INTERPRETATION OF SCHIZOPHRENIA

The Cognitive Transformation

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I
Minor and Not Necessarily Psychotic Alterations

In many cases of schizophrenia the disorder does not manifest itself, at least in its initial stages, with obvious symptoms. Some cognitive alterations may appear to be within the normal range or not distinguishable from those occurring in neuroses and character disorders. Usual psychological tests may also fail to show evidence of cognitive impairment. However, people who knew the patient well can recognize the difference in him. His attitude toward life has changed. Some ideas become predominant and repetitious, almost as if the whole predicament of the patient hinged on them. For instance, a patient may repeatedly and strongly state that if men would respect women, all troubles in life would disappear. Although there may be some reality in what the patient says, the tenacity, recurrence, or stubborn quality of this predominant idea shows that the patient uses it for another purpose. The idea or problem, as formulated by the patient, takes the place of what bothers him in life in general; it becomes a specific and concrete representation of the patient's predicament. We have here already the process of active concretization (Chapter 15).

Another mechanism that is common also at the onset of schizophrenia is the mechanism of projection or externalization; this does not yet take the form of delusions and hallucinations, but is an attributing of one's difficulties to the external world, or to some segments of the external world. Like many people who are not considered mentally ill, the schizophrenic who is not acutely ill may in the initial stage blame his relatives, his boss, or his co-workers for all his troubles. This is, of course, a protective mechanism. If the source of his trouble is external, he may hope to change it by changing his behavior, and moreover will relieve himself of the responsibility.

Another characteristic shared by the schizophrenic, the neurotic, and the normal person is rationalization. The term *rationalization,* introduced in psychoanalysis by Jones (1938), means an attempt to provide a logical justification for actions or ideas that are directed by an emotional need. This attempt is made by resorting to explanations that, although not valid, seem correct and plausible because they succeed in hiding their illogicality and real motivation.

Let us examine the rationalization of a normal person. A professional man who intended to attend a lecture did not fully realize that that evening he would have preferred to remain home with his family and relax. He looked out the window, saw that it was raining, and said, "The weather is bad. It is wiser to stay home." In this way, not he but the weather became responsible

for his not attending the lecture.

A mildly neurotic patient was suffering from feelings of rivalry for his brother, who was a singer. The patient used to warn his brother in a paternal and affectionate tone of voice, “Don’t sing so often at clubs and private parties. You will ruin your voice!” This was a correct recommendation. The singer had also been told by many experts that he should not strain his voice with too much work. Actually the motivation of the patient in repeating this recommendation was a different one: he was jealous of the consideration and honor that the brother was receiving when he sang and wanted to prevent them.

In Chapter 9 we saw that the patient, Peter, rationalized his father’s saying that he had been a hero during World War I, although actually he had been a deserter. According to Peter, his father had to say this in order to remove all doubts about his participation in the war, and by so doing, he was saving the honor of the family. His brother Gabriel, when he was already psychotic, sold a gold watch and some other valuable objects for a few cents. When he was questioned about it, he justified himself with the following rationalization: “These things were mine. Can’t I do what I want with my things?” He switched the problem from the advisability of the act to the permissibility of the act in an attempt to justify it.

Another example will show that rationalizations are common in cases of advanced or moderate schizophrenic regression. A woman who was born and raised in a South American country in a well-to-do family, came to the United States in her early twenties, after having completed her college education. While in the United States she married an American citizen, from whom she had a child. When I first saw her, she was in her middle thirties, had been sick for several years, and showed signs of regression. She appeared apathetic, except when she was talking about her husband, for whom she nourished bitter resentment. She would repeatedly say that her husband was a bad man and that she always knew it. When she was asked why she married her husband if she knew he was such a bad man, she replied, "The wedding ceremony took place in this country. When the priest asked me if I wanted to marry my husband, he spoke in English and I did not understand him. I said, 'I do.' If he had spoken in Spanish, my own language, I would have never agreed to marry such a man." This rationalization would be facetious if it were not pathetic. It would be logical if it was not based on illogical premises. The patient obviously understood the question at the wedding ceremony and replied, "I do," in English. Moreover she spoke English fairly well, even at the time of her wedding. Her rationalization, however, cannot be interpreted just at face value as an attempt to justify herself or to disavow her responsibility or to make her marriage almost illegal. There was much more than that in this apparently absurd rationalization. The years spent in the United States had a

flavor of unreality for her, or at least there seemed to be an atmosphere of fogginess and confusion. These years were characterized by a series of unfortunate events, which culminated in her unhappy marriage. Only life prior to her coming to the United States, that is, that period of her life when she was speaking Spanish, made sense to her. In her mind thus what was confused or unclearly motivated or directly or indirectly led to mental pain became associated with the English language. Again, following our theoretical framework, we could say that the patient resorted to active concretization. She reduced the uncertainty and fogginess of her North American life to a linguistic difficulty. Again this symptom, a rationalization, is not just a technical device to avoid responsibility; it is also and predominantly an expression of her whole life history, of her whole tragedy, of the difference between the peace or apparent peace of her early life and the turbulence or apparent turbulence of her married life.

In a way comparable to the work of the fine artist and of the poet, a little episode, or a single symptom like a rationalization, becomes representative of a much larger segment of reality.

But let us examine again the examples of nonpsychotic rationalizations that we have reported. We cannot take even them literally. In the example of the professional man, the bad weather, the storm, and his going out at night may be for him symbolic of the hard professional competitive world where

you always have to keep abreast, where you have challenges to meet. Staying home is being protected, being with one's wife, or with mother, or in mother's womb, whatever level of interpretation is more suitable to the specific case. The rationalization of the professional man represents a dilemma between the two types of life he has to cope with.

The rationalization of the mildly neurotic patient who was jealous of his brother repeated the compulsive effort to assert his supremacy in relation to his sibling. Peter's need to consider his father a venerable authority compelled him to resort to almost a fantastic rationalization. In the case of his brother Gabriel, the reported rationalization about underselling his watch was different from what his words conveyed. In a latent way Gabriel was saying to his parents, "I had to become crazy in order to assert myself. You never let me do what I wanted. Now I can."

Under subtle examination we recognize the difference between the rationalizations of the nonpsychotic and those of the psychotic. The rationalization of the professional man could stand on its own merit. People at times do stay home because of the bad weather. The rationalization of the mildly neurotic patient had also some validity. Experts had recommended that his brother should not strain his voice. In these cases there is thus a concordance between the obvious reality, although a superficial reality, and the psychodynamic reality that is suppressed. That is, the professional man

can stay home for both reasons, because of the weather and because he does not want to meet the challenge of the professional life; the mildly neurotic patient can give his recommendation to the brother for both reasons, because he is jealous of him and because the experts too had made that recommendation. In the case of Peter, and much more so in the case of Gabriel, the rationalizations maintain a very minimum of plausibility: the farfetchedness of their rationalizations seem to be proportional to the severity of their disorder.

In the rationalization of the South American woman there was no congruence or concordance between the external or superficial reality and the psychodynamic. The rationalization becomes plausible only if we understand what is suppressed, substituted, or concretized, if we know the complicated experiences the patient went through. From the examples given, and from others reported later in the book, it is evident that an attempt is almost constantly made by the human being, even when he is schizophrenic, to maintain an element of plausibility. Contrary to what is believed by some, most human beings cannot accept anything that seems irrational to them. The need for rationality is as powerful as the need to gratify the irrational motivation. This need for rationality is always underestimated by people who see the human being as dominated by instinctual drives. If the concept *instinct* is to be retained, the instinct toward rationality (including reason and rationalization) has also to be acknowledged.

If rationality is never completely abandoned, a certain level or type of rationality, however, is often lost, especially in situations of severe anxiety or emergency. The rationality seems at times to have declined to such an extent that it can no longer be recognized. This will be true to an even greater extent in the processes that we shall discuss later in this chapter. However, and here we cannot avoid marveling at the multiform aspects of the human psyche, every irrationality has its own rationality; the illogical element is a plausible part of a logical gestalt. To refer again to the examples given, the professional man's reluctance to attend the lecture is part of his life dilemma; the remark of the mildly neurotic patient is part of his major battle in his young life; the absurd assertion of Peter is part of his crusade to save his respect for his father; the twisted reply of Gabriel is a desperate cry for assertion; the ludicrous remark of the South American woman was her terminal chance to attenuate a life defeat.

Prior to the manifest onset of the psychosis, as well as during many stages of its course, many patients present a disturbance in attention. In quite a large number of patients (but by no means all) there is inability to keep attention fixed for any length of time. They may hear what is said to them, but they do not register the meaning of the words. Many patients do not notice what is happening in their surroundings, no matter how important it is, or, when they do notice it by way of exception, they do not follow it. Dodge and Diefendorff (quoted by Kraepelin, 1919) reported that patients do not usually

follow a moving pendulum continuously, as normal persons do, but intermittently and with hesitation. There is often on the part of many patients awareness of all stimuli, without capacity to filter or to screen them out and to focus only on certain aspects voluntarily selected. In other words, the schizophrenic often loses the faculty that Schactel (1954) called focal attention.[1]

Disturbed attention and distractibility, carefully described long ago by Kraepelin (1919) and Bleuler (1950), have recently received renewed consideration (McGhie and Chapman, 1961; Silvermann, 1964, 1967; Chapman, 1966; McGhie, 1966, 1972; Livingston and Blum, 1968; Blum, Livingston, and Shader, 1969; Neale and Cromwell, 1972). Shakow (1963) concluded: "It is as if, in the scanning process which takes place before the response to a stimulus is made, the schizophrenic is unable to select out the material relevant for optimal response. He apparently cannot free himself from the irrelevant among the numerous possibilities available for choice." Shakow, however, like Wichowicz and Blewett (1959), reported that the inability to attend selectively to stimuli is confined to the hebephrenic group. Paranoid schizophrenics show little evidence of this disorder.

I believe that although the impairment of selective attention is an important symptom to be related to others, its importance should not be exaggerated. Only a few of the cognitive disorders of the schizophrenic can be

based on this impairment. For instance, one can hardly believe that a patient thinks he is Jesus Christ just because he has difficulty in selective attention. Equally unsatisfactory is the Freudian school's interpretation of this phenomenon of impaired attention as shifting of libido.

There are also other alterations of attention, first described by Kraepelin (1919), that deserve consideration. The attention of patients is often rigidly fixed for a long time, so that they stare at the same point or continue the same line of thought for a long time, in a stereotyped manner, or do not allow interruption of their work or talk. At times they deliberately turn away their attention from things or thoughts toward which they are attracted (negativism?); at other times they are forcibly or irresistibly attracted to focus their attention on certain objects or thoughts (obsession? compulsion? perseveration?).

A disturbance in attention is very marked in many varieties of organic brain disease, which present syndromes quite different from schizophrenia.

II
Paleologic Thought

Delusion is one of the most common characteristics of schizophrenic cognition. This term generally designates a false belief that is considered true by the patient in spite of what to most human beings appears incontrovertible

proof or evidence of its invalidity.

Various are the mechanisms by which this false idea is conceived. In many cases we can recognize that it came to be because the patient followed a special cognitive structure, a logic that is constituted differently from that of the normal man. The phylogenetic origin of this logic will be discussed in a subsequent section. However, it is important to say that because in a developmental theoretical framework this logic seemed to be a precursor of our normal secondary process logic, it was called *paleologic* (from the Greek *palaios,* "ancient and old").[2] The usual logic of the normal human being, who uses secondary process cognition, is generally called Aristotelian, because Aristotle was the first to enunciate its laws.

Again we must stress that our study of paleologic thought patterns is within a psychodynamic frame of reference. The patient adopts paleologic thought in accordance with the principle of teleologic regression. He does so in order to escape anxiety that would be disastrous to his inner self and to his conception of himself. As long as he interprets reality with Aristotelian logic, he is aware of the unbearable truth, and the state of panic persists. Once he sees things in a different way, with a new logic, his anxiety decreases or changes in character. This new logic either will permit him to see reality as he wants to, or will offer him at least a partial pseudofulfillment of his wishes.

The adoption of the paleologic way of thinking occurs in all types of schizophrenia, to a minimal degree in the simple type, and to a maximum degree in the hebephrenic. However, even in the hebephrenic, not all thinking follows paleologic modalities. Islands of logical thoughts remain, but they are more and more overwhelmed by the paleological way of thinking. In the paranoid type, especially in incipient cases, the patient reverts to paleologic thinking only when he deals with his own conflicts and complexes. He retains the capacity to think with Aristotelian logic when he deals with non-anxiety-arousing content. At times he does more than that. As we shall see later in detail, he uses Aristotelian thought to support the conclusions reached with paleologic thinking.

Before going into the study of the structure of paleologic thinking a question of terminology must be clarified. The reader may be confused by the use of the words *logic, logical, rational, cognitive,* or *intellectual* to indicate thoughts or actions that appear irrational and illogical. In a more liberal sense than usually done, Von Domarus (1944) and myself (Arieti, 1948) have used the word *logic* for any type of mental organization, not immediately given or structured like a perception, but moving or striving toward an understanding, irrespective of the validity of this understanding. There are different types of organization of cognitive processes. The paleologic type of organization is archaic or incomplete in comparison to the Aristotelian. The schizophrenic patient, when he thinks in a typically schizophrenic way, uses non-

Aristotelian cognitive organizations.[3]

What may seem to be forms of irrationality are instead archaic or not commonly used forms of rationality. As a matter of fact, we shall find more and more in the present study that cognitive organization is always present. As I have already mentioned, it is as difficult to escape from some type of intellectual organization as it is to escape from emotions. Even the most nonsensical, bizarre, and irrational thoughts have some kind of cognitive organization. When we understand the type of cognitive organization and its content, it becomes possible to translate pathological thought into Aristotelian thought. Even the word-salad of the schizophrenic is not just a bizarre, whimsical *sequence* of words. When we understand it, we discover that is a *consequence* (see the seventh section of this chapter).

Paleologic thought patterns are to a great extent based on a principle enunciated by Von Domarus (1925, 1944). Von Domarus, as a result of his studies on schizophrenia, formulated a principle that, in a slightly modified form, is as follows: whereas the normal person accepts identity only upon the basis of identical subjects, the paleologician accepts identity based upon identical predicates. For instance, the normal person is able to conclude, "John Doe is an American citizen" if he is given the following information: "Those who are born in the United States are American citizens; John Doe was born in the United States." This normal person is able to reach this conclusion

because the subject of the minor premise, “John Doe,” is contained in the subject of the major premise, “those who are born in the United States.”

On the other hand, suppose that the following information is given to a schizophrenic: “The president of the United States is a person who was born in the United States. John Doe is a person who was born in the United States.” In certain circumstances, the schizophrenic may conclude: “John Doe is the president of the United States.” This conclusion, which to a normal person appears delusional, is reached because the identity of the predicate of the two premises, “a person who was born in the United States,” makes the schizophrenic accept the identity of the two subjects, “the president of the United States” and “John Doe.” Of course, this schizophrenic has an emotional need to believe that John Doe is the president of the United States, a need that will arouse anxiety if it is not satisfied. He cannot think that John Doe is the president of the United States if he follows Aristotelian logic; thus, following the principle of teleologic regression, he abandons Aristotelian logic and follows Von Domarus’s principle.

A patient thought that she was the Virgin Mary. Her thought process was the following: “The Virgin Mary was a virgin; I am a virgin; therefore I am the Virgin Mary.” The delusional conclusion was reached because the identity of the predicate of the two premises (the state of being virgin) made the patient accept the identity of the two subjects (the Virgin Mary and the

patient). She needed to identify herself with the Virgin Mary because of the extreme closeness and spiritual kinship she felt for the Virgin Mary, who was her ideal of feminine perfection. At the same time the patient had the need to deny her feeling of unworthiness and inadequacy.

A patient, quoted by Bleuler (1913), thought that he was Switzerland. How can one explain such a bizarre thought? Even at the time of Bleuler, Switzerland was one of the few free countries in the world, and the patient had selected the name of this country for the concept of freedom with which he had the impelling need to identify himself. "Switzerland loves freedom, I love freedom. I am Switzerland."

Following are a few more examples. In Chapter 13 we have reported the case of Priscilla, the red-haired woman in a postpartum psychosis who developed an infection in one of her fingers. The terminal phalanx was swollen and red. She told the therapist a few times, "This finger is me." Pointing to the terminal phalanx she said, "This is my red and rotten head." She did not mean that her finger was a representation of herself, but, in a way incomprehensible to us, really herself or an actual duplicate of herself. Another patient believed that the two men she loved in her life were actually the same person, although one lived in Mexico City and the other in New York. In fact both of them played the guitar and both of them loved her. By resorting to a cognition that followed the principle of Von Domarus, she could

reaffirm the unity of the image of the man she wanted to love.

Slightly different is the example of a new patient who, while waiting for the first time in the waiting room of my office, saw in a magazine an advertisement with the picture of a nude baby. He remembered that he too, when he was a small child, had a picture of himself taken in that way, and "the bastard" of his father had not too long ago threatened to show that picture to the patient's girl friend. Seeing that picture in my waiting room, he thought, was not a fortuitous coincidence. The patient presented the phenomenon commonly found in schizophrenics of seeing nonfortuitous coincidences all over. The terrible coincidences for which there was no explanation were pursuing him relentlessly. The phenomenon of the coincidences is related also to the principle of Von Domarus. A coincidence is a similar element occurring in two or more instances at the same time or after a short period of time. The patient tries to find glimpses of regularities in the midst of the confusion in which he now lives. He tends to register identical segments of experience and to build up systems of regularity upon such identical segments. At times the alleged regularity that the identical segments suggest gives sustenance to a complex that, although by now disorganized, still retains a strong emotional investment. At times automatic emphasis on similarity gives rise to special types of delusional thinking. For instance, a patient had some difficulties at work just prior to his developing a psychotic attack. During his illness he believed that many people in the street looked

exactly like those who worked in the firm where he was employed. He felt that his co-workers must have many brothers and sisters or even identical twins who were there to disturb him with their presence. He saw a young man who looked like a girl he used to go out with. He immediately thought that this man must be the girl's brother, although he knew that she had no brother. When the patient improved, he still reported to the therapist his strong tendency to associate people and things with others, because of some similarities. However, he was able to resist the tendency and did not reach the stage of abnormal identification.

Any person who has a characteristic in common with an alleged persecutor, like having a beard or red hair or wearing a special dress, may become the persecutor, or a relative of the persecutor, or somehow associated with the persecutor. From all these examples it is easy to recognize that many patients at this stage indulge in what I have called an orgy of identifications. A French psychiatrist, Gabel (1948), independently discovered the same phenomenon in schizophrenia and called it a hypertrophy of the sense of identification.

The mechanisms or successive steps of paleologic thinking are not necessarily known to the schizophrenic, who automatically thinks in this way, just as the normal person automatically applies the Aristotelian laws of logic without even knowing them. For instance, a schizophrenic patient thinks,

without knowing why, that the doctor in charge of the ward is her father and that the other patients are her sisters. A common predicate, a man in authority, leads to the identity between the father and the physician. Another common predicate, females in the same position of dependency, leads the patient to consider herself and the other inmates as sisters. At times, the interpretation of this type of thinking requires more elaboration. For instance, a patient of Von Domarus thought that Jesus, cigar boxes, and sex were identical. Study of this delusion disclosed that the common predicate, which led to the identification, was the state of being encircled. According to the patient, the head of Jesus, as of a saint, is encircled by a halo, the package of cigars by the tax band, and the woman by the sex glance of the man.

At times paleologic thought is even more difficult to interpret because the principle of Von Domarus is applied only partially; that is, some partial identity among the subjects is based upon partial or total identity of the predicate. For instance, a person who is conceived of by a schizophrenic as having a quality or characteristic of a horse may be thought of with a visual image consisting of part man and part horse (see Chapter 20). In this case, one subject, the person, is partially identified with the other subject, the horse, because of a common characteristic—for instance, strength.

It is well known how frequently similar distortions and condensations appear in hallucinations and drawings of schizophrenics. Similar conceptions

appear in mythologies of ancient peoples and of primitives of today. As a matter of fact, anthropologic studies may disclose to the careful reader how often the principle of Von Domarus is applied in primitive thinking. Numerous studies, outstanding among which is the one by Storch (1924), have emphasized the similarities between primitive and schizophrenic thought, but the common underlying principles of logic that rule this thought have received no mention. Werner writes:

> It is one of the most important tasks of the developmental psychology to show that the advanced form of thinking characteristic of Western civilization is only one form among many, and that more primitive forms are not so much lacking in logic as based on logic of a different kind. The premise of Aristotelian logic that, when a thing is A it cannot at the same time be B, will not hold true for the primitive. ... A Congo native says to a European: "During the day you drank palm wine with a man, unaware that in him there was an evil spirit. In the evening you heard a crocodile devouring some poor fellow. A wildcat, during the night, ate up all your chickens. Now, the man with whom you drank, the crocodile who ate a man, and the wildcat are all one and the same person" (Werner, 1957, Congo incident quoted from Levy-Bruhl).

Obviously a common characteristic or predicate (having an evil spirit) led to the identification. Werner rightly states that "this kind of interpretation is rooted in an altogether different mental pattern, a differently constituted faculty of conception, from that exhibited by the scientifically thinking man." He adds that this primitive mode of thinking is neither illogical nor prelogical. It is logical in a different sense. Werner, however, does not attempt to enunciate the principles of a different logic. He does not add that for the

primitive *A* may be *R* if *A* and *B* have only a quality (predicate) in common, although in his outstanding book, *Comparative Psychology of Mental Development* (1957), he gives numerous examples proving this fundamental fact. It is not necessary to give other examples here. The reader may be convinced of the universality of Von Domarus's principle, just by reading a book of anthropology. The student of myths, legends, folklore, traditions, fairy tales, and so on, will also be impressed with the same findings.

Young children, too, have the inclination, although not the necessity, to think in accordance with Von Domarus's principle. Levin, who compares schizophrenic thought to that of young children, concludes that the patient, as well as the young child, "cannot distinguish adequately between a symbol and the object it symbolizes" (1938a). For example, a middle-aged schizophrenic, speaking of an actor whom she admired, said, "He was smiling at me." The patient had seen, on the cover of a magazine, a picture of the actor in the act of smiling. Thus she had confused a picture of the actor with the actor himself. Levin reports that a 26-month-old child, drinking milk while looking at the picture of a horse, said, "Give milk to the horse." At 25 months, the same child, looking at a picture of a car, tried to lift the car from the picture and said to his father, "Daddy, get car out!" For the child the pictured object was real. Levin is correct in his observations. However, he has not seen them in the light of Von Domarus's principle. What appears to us as a symbol of the object for the schizophrenic or for the child is not necessarily a symbol, but may be a

duplication of the object.

Levin makes other exceptionally interesting observations that do not receive complete interpretation, however, and he is led to the conclusion that infantile and schizophrenic concepts "are the result of amusing mixtures of relevant and irrelevant." For instance, he reports that a child, 25 months old, was calling "wheel" anything that was made of white rubber, as, for example, the white rubber guard that is supplied with little boys' toilet seats to deflect urine. The child knew the meaning of the word *wheel* as applied, for example, to the wheel of a toy car. This child had many toy cars whose wheels, when made of rubber, were always of white rubber. Thus he came to think that the word *wheel* included not only wheels, but also anything made of white rubber. Levin concludes that this example "shows how associations of the most ephemeral nature are permitted to enter into a concept when the child is too young to appreciate the non-essentiality." In view of what has been said before, it is obvious that an identification had occurred because of the same characteristic—white rubber.

In my experience, children have a propensity to indulge in paleologic thinking especially from the age of 1½ to the age of 3½ or even 4. Thus, children around 2 years of age, if shown a picture of a man, will quite often say "Daddy," and if shown a picture of a woman, will say "Mommy," no matter whom the pictures represent. A girl, 3 years and 9 months old, saw two nuns

walking together, and told her mother, “Mommy, look at the twins!” She thought that the nuns were twins because they were dressed alike. The characteristic of being dressed alike, which twins often have, led to the identification of the nuns as twins.

The foregoing does not imply that young children or primitive societies of today *must* think paleologically. They just have a greater propensity to do so than adult Western man. This greater propensity should not be interpreted as proof of inferiority; it is based on reasons that will be discussed in the following sections. We shall discuss here instead another point of more direct importance to the psychiatrist, the application of Von Domarus’s principle to the understanding of the structure of dreams. It will not be difficult to recognize the same organization or structures after a translation of the cognitive content into images has taken place in the dream.

Freud has shown that a person or object *A* having a certain characteristic of *B* may appear in the dream as being *B* or a composite of *A* and *B.* In the first case there is identification; in the second, composition. The whole field of Freudian symbolism, from a formal point of view, is based on Von Domarus’s principle. A symbol of *X* is something that stands for *X,* but also something that retains some similarity with *X*—a common predicate or characteristic. Thus, a snake or a fountain pen may symbolize a penis because of the similar shape; king may symbolize father on account of the position

they both enjoy; a box may symbolize a vagina because both a box and a vagina are apt to contain something in their cavities, and so on. The wife of a dreamer appeared in a dream as having the physical appearance of the dreamer's boss. The two persons were identified in the dream because the dreamer was concerned with a predicate common to both of them (their domineering attitude). The boss was selected as a symbol because it was more tolerable for the dreamer to be dominated by his boss than by his own wife. A male patient, obsessive-compulsive, had the obsession that he was homosexual, or that he was going to become homosexual. Once he would be known as homosexual, all women would reject him. He had the following dream. He was resting, lying on a couch, when a beautiful woman appeared and told him, "I like vinegar too!" He was pleasantly surprised and woke up. The dream made no sense to him. I asked him what came to his mind when he thought of vinegar. He replied, "Something bitter and disgusting." Then I asked him what came to his mind when he thought of something bitter and disgusting. He replied, "Homosexuality." Thus it is obvious that in the dream vinegar and homosexuality were identified because they had the common characteristics of being bitter and disgusting. The beautiful lady who appeared in the dream was telling him in paleologic language, "I like you even if you are homosexual." Thus the dream was a reassuring one; it removed the anxiety about being rejected by women.

Another patient, 18 years old, also an obsessive-compulsive with

schizoid traits, was a devout Catholic who wanted to become a theological student and be ordained a priest. At the same time he struggled very hard against his sexual instincts. He had the following dream. He was undressing a young woman with sexual intentions, when suddenly he realizes her vagina looks like an umbilicus. He wakes up. In his associations, the patient remembered that when he was a child, he believed that children were born from the umbilicus. Thus, in the dream, vagina and umbilicus are identified because they are thought of by the patient as organs having the common characteristic of giving birth to children. The dream serves a purpose; the vagina is seen, not as a sexual organ, but solely as an organ that gives birth to children. The patient, after having been stimulated sexually, tries to make a reconciliation with the precepts of the Catholic church, which considers the sexual organs as organs of reproduction rather than as organs that give carnal pleasure.

One may conclude that Von Domarus's principle, or the first principle of paleologic thought, gives an important clue not only to the understanding of the schizophrenic way of thinking, but also to the understanding of the mechanisms of dreams and of some infantile and primitive thinking. However, Von Domarus's principle and the other paleologic laws that will be mentioned shortly do not explain these phenomena dynamically, but only formally. In other words, the study of paleologic thought may explain the essential structure of this type of thinking, without taking into account the

content of thought. The content of thought varies with the various emotional factors, which can be studied fully only by psychodynamic procedures. The study of formal mechanisms reveals *how* we think and feel. The study of dynamic or psychoanalytic mechanisms reveals *what* we think and feel and *why* (content and motivation).

Although the purpose of this book is to expound only what pertains to schizophrenia, it is not possible to avoid references to other conditions, normal or pathological, when different types of cognition are studied. Thus, in this section we could not help calling to the attention of the reader the tremendous role played by Von Domarus's principle in all non-Aristotelian thinking, a role that transcends by far the schizophrenic process. Von Domarus formulated this principle in connection with schizophrenia in 1925. This formulation permitted the linking of this type of cognition to the phenomenon of Freudian symbolism and to primary process cognition in general. Von Domarus himself, however, did not see this connection; it was several years after his discovery, in 1947-1948, that my research indicated this relationship.

III
Further Discussion of the Structure of Paleologic Thought

The study of Von Domarus's principle in schizophrenia, as well as in other instances that have been mentioned, requires more consideration of the

predicate that determines the identification. In fact, it is obvious that the predicate is the most important part in this type of thinking. In Aristotelian thinking only identical subjects are identified. The subjects are immutable; therefore, only a few (and the same) deductions are possible. In paleologic thinking, on the other hand, the predicates lead to the identification. Because the predicates of the same subject may be extremely numerous and because one does not know which one will be chosen by the patient in the process of identification, this type of thought becomes bizarre, unpredictable, individualistic, and often incomprehensible. For instance, in the example quoted from Von Domarus, the characteristic of being encircled was the identifying quality. Each of the three subjects that were identified—Jesus, cigar boxes, and sex—had a potentially large number of predicates, but the patient selected one that was completely unpredictable and bizarre. The Congo native, quoted by Levy-Bruhl, chose the characteristic "having an evil spirit" in order to identify the man, the crocodile, and the wildcat, thus giving the European the impression that his reasoning was bizarre, unpredictable, and illogical.

The predicate that is selected in the process of identification is called the "identifying link." Why a certain predicate, out of numerous ones, should be selected as the identifying link can be found out only by the study of the emotional factors involved. In other words, emotional factors may determine which one of the predicates will be taken as the identifying link. It is obvious

that if John Doe thinks that he is the president of the United States because he was born in the United States, he must wish to think so. His emotional needs direct him toward the selection of that predicate, being born in the United States, out of many other possibilities. If a patient thinks that she is the Virgin Mary, just because she is a virgin, she must have a strong urge to identify herself with the Virgin Mary.

The emotional factors operating in paleologic thinking are, of course, the same as those described by Freud in *Psychopathology of Everyday Life* (1938), and by Jung in *Psychology of Dementia Praecox* (1936) and in his works on word associations (1910, 1918). However, a study limited to the consideration of emotional factors will not explain the formal manifestations of this type of thinking. Conscious or unconscious emotions are only the directing motivation of thoughts that, in accordance with the principle of teleologic regression, acquire a paleologic mold. It is thus obvious that the principle of teleologic regression operates only inasmuch as Von Domarus's principle permits a psychodynamic selection of the predicate.

Von Domarus's principle indicates two aspects of schizophrenic cognition that only apparently are contradictory: on one side, it defines this type of cognition as having a definite structure; on the other side, it explains why cognitive conclusions reached by schizophrenics are so different from one another as to be unpredictable and thus make it impossible to talk of a

schizophrenic language. The second characteristic is caused by the fact already referred to that the same subjects have many predicates, and we do not know which one is for psychodynamic reasons used by the patient in order to reach the identification. The result is that schizophrenic verbal productions, in spite of some common recognizable characteristics, often differ more from one another than they differ from verbal productions of normal people.

Because predicates will be discussed again when we examine the disturbances of thought-associations in schizophrenics, it is important that we define them accurately. A predicate is, by definition, something that concerns the subject. One is accustomed to recognizing as predicates abstract or concrete qualities of the subject or something that in a certain way is contained in the subject—for instance, the characteristic of being white, honest, attractive, big, small, of having a tail, and infinite other possibilities. These are called *predicates of quality.* There are, however, other characteristics that paleologically are conceived of as pertaining to the subjects and, therefore, are considered predicates, although they are not contained in the subject—for instance, the characteristic of occurring at a certain time or a given place. These are the *predicates of contiguity.* For instance, if a patient accidentally ate a certain exotic food on a day in which he had a pleasant experience, he may dream of eating that special food again, because he wishes to revive the pleasant experience. The special food and the

pleasant experience are identified in the dream because they happen to have been perceived at the same time. The identifying link in this case is a *predicate of temporal contiguity.* The predicate of contiguity may be not only temporal, but also spatial. For instance, a patient may dream of being in his summer home in the country. A woman he loves lives near his summer home. The summer home and the loved woman are identified because they both are located in the same place. In this case the identifying link is a *predicate of spatial contiguity.* In many other cases the identifying link is a mixture of predicates of the two different types, quality and contiguity.

If the identifying link is a predicate of quality, it will be relatively easy to understand the meaning of what the patient expresses. What are referred to in psychoanalytic literature as universal symbols are generally objects whose identifying links are predicates of quality. If the identifying link is an accidental predicate of contiguity, obviously the symbol may be specific for the individual, and many details concerning his life history may be necessary in order to understand its meaning. For instance, only the patient mentioned could identify the girl he loved with his summer home in the country.

If we take into consideration again traditional logic and its four laws of thought—law of identity, law of contradiction, law of excluded middle, law of sufficient reason—we may easily conclude, as we shall soon see, that the first three are annulled by Von Domarus's principle.[4] Before comparing

paleologic logic with Aristotelian logic, however, I wish to point out that I am not necessarily implying that Aristotelian logic is the model of correct thinking in *an absolute sense.* This implication would require long philosophical discussions that are inappropriate here. I am aware of the criticisms that have been made of Aristotelian logic at different times. I have used Aristotelian logic as a system of reference because it is most commonly accepted as representative of normal thinking. It is only in this relative sense that the effect of Von Domarus's principle on the first three laws of Aristotelian logic is examined. The physician or psychologist who is unfamiliar with the subject of logic need not worry. This discussion will be brief and simple.

The law of identity says that *A* is always *A,* never *B.* Now, according to Von Domarus's principle, *B* may be *A,* provided *B* has a quality of *A* The law of contradiction states that *A* cannot be *A* and not be *A* at the same time and place. Now, if the patient follows Von Domarus's principle, he may see *A* as *A* and at the same time as *B* (that is, non-*A*), if he concentrates on a quality that *A* and *B* have in common. The law of excluded middle says that *A* must be *A* or not be *A;* there cannot be an intermediate state. In its tendency to condense several subjects, paleologic thinking seems to neglect this law of excluded middle. Things are often seen as a composite of *A* and *B.* For instance, in schizophrenic drawings one often sees a human figure who is half man and half woman. The person represented in the drawing may be conceived by the

schizophrenic as having a characteristic of the opposite sex. Also the emotional difficulty the schizophrenic has in identifying himself with one sex may be revealed formally by his nonadherence to the third law of thought. Similar composition (that is, abolition of the third law of thought) occurs quite commonly in dreams. The neologisms of the schizophrenic are due to composition of different verbal symbols.

The philosopher Vico, who published his major works at the beginning of the eighteenth century, advanced similar ideas about the origin of mythological figures, for example, satyrs and centaurs (1725). He wrote that the ancients, being unable to abstract the same property from two different bodies, united the bodies in their minds. Vico explained mythological metamorphoses in a similar way. If the subject acquires a new property that is more characteristic of a second subject, the first subject is conceived as transformed into the second. For instance, if a woman who used to travel or to change in many ways finally stopped at a certain place, and no further change occurred in her life, in the myth she might appear as transformed into a tree. Even today angels are usually represented with wings because they are supposed to be in the sky (heaven) like birds. Vico's interpretation of myths may be applied also to dreams and to schizophrenic thinking.

The study of Von Domarus's principle can also explain other peculiarities of thought in schizophrenia and in dreams. For instance, it is not

too difficult to understand how in these types of thinking, the part may symbolize the whole and the whole may symbolize the part. In fact, according to Von Domarus's principle *A = A +B + C,* because the two terms of the equation have a part *A* in common. Therefore, in dreams and schizophrenic delusions we find that a person, either the patient or another person, may be identified with a part of himself, so that he may at the same time be symbolized by (identified with) several people, each of them having a quality that he has.

Von Domarus's principle often leads to delusions of identification of the patient with another person. The formal mechanism is the following: "If *A* can be identified with *B* because they have a common quality, it will be sufficient for me to acquire a quality of the person I want to be identified with in order to become that person." The deluded patient discovers in himself a quality possessed also by a hero, a saint, or a general and then identifies himself with the person with whom he shares that given quality. Other deluded patients try to acquire identifying qualities or confer them on others. A paranoid schizophrenic wanted her child to become an angel. Because angels are nourished only by "spiritual food," she did not feed her child for a few days—that is, until her relatives became aware of her acutely developed psychosis.

The converse of Von Domarus's principle is also applied in paleologic thinking, as well as in primitive and infantile thinking. If A has not a given

quality of *A′*, *A* cannot be *A′*. I will mention again one of the interesting examples given by Levin (1938b). A bright 6-year-old boy asked Levin whether twins are always boys. He replied that they may be either boys or girls, or a girl and a boy. When the child heard that twins may be a girl or a boy, he asked with surprise, "Then how could they wear the same clothes?" Levin concludes that the child had seen identical twins dressed alike, and that his concept of twins included an irrelevant detail, identity of raiment. If we apply Von Domarus's principle in reverse, the mental mechanism seems to be the following: "Twins have a common quality, identical raiment. If two persons have not or cannot have identical raiment, they cannot be twins!"

Not all delusions can be explained by Von Domarus's principle because many are based only on the Freudian mechanisms of projection, or because they imply other paleologic rules that we have not yet examined. Some of the more complicated mechanisms of delusions will be examined in Chapters 18, 19, 38, and 39.

I shall mention one here that implies both projection and Von Domarus's principle. Why may the person who is loved homosexually become, in the delusional system of the patient, the persecutor? The mechanism may be as follows: This man produces something very disturbing in me and causes me a lot of misery. He must be a persecutor. The persecutor and the loved person are identified, because they both have the quality of

producing in the patient a very disturbing reaction; homosexual love and hate themselves are identified, because they produce the same disturbing effect in the patient. The patient, of course, prefers to think that the person involved is a persecutor and harbors hate, not love, for him because in this case he will not feel guilty of the socially unacceptable homosexuality.

Another important occurrence of Von Domarus's principle, which will be mentioned again when therapy is discussed, is found in the transference situation, not only in psychotics, but in neurotics as well. The analytic situation appears to the patient as a repetition of the relationship with his own parent, not only because he has the emotional need to repeat the relationship, but also because the two situations have several characteristics in common. Later the patient will realize that the relations are not the same (he was deceived by Von Domarus's principle), and the transference will evolve toward a more fruitful development.

Paleologic thinking can be interpreted with formulations that are apparently different from Von Domarus's principle and yet refer to the same phenomena. We may, for instance, state that the cognitive faculty of the schizophrenic organizes classes or categories that differ from those characteristic of normal thinking. For normal persons *a class is a collection of objects to which a concept applies.* For instance, Washington, Jefferson, Lincoln, Roosevelt, Truman, and others form a class of objects to which the

concept “president of the United States” applies. In paleologic thinking *a class is a collection of objects that have a predicate or part in common* (for instance, the state of being virgin); *by virtue of having such predicate or part in common, these objects become identified or equivalent.* Whereas the members of a normal class (arrived at by secondary process cognition) are recognized as being similar (and it is actually on their similarity that their classification is based), the members of a paleologic class (arrived at by primary process cognition) become equivalent; that is, they are freely interchanged (for instance, the patient becomes the Virgin Mary). Not only do they all become equivalent, but one of them may become equivalent to the whole class.

It is easy to understand why it is so. In primary classification only the common element counts; all the rest is not important or not noticed or not responded to fully by the organism. The common element is the predicate, which the psyche experiences deeply.

Many authors have stressed the fact that schizophrenics do not use the same categories as other people. Generally this characteristic has been interpreted as a desire on the part of the schizophrenic to reject the ready-made categories offered by society. Of course, societies, too, differ in the way that they segment (or interpret) the world into categories. The similarities among the various societies, however, are also many and are based on the same fundamental principles according to which the human mind

experiences the world. Neither sociocultural difference nor the desire to reject the categories of one's society are sufficient explanations of schizophrenic thinking. We shall return to this topic in the thirteenth section of this chapter and in Chapter 18. Although it is true that the schizophrenic is not eager to accept the categories of society, it is also true that he uses special ways of organizing his experiences. The schizophrenic seems either to break the rules of categorization or to use inappropriate categories, or to think "intracategorically," that is, in the midst of categories used by people in general. We may interpret this phenomenon as due to the fact that schizophrenic concept formation does not follow normal logic, and does not accept cultural ready-made concepts, but instead it resorts to the formation of primary classes. Some of the consequences of this type of thinking will be studied in Chapter 18.

The important mechanisms of displacement and symbolization (one thing standing for another), like a box standing for a vagina and a stick standing for a penis, as described by Freud in connection with dreams, are from a cognitive point of view to be interpreted as manifestations of the formation of primary classes. However, Freud did not investigate further these primitive (or primary process) mechanisms from the point of view of cognition. For Freud primary and secondary processes came to be considered primarily not as two different ways of thinking, but as two different ways of dealing with cathexis. Whereas the secondary process binds the libido firmly,

the primary process allows it to shift from one investment to another (Arlow, 1958). Inasmuch as this shifting would easily occur from realistic and appropriate objects to unrealistic and inappropriate ones, the primary process would become an irrational mode of functioning.

This point of view leaves many unexplored aspects, especially those that pertain more closely to cognition. What is ignored in these studies is that this alleged shifting of libido requires the existence of alternative cognitive elements. The psyche must have available mental representations of various objects to which the cathexis could be shifted. Furthermore, if the libido is shifted to another object, this shifting or displacement is due, not to chance, but to a cognitive relation between the original object and the substitutes, that is, to an immediate mental grasping of a similarity or relation between the object and the substitute. For instance, if in dreams the cathexis is shifted from the vagina to a box, this shifting is not casual, but is due to a special type of cognition that first is able to represent mentally a vagina and a box and secondly sees a special relation between the function and shape of the vagina and of the box, so that the latter can replace the former. In Freudian theory the displacement is not due to the formation of primary classes.[5]

IV
Teleologic Causality

It was mentioned in the previous section that the first three laws of

thought of traditional logic were eliminated by Von Domarus's principle. Paleologic thinking does retain something similar to the fourth law, the law of sufficient reason: we must assume a reason for every event. We say something "similar" to the fourth law because actually the methods by which a reason for, or a cause of, an event is searched for by the paleologician are different from those used by the normal person. The paleologician confuses the physical world with the psychological one. Instead of finding a physical explanation of an event, he looks for a personal motivation or an intention as the cause of an event. Every act, every event, occurs because it is willed or wanted, either by the person who seeks an explanation or by another person or by something that becomes personified. In other words, causality by logical deduction, often implying concepts involving the physical world, is replaced with causality by psychological explanation, that is, by *teleologic causality.* Teleologic causality is valid in many instances; it determines most actions of men. It is the explanation that many historians give to certain social events, and that psychologists and novelists give to personal occurrences. For example: This man drinks *because* he wants to quench his thirst; I read this book because I want to learn Spanish; Caesar went into politics because he wanted to satisfy his ambition. All these "becauses" mean *for the purpose of.* The purpose is carried out by a will.

Often in common thinking and as a rule in scientific procedures *because* has a different meaning. It means *on account of* (generally on account of a

previous fact). For instance, the water became ice because of (on account of) the lowering of the temperature. This explanation is called *deterministic causality.*

The difficulty of the schizophrenic, especially of the paranoid schizophrenic, is that to support his delusions he resorts exclusively, or almost exclusively, to explanation by teleologic causality. Everything that occurs is interpreted by him as due to the will of a person. If a person is killed, if a storm occurs, if the wind blows, it is so *solely* because somebody wants it so. This method of interpreting events is much more primitive than the one by logical deduction. Piaget has described this method very well in young children (1929, 1930, 1948). Children examined by him in Switzerland thought that God made the thunder in the sky, that Negroes were made the way they were because they were naughty when they were little and God punished them, that there were a great and a little Saleve Lakes because some people wanted to go into the little one and some into the great one. Werner reports other examples (1957). A 5-year-old boy thought that in the evening it got dark because people were tired and wanted to sleep. The same child thought that the rain was due to the fact that the angels swept the heavens with their brooms and lots of water. The intentions are ascribed first to other people, then to things. The moon follows the child; the sun goes up in the sky; the rivers run. An animistic and anthropomorphic conception of the world originates. Things become animated; they either have a will of their own or

are moved by the will of somebody. The same conception of psychological causality is found by many anthropologists in primitive cultures.

Man living in a primitive society has the need for explanation just as civilized man has. The need for explanation is one of the basic needs of the human race and is to be found in every member of *Homo sapiens.* However, man living in a primitive culture is entirely satisfied when he can think that some person, or a personified entity, is responsible for an event. The moral point is not more important than the causal link; it is the *only* aspect taken into consideration, because *to be responsible for an event means to be the cause of the event.* The concept of impersonal force is a scientific abstraction which requires a much higher level of thinking (Arieti, 1967). Many magic practices of primitive societies consist of attempts to change or modify the will or intentions of the people who are responsible for (are causers of) the event. Study of myths reveals the same thing. If Ulysses is wrecked, it is because Poseidon, the god of the sea, is angry at him. If the Greeks are afflicted by epidemics, it is because Phoebus wants to punish Agamemnon. Anthropological and mythological examples of projected teleological causality could be multiplied indefinitely. The reader who is particularly interested is referred to Vico (1725), Levy-Bruhl (1910, 1922), Wemer (1957), and Kelsen (1943).

In dreams, too, events are engendered by wishes, intentions, or

psychological motivations. Paranoiacs and paranoids interpret almost everything as manifesting a psychological intention or meaning related to their delusional complexes. If the nurse looks at the patient in a special way, if a certain food is given at a certain meal, if a certain noise is heard, and so on, each of these things has a special meaning. They are willed by other persons in that specific way for reasons that involve the patient. In many cases, practically everything that occurs is interpreted as willed by the persecutors of the patient. In many other cases, especially when the delusions are not well organized, the patient does not even ask himself why the alleged persecutors commit these acts against him. He simply accepts the fact that they do so, that those acts are willed by somebody. If those acts were not willed, they could not occur. Of course, in these ideas of reference, two mechanisms are at play: not only is there the belief that each event is willed, but also the belief that each event has a special reference to the patient himself.

In *The Intrapsychic Self* (Arieti, 1967, Chap. 7) I have discussed the emergence of teleologic causality in children. I wrote that "before the child has acquired the ability to speak, he can already sense some kind of vague intentionality in the surrounding adults. For instance, he understands in a primitive way that it is up to Mother to feed him, to keep him on her lap, to fondle him. Through imagery he can even expect these things to happen and he anticipates them." However, this vague intentionality cannot be abstracted or conceived as a causal factor or as an act of will until the child can use

words to represent people and actions and to detach them from the total situation in which he finds himself. When he acquires a rudimentary language, he learns to interpret everything in a teleologic way: everything depends on the will or actions of others. The child makes a generalization and comes to conceive of everything in nature as a consequence of will. In some instances it will be very difficult to relinquish such a belief later. However, school and life in general in a civilized world will help the child to proceed to the order of deterministic causality; and in most cases the transition will be rapid because the child is offered ready-made concepts and social systems of symbolism with which it will be relatively easy to grasp new concepts of causality.

In certain stages of schizophrenia, especially of the paranoid type, teleologic causality again reacquires the upper hand and deterministic causality plays a minor role, especially in the cognitive structures of the patient's delusions, ideas of reference, and other symptoms.

V
Reverse Inference and Pseudoabstraction

A characteristic of schizophrenic thinking is its reverse order of progression. In normal cognition the human being moves from description to inference. When we interpret a descriptive statement, or even a perception, we make an inference. For instance, if we see a large quantity of smoke and

smell an odor of burning material, we infer that a fire is taking place. As Korzybski (1933) has pointed out, the descriptive levels (perceptual and apperceptual levels) are not the level of inference. If a person evaluates, or responds to, an inference as he would respond to a description, he beclouds whatever evidence there is to support the inference. The inference is already made, and it influences the observation. For instance, a paranoid has the idea that somebody plots to poison him. He sees a glass of water prepared for him on the dinner table. Influenced as he is by his premise, he "sees a cloudiness" in the water. He tastes the water and "discovers" in it a peculiar "metallic" taste, a sure indication that the water has been poisoned.

In these cases of schizophrenia the patient is able to foresee the conclusions of his reasoning because it is the anticipated conclusion that retrospectively directs his train of thought. In other words, in the process of demonstrating something, the patient chooses only those possibilities that lead to the conclusion he has anticipated and wished. For instance, a 49-year-old patient had the delusion that a certain man she knew was going to divorce his wife and marry her. The wife of this man was a respectable, attractive, blond young woman who had just given birth to a baby. According to my patient, who had an unconscious homosexual attachment for her, this woman was ugly, had already undergone the menopause, and had been a prostitute. How could the patient sustain her beliefs in the face of such contradictory evidence? We shall not take into consideration here the motivation of her

thinking, that is, the fact that unconsciously she wanted to reject her homosexual desire. We are interested here only in the formal mechanism of her delusional ideas. Consciously, the patient needed to reach the conclusion that the man was going to divorce this woman and marry her. She needed to believe that this woman was unworthy of the love of this man. According to the patient, therefore, the woman was extremely ugly, but being a prostitute, she had learned to dissemble her appearance, as all prostitutes do; she was a brunette, in fact, but had bleached her hair. She had already undergone the menopause, but she had been visiting a famous obstetrician who had given her hormone therapy so that she could conceive. As a matter of fact, the patient saw this woman on the same street where this famous obstetrician resided. It is obvious that the patient could anticipate the deductions of her thoughts, because it was the conclusion itself (impossibility for the man to love that woman) that retrospectively directed, and consequently distorted, her reasoning. The delusional premise was supposed to be an inference; but it was organized by the mind in advance, and therefore was not an inference but a delusional premise that acted as a reversed inference and stimulated the patient to collect the alleged evidence that was necessary to sustain the inference (that is, the delusion).

Inference before description is not pathognomonic of schizophrenia. In fact, we find many examples of this type of wrong thinking in nonschizophrenics. In his writings, Korzybski wanted to show how to avoid

this error as well as others. However, whereas this erroneous thinking is easily corrected in the normal person, it will persist in the schizophrenic as long as the motivation or its understanding have not been altered by therapy.

In all these delusional processes we can distinguish two important factors. The first is the need or the wish to believe the delusion. Such need or wish is very strong because it is closely integrated with the whole psychodynamic history and structure of the patient. To believe in the reality of the delusions becomes, especially for the paranoid, the purpose or meaning of his life. Second, the patient must feel able to demonstrate to himself, and in many cases to others, that there is a logical foundation for what he believes. As we have repeatedly stated in Part Two, the feelings of the patient about himself and his world would be more threatening without the delusions. If, after having studied the patient psychodynamically, we would ask the question, "What would be the person's situation without the delusion," the answer would be, "Worse." The reason for the delusion lies in its intentionality. A person becomes delusional when he cannot visualize other alternatives.

In order to infer, either in the proper or in reversed order, the person must be capable of so-called seriatim functions (Morgan, 1943). By seriatim functions is meant the organization or synthesis of skilled acts or thoughts into an orderly series. High species, like monkeys and apes, are capable of

simple seriatim functions, but in men this ability is much more developed. The number of acts or thoughts that may occur in a given sequence may increase to a tremendous degree. Seriatim functions imply ability (1) to anticipate a goal and (2) to organize and synthesize acts or thoughts in a given temporal series.

In the beginning of schizophrenia, seriatim functions and ability to foresee the future are retained. The early paranoid who has delusions of persecution or of jealousy is able to foresee the future and direct his thoughts in logical, chronological patterns that lead to the foreseen delusional deductions. He retains a great emotional capacity in connection with his complexes, and at times is so apparently logical as to be considered lucid. Later he becomes less logical, less capable of organizing his thoughts in a logical series. The seriatim function disintegrates, and he is less able to foresee the future and the deductions of his reasoning; his delusions become related to the present time and not to the future, their content is not persecutory but more or less grandiose, and their emotional tone is shallower. Later his thinking presents definite scattering, his delusions are connected with the immediate present, and are of a definitely expansive type. "I *am* the Virgin Mary," *"I am* the emperor of China." He accepts his delusions as indisputable, immediate reality, no longer caring to demonstrate logically their validity. As a matter of fact, he would not even be able to attempt such a demonstration.

In some cases, at times even at the beginning of the illness, but more often in chronic cases, patients seem not to have undergone a process of active concretization and even speak in an abstract manner. At times their style is definitely pretentious and pompous. They may use big words that do not refer to concrete or material things but to abstract concepts. Some of these patients, although only grammar or high-school graduates, begin to use big, philosophical, theological terms that generally are used by people with more education. Some psychiatrists (for instance, Barison, 1934) have been led to the conclusion that the patients have increased their capacity for abstract thinking. It is true that in these cases the patient attempts to escape from the reality of life by plunging into abstract conceptions. However, he really does not succeed. If we ask him to explain what he means with these big words, he will not be able to do so. He will use other big words that will accentuate the feeling of confusion. Actually the patient again concretizes: his confusion and the mysteriousness of the events that he perceived in a diffuse, unclear way become represented or concretized by him in the use of big, abstract words whose meaning he does not even know, or whose meaning he knows only with not too close approximation. Various German authors have very appropriately called this characteristic "talking on stilts." Examples of these pseudoabstractions will be given in Chapter 23.

Bumke (1924) has pointed out that some very beautiful examples of talking on stilts have been attributed to Don Quixote by Cervantes. For

instance, “The profound sense of the absurd which exhibits itself to my senses shakes my reason in such a way that I carry an ambiguous chagrin on your beauty”; “The high heavens, in which your divinity divinely lives with the stars, have aroused the honorability of the honor with which Your Highness is honored.”

VI
Time and Space

We must distinguish between experience of time and conception of time. Both of them may be altered in schizophrenia in various ways. The existentialists and phenomenologists have given much importance to the experience of time (Minkowski, 1933; Jaspers, 1946). The patient may experience time as standing still (see case of Mary, Chapter 13). Awareness of time may disappear completely, and so the patient lives in a timeless world. Time may seem to pass with excessive rapidity or, on the contrary, very slowly. On other occasions time seems chaotic, intermittent, interrupted, confused, without future or past. This altered experience is the result of alteration in the psychostructure of the patient.

The conception of time reflects more closely the cognitive changes. We must remember that the only possible experiential or subjective tense is the present. The human mind, however, is capable of transporting to the present chronologically remote events, thus permitting, in a symbolic way, the revival

of the past and the anticipation of the future. Past and future become not only conceptual constructs but also emotional experiences.

The ability to anticipate the distant future is one of the last achievements in evolution. Infrahuman animals do not possess this faculty. Experiments with delayed reactions have disclosed that even the highest species of mammals cannot keep future events in mind for more than a few minutes (Harlow, Wehling, and Maslow, 1932; Hunter, 1913). They can foresee only the very immediate future— that is, only the immediate reaction to a stimulus, or the outcome of their reaction to a stimulus, if the stimulus was present not longer than a few minutes previously. Prehuman species may be called "organisms without a psychic tomorrow." Cattle go to the slaughterhouse without feelings of anxiety, being unable to foresee what is going to happen to them. In humans the ability to anticipate the distant future begins in about the second year of life. At that stage of development, the child becomes able to postpone immediate pleasure for some future gratification. In other words, it is when the ability to anticipate is developed that the "reality principle" originates.

Phylogenetically, anticipation of the distant future appeared when early man no longer limited his activity to cannibalism and hunting, which were related to immediate present necessities, but became interested in hoarding and, later, in agriculture in order to provide for future needs. It was in this

period that culture— that is, knowledge to be used in future times or to be transmitted to future generations—originated. A person who mentally was able to conceive only the present time would aim only toward what Sullivan calls "satisfaction." A person who is able to prospect the future as well aims also toward what Sullivan calls "security."

In a paper written some years ago, I discussed the importance of the role of this ability to prospect the future in the engendering of the type of anxiety that is due to lack of security (Arieti, 1947). I pointed out that the neuroses experimentally produced in animals are the result of a state of tension (or short-circuited anxiety); they are not the much more complicated neuroses involving the anxiety that is due to lack of security. Although the animal may remain neurotic or maladjusted after the experiment, the actual state of discomfort is determined by the *presence* of the external disturbing stimuli, or of their equivalents. In other words, the reaction of the animal is temporarily tied to the experimental stimulus; the fear of danger always involves the present time or the immediate future. In human anxiety, however, there may be a temporal lapse between the anxiety-precipitating stimulus and the dreaded event, and the anxiety may last even when such an external stimulus is removed. Actually, in humans the external stimulus is replaced by an inner stimulus, which is symbolic of the external, is retained in the mind, and may even be unconscious. Anticipation of the future is thus impossible without the ability to symbolize. In *The Intrapsychic Self* (Arieti,

1967), I have discussed the role of language in the conceptualization of the future and remote past.

In schizophrenia there is a tendency to abandon the faculty of anticipating the future; one finds in this condition what I have called "restriction of the psychotemporal field." The temporal orientation of the patient gradually becomes limited to the present time. Balken (1943), in her study with the Thematic Apperception Test, found that the schizophrenic does not distinguish between past, present, and future. According to her, the schizophrenic, in the attempt to "relieve the tension between the possible and the real," clings "desperately and without awareness to the present." In early schizophrenia, however, and especially in the paranoid type, the patient is still able to concern himself with past and future. Some delusions, especially with persecutory content, may involve the future rather than the present. In the preceding section we have seen that many delusions required *organized* thinking or seriatim functions. The patient must thus be able to anticipate inferences either in the proper order or in reverse order. However, the more advanced is the regression, the more restricted to the present is that patient's ideation.

Wallace (1956) found that future time perspective is "influenced by the schizophrenic process to such an extent that both the length of the future time span and the organization of its contents are significantly reduced for a

sample of schizophrenic patients as compared to a group of normal controls."

Dahl (1958) found that some hospitalized patients are able to give the year of their birth and the current year correctly but will not give their correct age. A psychological factor rather than lack of arithmetical ability is responsible for the phenomenon. According to Dahl the unpleasant awareness of having spent so many years in mental illness becomes unacceptable. The patient uses paleologic thinking: "I was *X* years old when I was adjusted. I am adjusted now; therefore I am *X* years old." One patient stated, "I have lost so much time here [in the hospital], I am putting myself back."

Occasionally, in advanced stages of hebephrenic and paranoid types of schizophrenia, delusions seem to imply anticipation of the future, but it is not really so. For instance, a patient had the delusional idea that for her the calendar was always one day in advance. When for the rest of humanity it was Tuesday, February 13, 1946, for her it was Wednesday, February 14, 1946. This delusion is only superficially connected with anticipation of time and has a symbolic meaning that is related to the present.

In dreams, too, the situation is lived in the present; we may remember past events, but we never project ourselves into the future. Although the dream may be the symbolic manifestation or fulfillment of a wish for a future

event, the dreamt action is always in the present. The dreamer may worry about an imminent but not a distant danger.

What is the purpose of this restriction to the present that we find in dreams and, as a progressive tendency, in schizophrenia? Obviously it is the elimination of the anxiety that is injurious to the self-image (see Chapters 7 and 8). In Chapter 7 we showed how a deep injury to the self is involved with future conceptualization and anticipation. The patient who lives in the present and the dreamer may still experience fear and anxiety, but it is of a different and less traumatic type.

In addition to the restriction to the present we find in schizophrenia a general tendency to conceive of, or refer to, time in concrete representations. Minkowski reported a typical example. For his patient, the future was blocked, because the certainty of a terrifying and destructive event dominated that patient's entire outlook. The present also was experienced in a monotonous and uniform way. He experienced the days in the following way: "On Monday the silver was polished; on Tuesday the barber came to cut his hair; on Wednesday the gardener mowed the lawn," and so forth. In other words, days were represented by virtue of a concrete happening (temporal events). Although the patient's whole life was altered as a consequence of his illness, new meanings with concrete expressions were found.

Experience and conception of space in schizophrenia have also received much more consideration from the phenomenological and existential schools than from any other. Binswanger described in the schizophrenic the *gestimmter Raum,* an experience of space that is determined by one's feeling: space with an atmosphere or emotionally colored space (reported by Jaspers, 1946).

Objects may appear to the patient smaller (micropsia), larger (macropsia), or larger on one side than the other (dysmegalopsia).

A frequent experience is one of anxiety in the face of space and escape into a restricted or very definite space, like the comer of a room. Some patients seem to grasp for what they can touch and see; they cannot stand emptiness, even on a piece of paper. This feeling often obliges them to write on sheets of paper up to the border, without leaving any margin or space unwritten.

VII
Language in Schizophrenia

Language and its relations with thought processes are so characteristic in schizophrenia as to lead in typical cases to a prompt diagnosis. In the most pronounced cases, schizophrenic language appears obscure or utterly incomprehensible. Some authors go to the extent of interpreting the lack of

clarity of schizophrenic language as an effort on the part of the patient to hide from others, or even more probably from himself, the anxiety-provoking content of what he has to say. He does not want to communicate. These authors see in the schizophrenic speech the same mechanism that Freud saw in dreams: an attempt to hide the manifest content. Although this may be the case, we must pursue the problem further, as Freud did in his study of dreams.

In this section we shall consider those alterations that are closely related to paleologic thinking, as described in the second and third sections of this chapter. In the eighth section we shall describe more pronounced language alterations.

Before discussing schizophrenic language in detail we shall define three terms used in this context: connotation, denotation, and verbalization. The first two are traditionally used in the field of logic; the third has been introduced by the author. Let us take, for instance, the term *table.* The connotation of this term is the meaning or definition of the term; that is, the concept *article of furniture with flat horizontal top, set on legs.* The denotation of the term is the object meant; that is, the table as a physical entity. In other words, the term *table* may mean table in general or it may mean any or all particular tables. Every term has both these aspects. It means certain definite qualities or attributes and also refers to certain objects or, in the case of a

singular term, to one object that has those qualities. The connotation refers to the whole class of the object, without any reference to a concrete embodiment of the object.

I have proposed to call *verbalization* a third aspect of the term; namely, the term as a word, or phonetic entity, or phoneme. Thus the term *table* may be considered from three aspects: its connotation, when one refers to its meaning; its denotation, when one refers to the object meant; its verbalization, when one considers the word as a word; that is, as a verbal expression independent of its symbolic value.[6] We can also more simply state that the connotation is a thought, the denotation a thing, the verbalization a word.

Now it is possible to formulate a second important principle of schizophrenic cognition. Whereas the healthy person in a wakened state is concerned mainly with the connotation and the denotation of a symbol but is capable of shifting his attention from one to another of the three aspects of a symbol, the schizophrenic tends to become more concerned with the denotation and the verbalization and experiences an impairment of his ability to connote. In view of this principle, two important phenomena have to be considered in the schizophrenic's use of language: first, the reduction of the connotation power; second, the emphasis on the denotation and verbalization. In a general way these phenomena reproduce in reverse some

stages of language that I have described elsewhere (Arieti, 1967, Chaps. 7, 8).

Reduction of Connotation Power

For the person who thinks paleologically, the verbal symbols cease to be representative of a group or of a class; they are representative only of the specific objects that the patient is considering at the moment. For instance, the word *cat* cannot be used as relating to any member of the feline genus, but only in reference to a specific cat, like "the cat sitting on that chair." More often there is a gradual shifting from the connotation to the denotation level. [7] This gradual regression is apparent if we ask a moderately regressed schizophrenic to define words. For instance, the following are some words that a schizophrenic was asked to define, and her replies:

Q. Book.

A. It depends what book you are referring to.

Q. Table.

A. What kind of table? A wooden table, a porcelain table, a surgical table, or a table you want to have a meal on?

Q. House.

A. There are all kinds of house, nice houses, nice private houses.

Q. Life.

A. I have to know what life you happen to be referring to—*Life* magazine or the sweetheart who can make another individual happy and gay.

From the examples, it is obvious that the patient, a high-school graduate, is unable to define common words. She cannot cope with the task of defining the word as a symbol of a class or a symbol including all the members of the class, like all books, all tables, and so on. She tries first to decrease her task by attempting to break it into little pieces, that is, by limiting her definition to special subgroups or to particular members of the class. For instance, she is unable to define the word *table* and attempts to simplify her problem by asking whether she has to define various subgroups of tables—wooden tables, surgical tables, and so on. In the last example, she wants to know whether I am referring to one of two particular instances, *Life* magazine or the life of the sweetheart. This reply, which reveals impairment of connotation power, is also complicated by the emphasis on the verbalization, as will be demonstrated in the following section.

Other patients, when asked to supply a general or categorical definition, reply by giving specific embodiments of the definition. A patient who was asked to define the word *chair* said, "I sit on a chair now. I am not a carpenter." Another patient answered the same question with, "A throne." He restricted the meaning to this particular type of chair because of a connection with his delusions. He believed that he was an angel and was sitting on a throne in heaven. At times these definitions reveal not only a constriction to

one or a few specific instances of the class, but also the prominence of bizarre associations. Correct but uncommon definitions are also given. For instance, a patient who was asked to define the word *bird* replied, "A feathered fowl." Another patient answered, "A winged creature."

The psychologist Goldman (1960) has experimentally confirmed the decrease of connotation power in schizophrenics.

Anthropologists have noted often a similar inability to formulate or use words or concepts that include whole classes on the part of primitive people. For instance, Steinen (1894) reports that primitive people of Brazil have a group of expressions for different species of parrots, but the generic term *parrot* is lacking in their language. Smith (1878) reports that the Australian aborigines have no class names such as *bird, tree,* or *fish,* but on the other hand they have special terms for particular species of birds, trees, and fishes.

The philosopher Cassirer (1946, 1953, 1955, 1957) described very well the difficulty or inability of the primitive mind in connoting. He emphasized that when the concept is separated from the class, the single experience remains isolated, loses expansion, but acquires emotional concentration or "intensive compression." The immediate sensible experience increases in power. The universe of the schizophrenic, of the primitive, and of the child is closer than that of the normal adult to the immediate perception, to the

phenomenological world, and so reflects an extreme subjectivity.

According to Langer (1949) many of the psychological phenomena that caught Cassirer's interest arose from Kurt Goldstein's psychiatric work on cases of cerebral damage caused by physical accidents. In later studies Goldstein (1943a) dealt with this decrease of the connotation power in schizophrenics also. In the color-sorting test, one of Goldstein's patients picked out various shades of green, but in doing so he named them—peacock green, emerald green, taupe green, bright green, bell green, and baby green. He could not say that all of them might be called green. Another patient of Goldstein said in the same situation: "This is the color of the grass in Virginia, this is the color of the grass in Kentucky, this is the color of the bark of the tree, this is the color of the leaves." The words used by the patients in naming colors belonged to a definite situation. "The words," Goldstein wrote, "have become individual words, i.e., words which fit only a specific object or situation." In other words, the meaning or the connotation of the word includes not a class but only a specific instance. There is, therefore, a definite restriction of the connotation power.[8] Goldstein called this phenomena expressions of "concrete attitude." This tightness to the denotation prevents the schizophrenic from using figurative or metaphorical language, contrary to what it may seem as at first impression.

It has been stated by Benjamin (1944) that the schizophrenic is unable

to interpret proverbs correctly. He will always give a more or less literal interpretation of them. Figurative language increases the use of the term, which acquires an unusual denotation and connotation. If one says, “When the cat’s away, the mice will play,” a normal listener will understand that by *cat* is meant a person in authority. A schizophrenic patient gave the following literal interpretation of that proverb: “There are all kinds of mice, but when the cat is away, the mice take advantage of the cat.” In other words, for the schizophrenic the word *cat* could not acquire a special connotation.

The inability of the schizophrenic to use metaphorical language is also revealed by the following replies of a patient who was asked to explain what was meant when a person was referred to by the names of various animals, for instance:

Q. Wolf.

A. Wolf is a greedy animal.

Q. Fox.

A. A fox and a wolf are two different animals. One is more vicious than the other, more and more greedy than the other.

Q. Parrot.

A. It all depends on what the parrot says.

Q. Peacock.

A. A woman with beautiful feathers. By the way, *Woman* is a magazine.

Many beginners in the field of psychiatry get the impression that schizophrenic language and thought are highly metaphorical and poetic. In reality it is not so. This impression is due to misinterpretation of the phenomena that were explained above in terms of Von Domarus's principle. For instance, a schizophrenic will be able to *identify* a man with a wolf on account of a common characteristic, greediness, but he will not be able to accept the concept *wolf* as a symbol of greedy men. Two different mechanisms are employed. In the first instance, a very primitive paleologic mechanism is necessary; in the second instance a high degree of abstraction is at play. The schizophrenic uses metaphors out of necessity, not for aesthetic reasons. The artist may exploit archaic processes to intensify the emotional tone of his expression, but at the same time he will retain the power of abstraction that has been lost by the schizophrenic and that has not been sufficiently used by the primitive.

Now a question may occur to the reader. If these reversions to primitive mechanisms have a teleologic function in psychopathology, what is the purpose of this loss of connotation power in the schizophrenic? This is an important point. The answer, however, requires knowledge of other aspects involved, and these will be taken into consideration in Chapter 19.

Emphasis on Denotation and Verbalization

When the word has lost its connotation power, its denotation and verbalization acquire greater significance. The word, disrobed of its connotation, in a certain way remains isolated from a logical context but increases its emotional tone, acquires more subjective value, a uniqueness that is connected with the subjective sensorial image of the individual. In other words, it becomes much nearer to the perceptual level. Ideas are, therefore, quite often expressed with words which describe sensory images. Storch (1924) has described this phenomenon in schizophrenia at length. One of his patients spoke of "a heap of truth," another of an "idea" as being "smaller than a flea," and so on. Often the attempt of the patient to stress the denotation is frustrated. Since the patient conceptualizes things in a different way, he tends to misidentify them and therefore cannot denote them accurately. He may misidentify himself, others, and objects. The misidentification is due to the adoption of non-Aristotelian primary classes. His way of denoting is similar to that of children who have not yet acquired the ability to conceptualize properly and who, therefore, follow a paleologic structure of thought. We have already mentioned, for instance, children around two years of age who say "mommy" if shown a picture of a woman, no matter whom the picture represents. Between the right and the wrong denotation there is a paleologic relation. At other times, the patient does not misidentify but fails to identify with accuracy. Because of his semantic difficulty he cannot properly name the people he speaks of and refers to them

with the pronoun “they”; for instance, “they are after me.” This use of the pronoun is not the usual one and is typically schizophrenic; in normal speech the use of the pronoun is correct and economic when it replaces a well-known subject. If we talk about Italians, we say, “they are opera lovers; they prefer Chianti wine to Beaujolais.” The schizophrenic often uses the pronoun because he cannot identify the subject in a specific way. The “they” maintains a sense of indefiniteness and mystery.

In many cases, when the connotation value is diminished or lost, the attention of the schizophrenic is focused on the verbalization or on the word merely as a word or a purely phonetic entity. The loss or diminution of the socially established semantic value (*semantic evasion* or *loss*) is accompanied by increased value of the verbalization *(formal pregnancy).* When this happens, several different situations may ensue.

1. Often mental processes occur that are stimulated only by verbalization.

2. The verbalization becomes the identifying link in identifications.

3. The verbalization becomes confused with the whole or part of the denotation; that is, the word and its characteristics may be taken as identical with the thing and its characteristics.

4. Ideas associate not because of their meaning but because of the phonetic quality of the words by which they are represented.

Words also associate for phonetic reasons.

5. The assonance, and other phonetic qualities, are invested with special semantic meaning.

As an example of the first possibility, I shall mention a patient whom I examined during World War II. During the examination, she told me that the next time the Japanese would attack the Americans it would be at Diamond Harbor or Gold Harbor. When she was asked why, she replied, "The first time, they attacked at Pearl Harbor; now they will attack at Diamond Harbor or at Sapphire Harbor." "Do you think that the Japanese attacked Pearl Harbor because of its name?" I asked. "No, no," she replied. "It was a *happy* coincidence." Note the inappropriateness of the adjective *happy.* It was a happy coincidence for her because she could prove thereby the alleged validity of her present paleologic thinking. Her train of thought was stimulated by the words *Pearl Harbor.* A literal connotation was given to the word *Pearl,* and this aroused in the patient associations with precious stones. Often the verbalization is exploited to fit a certain delusional or referential framework. For instance, every time a patient heard the words *home* and *fair,* he thought they were the slang words for homosexuals, *homo* and *fairy.* He was preoccupied with the problem of sexual identification and believed that people were subtly referring to his alleged homosexuality. The similarity between these words would not have been noticed or seized upon had the patient not been so preoccupied.

A patient thought he was Jesus Christ. When he was asked to explain the reason for his belief, he replied, "I drink Carnation milk. I am incarnated." Another patient heard some employees in her office saying that "Attention should be paid to O.B." She immediately thought they were referring to her: O.B. would stand for *old bag* or for *obstetrics,* thus implying or unfairly accusing her of being illegitimately pregnant. She had repressed the fact, well known to her, that in the firm there was an *Order and Billing* department and that the initials *O* and *B* had always been used to refer to the work of that department.

The second possibility that we have mentioned merely states the application of Von Domarus's principle with the verbalization as the identifying link. Different things are identified because they have names that have a common characteristic. The identification is particularly prone to occur if the names are homonymous. Two otherwise different things are identified, or considered together, because they have the same phonetic or written symbol. In one example mentioned above, the patient put together *Life* magazine and the life of the sweetheart. Another schizophrenic had the habit of wetting her body with oil. When asked why, she replied, "The human body is a machine and has to be lubricated." The word *machine,* applied in a figurative sense to the human body, had led to the identification with man-made machines.

Another patient felt that when people were using the word *candies* they were referring to her former boyfriend. She was on a diet and had *given up* eating candies, just as she had previously *given up* her boyfriend. The predicate "having been given up" led the patient to identify candies and boyfriend and to assume that other people would make a similar identification, at least in the verbal expressions that represented the two subjects. It is obvious that for the schizophrenic the term may be not a symbol but a characteristic, a quality, or a predicate, or a whole duplication of the object that is symbolized. The identification due to similar or common verbal expression is based not only on Von Domarus's principle, but also on the emphasis on the verbalization and the decreased importance of the connotation.

Proper names are often the objects of similar processes. A patient whose name was Marcia, and who knew Italian, thought her name meant that she was rotten (in Italian *marcia* means "rotten" in the feminine gender). Another patient whose name was Stella felt that her name indicated that she was a fallen star. Because they are so involved with verbalization, patients often discover puns all over and feel that these puns are used purposely to annoy them. Actually quite often the patients themselves, because of this unusual capacity to concentrate on the verbalization, become very skillful in making puns.

These two mechanisms, application of Von Domarus's principle and emphasis on the verbalization, are quite often used by normal adults in jokes and witticisms. Some of the examples mentioned above, such as the patient who was wetting her body with oil, or the patient who gave a special significance to the initials O.B., have definite comical characteristics. The important point, however, is that what is comical for the healthy person is taken seriously by the schizophrenic. In other publications I have described in detail the use of paleologic thinking in wit (Arieti, 1950; 1967, Chap. 20). Freud (1938), in his important monograph on wit, described many mechanisms involved in the technique of witticisms and compared them to the mechanisms in dreams. He did not compare them, however, to schizophrenic expressions.

The emphasis on verbalization also appears in many dreams, as revealed first by Freud (1960) in his book on dream interpretation. The following is one of the numerous examples he gives. C. dreams that on the road toX he sees a girl bathed in a white light and wearing a white blouse. The dreamer had begun an affair with a Miss White on that road. The following example from a patient of mine is also instructive. The wife of the patient dreamt that she had intercourse with Mr. X., a friend of the family. Motivated either by guilt or hostility, she revealed this dream to her husband, my patient. The patient was hurt, but he did not say anything because, after all, "It was only a dream." The following night the patient dreamt that his wife was

unfaithful to him, but to his great surprise the man she had relations with in the dream was her own brother. The patient, in the dream, was thinking: "After all, it is not so bad. It is true that she had intercourse, but only with her brother. Sex with a brother does not count." The patient did not know how to explain the dream, but suddenly it occurred to him that Mr. X.'s first name was Carl, the same name as that of his brother-in-law, who had had relations with his wife in the dream. Thus it seems that in the dream Mr. X. and the brother-in-law were identified because they had the same name, Carl. The dream reported by the wife apparently hurt the patient very much. By the identification that occurred in his own dream, his anxiety was diminished because, "Sex with a brother does not count, cannot be too pleasant."

The third possibility mentioned concerns the tendency of the verbalization to become part of the denotation, when the connotation has been lost; that is, the schizophrenic sees the verbal symbol as part of the thing that is symbolized. Cassirer, too, has noted that in primitive thinking there is an essential identity between the word and what the word denotes. The word is not a mere conventional symbol, but it is merged with its object in an indissoluble unity. Thus word magic originates. The word denoting an object acquires the same property of the object and may be substituted for the object when the latter is not available. The name of a god is as powerful as the god himself. Werner and many other authors have reported identical observations.

Piaget (1929) has observed that children, too, experience names as fused in the objects they denote. Piaget asked children not older than 6, "Where is the name of the sun?" and he elicited the following responses: "Inside! Inside the sun!" or "High up in the sky!"

The fourth possibility that we have mentioned occurs when words or ideas associate merely because of the phonetic quality of the verbal symbols. These are so-called sound associations. A schizophrenic wrote the following clang associations: *"C,* see, sea," *"Y,* why, *Y."* Another patient wrote: "Chuck, luck, luck, buck. True, two. Frame! Name! Same! Same! Same! Same!"

At times series of words, associated because of their similar verbalization, retain a general sense of meaning, reminiscent of what I have called primary aggregation (see Arieti, 1967, Chap. 7). For instance, the patient quoted earlier who defined chair as throne, wrote the following "prayer" which he used to recite every morning: "Sweetness angel, gentle, mild, mellow, gladness, glory, grandeur, splendor, bubbling, babbling, gurgling, handy, candy, dandy, honor, honey, sugar, frosting, guide, guiding, enormous, pure, magnificent, enchanted, blooming plumes."

In addition to words that he felt were applicable to the divinity and to angels (and he thought he was an angel, too), he often selected words because of their assonance or because in addition to a specific meaning they had an

assonance. The last case is represented by “blooming plumes” that winged angels have. It is evident that the meaning that this prayer had for the patient derived from the phonetic structures of its verbal components. In comparison to usual prayers this one manifested a semantic loss or evasion for the usual reader but acquired a particular one for the patient on account of its many series of assonances. The following list does not include all of them:

1. an*gel*, *gen*tle

2. *m*ild, *m*ellow

3. *gl*adness, *gl*ory, *gr*andeur

4. gra*nd*eur, sple*nd*or

5. bu*bb*ling, ba*bb*ling, gur*gl*ing

6. h*and*y, c*and*y, d*and*y

7. *ho*nor, *ho*ney

Finally we must mention that at times the proper denotation of a word is lost and another one is given that is suggested by the verbalization. For instance, a patient was shown a pen and was asked to say the name of the object shown. He replied, “A prison.” The word *pen* elicited in him the idea of *pen*itentiary.

In some rather unusual cases the emphasis on the verbalization compels the patients to express themselves in rhymes or poetry. Some poetic tendencies of some patients will be studied in the following section.

VIII
Very Severe Thought and Language Disorders

In the previous sections we have seen how the schizophrenic adopts a special logical organization in order to reach some conclusions. However, the disturbances in his thought processes may extend beyond the loss of Aristotelian logic and the adoption of paleologic thinking, and the effects may be more pronounced. They involve even the simple, normal associations of ideas, to such an extent that scattering of thoughts, dissociation, and word-salad are commonly observed. In Chapter 2 we have mentioned how much importance Bleuler (1950) attributed to the disorder of associations of ideas. According to him these disturbances range from a maximum, which corresponds to complete confusion, to a minimum, which is hardly noticeable. The disease "interrupts, quite haphazardly, single threads, sometimes a whole group, and sometimes even large segments of the thousands of associative threads which guide our thinking." According to Bleuler, "The most important determinant of the association is completely lacking—the concept of purpose." Bleuler adds:

> . . . Thinking operates with ideas and concepts which have no, or a

> completely insufficient, connection with the main idea and should therefore be excluded from the thought process. The result is that thinking becomes confused, bizarre, incorrect, abrupt. Sometimes, all the associative threads fail and the thought chain is totally interrupted; after such "blocking," ideas may emerge which have no recognizable connection with preceding ones.

Bleuler's conceptions were incomplete and preliminary in character. It is regrettable that his lead was not pursued and that the study of associations of ideas in the schizophrenic has been neglected. This neglect is largely a reflection of prevailing trends in psychiatry and psychology. Psychiatric studies that deal *exclusively* with environmental factors cannot consider the severe formal disorders of thinking and language, such as those described in this section. In the field of psychology an excessive fear of so-called mental atomism has prevailed for many decades and has made many psychologists disregard this important aspect of mental life.[9] It is true that the problem is still obscure; and that maybe even the phrase "association of ideas" is wrong. When we say that ideas associate, we refer only to the last stages of a very complicated microgenetic process. Not only do we not know the neuronal mechanisms involved, but we do not know even the different psychological steps that lead to the associations. The state of our ignorance is disturbing, but it is not a justification for ignoring the phenomenon. The phenomenon of association cannot be denied. It is one of the most important, perhaps the most important, of psychic life.

A two-minute observation can convince anyone that ideas do associate. I see my old grammar school and think of my childhood; I hear somebody mention the name of Beethoven, and I think of an acquaintance of mine who is a musician. I study my own thoughts or those of my friends, and I see that ideas do not occur at random, but that there is always a connection between them, no matter how petty and trivial this connection may be. It is because such power of association is so important and so general that we are so impressed and baffled by the schizophrenic, who seems to have lost it partially or totally.

Before we study the phenomenon in schizophrenia, let us examine very briefly how ideas associate in normal individuals.

When a person thinks logically, he organizes his thoughts according to a pattern or structure that leads toward an end or conclusion. If, however, he relaxes and lets his thoughts come up spontaneously, without exerting any selection or direction, ideas that seem to acquire consciousness for their own sake and not for any distant purpose will come to him. Conversation in casual social gatherings often consists of thoughts occurring in this way. If we study these thoughts, we see that even they follow one another according to certain rules. They do not come at random, but they are determined rationally. We do not find irrationality, but psychological determinism. One idea is determined or caused by the occurrence of a previous one. Idea *B,* which follows idea *A,* is

associated in some way with *A.* It is because of this association that *B* may occur, and not because of chance. Even at this simple level thinking follows some kind of organization.

What are the ways by which ideas associate? Although some authors have described or subdivided more types, ideas are generally considered as associating in two ways: by contiguity and by similarity.[10]

The *law of contiguity* states that when two mental processes have been active together or in immediate succession, one of them on recurring tends to elicit the recurrence of the other. For instance, if I think of a rose, I may think of its color or odor, or of the garden where I saw it; if I think of New York, I may think of the Empire State Building or of the Hudson River; if I think of fire, I may think of smoke, or of the danger of being burned, and so on.

The *law of similarity* states that if two mental representations resemble each other, that is, if they have one or more characteristics in common, the occurrence of one of them tends also to elicit the occurrence of the other. For instance, when I think of the Empire State Building, I may think also of the Eiffel Tower, because they are both high constructions; when I think of Beethoven, I may also think of Mozart, because they are both composers.

The *associative link,* that is, the element that makes two ideas associate, is either the fact that they originally occurred in the same place or at the same

time or in succession or the fact that they have a quality in common. Using our own terminology, we may state that two ideas associate by contiguity if they have a common predicate of contiguity. Two ideas associate by the law of similarity if the associational link is a predicate of quality.

In normal people there are also differences in the way ideas associate. As James described in his *Principles of Psychology* (1950), the association by similarity is the higher form of association and is generally found in larger percentage in gifted individuals. The association by contiguity is found in everybody, but occurs more often in nongifted individuals than in gifted ones.

In schizophrenia, we find a gamut of disturbances in association of ideas. Contrary to what Bleuler wrote, the first disturbances consist of the more frequent occurrence of ideas connected only by the laws of association. In some nonsevere conditions we find that schizophrenics talk without logical direction; their thoughts are connected, one with the other, by the simple laws of association. The disturbance may be minimal and hardly noticeable; at other times the patient seems to wander in various directions. The ideas, however, are still connected, but the lack of logical continuity reveals the extent of the mental disintegration, such as in the following passage from a letter of Margaret, a schizophrenic patient:

Dear Dr. Arieti,

It Is Because I Am So Passionate That They Brought Me Here.

Doctor Webster Asked Me Why I Was Brought Here And I Couldn't Answer Without A Certain Hesitation, But Now I Know, I Know Now:

I'm Too Passionate!

That's Why I Can't Get A Job.

You Had The Wrong Diagnosis

Take This For Instance:

Look Up The Word Passions In The Encyclopedia (A Masterpiece Of A Word) And In The Dictionaries. Don't Get Cerebral Meningitis In Your Studies

But You Will Find That There Is A Difference Between The Passions of Jesus of Bethlehem And The Passions Of Blue Beard

Between The Passion Of Misplaced Sympathies And The Passions Of Suicidal Thoughts.

Are You Passionately In Sympathy With Your Great Poet Dante, Doctor Arieti?

And I Am In Passionate Admiration Of The Works of Moliere, The French Troubadour.

And There Is The Passion Flower

And The Passion Plays of Oberammergau.

The patient wants to convey the idea that she was hospitalized because she was too passionate. She is not mentally sick. A wrong diagnosis was made.

Soon, however, Margaret becomes involved with the meanings of the word *passion* and loses the main point. We see here that the laws of association are respected, but that there is no logical or directed thinking, and therefore no apparent purpose. This disturbance resembles the flight of ideas that we find in the manic patients. The resemblance, however, is only superficial. In the manic, the push to talk is so strong that he has no time to think and cannot adopt logical rules. In the schizophrenic, the lack of logic is not due to this pressure, but to a withdrawal from logic. In addition, in the flight of ideas of the manic, stimuli that elicit associations come from the outside environment much more frequently than they do in the schizophrenic. An object, color, or event in the immediate environment may lead to numerous associations.

In all schizophrenic writings or verbal productions we must not stop with examining the lack of logical continuity and the specific formal characteristics. Whenever possible we must examine also the content, the schizophrenic's conscious or unconscious attempt to convey a meaning in spite of his difficulties, and the distortions in the meaning. As we shall see again in Part Nine, this type of examination will be very useful in psychotherapy, even in regressed patients.

Now if we reexamine Margaret's letter, we find that it had a meaning. The patient wanted to assert once again that she was not mentally ill; the wrong diagnosis was made. At the time Margaret wrote this letter, she was in

a state of fairly advanced regression. She had been hospitalized for a few years and gave the impression of being apathetic or at least shallow emotionally. She did not appear so in her writings, which had a strong emotional impact. Her trouble, she states vehemently, is not mental illness but being "too passionate." In her letter she soon deflects the direction of her thinking and focuses on the meaning of "passionate," so difficult a word that the study of it may harm one's nervous system (she warns: Don't develop cerebral meningitis over the study of this word). In common everyday language the words *passion* and *passionate* refer to strong sexual desire; and inability to control such desire could be considered the origin of the patient's trouble. But the patient transcended this meaning: sex was extended to the whole realm of passions, that is, of strong emotions. The word *passion* itself becomes "a masterpiece." The patient lists the sublime passion of Jesus Christ as well as the criminal one of Blue Beard; the pain that comes from having put affections in the wrong place and that which comes from suicidal thoughts; the emotion from the experience of poetry and art.

Thus a second examination of this letter shows that this patient is aware of many things, although in an unclear or peripheral form of consciousness. The extent of her feelings and the gamut of her intellect, as well as the results of experiences before and during the illness (misplaced sympathies, suicidal thoughts) come through in spite of the mental disintegration. The meaning is conveyed not by logical progression of thought, but by the totality of the

thoughts. No matter how disconnected, the letter conveys a tone, an atmosphere, “a sphere of meaning” similar to what we find in primary aggregations (to be discussed later in this section).

When the schizophrenic process advances, ideas still tend to associate by similarity, but by a similarity that is connected with the verbalization, rather than with the connotation. In other words, the *associational link is a predicate of verbal quality.* Two things or ideas are associated because they have the same phonetic or written symbols.

The patients quite often seem to forget the meanings of the word, and concentrate exclusively on the verbalization. They have a predilection for phonetic similarity. Many of them devote time to writing prose or poems that appear very odd. No purposeful thought is recognizable, except occasionally. Ideas follow one another by the laws of association, or for the purpose of maintaining rhythm (verbal similarity). Stereotyped expressions associate easily, because repetition or identity is the highest degree of similarity.

The following poem was written by a hebephrenic woman. She had pleasant delusions: for instance, she believed that she was growing feathers and becoming a bird, “because” she wanted to fly away from the hospital. She wrote me this poem when she heard that I was transferred to another division of the hospital:

Dear Dr. Arieti,

Brilliant to the sky,
Why you are far away

The spirit comes so nigh
While you are far away

Ah woe to the sad tiding
That you are not residing

Under the same roof

As our friends of the ebony hoof
Would take you out in flight

And drive you quite aloof
And would carry you in spite
Of the fact that you are so light

In your tender golden head

Like a hollow round your head
I'd send you a dozen horses
Nay a gross

Only to keep you awhile

As extended as the Nile

Happy in your bile
Only you are far away
And the mares are gray.

With the increase in occurrence of paleologic thought, there is a decrease in the number of associations by similarity, a process that occurs because the patient develops an increasing tendency to identify rather than to abstract. For instance, the normal person is able to place in one category, Hannibal, Julius Caesar, and Napoleon because he may abstract from each of these three subjects the quality of their being great military men (Arieti, 1950a). A person who thinks paleologically would be unable to abstract this quality from the whole of the subjects and would tend instead to identify Hannibal with Julius Caesar or with Napoleon, in agreement with the

principle of Von Domarus. *Association by similarity has been replaced by identification by similarity.* If we remember what we have discussed in the second section of this chapter we may conclude that the formation of primary classes (that is, the tendency to identify objects that have a predicate in common) prevents or impairs *association* by similarity. But association by similarity, which requires ability to abstract, is an absolute prerequisite for Aristotelian logic. The paleologician gradually loses the general ability to associate by similarity although he still retains the ability to associate by similarity of verbalization and by the law of contiguity.

Whereas in the early stages of the disorder the use of primary classes was limited to the complexes of the patient, in more advanced stages it expands to larger areas of thinking. For instance, if you ask a patient, "What is the capital of France?" he may reply, "London." London and Paris are identified because they are both capitals. To the question, "Where are you?" the patient may answer, "In a church." Churches and hospitals are identified because of many characteristics in common, such as being buildings for many people, or places where people are helped, and so on. These examples show that the patient is still able to organize up to the rank of categories, but these categories have not yet fully reached the rank of being secondary classes; their members are equivalent as London is with Paris. If some patients are asked the date of their birth, they give a wrong date, but a date whose first two numbers are the same as those of the actual date. For example, a patient

born in 1911 gave the date of birth as 1923, a patient born in 1917 gave the date of birth as 1988. Of course, even in these simple cases, the dynamic desire to deny reality or to make no contact with the examiner should not be overlooked. However, in these instances, too, we should not consider only the motivation, but also the psychotic ways by which the motivation is carried out.

When the schizophrenic process becomes even more advanced, a further complication occurs. Not only ideas that might associate by similarity, but also ideas that associate by contiguity are no longer just associated, but paleologically identified. One idea or thing may be substituted for another that occurred at the same time or place or was learned at the same time or place or that belongs to the same context.

For instance, a very regressed hebephrenic patient was asked the following question: "Who was the first president of the United States?" She replied, "White House." Although George Washington actually did not even live in the White House, White House had for her the same significance as George Washington. The idea of president of the United States was in her mind associated with White House. Each element of this context (anything usually associated with presidents of the United States) had the same value as any other elements and might have replaced any other element of the same context. At her level of regression, one part of a context cannot be separated

or abstracted or distinguished any more from any other part of the same context or background. To associate George Washington with White House is a normal mental process that may occur to anyone, let us say, during a word association test. The anomaly here is not that the two subjects, George Washington and White House, are associated, but that they are identified and substituted for one another.

Cameron (1938) has studied the same phenomenon, which he calls "metonymic distortion," pointing out the fact that the distortion consists of the use of an approximate but related term for the more precise definite term that normal adults would use. For instance, one of his patients said that he had "menu" three times a day instead of meals. Cameron describes this phenomenon very well when he writes that "the schizophrenic attributes a false equivalence to several terms or phrases which in the normal person might belong to the fringe of his conceptual structures." The patient strikes "not at the bull's eye" but at the periphery of the target. Cameron's formulations are important but tend to remain descriptive because they do not imply that the underlying process is the tendency toward progressive identification.

Another phenomenon that Cameron (1938, 1939, 1947) has studied in advanced schizophrenia is what he calls "asyndetic thinking." At the level of language behavior this disorder manifests itself as a juxtaposition of

elements, without adequate linkage between them. It should be mentioned here that such juxtapositions are identical with those that Freud has described in his study of dreams. In my opinion there is not only a juxtaposition of elements but also a juxtaposition of meanings. Certain sentences are as confusing as photographic films that have been exposed several times. The superimposed images and meanings, however, have some connection in the mind of the patient. Often the word that, as we have mentioned, is representative of an enlarged context is taken to represent another context of which it is also a part, and the two contexts become superimposed. Schizophrenic thought often bristles with different planes of meaning and is, as I call it, *multifocal,* because it has to focus at the same time on different meanings with their different objective situations.

Werner (1957) wrote that whenever development occurs, it proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation, and hierarchic integration. In schizophrenia there is a return to the primitive stages where differentiation is still rudimentary. At the stages that we are discussing, disparate elements agglomerate to form "primary aggregations." Although primary aggregations do not have a definite holistic organization, we can find in them a loose, general, or what Werner called "spheric" meaning.

In the example given earlier concerning the patient who said "White

House" instead of "George Washington," when asked, "who was the first president of the United States," the primary aggregation had to do with the presidency of the United States. Many primary aggregations, however, have a much more primitive organization. They seem like strange agglomerations of disparate things put together as in a collage. At other times they may be recognized as embryonic structures from which logical concepts eventually emerge. In some cases they may even embrace a field that at higher levels of cognition corresponds to highly abstract ideation.

How a primary aggregation is formed is difficult to say. Often the grouping of the elements is naturalistic, reproducing the contiguity found in the external world or the chronological continuity of some experiences. For the occurrence of these phenomena in primitive cultures see Werner (1957); in other instances see Arieti (1967, Chap. 7). As mentioned, an important characteristic of the primary aggregation (at least of its most primitive forms) is that any element of it becomes equivalent to another element or may replace the whole.

When we consider all the phenomena described in this section, we are no longer surprised that the language of regressed schizophrenics becomes so obscure. When one thing is substituted for another thing that it resembles or that is a different part of the same context or background, the result is incomprehensible. These tendencies to identify segments or fragments, which

are usually only associated in large contexts, explain the so-called word-salad that has so far remained incomprehensible. I repeat here that what I call "identification" of segments or fragments actually may not be identification or effort to identify so much as it may be the result of an inability to separate or dissociate a part or to distinguish any of the parts of a whole. For practical purposes, or from the point of view of the observer, there is an identification of all the parts of the whole with one another or with the whole. In some cases this tendency progresses toward identification so rapidly that a word may come to replace or represent bigger and bigger contexts, so that finally the language of the patient is impoverished to the point of being reduced to relatively few words or stereotyped expressions. As Sullivan wrote, in the stereotypy there is "an impractical concentration of meaning in the expression" (1953a). The same stereotypies mean many things, just as the crying of a baby does. In word-salad this impoverishment has not reached the point of reducing the language to a few words, but the elements of the sentences, being replaced for others in a unique selection, make up sequences of words that a listener cannot understand or can understand only with great difficulty. It is debatable whether the patient himself understands what he is saying. This point will be examined when we shall discuss the therapeutic situation (Chapter 36). In some other cases, however, even when the most pronounced forms of stereotypy and impoverished language are found, it is possible to trace some diffuse, global, or spheric meaning. Let us take as an

example the following writing of a very regressed schizophrenic:

> Do I see cake Do I do the reverse of acting
> Yes Do I feel sensually deceived
> thoughts in mental suggestion in increase of
> senses in suggestion
>
> senses deceptive
> in in deception deception deception
> deception
>
> vanilla lemon as lemon vanilla as the beginning
> of in in suggestion suggestion suggestion
> suggestion of the suggestions as the
> beginning of in suggestion
> lemon vanilla as susceptibility of the
> reason as lemon as in in suggestion
> suggestion suggestion suggestion of
> the suggestions
>
> insuggestion
>
> iv
>
> Dolseeldo in sugget

This is a typical example of word-salad and sterotypies. The first impression we get upon reading it is that it is utter nonsense. We are also impressed by the repetition of some words. Let us try, at least, to grasp the spheric meaning. The patient is preoccupied with a phenomenon that he cannot understand: are his senses reliable, or does he undergo mental suggestion? The world he is experiencing is chaotic, fragmentary, uncertain. Almost all the things he observes lead him to two alternative conclusions or symbols that have become prominent to the point of embracing everything else: sense deception or mental suggestion. In other words, is he the victim of his own

senses, which deceive him, or is he undergoing mental suggestion, coming either from himself or from the external world? Almost everything comes to be perceived in terms of these two stereotyped concepts: deception and suggestion. He undergoes strange phenomena. “Do I do the reverse of acting?” That is, “Do I do the opposite of what I would like to do?” However, a few things remain like islands of reality and are not yet submerged by the invading ocean of deception and suggestibility. “Do I see cake?” he asks himself; that is, something tangible, concrete. And later he sees lemon and vanilla, colorful and pleasant objects that stand out in the sea of confusion expressed by abstract words. Mental suggestion seems to win out over sense deception. The patient seems to recognize that the trouble is suggestion; and as a matter of fact, the repetition of the word suggestion has a suggestive quality.

The disorders that we have examined in this chapter do not cover the whole gamut of schizophrenic language and thinking disorders. Other important characteristics will be studied in Chapters 19 and 23.

The previously mentioned neologisms, which are due to composition of different verbal symbols, at times reach extremely bizarre representations in advanced cases. Vetter recently (1968) reviewed the literature on neologisms. One of the most interesting studies made in the United States on schizophrenic neologism is the one by Forrest (1969). He described the case

of a 43-year-old "schizophrenic savant" who, except for the three and a half years from age 39 to 42, had spent his entire life in institutions. The patient submitted a list of ninety newly coined words, with their definitions. Here are some examples:

1. Spec'tro-tav'to-ro-ta'tion: Circling in every way, as with checkers or a bat in baseball.

2. Tav'to-tac-ta'tion: A touching that repeats. Getting communication, talking with somebody. Touching with hands is sometimes pleasant when somebody loves me.

3. Su'-per-skel'e-ton'i-za'tion: Being higher than the span of the George Washington Bridge (coined when a patient was first allowed on the tenth floor of the N.Y. State Psychiatric Institute from which the bridge can be seen).

The average length of the patient's coinages was seventeen letters, almost double the nine-letter average of entries in Webster's New Collegiate Dictionary. The patient's longest word consisted of fifty letters: semicentiosteophotoseismophysiopleopolycomputation.

IX
Hallucinations and Related Phenomena

Hallucinations represent a common and important characteristic of schizophrenia. Although they indicate that the disorder is very active and

already able to inflict profound alterations, they do not necessarily imply a bad prognosis. On the contrary, when they are present from the very beginning, they suggest that the psychosis is likely to have an acute and reversible course. Hallucinations, however, occur in the majority of patients in all stages of the illness. Many theories have been advanced to explain this complex phenomenon. A book that may be considered a classic and that reviews all the old theories is Mourgue's *Neurobiologie de I'hallucination* (1932). More recent studies on the subject are reported by West (1962a). In this section hallucinations will be examined predominantly from the general point of schizophrenic cognition presented in this book.

Hallucination is an apparent perception of an external object when no such object is present. The stimulus that elicits the seeming perception is an internal one; that is, it comes from within the individual himself. Inasmuch as what is perceived in the hallucinatory experience purports to portray or mirror an aspect of external reality, the perception is false.[11]

Hallucinations as Personal Experience

There are many modalities by which hallucinations are experienced. However, in the typical case we may distinguish three phases. The first consists of the very first time the patient experiences a hallucination. In some cases he may give little importance to the phenomenon, but in others he

undergoes a sudden, profound, and shaking experience. He hears a powerful voice, or sound, with a message directed to him, only for him, a message which is related to his whole psychological being. In several cases it is the response of the patient to this first experience that determines the course of the illness. Although badly affected and frightened, the patient may say to himself, "What I perceive is not true; it is only my imagination." If he is able to respond in that way, he still has the power to resist schizophrenia. Unfortunately, in the majority of cases the patient, because of antecedent psychological conditions, is more indignant than frightened, and more in a receptive mood than a refractory one. Instead of thinking, "This is not a real voice," he says to himself, "The voice is real, but what it says is false." In quite a few cases the patient makes a complete psychological readjustment. "What does it mean that I hear this voice? Why do they say these things about me?" He concludes, "I am accused. I am persecuted. They talk behind my back in a disparaging, insulting manner."

After this early experience the patient proceeds to a second phase, during which he expects to have hallucinations, and indeed he has them. This second stage will be further explored in Chapter 37, where we shall discuss the therapy of hallucinations.

In the third phase, hallucinations have become such a familiar phenomenon and their occurrence so frequent that the patient accepts them

as an important part of his life.

Psychological Content

The psychophysiologic mechanism that mediates schizophrenic hallucinations cannot be considered independently from their content. Although the content will be reexamined later, it must be considered briefly at this point. For instance, to repeat examples already given in this book, a patient sees himself as a rotten person, and he develops the olfactory hallucination that a bad odor emanates from his body. Another patient felt that his wife was making his life miserable. He develops a gustatory hallucination: every time he eats food prepared by his wife, he experiences a peculiar taste in his mouth, probably "because of the poison she put in the food."

It is obvious from these examples that concepts that have to do with the patient's complexes become transformed into perceptions: the rotten personality becomes the rotten body that smells; the way the wife treats the patient becomes poison. As some of the conflictful thoughts of people become transformed into visual perceptions in dreams, so some of the conflicts of the patient become transformed into perceptions, predominantly auditory ones. In other words, the concept is not sustained any longer as a concept; it has acquired a lower form. However, as we have already mentioned, the

phenomenon cannot be interpreted as just a return to a concrete level. In fact the mentioned patient is still able to conceive the abstract idea—feeling that he is a rotten person; but such an emotionally loaded concept cannot be sustained at its proper level and is immediately and actively translated into a concrete form. What seems symbolic to the psychiatrist is actually a concretization.

Viewing this mechanism as a process of active concretization (see Chapter 15) is a fruitful approach but does not provide a complete understanding of the problem unless we clarify how this concretization takes place. The mechanism requires a profound alteration: the adoption of a form of primary process cognition. Let us consider again the patient who felt at first that his wife was poisoning his life and who later experienced the delusion that the wife poisoned his food. If we examine this concretization, we realize that the concrete form is not a random occurrence but is related to the abstract form. The two concepts (poisoning of life and poisoning of food) are members of a secondary process (logical) class whose concept is "causing the destruction or warping of the patient's life." The patient, however, tends either to eliminate the concept of the secondary class or to transform the secondary class into a primary class, so that the poisoning of life becomes equivalent to the poisoning of food (see the third section of this chapter). The abstract is eliminated and the more concrete member of the class emerges.

Thus, again, although the patient is able to conceive the abstract and to make a connection between the abstract and concrete elements that together form a secondary class, the secondary class is transformed into a primary one and remains represented by a concrete member. In other words, the first few stages of this process of concretization still require abstract conceptualization.

The Perceptualization of the Concept

The phenomenon of perceptualization of the concept consists of two aspects: the regressive and the psychodynamic (or restitutional). The regressive implies the transformation of a mental representation into a lower one. The psychodynamic reduces the conflict to a percept or to a specific thing; thus the anxiety of the patient is restricted to a smaller and less disturbing area of ideation.[12]

We must now examine more closely the problem of the perceptualization of the concept.

Hallucinations consist of a process that is at a higher level than the perception. The stimulus that elicits them is an internal mental process. This mental process, by engendering the hallucination, is regressing to the lower level of the perception. Many writers have for a long time debated and continue to debate the question of whether hallucinations are images that

have acquired a special intensity and strength, or whether they are perceptions. Many people believe that they are merely intense images. However, the closer one examines patients, the more one becomes convinced that they actually experience perceptions. Patients do not think that they "hear voices," but they actually hear them, just as the dreamer does not think that he sees things, but actually sees them, although not through his eyes. The hallucinating person does not distinguish real voices from hallucinations.

In the light of our general interpretation of the schizophrenic process, it is not difficult to understand hallucinations. They were originally thoughts or images that have changed into perceptions. The level of perception is phylogenetically and ontogenetically lower than the levels of verbal thought, and lower even than the level of images. Images, stored in our memory, may be used by hallucinations, but they are reproduced with the modalities of perception.

As our thoughts at times descend from the Aristotelian to the paleologic level, and within the paleologic level to more or less primitive sublevels, so they may descend further to the level of images and even to the level of perceptions. Hypnagogic hallucinations, which are phenomena occurring to some people as they are falling asleep, are often recognized as images, that is, they are between the level of images and that of perceptions. It seems useless, therefore, to continue to argue as to whether hallucinations are intensified

images or perceptions. They are mental processes, usually occurring at higher levels of integration, which use some of the mechanisms of perceptions, although they do not originate from the peripheral sense organs.

When we study the terminal stage of schizophrenia, we shall see that the disintegrating process goes beyond the perceptual levels and regresses even to the stage of sensation (Chapter 24).

Images and hallucinations are elaborations of stored sensorial and perceptual material. Therefore, there cannot be images without present or past perceptions. For instance, if the dreamer thinks about himself, he sees himself in the dream as a concrete image or physical entity, not as an abstract concept symbolized by the pronoun "I." However, because for anatomical reasons nobody can see his own face, the dreamer cannot recall the visual image of his face. This explains why the dreamer sees himself in the dream, but not his face. In dreams and hallucinations, the individual may perceive things that actually do not exist; in these cases, the images are made up, in a creative way, with elements that were actually perceived from the external world.

People who are deaf-mute from birth cannot experience auditory hallucinations. I have treated a schizophrenic deaf-mute who pretended that she was hearing people talking about her. Actually, by "hearing" she meant

that she had the impression people were talking about her, as she inferred from the movements of their lips and from their general attitude. This patient was able to read and write; and her writing presented disconnected thoughts and the other verbal characteristics found in schizophrenics who are not deaf-mutes.

I have had no experience with schizophrenics who are congenitally blind, but I am inclined to believe that they cannot experience visual hallucinations. Gutheil (1951) wrote that blind people whose defect is congenital or acquired at an early age, dream with images derived from tactile and kinesthetic sensations. Kimmins (1937) wrote that children who have become blind before the age of 5 do not see in dreams, but that children who become blind after the age of 7 do "see" in their dreams.

The following question about both dreams and hallucinations may occur to the reader. If dreams and hallucinations are translations or regressions of thoughts to a perceptual level, how is it that in dreams and hallucinations the person not only hears and sees, but talks and thinks? This is due to the fact that there is no complete regression to the perceptual level. The concomitant occurrence of phenomena that belong to different mental levels is one of the most common characteristics of human psychopathology. Especially in schizophrenia, it produces a very bizarre clinical picture. In many cases, one may find symptoms belonging predominantly to one level, but a mixture

always occurs. Thus a patient, for instance, may usually adopt the Aristotelian type of logic when he talks, but at times he may hallucinate and therefore regress to a perceptual level. The voices he hears use a paleologic mode of thinking. This mixture, this splitting of the person at various levels, is the most specific characteristic of schizophrenia and fully justifies its name.

The perceptualization of the concept is the most specific characteristic of hallucinations. Before this stage of complete perceptualization is reached, intermediate stages may be experienced. I have already mentioned hypnagogic hallucinations. Other intermediate stages occur frequently. For instance, an Italian patient who had two acute psychotic episodes, with delusions and hallucinations predominantly religious in content, experienced the following phenomena. Between the two psychotic episodes, when he was able to live outside the hospital and to attend to his work as a barber, he was hearing a voice inside himself expressing his thoughts. Every normal person can hear his own thoughts, because thoughts are generally expressed internally by auditory verbal images, but it was obvious from the description given by the patient that the perceptual quality of his thoughts was increased. He himself recognized that the voice was his own; as a matter of fact, he knew that the voice was expressing his own thoughts in Italian, whereas the clients and other people around him were talking English. This phenomenon is very common in schizophrenics. Often the perceptual quality of the patient's thoughts is so pronounced that he is afraid that people around him will hear

them. Because he has no control over the content of his thoughts, and they can be heard, he feels embarrassed. When the process is more advanced, he still recognizes that the thoughts are his own, but on account of their perceptual character he feels that people are repeating them verbally. He has the impression that it is he who thinks, but that people around him pronounce the thoughts. They "steal" his ideas. These phenomena are generally called *echo de la pensee.* When the process advances further, the patient does not recognize his thoughts as his own and projects them completely to other people.

Another important question, which brings us back to a comparison with dreams, must be asked. Why are hallucinations predominantly auditory perceptualizations and not visual ones as in dreams? We may advance only hypotheses on this interesting problem. The sense of vision originates very early in the phyletic scale. Even protozoans possess a rudimentary organ of vision (the eyespot in the flagellate euglena). In fishes, the sense of vision already is very similar to that of men. This cannot be said for the sense of hearing. One has to go as high as the class of birds on the evolutionary scale to find an organ similar to the human cochlea.

In dreams, when the most rest is desired, it is natural that only the more primitive sensory phenomena should occupy the major role. The tactile and olfactory senses are more primitive than the visual, but they do not play such

an important role in human symbolism. Of the important human senses, the visual and the auditory, the visual is the more primitive. Auditory images probably require more elaboration, which is not compatible with the state of sleep.

Another important fact may be that when the individual sleeps, all external visual perceptions are eliminated, and the centers that elaborate them are free for other activities. When the patient is awake and hallucinates, the visual centers are occupied by external perceptions. True, one may say that the auditory centers, too, are occupied by auditory external perceptions, but not in such a dominant manner. We know, for instance, that when an electroencephalogram is taken, the patient is asked to close his eyes because visual perceptions are very disturbing. Noises do not produce so much disturbance.

Auditory perceptions are less primitive than the visual and are more apt to become used first when thought processes regress to a perceptual level. In addition, one's thoughts are generally experienced as an inner language, as a conversation with one's self, consisting of verbal auditory images.[13]

In trying to explain the psychophysiological mechanism that is responsible for the hallucinatory phenomenon, many authors have found inspiration in the works on sensory deprivation that have followed the

pioneer experiments done at McGill (Heron, Bexton, and Hebb, 1953; Bexton, Heron, and Scott, 1954; Heron, Doane, and Scott, 1956) and by Lilly (1956). These researchers have found that when the human subject is put into a state of sensory isolation, at first a hunger for stimulation is experienced, then indulgence in reveries occurs, finally the reveries assume a perceptual quality and become hallucinations, predominantly or exclusively of the visual type.

Although Heron, Bexton, and Hebb deserve the credit of having been the first to report hallucinatory phenomena produced with experimental sensory deprivation, similar phenomena have been reported by people who underwent sensory deprivation caused by unusual circumstances, for instance, by polar explorers (Courtald, 1932; Byrd, 1938; Ritter, 1954), by solitary sailors (Slocum, 1901), and by people in forced confinement (Burney, 1952).

Some observations reported by Hebb (1954) indicate that some of the mechanisms operating in schizophrenic cognition occur also in the visual hallucinations of those undergoing sensory deprivation. Hebb reports that one subject during an experiment tried "to see" some objects suggested by the experimenter, but he succeeded only approximately. For instance, "one subject, trying to visualize a pen, saw an inkblot; or, trying to visualize a shoe, saw a ski boot." In other words, things were substituted for others or identified with others with which they had a resemblance or similarity:

objects were made equivalents to other members of the same categorical class, or equivalent to others with which they had spatial or temporal contiguity (see the third section of this chapter).

West (1962*b)* has been responsible for many of the findings on the subject of sensory deprivation and has advanced his own theory of hallucinations and dreams. According to him effective sensory input ordinarily serves to inhibit the emergence into consciousness of previously recorded percepts. If effective sensory input is impaired, recorded perceptual traces are released and emerge. According to West, effective sensory input may be impaired in three ways: (1) absolute decrease or depatteming; (2) input overload, or "jamming the circuits"; (3) decreased psychological contact with the environment through the exercise of mental mechanisms (dissociation).

West believes that if at the same time that the input is decreased, there is sufficient internal arousal of the brain (through the reticular formation of the brain stem) to permit vivid awareness, the released perceptions may be dynamically organized and reexperienced as fantasies, dreams, or hallucinations. In my opinion, the theory advanced by West and other authors who see similarities between hallucinations and phenomena occurring during sensory deprivation explains a facilitating mechanism that occurs in many situations. We have already mentioned that in the state of sleep we have a

physiological sensory deprivation. The occipital cortex is not bombarded by external stimili. In schizophrenia, too, we have some kind of psychological isolation. Stimuli from the external world reach the patient, but he is much less aware of them. They do not affect him very much, receive a superficial registration, and are not elaborated in higher mental constructs.

It is questionable whether the schizophrenic is confronted by an "input overload," even in acute cases of the psychosis. In many cases, an overload is only apparent. For psychodynamic reasons the stimuli become so powerful and so disturbing as to appear not only qualitatively, but also quantitatively, overpowering.

I must repeat that I find it difficult in schizophrenics to consider hallucinations independently from their content. The schizophrenic process tends to give a concrete or close-to-perception form to the disturbing conflict. Hallucination is one of these forms. If there are conditions that make the occurrence of hallucinations easier, the phenomenon will be more likely to occur. It is not enough to say, as West does, that the perceptual traces become dynamically organized. This dynamic organization is an integral and necessary part of the process itself. As we shall see in Chapter 37, during psychotherapy we discover that the content of the hallucination almost always, perhaps always, represents or refers to a crucial part of the patient's personal predicament.

At the end of the nineteenth century and beginning of the twentieth, theoreticians were very much influenced by the then emerging studies on cerebral localization and advanced relatively simple hypotheses about hallucinations. A review of these theories goes beyond the scope of this chapter. I shall limit myself to a brief retrospective look at Tanzi's theory (1909), which is representative of the theories popular in Europe and the United States during the first two decades of this century. Tanzi thought that the hallucination is an idea that comes possibly from the centers where memories are stored and, by a route that is the reverse of what normally occurs, goes back to the perceptual centers, and becomes a hallucination. The retrograde regression is an anatomical, or if we want, a neurophysiological interpretation of the phenomenon of regression or of the perceptualization of the concept. Today, of course, we cannot interpret regression with these simple retrograde neurophysiological mechanisms, and yet Tanzi's theory may one day be proved to contain grains of truth. It could be that in pathological conditions, when the highest centers cannot function either because of organic or psychogenic conditions, a reintegration of the whole nervous system occurs, so that some lower centers take over some of the functions of the higher centers.[14]

Our troubles are not over with this hypothesis, because we have to individualize which and where are the "lower centers" that allegedly would take over the functions of the higher centers. A quick assumption would be to

think that they are what Orton (1929) called the arrival platforms, that is, the borders of the calcarine fissure, Heschl convolutions, and the postcerebral gyrus (with other contiguous small areas of the parietal cortex and small portions of the precentral gyrus). But we know, for instance, from cases of brain tumors that hallucinations do occur even when these arrival platforms are diseased or entirely removed. They must be mediated at higher levels, for instance, those represented in the occipital lobe by area 18 or 19, in the temporal lobe by area 42, or perhaps in large parts of the temporal lobes where, according to Penfield (1952) and others, images are stored. I do not imply that the hallucinatory phenomenon would be mediated exclusively in the areas where images are stored. Higher levels are needed, too, to conceive the concept and in many cases to formulate it in a verbal form; but such high levels do not sustain the processes that are soon channeled or directed in these centers where images are stored or reproduced. Alas! This explanation is not entirely satisfactory either, because we know that hallucinations are not images, but they have the subjective characteristics of actual perceptions.

Projection to the External World

We come now to another important characteristic of hallucinations: projection to the external world. This quality is present in dreams also. In fact, the dreamer believes that the dream actually takes place outside himself. We have seen that in those phenomena that precede hallucinations, projection at

times does not occur. For instance, patients may hear their own thoughts in almost a perceptual form, and yet they recognize that what they hear are their thoughts. Generally, however, typical hallucinations are projected to the external world.

The phenomenon of projection may also be interpreted in two ways, the dynamic and the formal. Dynamically the individual projects, or experiences as not belonging to his own self, everything that is painful or that may cause anxiety, and that originated from others. He wants to put distance between himself and the phenomenon that is experienced as unpleasant. Most important, as we have seen especially in Chapter 8, is the possibility of attributing to the external world the delusional content of the hallucinations.

Formally, one must remember that projection takes place also in the normal phenomenon of perception. Perception of an external stimulus actually takes place internally in our cortical centers. However, the perception is projected outside and is experienced as a reproduction of the external environment. We are aware of the stimuli hitting us from outside, but we are not aware of the externalization of the perception into the outside world. This externalization coincides with what is known to us as a realistic status of the environment. Whether it is so, or whether some philosophers are correct in denying that perception reproduces external reality, is a problem that need not be discussed here. This externalization or projection, which

occurs normally in perception, occurs also in hallucinations. Inasmuch as the hallucination is experienced as a perception, the process of externalization is an implicit, necessary, concomitant characteristic.

Difficult Corrigibility of the Experience

We come now to another characteristic of schizophrenic hallucinations: the difficult corrigibility of the experience or the inability of the nontreated patient who hallucinates to recognize that the hallucination is a false perception having no foundation in reality. It is conceivable for us to imagine that if a normal person were to hallucinate, he would be able to realize, by testing himself in other ways, that the hallucination is false. This happens actually in the few nonpsychotic persons who occasionally have hallucinations, but it does not happen, as a rule, in the schizophrenic. For instance, a medical student experienced the following phenomenon. While he was preparing for an examination, for a few days prior to the test he was cramming in a furious way for days and nights. He had strong anxiety lest he not complete his preparation. In the town where he lived, there was a tower with a bell that rang each hour on the hour. The day before the examination this person heard the bell ringing every few minutes. He realized that the bell would not ring so often; he knew that it rang only each hour, and when he asked other people, he accepted as true the fact that they were not hearing the bell ring. He realized then that he was hallucinating, although he was not

able to distinguish the hallucinated sound from the real one, and he understood that this phenomenon was due to his anxiety. He was afraid that the time would pass too quickly and that the day of the examination would arrive before he had finished his preparation.

Schizophrenics who are recovering start to doubt the reality of their hallucinations in the same way that the dreamer in the process of waking up starts to realize that the dream was a dream. Generally, however, the schizophrenic has no insight into the pathological nature of his hallucinations. Again we have to invoke a dynamic as well as a structural mechanism. From a dynamic point of view, we know that the patient needs to believe the reality of the hallucination. From our study of the structural mechanisms, we know that he interprets his own experiences with the means that he has at his disposal. When he hallucinates, his thoughts regress to the perceptual level, and it is only with the means available at that level, that is, with his perceptions, that he evaluates what happens to him. The level to which he regresses predominates over the higher ones.

Since the first edition of this book was published, there has been an important change in my evaluation of this symptom. I spoke then of the incorrigibility of the hallucinatory experience and of the inability of the patient to recognize the unrealistic nature of the hallucination, unless, of course, he recovers. As we shall see in Chapter 37, I no longer believe this to

be true. With a psychotherapeutic procedure that I have devised, many patients are able to recognize the unreality of the experience.

Nonschizophrenic Hallucinations

Hallucinations occur in many psychiatric conditions, and the reader is referred to the usual textbooks of psychiatry for a complete differential diagnosis. Generally in the United States the presence of an incorrigible hallucination is not considered consistent with the diagnosis of neurosis. In states of panic or great fear, corrigible hallucinations may occur. Freud reported that hysterics may have occasional hallucinations. Hallucinations have also been reported in disturbed, but not necessarily psychotic, children (Levin, 1932). Hallucinations of all kinds, but especially visual, occur in many organic disorders of the central nervous system, such as brain tumor, cerebral arteriosclerosis, senile psychosis, presenile psychosis, general paresis, encephalitis, cerebral malaria, toxic deliriums of various kinds, and so forth. In alcoholic hallucinosis the hallucinations are auditory and are difficult to distinguish from schizophrenic ones in the absence of adequate history. In delirium tremens they are predominantly visual and represent animals such as snakes and rats. Haptic hallucinations of vermin crawling over the skin are also frequently seen, but these are probably often based on paresthesiae.

Recently it has become quite important, because of their frequent

occurrence, to distinguish drug-induced hallucinations from schizophrenic ones. Lysergic acid diethylamide (LSD) and mescaline are frequent causal agents. These hallucinations are generally a visual phantasmagoria. Many consist of amazing, unrealistic colors in kaleidoscopic arrangements. Other differential characteristics from schizophrenic visual hallucinations are:

1. Whereas schizophrenic hallucinations generally contrast with a visual environment that is normal, drug-induced hallucinations are accompanied by distortions that occupy the whole visual field, or the whole perceived environment.

2. Whereas schizophrenic hallucinations are generally seen with the eyes open, drug-induced hallucinations are more readily seen with the eyes closed or in poorly lighted surroundings.

Some psychiatrists have discussed whether noncorrigible hallucinations occur in normal people or normal circumstances. According to Freud's theories, reaffirmed by Rapaport (1951), hallucinations are a normal phenomenon in babies. These theories assert that the hungry baby hallucinates that he is sucking the breast of the mother when the breast is not available, and the hallucination quiets him down. According to Rapaport this is the beginning of human thought.

Of course it is impossible to ask babies whether they hallucinate or not, but I must say that I have some doubts about it. Mothers and fathers know

that the baby cries and cries when he is hungry; he is a realist; not hallucination but a realistic cry will bring back the maternal breast. It is hard to imagine how such an unrealistic mechanism would permit the survival of the human species. Furthermore, we have seen that hallucinations are not mediated in the primary sensory areas. They must thus be mediated in areas that are not yet myelinized and therefore not yet functioning during the first few months of life.

Hallucinations occur also as mystical experiences in religious people who are not reputed to be mentally ill. This problem is not of as much practical importance in the United States as it is in other countries, but nevertheless it deserves to be studied for its theoretical aspects. Not only do we read in biographies of saints, prophets, and other religious leaders that they underwent what seem to us hallucinations, but we also hear about similar phenomena occurring today in some people living in environments permeated by very intense religious feelings. Are these people schizophrenics?

It is my conviction that they are not. Obviously there are many hospitalized and nonhospitalized schizophrenics who have hallucinations and other symptoms with religious content, but they are easily distinguishable from the religious or mystical people I am referring to. But if these people are not psychotic, what interpretation must we give to the hallucinatory

phenomena? Certainly we do not need to subscribe to a supernatural interpretation. First of all, how do we distinguish these religious hallucinations from those occurring in schizophrenics?

1. They are predominantly visual; that is, they have mostly the aspect of apparitions. If there is an auditory component, it is as a rule secondary to the visual.

2. In their content they often involve old people, parent-substitutes; but they are benevolent parents who guide the person to whom they appear.

3. Their content is gratifying in a manifest way.

4. They give the person who experiences them a marked rise in self-esteem and a sense of his being or becoming a worthwhile and a very active person. He has been given a mission or a special insight, and from now on he must be on the move, must be doing something important, more important than his own life. Although the message is often an order, the subject does not generally feel that he is the victim of tyranny or a passive agent, but rather that he has been chosen to perform something of stupendous proportions.

The whole personalities and behavior of the people who experience these hallucinations are not such as to warrant the diagnosis of psychosis. Mystics are fanatical, but not in the same way as the paranoid. They lack the bitterness or resentment or the calm resignation and disdain of the unjustly

accused. They show instead a serene and yet active optimism, like that of people who have been blessed by the love of a good mother. Moreover, the hallucinatory and delusional experiences of the schizophrenic are generally accompanied by a more or less apparent disintegration of the whole person.

My impression is that, influenced by environmental factors, these people can easily put themselves into a state of autohypnosis during which they have intense religious experiences. During the self-induced hypnotic state, archaic mechanisms or primary process mechanisms come to the surface. But these archaic mechanisms do not undergo schizophrenic distortions. They adapt themselves to the general state and environment of the individual and can actually evoke insight that would not be possible in normal conditions—insight that is in contrast to the conventional attitudes and ideas of that particular historical and geographical situation. In *The Intrapsychic Self* (Arieti, 1967), I present classical examples of religious hallucinations.

X
Adualism

A phenomenon that could be subsumed from many of the schizophrenic phenomena examined in this chapter is *adualism.* This term, used also by Piaget (1929), was introduced by Baldwin (1929) in his studies of young children. Adualism means lack of dualism, that is, lack of the ability to

distinguish between the two realities, that of the mind and that of the external world. This condition corresponds to what orthodox analysts, following Federn (1952), call lack of ego boundaries. Many of the phenomena, such as hallucinations and delusions, that have been described in this chapter are confused by patients with events or things in external reality. At more advanced states of the illness more complicated symptoms occur. For instance, a schizophrenic may remember and visualize a scene in which people who played an important role in his childhood, and who are now dead, come to visit him in the hospital. As soon as he has these thoughts, he sees the dead people in the hospital visiting him. Actually, he is misidentifying some fellow inmates as these visitors. Emotionally loaded thoughts are transformed by the schizophrenic into actual things or events, and the events of the inner life and of the external world become parts of one and the same reality. Whatever is experienced tends to become true by virtue of the fact of being experienced.

Adualism is very common in various degrees in all stages of schizophrenia, and at times is prominent even in the early stages.

If we ask severely ill schizophrenics to explain why they believe their strange ideas in spite of lack of evidence, they do not attempt to demonstrate the validity of the ideas. They do not resort to paleologic thinking, as less regressed patients do. Almost invariably they give this answer: “I know,”

meaning, “I know that it is so.” The patient’s belief is more than a strong conviction; it is a certitude. Something that he knows or something about which he has some thoughts becomes equivalent to something that exists, almost as if the patient would actualize the tenets of the idealistic school of philosophy.

Even in the early stages of schizophrenia, the patient is unable to lie about his delusions unless he is recovering or is under drug therapy. To lie requires the ability to visualize what does not exist, an abstract function no longer at the patient’s disposal. The delusions are absolute reality for him, and he cannot deny them.

The wish-fulfillment quality of the psychopathological mechanism reaches its culmination when merely to experience a wish becomes equivalent to its actualization. Motivational factors induce the patient to indulge in pleasant thoughts and images, but it is his total cognitive state that permits him to equate images and thoughts with reality. As a matter of fact, he also experiences anxieties and fears as if they were presently actualized in the real world.

XI
Perceptual Alterations

Perception is the basis for higher cognitive processes. Many authors

agree that perception is altered in schizophrenics, but few of them evaluate and interpret this alteration in the same way. Some authors find in perceptual alterations support for an organic etiology. For instance, Mettler (1955) thought that the corpus striatum does not function normally in schizophrenics, who consequently have perceptual difficulties and are not able to establish normal contact with reality. Mettler's hypotheses have not been confirmed.

Size-constancy has been studied by many investigators in schizophrenia. By size-constancy is meant the possibility of perceiving a familiar object as of a standard size, in spite of the fact its distance from the observer varies. Some authors, like Bruner (1951), who anticipated an attempt on the part of the schizophrenic to defend himself from the intruding stimulation of the external world, predicted that such withdrawal would cause lower size-constancy in schizophrenics. Rausch (1952), however, found a higher degree of constancy in schizophrenics. Many of these psychological studies have led to inconclusive results. I agree with Rausch (1956) that symbolic value exerts more influence on the perceptual judgments and alters the results.

In many, but not all, cases of acute schizophrenia, the patient experiences an increased acuity of perception. Noises seem louder, colors are more pronounced and are often compared to technicolor seen in movies. This

increased intensity of perception at the beginning of the illness is generally well remembered by patients who experienced it. For instance, a patient told me that the day of his acute breakdown he woke up in the morning at the sound of the alarm clock. That ring seemed tremendous in volume to him, almost deafening, and would never end. In this and similar cases it is again difficult to separate the perceptual alteration from the dynamic symbolism that is connected with it. For that patient, it could be that waking up and facing that particular day meant again facing unbearable failure and defeat.

On the other hand, there may be in incipient schizophrenia a lack of balance between the perception *per se* and the subsequent cognitive elaboration of the perception. In this case the cognitive elaboration may be decreased and the perceptual intensity increased. In very advanced stages we find marked perceptual alterations generally in the direction of perceptual defect. We shall discuss them in Chapters 24 and 25.

At this point I shall describe a phenomenon that I have observed in acutely ill patients and in some derivative forms in the chronic patient (Arieti, 1961a). Many patients go through periods during which they are unable to perceive wholes. The disintegration of wholes is gradual. At first the patient must divide big or complex wholes into smaller unities. For instance, patients looking at nurses, attendants, and physicians cannot see them as persons, but they perceive only parts of them—a nose, right or left eye, arm, and so on. A

female patient who had undergone an acute episode with dangerous excitement described in detail to me the experiences she had while she was in a seclusion cell. She remembered that she could not look at the whole door of the cell. She could see only the knob or the keyhole or some comer of the door. The wall too had to be fragmented into parts. Some other patients who were able to remember the acute episode told me how at first wholes or big unities were divided into the smaller units of which they were composed. Later, however, as the psychomotor excitement increased, even the smaller unities were divided into smaller fragments. Similar pronounced fragmentations probably occur in states of acute confusion, such as some toxic-infective deliriums, and in some very bizarre, almost entirely forgotten dreams of normal people. One of the reasons why the phenomenon has not been described in the literature in reference to schizophrenia is the difficulty most patients encounter in remembering it. These amnesias are at least partially determined by the fact that disintegrated wholes or fragments have no names or do not correspond to schemata of previous experiences, similarly perhaps to what according to Schactel occurs in childhood amnesias.

Many years ago (1941-1945) I noticed the fragmentation of wholes in drawings of very regressed patients. At that time I did not understand the phenomenon and unfortunately did not preserve those drawings, with one exception, which is reproduced in this book (Figure 20).

In this case, whereas prior to her illness Lucille was able to draw very well, from the beginning of the psychosis her drawings started to show the usual schizophrenic bizarreness.[15] Later, when the illness was quite advanced, the disorganization became extremely marked. For instance, when she wanted to draw a profile, she could not finish it. Parts of the profile were disconnected; furthermore, some of these parts were repeated several times, conferring a confusing appearance to the whole drawing.

Some patients have reported to me that during the acute episode they were aware that they were losing perception of wholes and were making conscious efforts to reconstruct these wholes, but the attempts were only partially successful. At times the parts that replaced the missing ones were not appropriate, and distorted wholes resulted.

Bemporad (1967) did experiments with four groups of patients by using four pseudo-isochromatic plates for testing color perception, manufactured by the American Optical Company. Three cards showed a number made up of differentsized dots against a field of dots of contrasting colors. The fourth card was unambiguous, showing a clearly defined number against a field of contrasting color. It was hypothesized that nonschizophrenic patients would automatically respond to the numbers (wholes) at first and then mention the dots.

The acute schizophrenic group showed almost exclusive fragmentation of perception with response to part rather than whole percepts. This fragmentation occasionally persisted to the fourth card, which did not lend itself to part perception. The chronic and recovered groups correctly identified a greater number of whole percepts than did the acute group, but the majority also fragmented the card data. These groups also showed more than twice as many incorrect whole responses as the acute group.

Bemporad concluded that in many schizophrenic patients there is an automatic fragmentation of perceptual wholes followed by an instantaneous reintegration according to primary process, rather than secondary process, principles of cognition. Because of my previous publications on this topic, Bemporad kindly named this finding "the Arieti effect."

Can this difficulty of the very ill schizophrenic be interpreted as a return to a primitive stage of perception, perhaps to a stage of "primary aggregation" in which wholes are not yet organized and in which elements of fragments may reappear in isolation? There is presumptive evidence, coming from various sources, that this is so.

Under the influence of the gestalt school, psychology has been dominated by the idea that objects are apprehended as wholes. This point of view is now gradually recognized as incorrect. It was the result of the fact that

perception was studied as it occurs in the secondary process and in a state of full consciousness. The study of early ontogeny and microgeny reveals that objects are first perceived as parts and that only subsequently are they perceived as wholes or gestalts. However, in microgeny part-perception is very rapid and remains unconscious, so that we are aware only of whole-perception, or of the gestalt, which becomes the dominant one in the early stages of the secondary process. Riesen (1947), in mammals raised in darkness, and Von Senden (1960), in adult humans who were operated on for congenital cataracts and were learning to see, have demonstrated how part-perception preceded the whole-perception of the object. A serial apprehension of the parts preceded perception of the whole. The shortest time in which a congenitally blind person approximated normal perception of wholes was about a month.

In the psychoanalytic literature, Klein (1948) has given great importance to the apprehension of partial object in infants. According to her, objects that are perceived (or introjected) are at first partial objects. For instance, the mother is seen as several disconnected parts, often only as a breast. Theoretical formulations of Hebb (1949) also postulate that part-perception precedes whole-perception.

Impressive evidence comes also from neurologists who have studied cases of visual agnosia. The literature is abundant, but, according to my own

knowledge, no report is so accurate and pertinent to the present topic as that by Alexandra Adler (1944, 1950) on the disintegration and the restoration that occur in visual agnosia. Adler described, among other things, the alteration in visual perception that occurred in a 22-year-old woman who was injured in the famous fire at the Coconut Grove nightclub in Boston on November 28, 1942. At first she was totally blind; after two days she could distinguish white from dark but could not recognize colors. She presented also a picture of a pure subcortical visual alexia, Wernicke type. The diagnosis of lesion of the brain, probably caused by carbon monoxide fumes, was made. After her injury this woman was no longer able to perceive wholes. She had to add part by part in order to reconstruct wholes and recognize objects. Often the patient recognized parts and guessed the rest. She could not recognize the numbers 2,3, 5, 6, 8, and 9 because she could not recognize the direction of the curves of which these figures were composed, but she was able to recognize 1, 4, and 7 during the second week of her illness because she could guess where a straight line was going. Because this patient recognized objects "by tracing the contours, by adding the parts and by making conclusions from all she had perceived, she had to take more time than did the normal person, who recognizes all the parts, in the main, simultaneously" (quoted verbatim from Alder [1944] except for change from present to past tense).

Some neurologists (Brain; Nissl von Mayendorf; Poppelreuter, cited by Adler, 1944) had suggested that a patient's inability to perceive the whole

might be caused by a defect in the visual fields. Some controversy, for instance, arose in the interpretation of a famous case, described by Goldstein and Gelb (1920), of a man whose brain was injured during combat in World War I. This man lost the capacity of recognizing by a simultaneous act of visual perception the whole of a figure or the gestalt. Golstein (1939, 19436) and Adler herself, supported by observations made by other authors, could disprove the interpretation that a defective visual field might be involved. The conclusion reached is that in certain pathological conditions wholes cannot be perceived, only parts. A tendency exists, however, to reconstruct wholes, at times inappropriate ones, only loosely related to the original.

Important corroboration can also be obtained from the experimental works of Pritchard, Heron, and Hebb (1960, 1961). They confirmed the findings of previous authors that movements of the eyeballs are necessary for normal perception. If the eye movements are made impossible, and an image is thus stabilized on the retina, an abnormal, presumably primitive form of perception occurs. Pritchard and associates have attached to the eyeball itself a special device consisting of a contact lens and an optical projector. With this device the image remains fixed on the retina and does not move with the movements of the eyeball. The authors found that with this procedure a complex image, such as the profile of a face, may vanish in fragments with one or more of its parts fading independently. Some fragments remain in perception. This fragmentation seems to correspond to the original part-

perception and, if we compare perception to thinking, to the fragmentation of the primary aggregation. For some fleeting periods of time parts may remain aggregated, but they do not form wholes. In tachistoscopic and other subliminal experiments often parts only are registered (Werner, 1956). Some parts, which in subliminal experiments were apparently not perceived, were registered instead, as demonstrated by the fact that they appeared in subsequent dreams. Fisher and his associates (1954, 1959, 1960, 1963) have done interesting work in this respect by continuing and expanding work originally devised by Potzl and co-workers (1960, 1971).

Another important phenomenon appears in acute schizophrenia, tachistoscopic experiments, visual agnosias, stabilized images, and so on. When the primary aggregation is broken and fragmented, there is a spontaneous effort on the part of the subject to reaggregate and possibly to reform wholes. If we want to anthropomorphize, we could say that it is almost as if these parts or fragments were searching for wholes to which to belong.

But the new wholes (whether they appear in experimental perceptions or in dreams, as in Potzl's and Fisher's experiments) are unrealistic or only loosely associated wholes and correspond to the primary categories that we have described in the microgeny of thought. We cannot talk of categories, however, in the phenomenon of perception, which is probably precategorial.

An appropriate name for this phenomenon may be “primary awholism.”

This new formation of wholes may give some encouragement to the gestalt psychologists, who may see in it an urge toward a gestalt. The phenomenon may be called “primary gestalt.” Let us remember, however, that this phenomenon is secondary to the primary aggregation and follows mechanisms similar to those occurring in the formation of the primary categories.

We have already discussed the formation of distorted wholes in schizophrenia. Adler (1944, 1950) has described the reading and perceiving of related words in her patient suffering from visual agnosia, and similar phenomena have been reported in many aphasias. Pritchard (1961) with his method of the stabilized image, reported also that when entire words were presented to the subject, the partial fragmentation of letters caused different words to be perceived (for instance, the word *beer* was perceived *peer, peep, bee, be*).

We may conclude thus that what appears to us normal perception, involving wholes, is only the ultimate stage of a complicated mechanism. This microgenetic mechanism occurs in the normal subject in a fraction of a second, and the subject is aware only of the terminal stage, that is, when he perceives wholes as wholes. In some pathological conditions, neurological or

schizophrenic in nature, perception becomes arrested at one of these pregestaltic stages. The phenomenon is further complicated by reconstructive efforts leading to incorrect reproductions, similar in meaning to Freud's restitutional symptoms.

XII
The Biological Basis of Schizophrenic Cognition

We shall continue the trend of thought developed in the previous section by resorting to other biological sciences. We shall now deal, not with perception, but with the response that follows perception.

Ethology and animal psychology give many examples of animal responses that can be interpreted as responses to parts and not to wholes. Tinbergen (1951) has illustrated some very interesting mechanisms; for instance, certain fish, like the sticklebacks, react only to the red color on the bellies of competitor male fish that invade their territory. The color red elicits in the sticklebacks a given fighting behavior toward males of the same species. Because they react blindly only to a part of the total environmental situation and neglect the other parts, they make what seem to us mistakes. For instance, artificial red objects placed by the experimenter elicit the same fighting response. All of us are familiar with similar examples. Moths are attracted only by light and may burn themselves to death by flying into hot electric bulbs. Flypaper, which was used until not too long ago to kill flies,

exploited part-perception. Flies reacted only to the sweetness of the paper and were caught by its stickiness and killed.

It would seem thus that early in phylogeny the organism reacts predominantly or compellingly to a *releasing element* or to a part, and only in a very weak fashion to the rest, which is experienced as undifferentiated or as a nonorganized aggregation of parts. It could also be that at very primitive levels there are no such things as parts and wholes, but only releasing elements.

Actually this problem cannot be separated from the problem of the response to the part versus the response to the whole. In nature there are two ways of responding: to the part (or to the releasing element) and to the whole (Arieti, 1967). Each of these two types of responses is generalized; that is, the organism tends to respond in the same way to different exemplars of the same stimulus, whether the stimulus is what we consider a part or a whole.

Generalization is a process applicable to a plurality of stimuli: a plurality of what seems to us parts or a plurality of what seems to us wholes. Generalization of responses to a plurality of objects, which have only a part in common, will eventually lead, at the level of thinking, to the formation of primary classes. Generalization of responses to wholes leads eventually to the formation of secondary, or logical, classes.

Elsewhere (Arieti, 1967, Chap. 4) I have described how the first type of generalization corresponds to Pavlov's generalization of responses. The second type of generalization corresponds to the Pavlovian technique for discrimination. I have also shown how responding to parts and not to wholes gives rise to the phenomena described by Klüver (1933, 1936) about equivalent stimuli, that is, about stimuli that appear to human beings to be very different from one another and yet evoke the same response in some animals. In effect, part-perception and response to a part belong to the primary process, whereas whole-perception and response to a whole belong to the secondary process.

The Pavlovian technique of conditioned reflexes may give us some other very interesting evidence about responding to a whole and responding to a part. Pavlov's technique has shown that the cortex is able to fuse separate individual stimuli and to produce a unitary response. Best and Taylor (1939), reported an example of simultaneous stimuli acting upon the same analyzer. An alimentary conditioned reflex was established to a chord of three tones of equal intensity but of 85, 256, and 786 cycles per second. Later each tone caused a response even when sounded separately. The responses to the different tones were approximately equal.

Here again, if we consider the combination of three tones as a whole and each individual tone as a part, we may conclude that the dog can be

conditioned to respond to a whole as well as to a part. However, in the dog at least, the equivalence of the parts of a compound stimulus occurs when the partial stimuli act upon the same analyzer. If different parts of the cortex act as analyzers, only one component in isolation is effective.

In Chapter 5 we discussed Kagan's work (1972) with infants, who have greater difficulty in dealing with similar (discrepant) objects thant they do with dissimilar ones. The child tends to react to the discrepant object as if it were identical to a familiar object. In other words, there is a tendency in the child toward Pavlov's generalization of responses, rather than to discrimination of responses. If we remember our discussion of paleologic thinking and substitute the word *whole* for the word *subject* and the word *part* for the word *predicate,* we are in a position to make interesting correlations. In primary cognition, the person who thinks paleologically identifies not on the basis of identical wholes, but on the basis of identical parts. Similarly the animal or man who perceives according to primary, primitive, Pavlovian generalization of responses, or by means of pregestaltic forms of cognition, responds to the part and not to the whole.

At this point it is possible to see a parallel between part-perception (and also conditioned response to a part-stimulus) and paleologic thinking (or the formation of primary classes). It is also possible to see a similar parallel between whole-perception (or conditioned response to a compound

stimulus) and Aristotelian thinking (or the formation of secondary classes). It seems that at the levels both of perception and of thinking, the human mind can, at least potentially, operate with the two forms of generalization that we have discussed. What in primary perceptual generalization is the *releasing element* corresponds to what in paleologic thinking is the *identifying predicate.*

Following Werner's comparative approach and my own psychostructural approach we can individualize recurrent patterns of organization in different levels of cognition and recognize the phylogenetic precursors of Von Domarus's principle. In several writings (Arieti, 1962c, 1965b, c) and especially in *The Intrapsychic Self* (Arieti, 1967) I have made an attempt to show the evolutionary struggle between the perception and/or conception of a whole and the perception and/or conception of a part.

Neither Von Domarus's principle nor pregestaltic perception can explain all the multiform facets of schizophrenic cognition. However, they show two very important and common characteristics of this cognition.

XIII
Schizophrenic Thinking in Everyday Life and Everyday Thinking in Schizophrenia

We have described schizophrenic thought disorders as having a certain

degree of specificity. And yet many people remind us that schizophrenic thinking is present in everyday life and that common everyday thinking is present in schizophrenia, except perhaps in the most regressed cases.

There is truth in these assertions. However, we must clarify the extent of this truth and its implications.

Even normal people do not adopt the most mature ways of thinking. *Some* normal persons, but more frequently neurotic and borderline patients, follow what I have called *spontaneous organization.* Spontaneous organization of thinking is not directed by a search for logical consistency or for consensual validation but by a tendency to satisfy wishes and to give to these wishes an apparently logical sustenance by resorting to primary process cognition. This, of course, is reminiscent of schizophrenia. The hidden motivation is easily uncovered by psychotherapy. The following is an example.

The patient is a 19-year-old girl whose mother died two years previously and whose father married again. The patient lives now with the father and stepmother, but she hates her stepmother. Whatever involves the stepmother is misinterpreted or seen in a peculiar slant. Quite often the patient interprets paleologically whatever the stepmother says or does. In other words, the spontaneous organization of the input coming from the

stepmother is predominantly organized according to the rules of primary process cognition. The inner need to hate the stepmother is stronger than the respect for the demands of reality, and the patient succumbs to the seduction of the spontaneous organization. For instance, the stepmother gave the patient a dress, but the patient interpreted the gift as an attempt to placate her; moreover the stepmother bought her something that she knew the patient would not like. We may interpret the case in terms of old rivalry with her real mother or, in Freudian terms, as an unresolved Oedipal situation. In fact, the patient did not accept entirely even her own mother when the latter was alive. The patient eventually repressed the original situation, accepted the demands of reality, and soon even loved her own mother. However, when the mother died and the father married again, the old situation was revived. Now the patient could more freely allow the spontaneous organization of the primary process to affect the interplay with the new rival for her father's affection. She was not bound to the stepmother by deep respect and filial love. The spontaneous organization covered only the area of rivalry for the stepmother. As a matter of fact, the patient had no rivalry whatsoever for the stepsister, a child of the stepmother's first marriage.

After dinner the patient often had gastric discomfort. She believed that her indigestion was caused by the stepmother, who thoughtlessly prepared foods that the patient, with a delicate stomach, could not digest.

The patient did not consider her attitude toward the stepmother to be abnormal, but on the contrary, realistic, natural, appropriate; in other word, syntonic. This lack of insight does not necessarily indicate that the patient was schizophrenic. As a matter of fact, after relatively short treatment the patient got well. We must distinguish two types of syntonic symptoms. In both cases the symptoms are accepted as realistic by the patient. However, in nonpsychotic conditions the symptom, even if accepted by the patient, is not fully or deeply integrated. For instance, although this girl felt that her feelings toward the stepmother were justified, she knew that the rest of her life and whatever she knew about her father and stepmother were at variance with her feelings. The patient had not gone through an elaborate reconstruction of her constellations of thoughts in order to believe that her stepmother was evil. She had not reached paranoid structuralization. When her inner needs were explained to her, her hostility diminished and finally the symptoms dropped. For instance, the idea that the stepmother thoughtlessly prepared meals that she could not digest cannot be considered similar to the delusion of a patient mentioned earlier in this chapter who thought that his wife was poisoning his food. As a matter of fact, when it was pointed out to the girl that it was not the food that made her sick but the fact that she had to have dinner with a person whom she did not accept in her parental role, she accepted the explanation and the symptom soon disappeared.

Similar use of spontaneous organization and of primary process

mechanisms occurs in everyday life in presumably normal or quasi-normal persons. It also occurs in those conditions described by Horney (1950) that do not correspond to the classic psychoneuroses of the official classifications and nomenclatures and are nevertheless neurotic conditions.

The normal or would-be normal young bride may be suspicious toward her mother-in-law and may misinterpret some of her remarks in a paranoid-like fashion; the tired and irritated worker may give a special meaning to the attitude of his boss and may assume what may seem a referential point of view. In slips of the tongue all of us may create neologisms or make unpredictable puns. These phenomena occur in everyday life, but they do not make a schizophrenic gestalt. They are like little islands of primary process or immature cognition that are still controlled or checked by the predominant secondary process. Some of them have even been described by Freud in *Psychopathology of Everyday Life* (1938).

The presence of primary process cognition in everyday life is stressed by some theoreticians who minimize any distinction between schizophrenic and nonschizophrenic conditions and by a group of people who would in this way strengthen their belief that the schizophrenic way of thinking is transmitted environmentally from generation to generation. In my opinion these points of view are fundamentally wrong and are based on the fact that more importance is given to the similarities between the conditions that are

compared than to the differences between them. In typical psychoneuroses the symptoms consist mostly of primary process mechanisms, but the symptoms are rejected by the secondary process, which is still the recognized ruler of life.

In character neuroses and in those conditions described by Horney the secondary process prevails, but to a large extent it is used to defend structures formed originally by spontaneous organization. Life is consequently impoverished. In schizophrenic psychoses and in dreams the primary process prevails.

Once again, in agreement with Freud, we must stress that the primary process is present in the psychological life of every human being, whether normal, neurotic, or psychotic, and is not a characteristic of schizophrenia. In schizophrenia, however, its presence has three distinctive features:

1. It involves a larger segment of life than in the nonschizophrenic.

2. At least in its pathological manifestation, it is not corrected, neutralized, or rejected by the secondary process. On the other hand, it resists or overpowers the influence of the secondary process.

3. Except in rare cases, it is not harmoniously integrated with the secondary process to form a creative product (see Chapter 20, and also Arieti, 1967, Part Three).

Other people who find “schizophrenic” thinking in everyday life make another confusion. For them every irrationality is schizophrenic in nature. This mistake is reminiscent of that made by those psychiatrists who believe that any irrationality found in the family of the schizophrenic is schizophrenic irrationality (see Chapter 8).

Also the irrationality, found in the culture, with few exceptions, is not schizophrenic in origin. Moreover, the acceptance of cultural irrationality does not make a person schizophrenic when such irrationality is not subjected to subsequent transformation and is accepted directly from one generation to another or from other members of the same generation. A great deal of irrationality is transmitted by such methods as psychological habituation, indoctrination, brain washing, imitation, acceptance on faith, and so on, and is not caused by schizophrenia. For instance, staunchest Nazis may believe that Jews are evil and must be eliminated. The acceptance of this belief is not a delusion; morally, and in its practical effects, it is infinitely much worse than a delusion. It is cultural in origin and because of special techniques devised by society, like coercion, falsification of truths, impossibility of ventilation, and so forth, it is transformed into an introject. The reverse is also true. If some members of a minority that has suffered from persecutions for many centuries feel persecuted when they are not, their thinking is obviously not valid; their misinterpretation, however, is not necessarily or technically delusional. It may be a state of habituation that may

be overcome much more easily than a delusion, and with different methods (see also Ziferstein, 1967).

Similarly, when we hear or read that in some islands in the Pacific or in some remote Indian or African tribes all the members of the tribes have a paranoid and delusional attitude toward other people or groups of people, we cannot conclude that these natives are schizophrenic. It would also be a misnomer to call the culture itself schizophrenic. Myths, ceremonials, rituals, ideas transmitted from generation to generation and taken for granted as true, may seem to us delusional, although we have our own, not less irrational beliefs and traditions. They are learned from society. As long as they are accepted by the individual from the external world, they become part of his psychological content; they are not products of his own alleged schizophrenic process.

When we come specifically to study the family and not the general culture, we find that in addition to the cultural irrationality there is some irrationality transmitted in every family from parents to children and between siblings. We have seen that in disturbed families, like those of schizophrenic patients the amount of irrationality is greater (Chapters 5 and 8).

The presence of everyday thinking and even of the most correct or valid

Aristotelian thinking in schizophrenia is undeniable. Especially in incipient or mild forms of schizophrenia abnormal ways of thinking are relegated to conflictful content or to a few delusional ideas.

XIV
Relation of Schizophrenic Thinking to Autism and to Mythical Thinking of Cultural Origin

Two types of thinking that show similarities to the schizophrenic are those usually called "autistic" and "primitive."

In the previous sections of this chapter the terms *autism* and *autistic* have been purposely avoided, although they are commonly used in connection with schizophrenia. In their psychiatric dictionary Hinsie and Shatsky (1950) defined autism as

> a form of thinking, more or less genuinely, of a subjective character; if objective material enters, it is given subjective meaning and emphasis. Autism generally carries with it the thought that the material is derived from the individual himself, appearing in the nature of day-dreams, phantasies, delusions, hallucinations, etc. The content of thought, in other words, is largely endogenous. In classical instances of autistic thinking, such as occurs in schizophrenia, the unconscious sphere makes the largest contribution to autism.[16]

It is obvious that the terms *autistic thought* and *paleologic thought* are applied to the same phenomenon. Autism, however, is more a descriptive term. In fact, Bleuler, who made the original contributions on autistic or

dereistic thinking, limited himself to a description of it (see Chapter 2). Paleologic is more a structural term; it means that autistic thought uses a paleological type of logic. Thus, both terms are useful; autism refers generally to a particular type of thinking; paleologic refers to the type of logic that is used in that type of thinking.

Of course, when definitions of autistic thought are formulated now, they should not be limited to a description; they should stress the fact that the main formal characteristic of this type of thinking is its foundation upon a non-Aristotelian logic, which has been designated as paleologic.

Bleuler (1913a) spoke of the occurrence of this type of thinking not only in schizophrenia, but also in healthy adults "when the emotions obtain too great a significance," and in normal children during play activities. When children identify themselves with Superman, let us say, or the bogeyman, or their parents, or when they play with toys, acting as if the toys were the things they represent, they seem to think paleologically. It is questionable, however, whether they really do so; children know that they play; they do not *believe* the reality of their games, they *make believe.* Undoubtedly, such a propensity for make-believe is related to their facility to accept paleologic thinking, but to make believe is no proof of the necessity to think paleologically. Children voluntarily and playfully revert to paleologic thinking, just as does the artist or the person who makes humorous remarks (Arieti,

1950b, 1967).

True autistic thought occurs in children at a very early age, when they think with paleological logic. (Several examples of this kind of thought were given in previous sections of this chapter.) The occurrence of autistic thought in young children is not a necessity, but only a propensity. Although even perfectly normal children may have autistic manifestations between the age of 1½ and 3, the occurrence of such manifestations, even at that age, and their persistence afterwards, is much commoner in children who cannot relate well to the people with whom they live. If the child is well integrated, this propensity to autism is almost automatically overcome. If there are emotional difficulties between the child and the significant adults, autistic tendencies are more frequent. As will be discussed at greater length in Chapter 19, if anxiety-laden situations arise that interfere with the process of socialization, this autistic propensity of the child is enhanced to a pathological degree. Its most serious manifestations are found in the condition that Kanner originally described and designated as "early infantile autism" (1944, 1946, 1949). After Kanner, the term *autistic,* when applied to children, was used to designate severe psychopathology (for instance, in Mahler (1968) and Bettelheim (1967, 1970). Child psychosis will be discussed in Chapter 44.

The difference between the concept of autism and that of paleologic thinking is even more obvious when one takes into consideration so-called

"primitive thinking." We have already discussed several examples of thinking in primitive cultures, which indicate the frequent occurrence of a paleologic logic. And yet, primitive man cannot be called autistic; as a matter of fact, and here is the fundamental fact that has to be stressed, the opposite seems to be the case. The primitive who thinks paleologically often does so not in order to be subjective and individualistic, but so that he may comply with the mores of his society. By using paleologic conceptions, he does not withdraw behind an autistic barrier, as the schizophrenic does, but, on the contrary, he becomes more intimately a part of his tribe.

The reference that I have made in previous works to the frequent instances in primitive cultures of paleologic thought similar to that of the schizophrenic has caused some criticism (Mead, 1958; Henle, 1962). It is the same kind of criticism that has been made of the works of Levy-Bruhl, Storch, Werner, and others. Some of my concepts have been interpreted as implying the intellectual inferiority of certain non-Western people, a fact that many modern American anthropologists have convincingly disproved. Obviously, never have I implied any inferiority. In Western societies, too, manifestations of paleologic thinking are abundantly found, even in our time (Arieti, 1967). In his admirably scholarly book *The Waning of the Middle Ages* (1924), Huizinga clearly described the prevalence of this type of thinking in medieval Europe, although, of course, he did not use the word *paleologic.*

I shall try to explain in this section that the frequency of paleologic thinking in some societies neither implies that their individual members are mentally inferior, nor calls into question the moral and spiritual equality of man. Although this book is concerned with a psychiatric problem, I shall not evade this important issue, which belongs more properly to anthropology, sociology, social psychology, and social psychiatry. Three problems require a solution and demand discussion:

1. If paleologic thinking appears as a cultural manifestation or in collective or social functions, why should it be considered pathological in certain instances, or less desirable than Aristotelian thinking?

2. Why does paleologic thinking appear more frequently in some cultures than in others: to be specific, in some non-Western cultures more than in the Western ones? How is it that many examples of primitive thought are taken from non-Western peoples living today?

3. Even if the presence of paleologic thinking is to be attributed to cultural factors and is shared by the collectivity, must we not ultimately find its origin in a special way of functioning of the human mind?

There seems to be no doubt that paleologic thought is less differentiated than the Aristotelian. It consists of primary categories or classes, which have a simpler organization than the secondary ones (see the third section of this

chapter). It is much less reliable and induces errors and the perpetuation of these errors that could be avoided with Aristotelian thought. Unless we revise our philosophical concept of progress, we have to consider Aristotelian thought as being superior to the paleologic. The achievements in which humanity takes pride could not have been attained if the paleologic method of thought had been the prevalent one. The tendency of such thought to occur in early childhood, in a dream-state, and in pathological conditions, when our higher mental functions have not yet developed or cannot be used, indicates irrefutably that it is a way of thinking that does not require our highest levels of integration.

Primitive thinking occurs in every culture. The difference in quantity of paleologic thinking between Western and non-Western culture is more apparent than real. Most anthropologists who have reported such instances were Western men who were more prone to detect paleologic thinking in other cultures than in their own. It is very difficult to detect illogical thinking in the cultural, social, and religious manifestations to which we are accustomed, and whose truths or values we take for granted (see Arieti, 1956, 1967, and the thirteenth section of this chapter). Often the culture itself imposes paleologic conceptions and habits on the individual, even though the individual is capable of high forms of thinking and behavior.

Some anthropological evidence seems to indicate, however, that

although the quantitative difference is not as great as it seems at first impression, a difference exists between one culture or society and another. On the other hand, anthropologists have stressed the fact that the individual native is capable of thinking with Aristotelian logic even in his own environment. It is only when he wishes to comply with the mores of the culture, especially in situations that have a social significance—such as magic, religion, initiation rites, marriages, war, and so forth—that he accepts paleologic conceptions.

Levy-Bruhl, too, in speaking of "primitive" mentality in inferior *societies,* has been misunderstood. He wrote about the presence of paleologic mentality only in social situations, not in the individual. It is true that he considered some societies to be inferior, but only the societies, not the individual. Many anthropologists, as well as philosophers like Cassirer, have overlooked this important distinction that Levy-Bruhl made.

There is an intrinsic conservative or static quality in every culture on account of which cultural elements are perpetuated and transmitted as they are. The more abundant is the paleologic thinking in a culture, the more difficult it is for the culture to get rid of it. For instance, Cro-Magnon men paleologically identified red powder with blood and therefore with life. They used to sprinkle the corpses of relatives with ochre in the hope that this color would restore them to life. From evidence turned up at different excavations,

this practice seems to have persisted for at least 20,000 years, long after everyone should have been convinced of its futility. Cro-Magnon men lived probably between 10,000 to 80,000 years ago. They were an evolved race of men, not much different from ours. Although the percentage of their paleologic thinking may have been greater than ours and the persistence of such thinking longer, they were also capable of thinking logically. As a matter of fact, they have left ample proof of their higly symbolic and Aristotelian thinking.

An individual who, at a young age, is transposed to a different culture may lose completely the paleologic ways of the original culture and acquire the ones of the new culture. There is also a tendency in every culture, although generally weaker than the opposite one, toward demythization, or the abandonment of paleologic and other types of primary process cognition.

Some historical, social, and geographical factors have helped Western culture to get rid of primitive thinking faster than other cultures have done. Some of these factors are: the abstract thinking of the Hebrew religion and of religions that derive from it; Platonic and Aristotelian philosophy; Greek mathematics and Euclidean geometry; expansion of mathematics and sciences. These factors, as powerful as they are, have by no means completed the process of demythization; in some respects they have increased it. To complicate the process further is the fact that myths and primary process

thinking are not without value. We know that some myths convey basic truths (Vico, 1725) and that primary process thinking is necessary in most forms of creativity (Arieti, 1967).

Again, what we have so far discussed does not explain how paleologic or other types of primitive thinking are acquired by a given culture. Obviously it must originate from the minds of one or several men and be accepted by the collectivity, because of its magic, reassuring, sociopolitical, religious values.

Once more I repeat that the prevalence of this type of thinking in some cultures does not make individual people belonging to that culture potentially or actually inferior or superior. Often culture detracts, arrests, handicaps, delays, or distorts the potentiality of the individual man. This is a very high price that some individuals have to pay for belonging to a given culture. On the other hand, if we could compare quantitatively what any culture adds or subtracts from the potentiality of the individual, the balance would probably be on the positive side. I regret that some great men of the stature of Kurt Goldstein have misinterpreted my writings and attributed to me conceptions that are actually alien to my way of thinking and repulsive to my spirit. In one of his last writings Goldstein (1960) wrote that I assume that the behavior of "primitive people" shows inferior mentality and is an expression of a prelogical state of mind. Never have I implied that the use of an inferior type of thinking by *Homo sapiens* is necessarily based on biological inferiority

(1955). I would be ashamed of such a concept. As I have expressed, ". . . Every existing man who is in a state of health and more than three years old is at least potentially capable of thinking in accordance with the Aristotelian laws of thought" (1963b).

Like Goldstein I believe that some cultures make larger use than others of non-Aristotelian thinking. Possibly some styles of life, with some religious, social, economic, and technical organizations, are more susceptible than others to a type of thinking.

The problem that we may posit, and that must remain at a purely hypothetical level, is whether a now-extinct presapiens species was once forced by the level of their biological endowment to think paleologically and whether it was possible for such species to evolve to conceptual man. No presapiens species of hominids exists today.

Goldstein does not believe in the possibility of man evolving from earlier species. In the same article (1960) he writes, "How could ... the symbolic function—so characteristic for man—develop from a capacity level which gives only the possibility for thinking and acting in 'sign' relations?" Goldstein perhaps accepts literally the biblical version of the creation of man and rejects a Darwinian interpretation. If we accept the evolutionary point of view in biology, and correspondingly a comparative developmental approach

in psychology, we have also to accept the notion that intermediary stages of psychological integrations existed between *Homo sapiens* and presapiens species.

Prehuman species had indeed a type of cognition that was not symbolic. Animals are capable of learning. They respond to stimuli and to signs, which are signals of these stimuli. Although their understanding of the universe is limited, they retain a grasp of reality, and it is difficult for them to escape from reality. When an animal responds to a sign, as for example when a cat responds to the odor of a mouse, he is a realist. The cat does not let his imagination confuse him. The odor is there, therefore, the mouse is there. At the level of signs, mistakes are difficult and rare, unless artificial situations are devised by men to confuse the animal. However, when species evolve and are capable of images, paleosymbols, and paleologic thinking, together with a greater vision of reality, there is a greater facility of escaping from reality and plunging into error (Arieti, 1967). If presapiens species of men existed that had not reached a connotational, secondary process, Aristotelian degree of cognition, they lived in danger. One may wonder how these primitive species were able to survive or evolve into others if their actions were determined *exclusively* by a system of thinking, like that of the primary process, that appears so unrealistic to us.

When a new state of evolution brings with it new challenges that make

species survival very difficult, two possibilities present themselves: either the species perishes or a mutation (in this case Aristotelian or secondary process thinking) that insures survival occurs. Presapiens hominids had at their disposal a way by which they could live more or less safely and realistically: by relying purely on (or regressing to) their presymbolic or sign levels; that is, by being guided exclusively by stimuli and signs. However, whenever they indulged in paleologic thinking, they put themselves in a dangerous situation. Eventually *all* the species that could not sufficiently overcome this type of thinking perished; no one has been left on earth. Thus, although the appearance of symbolic thinking was an evolutionary improvement that led to what is specifically human in man, it was a dangerous improvement because at first it emerged in the form of paleologic thinking. Secondary process thinking probably did not occur abruptly by the sudden occurrence of a mutation, but possibly was the result of a slow, tremendously difficult, and improbable convergence of minor positive mutations.

Modern anthropologists believe that the earliest human races appeared on this planet several million years ago. Even if we accept the view of conservative anthropologists who believe that man appeared on earth only one or two million years ago, we still have to explain why civilization originated only about 10,000 years ago, and the so-called historical period, of which we have more definite knowledge, only 5,000 years ago.

The long delay in the development of civilization was due to two facts. The first, purely hypothetical fact is that presapiens races, which lived from 500,000 or to 900,000 years ago, for example, *Pithecanthropus erectus* and *Paleoanthropus Heidelbergensis,* or others that lived two or three million years ago, had not yet reached a secondary process form of thinking. Secondary process thinking probably emerged between *Pithecanthropus* and Neanderthal man. This period covers at least several hundred thousand years. Whether some of the last races of *Pithecanthropus* were already capable of some secondary process thinking, we do not know. We do not even know whether the progression toward conceptual thinking was gradual or by jumps. Even if it proceeded by jumps, these jumps were probably numerous and small, and in their sequence presumably could have given the impression to an imaginary observer of a slow and apparently continuous change.

The second fact, also hypothetical, is that when *Homo sapiens* (or other races) equipped with secondary process thinking appeared, the use of primary process thinking in collective organization was overwhelming. We have already stressed that any society and culture imposes ways of thinking on the individual, even if he is capable of higher levels of cognition. We must realize, however, that not only culture or society impose primitive ways of thinking. Primitive ways have also a strong appeal to the unconscious or to the less evolved part of the individual psyche.

XV
Critical Review of Various Theories of Schizophrenic Cognition

We shall conclude this long chapter with a review of important theories of schizophrenic cognition. Space and time limitations will compel us to make a selection of the many works on this subject. Whenever some contributions of different authors have already been discussed in this book, the reader will be referred to previous chapters. When some authors have followed the lead of a previous writer or continued in the same line of research, they will be mentioned after the original writer and not necessarily in chronological order.

Eugen Bleuler is the first important author to study thought disorders in schizophrenia and has influenced all subsequent students of this subject. His contributions have already been discussed in Chapter 2.

Alfred Storch is, after Bleuler, chronologically the first author to make important research on this topic. In 1922 he published in Tubingen, Germany, his book on schizophrenic thinking; it was translated and published in the United States in 1924. Storch was a pupil of the comparative psychologist Heinz Werner and of the genetic psychologist Kruger. His work is more descriptive than interpretative. When he interpreted, he generally illustrated the similarities between primitive and schizophrenic thought. He did not differentiate the special structures that underlie or sustain these types of

thought. He stressed that in the schizophrenic as well as in primitives, emotions are expressed as if they were vivid sensorial experiences. In schizophrenic ideation, the sensorial image occupies the center of consciousness and replaces the abstract idea. The ideas of the schizophrenic have no definite limits, are diffused, and overlap. The world of objects does not consist of separate or distinct things, but of diffused and disorganized complexes. The consciousness of one's own person as an entity is also defective. The ego is divided into many compartments that are projected to the external world, as it happens in dreams of normal persons.

In the second part of his book Storch emphasized some specific analogies between the magic world of the primitive and the delusional world of the patient, especially such delusional complexes as cosmic identification, sense of rebirth, and mystic ecstasy.

Storch referred to a prelogical thinking of the patient but did not define its rules. He recognized that the schizophrenic patient is not compelled to think prelogically. He may return to a normal way of thinking. This return, however, is made difficult by the fact that the emotional currents find more adequate expressions in prelogical forms.

Lev Vygotsky was a first-rate Russian psychologist who unfortunately died at a young age after having devoted only ten years to scientific research.

Vygotsky was much more interested in the development of normal cognitive processes than in schizophrenia. Nevertheless his contribution is of primary importance because many other authors, in particular the Russian Luria and the Americans Hanfmann and Kasanin (1942), have applied his ideas and his methods to the study of schizophrenia. With the use of a test that is a modification of one devised by Ach, Vygotsky (1934) tried to demonstrate that the schizophrenic returns to a mental level that precedes that of the adult. In this test, Vygotsky used blocks of various sizes, shapes, and colors, which could be classified in various categories when the patient discovers the principle in accordance with which the blocks are divided. The most elementary classifying levels are colors and shapes, but the normal individual soon realizes that these classifications are not the right ones and eventually discovers the principle of the correct classification. The schizophrenic patient finds the solution with great difficulty. Vygotsky interpreted the results as indicating a dysfunction of abstract or conceptual thinking. Following Vygotsky, Luria, Kasanin, and Hanfmann also concluded that the schizophrenic thinks in a concrete, realistic way, in a context where things have more a personal than a symbolic value (Kasanin, 1944a, *b,* 1945).

Kurt Goldstein was a very prolific and creative writer whose contributions have already been taken into consideration in this book (Chapter 15). He developed the organismic approach in psychiatry (Goldstein, 1939, 1959). He had the great merit of having pointed out that when the

schizophenic uses schizophrenic thinking, he adopts the *concrete attitude.* Whereas some of his concepts or their derivatives have been accepted by many authors, including myself, they have been rejected by others. At times the criticism is merely semantic. Some authors (for instance, Gabel, 1962) object to the word *concrete,* as used by Goldstein. They feel that Goldstein uses it in a pejorative sense, whereas the word *concrete* (especially in the French language) is usually associated with the meaning of being positive, realistic, valid, and reliable.

I find the following shortcomings in Goldstein's concepts:

1. He stresses more the similarities than the differences between patients with brain injuries and schizophrenics.

2. He sees the adoption of the concrete attitude as a way to avoid anxiety and "catastrophic reactions." This interpretation is true, but not complete. He does not show that the concrete representation is generally symbolic of the abstract.

3. He lacks appreciation of the historical element. The effect that history of humanity or personal history has on the individual is hardly taken into account. The individual is seen purely in a biological or neurological frame of reference, that is, as "an organism."

Norman Cameron, already mentioned in section VIII of this chapter, has made important contributions, which have been continued by a large number

of authors. According to him (1938, 1939, 1967) schizophrenic thought has the following characteristics:

1. It is asyndetic; that is, it has few causal links.

2.It is metonymic; that is, it lacks precise terms and uses words with approximate meaning. For instance, a patient instead of saying that he had three meals a day said he had "three menus."

3. It presents interpenetrations; that is, parts of a theme intrude with others with which they are not related.

4. It presents overinclusions; that is, includes material with which there may be only peripheral connections.

5. It presents requests to change the conditions with which problems are solved in order to justify the errors.

6.It presents incongruity between acts and words.

7.It presents ineffectual change of generalizations and hypotheses in the attempt to find solutions.

8. It presents disorganization rather than organic deterioration.

Of all the characteristics of schizophrenic thought described by Cameron, overinclusion is the one that has received the greatest consideration. Some authors believe that if the patient's thinking is

overinclusive, that is, if it comprehends more than it should, schizophrenic thinking cannot be considered concrete, as Goldstein, Vygotsky, Arieti, and others interpreted. One of the most tenacious advocates of this point of view is Payne (Payne, 1958,1961,1972; Payne, Matussek, and George, 1959). According to Payne schizophrenic thought disorder is due to inability to develop and maintain a normal set. Normal mechanisms of inhibition would be broken down. Ideas distantly related are thus included in thoughts. Similarly the patient is unable to disregard perceptual stimuli that most people ignore, and perception too becomes overinclusive.

In my opinion, there is no contradiction between "overinclusive" in the sense used by Cameron and Payne and the meaning of "concrete." "Overinclusive" means inability to *exclude* the nonessential and to abstract the essential. The nonessential related to the essential by a whimsical or peripheral similarity, is included in the new category formed by the schizophrenic. In other words, overinclusion implies a defect in the formation of Aristotelian, or secondary, classes (see the third section of this chapter). The formation of more restrictive categories (or higher classes) requires increased power of abstraction (increased intension and not exclusion). For instance, if a schizophrenic is asked to continue the following series, "dog, cat, horse, lion, tiger, leopard, cow, donkey, elephant, fox, . . and he adds "spider, sparrow, bluefish," we should not conclude that he has a higher power of abstraction because he includes in the series several types of animals.

Obviously he was not able to abstract from the examples given to him the category "mammals." His overinclusions are proofs of his inability to grasp an abstract idea. This inability of the schizophrenic is related to stimulus generalization, as Mednick (1958) thinks, or to increased equivalence of stimuli (Klüver, 1933, 1936), or to what I have called primary generalization (Arieti, 1967, Chap. 4).

In other words, schizophrenic generalization tends to be at the level of nondifferentiation; it is not the type of generalization that follows the Pavlovian technique of discrimination. (See also the twelfth section of this chapter.) Thus, contrary to what Payne and other authors believe, overinclusion is not the converse of concreteness but an expression of it. This point of view has also been reaffirmed by Sturm (1965).

In a recent book, Lidz (1973) gives more consideration to schizophrenic thinking, to which he now gives an important place in his revised theory of schizophrenia. Lidz is mentioned again at this point because he fundamentally accepts Cameron's concept of overinclusiveness. But, Lidz adds, this overinclusiveness is egocentric. The parents of the patient are egocentric inasmuch as they are unable to recognize that the other person has different feelings, needs, and ways of experiencing. In order to adapt to the parents' needs, the patient becomes egocentric by being parent-centered. "His feelings of being central to his parents' lives lead to feelings of being central

and important to everyone, including God." This egocentricity of the patient leads him to "cognitive regression," specifically to "an intercategorical realm" of thinking. In other words, the patient becomes particularly preoccupied with material that lies between categories. It is not very clear how Lidz puts together egocentricity and overinclusiveness. The "overinclusiveness" that leads the patient to believe that many events refer particularly to him may be egocentric, but that is quite different from the overinclusiveness that makes him believe, for instance, that pencil and shoe belong to one category because they both "leave traces" (example from Polyakov, 1969). Vygotsky and Goldstein have very well demonstrated with the tests that they used that this inability to form acceptable categories appears in attempts to solve problems that require abstract thinking and is not necessarily associated with egocentricity. For my interpretation of the phenomenon see the second, third, and twelfth sections of this chapter. I wish to reiterate, however, that especially in incipient schizophrenia, abnormal cognition appears only in the symptoms or in thoughts related to the patient's conflicts.

Eilhard Von Domarus has been mentioned so often in this book that any additional reference to his very important contribution is unnecessary here. However, because most readers know little about the life of this author, I shall give here some biographical data.

Von Domarus was born in Germany into a family that descended from

Swedish nobility; they had emigrated to Germany presumably when King Gustave Adolph invaded Europe. Von Domarus obtained his M.D. degree in Germany; then he was awarded a fellowship to continue his studies in philosophy in the United States at Yale University. An enemy of Nazi tyranny, he never returned to Germany after Hitler came to power. Von Domarus was a person completely dedicated to scholarship and to professional life. He died, a bachelor, in 1958.

Born a Protestant, he later in life embraced the Vedic Indian religion. His major focuses of interest were the application of logic and anthropology to psychiatry. In death he proved a philanthropist by leaving almost his entire estate to the Association for the Advancement of Psychotherapy.

F. Barison is an important author who has made a strong impact on the European, and especially Italian, literature. Beginning with his first work in 1934, he has consistently differed from the authors who see schizophrenic thinking as concrete. According to him, both the content and the form of patients are more abstract than those of normal persons at least in the initial stages of schizophrenia. The schizophrenic uses abstract nouns in place of words that refer to concrete objects or ideas. According to Barison, the patient thinks in this abstract way, not in order to beautify his speech or to seek an aesthetic effect or to impress his listener, but in order to repair the dissociative tendencies of his thinking (Barison, 1934, 1948, 1949). For a

discussion of Barison's point of view the reader is referred to the fifth section of this chapter. We have already concluded that schizophrenic language and thought at times assume pseudoabstract form and content.

Sergio Piro has intensely and extensively studied schizophrenic language and thought. His recent book (1967) is a mine of information and is strongly recommended to all those who can read Italian. It has a thirty-five-page international bibliography. Piro has been strongly influenced by Barison, but he has been able to transcend the latter's conceptions. He is a bitter critic of such authors as Goldstein and Von Domarus and of any other author, including myself, who believes that in the schizophrenic there is an impairment or diminished use of the capacity to abstract. At times the disagreement is purely semantic; at other times it is due to misunderstanding or to the fact that the emphasis has been put on a particular aspect of the vast subject. For instance, he again attributes to Von Domarus and myself the idea that primitive people must think paleologically. But neither Von Domarus nor I have ever made that statement. He writes that "primitives would with justification feel offended by Von Domarus's hypothesis." But Von Domarus has never made that hypothesis. The reader is again referred to the fourteenth section of this chapter where not the individual use but the collective normal use of paleologic thinking is described, not only in reference to so-called "primitive cultures" but also to our own.

In spite of these inaccuracies and misunderstandings, Piro's book is an important work, and his personal contribution needs to be studied. According to Piro, there is a *setmntic dissociation* in schizophrenia. He believes that this dissociation is linguistic and does not refer to thinking *per se.* For him dissociation means loosening of the connections between the verbal sign and its cognitive and emotional meaning. The word is no longer applied to the original semantic structure (or meaning). In the usage of normal persons as well as patients, every sign (or word) has a *semantic halo.* By this term Piro means that in normal persons, too, words do not have only a regular definite meaning but also a certain extension of meaning that allows a certain ambiguity and indetermination in their use. Normally, the more abstract is the level of the word, the more extended is its semantic halo. According to Piro, in the schizophrenic there is an abnormal restriction or increase of the semantic halo. However, he refers to the phenomenon as fluctuation of the semantic halo rather than as increase or decrease.

Piro has described several types of "semantic dissociation, dissociation, dispersion." According to him, this semantic dissociation is not to be confused with Bleuler's loosening of associations of ideas. Also it does not presuppose an organic deterioration or a functional regression, but it is a "global human condition." What Piro is saying is that verbal signs, as used by the schizophrenic, mean more to them than they do to normal people; they may also mean less or may have a different meaning entirely. Of course, we do

agree to all this. But the fundamental issue is how to explain this fluctuation of the semantic halo. We have explained it by assuming that the schizophrenic does not always succeed in forming Aristotelian categories. The adoption of primary process cognition prevents him from forming normal categories, especially when the content is involved with his conflicts.

Ignacio Matte-Blanco is a Chilean author who has done considerable work on the logic of schizophrenia. As he mentioned personally to me, he was not aware of the works of Vygotsky, Von Domarus, and myself when he carried out his studies.

Matte-Blanco (1959, 1965) believes that the schizophrenic abandons Aristotelian logic and adopts that of the unconscious system. He believes that he has found the principle that rules the unconscious; he calls this the principle of symmetry. The principle is the following: "The unconscious system accepts the converse of a relation as identical with the relation; in other words, it deals with the relations as if they were symmetric."

Matte-Blanco gives, among others, the following example: If John is the father of Peter, the converse is that Peter is the son of John. But for the schizophrenic patient, if John is the father of Peter, Peter is also the father of John. Peter and John become symmetric.

I have infrequently found this anomaly in schizophrenic thinking. When

I found it, it could be interpreted with Von Domarus's principle and with the application of primary classes. John and Peter have the common predicate of being related or relatives. Thus they become equivalent and interchangeable.

Matte-Blanco gives another example. A patient says, "I smoke myself." According to Matte-Blanco the proposition "I smoke a cigarette" becomes for the patient, by virtue of the principle of symmetry, "The cigarette smokes me." Matte-Blanco does not realize that the patient identifies with the cigarette because in his conceptions both he and the cigarette consume themselves.

Loren J. Chapman alone (1958, 1960, 1961) or with collaborators (1964, 1965) wrote a series of important papers on schizophrenic cognition. In the paper published in 1964 Chapman and co-workers advanced "a theory of verbal behavior in schizophrenia." According to these authors words have varieties of meaning and meaning responses. The meaning responses vary in strength: the interpretation of words by normal persons reflects the use of the weaker as well as the stronger meaning responses. On the other hand, schizophrenics' misinterpretations arise from the fact that they abide only by the strongest meaning responses. The following is an example given by the authors:

> The schizophrenics often said things like, "You can ride on a bicycle and you can ride in a wagon, so they mean the same." Normal persons would say something like, "You can ride on both a bicycle and in a wagon, but a bicycle has two wheels and a wagon has four, so they don't really mean the

> same." These responses suggested that schizophrenics do not weigh simultaneously the several different aspects of meaning in order to answer appropriately the question at hand, but instead answer by using a more limited number of aspects of the meaning."

I have difficulty in understanding why Chapman and co-workers cannot interpret their findings in light of Von Domarus's principle. It is obvious that what they call the strongest meaning is a partial meaning, that is, a predicate. Moreover, it is the predicate that has been selected for a psychodynamic reason, that is, because of the response that it elicits. For instance, bicycle and wagon have many predicates, but the predicate with which patients are psychodynamically involved is "riding vehicle." In this case this chosen predicate may elicit the strongest response in both normal subjects and patients. In many other examples, however, the strongest psychodynamic response is unusual and is determined by the special conflicts and history of the patient.

Russian authors (for instance, Zeigamik, 1965) have tried to follow Vygotsky's work, but have not been equally successful. Polyakov (1969) found that schizophrenics select unusual attributes (what we call predicates). For instance, requested to find a pairing attribute between pencil and shoe, a patient said, "Leaves traces." Required to find a common attribute between clock and river, a patient said, "Moves along a closed circle." It is obvious that all this could be interpreted as formation of primary classes (see the second and third sections of this chapter).

Recently Reed (1970) has reviewed several theories about schizophrenic thinking. He concludes by repeating the frequent observation that "much of what is found in schizophrenic thought, speech, and writing also occurs in normal people." He suggests that what is typical in schizophrenic thought is not a qualitatively abnormal mechanism but rather a quantitatively abnormal way of using normal mechanisms. The abnormality may result from varying degrees of "information deprivation" and also from a failure of some "filter mechanisms" to separate what is relevant information from what is irrelevant.

Wynne and collaborators (Wynne et al., 1958; Wynne and Singer, 1963; Singer and Wynne, 1965) have carried out many interesting studies on the relation between thinking disorders in schizophrenia and family dynamics. According to Wynne and co-workers the style of interpersonal action in the family of the schizophrenic is connected with his cognitive development. Wynne and Singer found four main characteristics in the family of the schizophrenic: (1) inability to pay attention—this inability of the parents would trigger a similar disturbance in their children, who in turn could not concentrate their attention on certain actions that have a subjective meaning or aim; (2) inappropriate cognitive and affective distance or closeness between members of the family; (3) sense of purposelessness; (4) pseudomutuality.

In other works Wynne and Singer (1963) and Singer and Wynne (1965) divided the disturbances of schizophrenic thinking into two categories: fragmentation and amorphousness. Fragmentation corresponds to Bleuler's loosening of associations. Amorphousness corresponds to a state of dedifferentiation, or early developmental stages in Werner's sense. It is doubtful that what Wynne and coworkers describe in the parents of schizophrenics are *typical* characteristics of schizophrenic thinking. We have already referred to the distinction between what is abnormal but not yet psychotic in the members of the family of the schizophrenic (see Chapter 8). We have also stressed how important it is to separate what is psychodynamically significant but not yet psychotic, and what instead undergoes the psychotic transformation (Chapter 8).

Notes

[1] Schactel defines focal attention as characterized by five aspects: (1) it is directional—that is, it does not concern the total field; (2) it is directed at a particular object; (3) it takes hold of the object and aims at its active mental grasp; (4) each act of attention consists not of one but of several renewed approaches; (5) it excludes the rest of the field.

[2] Levy-Bruhl used the term prelogical for the method of thinking that he found in primitive societies. Von Domarus used the term paralogical, which is a term usually adopted by professional logicians.

[3] The difficulty that some people may experience in calling some psychopathological processes "intellectual" or "logical" is in a certain way similar to the difficulty that some philosophically minded people experienced in calling the unconscious mechanisms discovered by Freud "psychological." They thought that a necessary characteristic for a

psychological phenomenon was that it be conscious; without consciousness a phenomenon could not be psychological.

[4] The fourth law of thought, the law of sufficient reason, was formulated not by Aristotle, but by Leibniz twenty centuries later. However, for the sake of simplicity, it will be considered here together with the other laws of traditional logic, with which it is usually associated.

[5] In *The Intrapsychic Self* (Arieti, 1967, Chap. 7) I have described how primary classes precede the secondary in phylogeny and ontogeny.

[6] Different terminologies are used in the various types of semantics. In Ogden's and Richards's semantics (1947), connotation is the reference, denotation the referent, and verbalization the symbol.

[7] The statement made by many logicians that there is an inverse ratio between connotation and denotation does not hold true if the problem is considered from a psychological point of view. In other words, a decrease in the connotation power is not accompanied by an increase in the denotation power and vice versa. Many logicians, too, have criticized this concept of inverse ratio because objects (denotation) can be enumerated, but qualities and meanings cannot be measured mathematically.

[8] Many logicians, on the other hand, would say that the connotation is increased. This point of view is psychologically incorrect.

[9] There are, of course, exceptions; for instance, Robinson (1932).

[10] Law of contrast is often added.

[11] Because several authors define hallucination as a sensation, it may be useful to define some terms whose meaning is generally assumed as known. By sensation is meant the effect of a stimulus when it acts upon one of our sense organs. Sensation is the first effect of the stimulus. It does not imply any recognition of the stimulus, that is, any association with past experiences.

By *perception* is meant recognition and understanding of the sensation. For instance, when I see a book, not only do I see it, but I also know that I see it and know it is

a book.

By *image* is meant an inner reproduction of sensations and perceptions, even when the stimuli that produce the latter are absent (see Chapter 5). The concept of image should not be confused with the concept of engram or template. With the latter terms many neurologists designate a neuronal pattern of complex movement or of an acquired skilled act.

[12] The perceptualization of the concept is a relatively well known phenomenon in psychopathology. Since Lelut (1846) wrote that "the hallucination is the transformation of a thought into a sensation," this phenomenon has been described in many ways, but a complete interpretation is still lacking. Silberer (1909, 1912), influenced by Freud, reported a method of eliciting certain symbolic hallucinatory phenomena. Once, while he was lying on a couch, he was thinking of a very difficult abstract subject when an image automatically occurred to him that was a concrete symbol of what he was thinking. After this experience, Silberer learned to elicit voluntarily these quasi-hallucinations, which he reported in detail. Here is an example given by him: he is thinking about something but, pursuing a secondary consideration, he departs from the original theme. A hallucination occurs: he is mountain climbing. The mountains near him conceal the farther ones from which he came and to which he wants to return. Silberer called these phenomena autosymbolic. They were not real hallucinations because Silberer knew that they did not represent phenomena of external reality. They were abstract constructs that manifested themselves in concrete forms.

[13] Some authors (Seitz and Mohlholm, 1947) feel that auditory hallucinations are more frequent in people who have a predominantly visual form of imagery. The tests used to determine whether subjects have a predominantly visual or auditory imagery are not to be trusted entirely, because they ignore the verbal representations that accompany the images, even visual ones. For instance, if the patient responds to the stimulus "ringing of the telephone" by saying, "I can imagine seeing it, but I can't hear it ring," he has a response using a visual image, but at the same time internally he hears his thoughts, expressed by verbal auditory images, stating that he sees the phone. Auditory verbal images are, therefore, almost always present, even when they are accompanied by visual images. Because of the tremendous importance that language plays in human thinking, auditory images are almost always used in mental processes, even when visual images occupy the predominant role.

[14] This neurophysiological interpretation may apply, of course, not only to hallucinations but to all the other mechanisms of active concretization, which are even more difficult to localize (see Chapter 30).

[15] The drawings of Lucille will be examined in detail in Chapter 20.

[16] This definition has not been changed in the more recent edition of this dictionary by Hinsie and Campbell (1960).

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