina, and L. F. Baskina on the oral and visual analyzers, the works of S. F. Semenov and his collaborators, in which a disorder in the kinesthetic analyzer in schizophrenics is shown, and also the work of V. E. Roznova on disorders in the olfactory analyzer of these patients. The weakening of the first signal system established in these studies favors the second signal system's, although also disturbed, acquiring to a certain extent the dominating, very peculiar position in the psychic acts of the schizophrenic. Research on the speech of these patients reveals to varying degrees the destruction of the tie between signal systems. A word here not infrequently loses to a greater or lesser extent its natural persistent bearing in the first signal system, loses its connection with the object it designates, with reality.

For this reason, the speech of schizophrenics, not infrequently preserving grammatical structure, widely using the vocabulary acquired earlier, before illness, appears, together with this, devoid of sense, rent from reality, loses to a greater or lesser extent the function of communication.

If speech, in the presence of typical, organic brain lesions, is as a rule excessively tied to and restricted by the situation, by the system of signals of the first signal system, then, in the presence of schizophenia, the tie with the situation, with reality, with the first signal system, is so weakened that a word easily slips off from its object, loses to a greater or lesser extent its object significance.

E. Bleuler once noticed that those suffering from schizophrenia exhibited a rupture of associative ties. We think that this claim is incorrect. In the case of each person a word forms many ties. A person uses each time in his speech those of these ties which correspond most to the general sense of what he is now saying. In the case of schizophrenia such a directing influence of the general sense is lowered. This appears distinctly in clinical observation. Psychological experimentation helps to uncover those influences which weaken the sense direction in the corresponding cases. We shall cite one example.

The patient M. correctly related the content of the fable "Martyska i ocki." And here she says: "If you yourself are bad, don't laugh at others. She laughed at herself when she saw herself in the mirror." With a complication of the task (the conventional sense of the fable), the patient departed from the sense of the formal fable under analysis with inadequate ties to the other fable. Here, a mechanism beyond the bounds of inhibition is certain.

The so-called association experiment is suitable for discovering many of the peculiarities of the disintegration of the

sense side of speech. We cite as examples two excerpts from the research protocol of the patient V. (hallucinatory-paranoid form of schizophrenia): (1) before treatment with aminazin, and (2) the improved condition of the. patient after treatment.

1. Before treatment (the number on the left indicates the ordinal number of the stimulus in the protocol; the number on the right—the latent period in seconds):

10. Milk-product 4.0
11. Beast-animal 2.7
12. Water—element, substance 4.5
13. Foot—of a person 2.7
14. Mirror—object 3.0
15. Medication—pharmacy 4.0
16. Breakfast-food 2.9
17. Grief—condition 2.6
18. Girl friend—person 2.2
19. Potato-product 2.6
20. Chair—element 2.5

The peculiar type of verbal reaction of the patient appears here vividly. Reactions of a type of peculiar definition sharply predominate—generalizations, reactions with words not having a direct feeling basis. These are primarily typical verbal ties. We note in individual responses their especially expressed pathological character, features to a great extent characteristic of schizophrenia. This (in particular) relates to the response with the word "element" to the word "chair." One should think that in the origin of this reaction a large role is played by the tendency, determined by a pathological inertness, to use words in difficult situations which were used earlier (the 12th response in the cited excerpt of the protocol). The type of response established in the patient may be probably best attributed to a response with the word "furniture," but this word did not appear.

The word "element," least adequate but applied earlier, was used. Thus, here too, a tendency to react on the basis of the tie of a word, not based directly on feeling experience, on the basis of a tie which is emphatically verbal.

Here we meet with the characteristic, complex determinateness of the verbal, in particular, pathological reaction. We think that the following case also deserves attention. It is well known that responses of an abstract order usually have the most protracted, latent period in both healthy people as well as the majority of those suffering from organic brain disease. If we turn to the latent periods in the protocol excerpt just cited, we will see a different situation. "Medication—pharmacy" is one of the reactions based most on practical experience, but the latent period here is one of the most protracted in our patient. And such an abstract response as "grief—condition" has a latent period with the least duration, 2.6 in all. Such a correlation, appearing, albeit not always, in many schizophrenic patients, speaks of the great naturalness and simplicity for the pathologically changed second signal system to react with abstractions that are not infrequently inadequate, senseless, and lead away from reality.

Let us examine a second protocol excerpt (after significant improvement). After treatment:

13. Newspaper—print 2.9
14. Wheat-bread 2.0
15. Honor-pride 2.5
16. Sweets—food 4.0
17. Leaf-plant 4.0
18. Boat-water 3.3
19. Desert-sand 3.2

Basically the same type of reaction appears vividly here. But in the improved condition of the patient the phenomena of compensation do not permit reactions which are more or less senseless, as was her case before treatment. Apparently, the level of the differentiation of the sense of words is being raised. And here it is still possible to note that such a reaction as "boat—water," reflecting, if you will, a greater tie in the first signal system than any other verbal response, is characterized by a more protracted latent period than, for example, the response with the word "pride" to the word "honor."

Peculiarities of the noted type are frequently observed by us in schizophrenic patients and for the time being this gives us a basis for saying that such a type of response, either leading or not leading to senselessness, is very characteristic of namely these patients. Thus, research shows that

the speech reactions of schizophrenic patients with speech disturbances are characterized by: the tendency toward generalizing reactions, appearing primarily according to formal verbal ties, reactions which fully lose tie with reality in the case of patients in a more difficult condition; reactions in such cases become devoid of sense, thereby not only losing their sense-tie, but their formal tie with the stimulus word. In the latter case, which we have observed more than once, the reaction to the last verbal stimulus is replaced by an inappropriate word used earlier or by a word connected in sense or in form with one of the preceding word-stimuli. In a complex abnormal physiological mechanism, apparently, here in the process of the appearing of speech responses there participates a pathological inertness, an ex-traboundary breaking, a lowering of the differentiation process, and a deterioration of the tie between signal systems.

Just as complexly conditioned is the deterioration of the process of generalization in schizophrenics. We shall dwell on two frequently encountered aspects of the deterioration of generalization in the schizophrenic patients we studied.

In generalizing three or more objects, patients not infrequently do not take one of them into consideration. For example, generalizing cabbage, pear, and apple, the patient says, "fruit," although then in response to our question he correctly answers that a cabbage is not a fruit. We shall cite an example of another type of disturbance in greater detail.

Student L. recently fell ill. Phenomena of obsession and "philosophizing." It was suggested to him that he divide into two groups several cards on which individual animals and different inanimate objects were depicted. L. immediately declares that they should be divided into "elegant" and "inelegant." Our suggestion to take a different characteristic yields no result. The direct suggestion to divide the cards into depictions of objects that are (1) animate, and (2) inanimate—the patient declines. He explains his refusal in the following way: (1) Such a division seems to him "coarse," while his principle of division seems to him "fine." And (2) only people should be spoken of as "animate," since an animal does not have a "soul."

Having begun to lay out the cards according to the groups mentioned by him, L. judges as follows: "A cucumber may be assigned to the elegant—cucumbers existed as far back as ancient Babylon . .. Shoes, as long as they were well made (therefore he puts them also among the things that are "elegant") . . . One calls a cat both gently and rudely. Here it is difficult to decide . . . A rooster has a coarse voice (he relegates it to the things that are "inelegant")."

In this excerpt from the protocol there very characteristically appear several pathological features of the process of generalization in a number of schizophrenics. A disturbance in the process of generalization begins with the impossibility of ascertaining the essential characteristic and with the selection in the interests of generalization of a characteristic which is not only inessential to the generalized objects, but is in essence foreign to, inapplicable to them. Thus, a pathological disturbance of generalization begins with this patient's application of a changed tie of a word with objects. In the given case, the patient is not helped by the researcher's direct indication of a more appropriate way of generalizing. In this patient appears the impossibility (and we observe this not infrequently in schizophrenic patients) to prefer that way of generalizing which corresponds to the task and the reality undergoing generalization. In particular patient L. is here confused by an analysis of a word according to a purely formal, verbal, external tie ("animate"-"soul"). Further, the process of generalization suffers from the fact that the establishment of an adequate tie of each separate object with the generalizing word is made more difficult. Whether or not a cat is elegant, for example, is decided not on the basis of the structure of its body, not on the basis of its posture, but on the basis of the manner in which it is called. Thus, the generalization process in schizophrenia also deteriorates on the basis of an inhibition of the ties corresponding to

the sense of the ties between word and object. This peculiar "verbalism" (predominance of verbal ties) is found at all stages of the generalization process.

The nature of generalization may be studied also in the process of extracting the particular from the general. Always the same peculiarity may be predicated of schizophrenics in this regard. Here, too, we shall cite one example. A patient, the female student Z., recently fallen ill (hallucinatory-paranoid form), executed our request to name domestic animals in the following way: "Cat. . . . chicken . . ., well, dog. Well, that's all. I don't know any more. Well, if 'mammals'." It is difficult for those sick with schizophrenia not only to move from the particular to the general, but no less difficult for them to move in the opposite direction. The last words of the patient seem to us to be very characteristic. She cannot proceed from the word "domestic animal" to the words: "horse," "sheep," etc., but arrives at the word "mammal"—a word which neither designates a particular individual animal found in her sense experience nor further revealed to the patient. Here is thus disturbed the movement of an object to a generalizing word and from it to an object. The correlation between word and object is distorted.

The peculiarity of the interaction between signal systems noted by us not infrequently leads to an appreciable uniqueness in the lexicon of schizophrenics in which abstract concepts either very frequently applied with an unnatural sense or inadequately connected with what they should generalize may strikingly predominate. E. A. Popov speaks about such pseudo-abstractness in schizophrenics. To what has been noted may be added the not infrequent tendency of schizophrenics to exhibit a special interest in preoccupations with questions remote from reality.

The research shows that the noted disturbances of inter-signal relations in schizophrenia are connected in schizophrenics with a lowering of the regulating role of the word, of the second signal system as a whole to ongoing processes in the first as well as the second signal system. We have been able to note for a long time that in the motor act as well as the speech act schizophrenics exhibit a lowered directedness to the final goal. This peculiarity of their psychic processes is undoubtedly an expression of weakness of the cerebral cortex and of the altered dynamics of the nerve processes depending on this, in particular, in the second signal system.

We shall cite a characteristic example of a speech disturbance which arises in this way.

Patient S., having recently fallen ill with schizophrenia (moderately expressed defect), relates relatively well to a series of tasks, in particular, to the task of explaining the sense of several proverbs. But she cannot do this in relation to the proverb "cypljat po oseni scitajut." (Chicks are counted in the autumn.) She says: "Here it depends on many reasons. Raising chicks is very difficult. In the end result given skilled direction of the work it is possible to preserve all the chicks. We had a department director. He set about the work himself and was making a mess of it. He would have hatched the lot to a prominent place if he hadn't become conceited. He thought that on the basis of his experience he could raise that lot alone. It was pointed out to him that it was necessary to combine theory with practice. I think that the sense of the proverb lies precisely in that." It was suggested to the patient that she offer a better explanation. She continues: "His predecessors cannot replace him in that work." It was again suggested to her that she offer a better explanation. The patient says: "Work is judged on the basis of results."

The patient, as we see, is capable of correctly discovering the conventional sense of the proverb. But before discovering this sense, she focused her attention on the literal, formal side of the proverb, which is closer and more accessible to her than the conventional sense. Thus, having talked at length about the "direction" of raising chicks, verbal tie, switches over to the direction of the establishment in which she was working. Now she is speaking about something which has only an external, accidental connection with the task. These utterances cannot help her come close to fulfilling the

task. Then she arrives at the correct answer, but she did not arrive at it as a result of searches that were to the point; what she is saying now and what she was saying earlier are of equal value to her.

Not infrequently in similar circumstances the correct utterance in no way obligatorily excludes the patients' judgments. That which is the task, which corresponds to it, coexists in the speech of schizophrenics in situations that are difficult for them on an equal basis with that which has only an indirect connection with the form of the task or its solution. We characterized this type of speech disturbance in schizophrenia as pathological polysemantism a long time ago. This phenomenon, we think, plays a significant role in the formation of the cutoff nature of the speech of schizophrenics, of the "phenomenon of argumentation" (rezonerstvo) and other clinical forms of their speech pathology. If some schizophrenics, in the face of tasks which they (depending upon the disturbances they have) find difficult, go to the side away from what is basic, use formal-verbal rather than essential connections, others in such a situation characteristically lower their speech production in general, not finding the necessary formulations. The latter occurs especially in patients with quantitatively lowered speech production. Thus patient A. prior to treatment with aminazin, trying to explain the sense of the proverb "Kuj zelezo poka gorjaco," said: I can't explain. Do while... I can't express." A month-and-a-half later, after treatment with aminazin, this patient responds to the same question: "Do it at the appropriate time." And now the formulation is somewhat lowered, laconic, but nevertheless close to the sense of the proverb.

It goes without saying that these speech disturbances, characteristic of the speech of schizophrenics, cannot help but reflect themselves in all the processes that are in one way or another connected with speech. This pertains to the process of perception in which a word not infrequently leads these patients away from the represented object (representation) to the side of inessential ties or formal verbal ties not related to it. This also relates to the memory of schizophrenics which not infrequently is incorrectly considered undisturbed. Experimental-psychological research on schizophrenics in a number of cases convincingly shows not only the presence of peculiar disturbances of memory in these patients, but also helps to understand their properties and the mechanisms of their appearance.

Patient I. has been sick with schizophrenia in a hallucinatory-paranoid form for 10 years. There have been several read-missions. In our research: unstable ideas of relationship, fears; depressed, intellectually lowered. It was suggested to him that he remember eight words. The second in the series was the word "branch"; the third was the word "finger." The research goes as follows: all eight words were read to the patient. He repeated four of them. The doctor reads the same words once again. Now he repeats five words. Thus, words are repeated by us six times. On the first and third repetitions the patient repeats among the others the word "branch." In the second and third series he repeats among the others the word "finger." After three repetitions by us of these eight words I. mentions a word which the researcher did not mention: "palms." The appearance of this may certainly be explained by a merger of the shifted sense of the word "branch" and the phonetic beginning of the word "finger."

The female patient P., length of illness two years. Hallucinatory-paranoid form. Aural and olfactory hallucinations. Delirium of poisoning. Cutoff speech. After three repetitions of a series of eight words, she successfully repeats five of them and mentions the word "closet," which the doctor did not mention, as the sixth. In turn was the word "suitcase," which the patient repeated also all three times. After one further repetition by the doctor of the same words, the patient again correctly repeats. five words and again adds one word not mentioned by the researcher: "cup." It is most probable that its appearance was influenced by the word "milk," repeated by the patient, which was among the eight words repeated by the doctor. After our repeating another

series of words six times, the same patient repeated the word "rose" which was in the series and added the word "flowers" which was absent from it. During the repetition of the third series of words, repeating the word "paper," she says "notebook or paper." We shall not multiply the number of these examples.

We may say, based on the examples cited, which are characteristic of a large part of the research data on schizophrenics collected by us, that in the subsequent verbal response, even reinforced by multiple repetition of the respective words, schizophrenics exhibit inadequate verbal ties, which distort reproduction.

These facts permit us to think that not only immediate responses to verbal stimuli, but also subsequent verbal responses, i.e., the entire activity of the schizophrenic, may be distorted by the imposition of verbal associations which appear inadequate to the task and situation. The appearance of the latter may be conditioned by secondary conceptual ties, not infrequently by combining different ties.

Thus concluding a brief exposition of several facts obtained in experimental psychological research, we note the following:

The speech of schizophrenics is disturbed as a result of a change in the interaction of signal systems, a weakening of cortical activity, a disturbance in the dynamics of neural processes.

In the speech of these patients the connection of words with the signals of the primary signal system is lowered, and the frequent substitution of purely verbal connections, more or less unrelated to reality, for adequately reality-related connections is observed; their speech is characterized by decreased purposefulness in relation to the task at hand, the interlocutor, contact with the interlocutor, and also the coexistence of various meanings and ties which are devoid of unified purposefulness of meaning.

These facets of the pathology of the language and thought of schizophrenics often help to understand such generally known disturbances as cutoff speech, argumentative language, and so on. These must also be related to the characteristic changes in the personality of the schizophrenic (autism among others).

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