

# WHAT IS SCHIZOPHRENIA?

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MANY OF THE CURRENT IDEAS about schizophrenia are wrong. Even the name is wrong. The term schizophrenia implies that something is divided or split. But the personality is not split into two or three separate personalities as in the *Three Faces of Eve*. There is, in fact, no split whatsoever.

The originator of the term, Eugene Bleuler, referred to a lack of connection between the thinking and the feeling of the patient. Many patients who have been sick for a long time appear to others to have a feeling, tone or mood which is not appropriate to what they are talking about. For example, a patient may be crying while relating a humorous incident. Even this splitting, however, is quite rare, and will become rarer still as early treatment becomes generally available.

The meaning of schizophrenia as popularly used by journalists and writers is also wrong. The adjective "schizophrenic" is becoming a part of our language to mean separateness, as in "schizophrenic nation," "schizophrenic attitudes," "schizophrenic politics." As used in this way it may impart some vague meaning to the reader, but it actually has no meaning in relation to the disease from which it comes.

An older term, *dementia praecox*, the precocious or parboiled madness, meant that patients early in life became mentally incapacitated. This concept, useful sixty years ago, is no longer correct or useful.

The word "schizophrenia," therefore, serves no useful purpose either in referring accurately to a symptom or a disease, and will some day be replaced by more suitable diagnostic terms, just as "fever" was replaced as a diagnosis by definite diseases.

Schizophrenia does not, as some claim, have a special affinity for the poor. It is a disease which is prevalent in all cultures and societies and is, as far as we can tell, fairly evenly distributed among all races of men, no matter where they are. It is found as

often among Africans and Europeans as among Eskimos and Asians.

Even the most enthusiastic supporters of the theory that schizophrenia is related to poverty have been able to produce only one study to support their claim, where it was found that there were twice as many schizophrenics among the poor. But since about one percent of a population will have schizophrenia in their lifetime, this is not a particularly remarkable finding and probably was due to many other factors which were not adequately studied.

Other investigators have not found any evidence to show that poverty breeds schizophrenia. The evidence instead is fairly clear that patients who do not recover from schizophrenia tend to drift downward to a standard of living below that of their fathers who do not have the disease. The reason for this is simply that the patients are unable to continue in their work or function effectively in their society. In striking contrast, neurotic patients may remain the same, drift below or climb above their parents' social station.

#### SCHIZOPHRENIA AND STRESS

Schizophrenia, in spite of popular belief, seems to have hardly anything to do with stress. Just as it occurs uniformly among all classes of men, so has it remained unchanged throughout the years, as unconcerned about man's varying fortunes as about the color of his skin and his religion.

Other diseases show remarkable fluctuations through history. Before sanitation was widely practised, epidemics of various diseases would sweep across the population and decimate man. Malnutrition followed the seasons. During the war starvation and disease were rampant.

Diseases due to bacteria, nutritional deficiencies, etc., have shown major swings in prevalence and incidence, and once this was understood simple measures were employed to reduce them drastically.

Chlorinating water destroyed typhoid and other diseases. Immunization eradicated smallpox and diphtheria, and polio vaccine promises to do the same for polio. Adding nicotinic acid to flour in North America has practically eradicated pellagra.

It can be said, in fact, that the first large-scale program of preventive psychiatry was begun, not by psychiatrists nor by psychologists, but by nutritionists. At one time nearly ten percent of the patients admitted to some mental hospitals in the southern states of America had a disease called pellagra, caused by a lack of a vitamin. The psychological symptoms of this disease resemble schizophrenia so closely that it is likely that many more patients

admitted as schizophrenics actually had pellagra. When nutritionists persuaded the United States government to add nicotinic acid to the flour consumed by its citizens, there was a major decrease in this disease.

But schizophrenia has remained remarkably unchanged. During war or peace, in periods of poverty or prosperity, it has continued to take its toll in a steady relentless manner.

Its constancy through good times or bad strongly suggests that stress has no relation to schizophrenia. But even this is not conclusive, for no one seems to know for sure what stress really is. Many articles in popular journals picture modern society as being particularly stressful due to its complexities. There is remarkably little evidence, however, that communities today are suffering more stress than those of 100 or even 1,000 years ago.

Primitive man, fondly believed to have been healthy, contented, and wise, was actually, according to medical history, diseased, discontented and ignorant. Perhaps that is why he had to seek refuge in religion and philosophy.

One needs only to read the novels of the mid-19th century to learn that our ancestors lived constantly with death, filth, privation, fear and pain. A large proportion of women died miserably in childbirth and a large proportion of men, worn out by struggle, died by the time they were fifty. No family was free of death. In fact, if pain and discomfort are some factors which cause stress, then our century by all standards must enjoy less stress than any other. Few can deny that modern societies are characterized by less pain, less illness and greater comfort than ever before.

All we can say for sure, then, is that if stress, whatever it is, does play a role in causing schizophrenia, it is not an important one.

### STRESS AND THE SEX FACTOR

Stress also fails to explain the sex factor in this disease. It is estimated that its incidence among boys below the age of 13 is three to seven times higher than among girls the same age. If the stress theory is correct, one would have to assume that little boys are given three to seven times as much stress as little girls. Dr. F. Kallman has challenged psychodynamic psychiatrists to lower the incidence of schizophrenia in children by persuading parents to be as kind to their sons as they are to their daughters.

Between puberty and the mid-thirties, the incidence is about the same for both boys and girls. Stress theorists would now have to assume that stress on females had increased remarkably after the age of puberty to raise their incidence to equal that of boys.

One-sixth of the children who have a schizophrenic mother or father will have enough genes to make them schizophrenic. That is, out of 100 children who each have one schizophrenic parent, 25 will get it. If both parents are schizophrenic, the proportion is increased to 60 out of 100.

If a brother or sister is schizophrenic, another brother or sister has a 15 percent chance of having it also.

This does not mean that patients with schizophrenia should not have children. It is obvious, too, that sterilizing all schizophrenics would have very little effect in reducing the number of patients and should not be considered. The disease has shown a high-survival value through the centuries in spite of the fact that many schizophrenics have no interest in sex and many others were, until ten years ago, kept isolated inside mental hospitals. Today, thanks to new drugs, more schizophrenics are able to live in the community than ever before and we predict that the disease will, over a period of many years, affect many more people.

*The New York Times*, March 1, 1964, carried the following story:

#### BIRTHS WIDENING TYPE OF INSANITY RISE IN SCHIZOPHRENIC RATE CALLED ALARMING IN STATE

Professor Franz Kallman reported:

A large-scale study in New York State mental hospitals has shown that within two decades the reproductive rates of schizophrenic women increased 86 percent, compared with an increase of 25 percent by the general population.

Dr. Kallman warned that this rise, reflecting the difference between early handling of schizophrenic patients and modern treatment methods, might result in a steady increase of the serious mental disorder. He predicted that the birth-rate among schizophrenics might eventually surpass that of the general population.

We do not know whether the prevalence of schizophrenia should be suppressed, even if it could be. It is possible it is one of the evolutionary experiments not yet under control, and there is not enough evidence today to interfere with that great force in life. There is, however, a lot of evidence to indicate that in many ways people with schizophrenia, who have been cured, are healthier physically and mentally than their non-schizophrenic brethren. Schizophrenics appear more youthful, their skin does not crinkle as quickly, their hair retains its pigment longer and the fat under

their skin seems to last better. They have fewer allergies, can stand pain much better, and do not get medical shock as easily.

It may be, then, that if the evolutionary experiment works well, everyone will some day have enough of the desirable schizophrenic genes to make them more fit.

Parents who have schizophrenia, however, should learn what they can about it, and if it should occur in one of their children, seek immediate appropriate help. We hope that they will be able to do this more effectively after having read this book. Families which seem to have more than the expected number of schizophrenics should seek help early whenever one of them shows any sign of illness or of peculiar behavior.

#### PHYSICAL CHANGES—UNDESIRABLE

What, then, is schizophrenia? How can we tell when it is present?

There are physical as well as psychological changes in schizophrenia, some of which are undesirable and some of which are desirable. In general, the earlier the disease strikes the more severely it affects the body. If children become ill before their sensory organs reach full functional maturity, they may never develop normally. The organs themselves may be physically healthy, but their function and coordination may be distorted.

It is possible for skilled child psychiatrists to diagnose schizophrenia at the age of one month by the complete lack of muscle tone. Mothers who have had normal babies notice the queer feeling that, when picked up, their schizophrenic infants sag like limp dolls.

When schizophrenia occurs before puberty, the patients may be smaller in stature than non-schizophrenics, and often are narrow in the chest from front to back. When the left side is compared with the right side, there is found to be a deformity in shape.

When the disease strikes adults, many things can happen. Both men and women are then more susceptible to tuberculosis and are more likely to develop an infection if exposed to this disease. It is quite clear that tubercular lesions also heal more slowly in schizophrenics. This was an important cause of death in mental hospitals before they introduced modern methods of tuberculosis control. However, when modern control measures and proper treatments are used, the incidence of tuberculosis among schizophrenics is reduced, but not to normal levels.

It is not true that tuberculosis patients are more susceptible to schizophrenia. This proves that the sequence of events is very important, and it will be discussed later.

Another important change is the pronounced fatigue and listlessness which descends upon the patient. This occurs in all physical illnesses and is not peculiar to schizophrenia. The patient usually feels less tired on the morning after sleep, but becomes progressively more and more tired as the day goes on. Toward evening he is often much more psychotic.

Schizophrenic men may become impotent and show atrophy of the male gonads. Women may suffer changes in the menstrual cycle but this returns to normal if the disease vanishes. Both men and women tend to suffer a decrease in sex interest. Schizophrenic men occasionally become confused in their sex identity, possibly due to bizarre feelings. This led Freud to the erroneous belief that repressed homosexuality is at the root of all paranoid ideas. The vast majority of researches designed to test this point have shown that Freud's hypothesis is wrong.

#### PHYSICAL CHANGES—DESIRABLE

There are a number of tests which show that schizophrenic body fluids differ from those of normal people and those with other psychiatric illnesses. Schizophrenics as a result have desirable physical attributes which non-schizophrenics may well envy.

Schizophrenics are frequently very attractive physically. They tend to age and lose their hair color more slowly, and generally appear more youthful than their chronological age.

They are, furthermore, much freer of many of the physical complaints of man, and seem to be able to survive misfortunes which would kill other people.

Dr. John Lucy found that schizophrenics can take enormous quantities of histamines, the chemical substance which is responsible for allergies in some people. This resistance to histamine explains why allergies are rare among them. A. J. Lea, in a careful study, found one allergic condition in 500 schizophrenics. Other investigators have made similar findings. This is a characteristic of the disease itself and not the patient, for patients can and do develop allergies when they are free of schizophrenia. D. H. Funkenstein reported in 1960 on a group of psychotic patients who had asthma when they were not suffering from schizophrenia, but never had the two together. Rheumatoid arthritis is also very rare in schizophrenia. Thus Dr. D. Gregg reported in *The American Journal of Psychiatry* in 1939 that, out of 3000 autopsies on patients with psychosis, who died for other reasons, not one patient had any evidence of arthritis in their joints or bones. Doctors Nissen and Spencer found no cases of arthritis among 2200 psychotic subjects and Doctors Trevethen and Tatum in 1954 exam-

ined 9000 admissions to a general hospital: 80 had arthritis but not one had schizophrenia.

It has also been noted in mental hospitals that *diabetes mellitus* is an unusual occurrence. Both mental hospitals in Saskatchewan, with a total population of over 3000, have less than five diabetics. Dynamic psychiatrists have explained this by saying that patients who have one "defense mechanism," schizophrenia, have no need for another, diabetes. They have not yet explained in what way diabetes is a defense mechanism any more than they have explained schizophrenia as having a stress basis. It is interesting to note, however, that doctors continue to treat diabetes with insulin and not with psychotherapy.

Schizophrenics can suffer extensive burns, severe injuries, fractures and heart attacks, acute appendicitis and even self-mutilation with abnormal stoicism and detachment. While some people faint when blood is drawn, one schizophrenic patient cut his throat and bled so much that he required five pints of blood, with little sign of shock. Some have cut off fingers and hands without collapsing or appearing to be affected in any other way. They have been known to escape the shock symptoms usually suffered at the beginning of a perforated ulcer.

Some, of course, do go into deep shock and die, but others seem to benefit from shock when it does occur. One patient, a chronic schizophrenic with bizarre ideas and behavior, suffered very severe burns over a large portion of her body in a kitchen accident. She went into deep traumatic shock, and after a lengthy period of recovery, emerged completely clear mentally and able to return to her family.

This resistance to pain can be dangerous, for acute illnesses are often ignored until too late. Psychotic patients die more often from ruptured hearts than normals, without complaining of pain or giving other signs of severe difficulty.

### PSYCHOLOGICAL CHANGES

It is impossible to catalogue and describe all the psychological changes which can occur in schizophrenia. Even if one could, it would be of little value, for the diagnosis of schizophrenia does not depend upon the counting of these symptoms.

There is no personality which is peculiar to schizophrenia. There is no particular type of personality preceding it and it does not impose a uniform type of personality on all patients. Schizophrenics represent all personality types. Opponents of biological theories of schizophrenia have used this as an argument, on the assumption that any biological disease would have the effect of

making all patients act the same way. This is a novel idea, since it is not true of any disease so far discovered. *Diabetes mellitus* does not produce uniform personalities any more than schizophrenia does, but no one argues that it is not a physical disease.

Only one personality is believed to precede the disease, and it has found its way into the literature as the schizoid personality. A schizoid personality is supposed to resemble schizophrenia and is usually applied to a person who is ingoing, introverted, quiet, and enjoys seclusion. It was believed that children who were shy and quiet by nature were pre-schizophrenic and parents of such children were advised by physicians to be concerned about them.

So strong was this assumption that much research money was spent trying to establish that schizophrenics would come largely from that group known as schizoid personalities. One such study was completed in Toronto, where an examination was made of a large number of school children from an upper-class section of society.

Using certain criteria, a small number of schizoid children were selected. Over the next few years it was found that childhood schizophrenia occurred more frequently in children who had not been selected as schizoid. A similar study in the University of Texas, Dallas, yielded similar results. A large group of children seen in a mental health clinic were classed into extraverted, introverted and ambiverted groups. Of these, the introverted ones would most closely resemble the schizoid people. Over a long follow-up period it was found that the introverted group produced less than the expected share of schizophrenic patients. In fact, out of ten subjects found to have been diagnosed schizophrenic, only one was classified introverted. Three were extraverted and six ambiverted. It thus appears that many introverted and retiring people have been needlessly annoyed by this error.

Since it has not been shown that schizoid subjects produce more schizophrenics than any other personality types, where did this idea originate?

It seems likely the idea came from the necessity of taking histories and the habit of mistaking the first signs of the disease for a special personality preceding it. This is another example of putting symptoms before causes, leading to wrong conclusions. It is as scientific as the procedures adopted by the wise men called upon by the king to determine why the wind blows. The wise men studied the problem for a long time without coming up with any satisfactory answers. It was observed, however, that whenever the wind blew the trees waved. It was, therefore, concluded that the trees' waving produced the wind.

*The basic personality is altered by the disease. This is not*



unique for schizophrenia, since it has been known for centuries that any illness alters personality. A subject with a painful headache may have at the time an irritable, withdrawn, seclusive personality which becomes relaxed, friendly, tolerant and outgoing again when the headache disappears.

The confusion on this point may be due to the characteristic way in which the disease begins. Most diseases give definite and unmistakable warning of their presence fairly early in their history. They have obvious physical manifestations which make it relatively simple for others to accept the fact that the patient has now become sick. If there is a personality change with cancer, for instance, it is understood that this is the result of pain and suffering and allowances are made.

But schizophrenia is often treacherous. It may come on so slowly and insidiously that, like watching the hourly hand of a clock, one sees no beginning or end of the movement. There is nothing definable that one can see, like the sudden loss of weight or unusual pallor, or feel, like a sharp pain in the abdomen. It makes its changes gradually where they are least noticeable, in a slowly-increasing personality deformation without any obvious explanation.

If one examines the clinical history of many patients, it becomes obvious that there were personality changes which included withdrawal, shyness, etc., long before schizophrenia was fully developed, or recognized. Perhaps this is why personality theorists have fallen into the trap of believing there is a personality which is predisposed toward it. In these cases, however, the so-called schizoid personality was the first sign that schizophrenia was present, and was a symptom and not a predisposing factor. The term "schizoid," then, has no clinical value and might well be dropped from usage.

#### WARNING SIGN

Since the personality of patients with schizophrenia differs as widely as the personality of subjects who do not have this disease, the psychological tests used to measure personality in diagnosis of schizophrenia have no value.

Many clinical psychologists favor Rorschach and other projective tests designed to determine whether we are fun-loving party-goers or sinister types harboring malice and ill-will toward our fathers. These tests have been useless in either diagnosing or helping to treat schizophrenia.

The Rorschach test was developed by Herman Rorschach about forty years ago. It consists of a set of ten cards, with a sym-

metrical ink blot on each card. The blot is usually black, but is sometimes red. The subject is supposed to look at it and tell the tester of what it reminds him.

What the patient says is interpreted by psychologists who have spent many months memorizing the significance of these comments and who have their own individual ways of analyzing the results.

The theory of this kind of test is that the blots act as a kind of magnet pulling clues to his basic problems from the subject's subconscious. These are supposed to provide the key to personality and diagnosis. Attempts to show that the Rorschach has some value have been singularly unsuccessful, but its use goes on and on.

There is one important unchanging characteristic of the disease to look for, and that is alteration in personality. Whenever there is a change in character, without an accompanying clear change in the environment and in the absence of physical illness, one may suspect schizophrenia.

This change is marked by a turning into oneself and an intensification or exaggeration of abnormal and asocial traits. For example, if a normal outgoing adolescent over a period of years becomes shy, seclusive, lonely and irritable, this is a serious personality change and parents should look for the cause. In a proportion of cases, they will find schizophrenia.

Change in personality, then, is the hallmark of schizophrenia. In order to evaluate the change we must know what the personality changed from, and must consider the age at which the change occurred. The easiest patients to diagnose on the basis of change are those who have reached the end of the developing years and have achieved stable personalities.

Schizophrenia is very difficult to diagnose in the first ten years of life. In fact, several decades ago it was believed that schizophrenia did not occur at all under the age of ten. Of course it does, but its diagnosis requires skill. Trained and skillful psychiatrists can even diagnose it at the age of one month, but these experts are extremely rare.

Several years ago a professor from Michigan, R. Rabinovitch, who was in Saskatoon, Saskatchewan, for a conference, remarked on the extremely low incidence of childhood schizophrenia in this province. It occurred, he noted, only one-twentieth as often as in Michigan, an interesting phenomenon in view of the fact that the disease in adulthood occurred so uniformly across all regions. He concluded that its low incidence in Saskatchewan children was due to the fact that there were too few psychiatrists there able to diagnose it. Undoubtedly the majority of schizophrenic children in his province were called behavioral problems or considered to be mentally retarded.

One reason for confusing schizophrenia with retardation in the young is again due to our habit of diagnosing symptoms instead of the disease. Human beings, animals and birds all have critical learning periods in their development. The song-learning period in birds, for example, is about a year. If a young male chaffinch is isolated from others of his kind at the age of three or four days, he doesn't learn the complete chaffinch song. But if he hears an adult bird singing before he learns to sing himself, he will in a year produce the song of his species, whether he is isolated or not. Similarly, there is a ten-day period just after weaning when mice learn to fight. If mice are kept by themselves at twenty days of age, they do not fight as readily in adulthood as those brought up in groups.

There is a critical period in human beings when they learn to speak, and in other ways prepare themselves for the learning which lies ahead. If, for some reason, they are unable to learn during this period, they may not learn at all.

If schizophrenia occurs under the age of ten, it will interfere with the learning process and the child's learning may be permanently impaired. Since we cannot distinguish a clear personality change, therefore, we take note of his failing school grades or his inability to keep up with others of his age. The inevitable diagnosis then is retardation, and the child is forced into the special place reserved in our society for that group of people, from which there seems to be no escape.

Personality in the next ten years of life is better established, but still unsettled. Therefore, schizophrenia becomes easier to diagnose, but the danger is great that the adolescent's illness will take a form which many will confuse with simply "adolescent behavior."

A large proportion of adolescent schizophrenics are called anxiety neuroses, adolescent turmoil or other such terms. When the disease first strikes during the second ten years of life, however, the patient has a better chance of recovery. The main difficulty here is that education is interrupted for several years as the disease develops, and during treatment and convalescence.

It is during maturity that schizophrenia is most readily diagnosed, for at this period of life, personality has more or less stabilized and change in personality can be determined more readily.

The only period during maturity when the diagnosis is easily missed is during the period after women have had their babies, when the illness is frequently mistaken for depression, and during the menopause when most illnesses are called involuntional depressions. The final period of life when diagnosis is difficult is when old age or senility develops, for then many mental illnesses are confused with senile psychosis.

## HOW THE CHANGES COME ABOUT

Since this book is not a textbook of psychiatry we will describe how these changes in personality come about. These are the psychological changes which occur so frequently in schizophrenics. They will be described under four main headings: (a) perception; (b) thought; (c) mood; (d) activity.

## PERCEPTION—THE WAY THINGS APPEAR TO US

Inside every human being is a finely woven network of nerves which take messages from ear, eye, nose, skin and taste buds to the brain. Here they are worked upon by a vastly complicated system of chemicals, each with certain duties to perform, and various departments charged with the heavy job of advising different parts of the body what to do. There is an instant interpretation, which is telegraphed back to the parts directly concerned, whereupon the individual gets angry, excited, frightened, pleased, or in other ways acts appropriately in response, depending a great deal on his own personality.

This is perception. The five senses provide us with information we must have about our own bodies and the world around us if we are to survive. They pick up cues from other people; the tone of voice, the facial expression, the gestures, and these play an important part in how we get along with them.

In addition to the five senses there are other important senses, and one of these is the passing of time. Another is knowing where your hand is, or relying on your feet to perform certain jobs without any special prodding from you. In other words, in normal individuals perception is spontaneous, automatic and perfectly coordinated.

Suppose, however, something interferes with the way messages are taken to the brain and the individual receives a distorted picture. Still acting appropriately to the information received by the brain, he is now acting inappropriately to his situation. His judgment may then be impaired and he cannot think clearly.

Or suppose because of interference with messages in the brain one has to stop and think what one's feet are doing. Suppose when you are reading the words jump up and down, and you are so interested in what the word is doing, you forget to think about what it means.

Suppose you can no longer remember what your mother looks like unless you piece an image of her together, piece by piece, and then have to concentrate to hang on to it. Suppose you hear a voice telling you to go hang yourself. Suppose, because sounds are too

loud, you are distracted and can no longer concentrate on the simplest things, like watching TV.

All these things can and do happen in people, and they happen when the person has schizophrenia.

In schizophrenia the world and people in it have changed. Dr. Andrew McGhie and Dr. James Chapman in England have collected descriptions from various schizophrenic patients on how the disease has affected them, and find that disturbance in areas of perception and attention is primary in this disease. Normal conversation is disrupted. "When people are talking," said one patient, "I just get scraps of it. If it is just one person who is speaking that's not so bad, but if others join in, then I can't pick it up at all. I just can't get into tune with that conversation. It makes me feel open, as if things are closing in on me and I have lost control. Movements become slower because each one must be thought out." "People go about completely unthinking," said another. "They do things automatically. A man can walk down the street and not bother. If he stops to think about it, he might look at his legs and just wonder where he is going to get the energy to move his legs. His legs will start to wobble. How does he know that his legs are going to move when he wants them to?"

Or as another patient put it, "If I do something, like going for a drink of water, I have to go over each detail. Find cup, walk over, turn tap, fill cup, turn tap off, drink it. I keep building up a picture. I have to change the picture each time. I have to make the old picture move. I can't concentrate. I can't hold things. Something else comes in. Various things. It's easier if I stay still."

Schizophrenia can change one or all of our sensory modes, and this produces the bizarre thinking and behavior which is characteristic of the disease.

### 1. *Visual Changes*

The sense of vision is one of the primary senses and is trusted more than most of the others. The statement "seeing is believing" expresses a profound truth. Many changes in perception can occur as follows:

(i) *Changes in Color.* Colors may become very brilliant or, more frequently, lose their brilliance. Sometimes the whole world becomes a uniform monotonous grey. When this happens it is not clear whether the patient sees all colors, but has lost his normal emotional reaction to them, or whether he sees all colors the same. The patient during this period may be unaware the world is different. One patient realized her world had been dull and grey only after she suddenly regained normal color vision.

"Colors seem to be brighter now, almost as if they are luminous," one patient told Dr. Chapman and Dr. McGhie. "When I look around me it's like a luminous painting. I'm not sure if things are solid until I touch them."

Another patient said: "I am noticing colors more than before, although I am not artistically minded. The colors of things seem much more clear and yet, at the same time, there is something missing. The things I look at seem to be flatter as if I were looking just at a surface. Maybe it's because I notice so much more about things and find myself looking at them for a longer time. Not only the color of things fascinates me but all sorts of little things, like markings in the surface, pick up my attention, too."

(ii) *Changes in Form.* Objects remain recognizable but look different. This may lead patients to believe the objects are unreal, that is, that they have a new, unexpected and, therefore, unreal quality. Sometimes pictures are seen as having real three-dimensional quality. A house in a picture may appear to have the depth and perspective of a house on the street. On the other hand, three-dimensional objects may appear flat.

Angles may become distorted. Instead of lines going up and down or straight across, they may seem to be leaning over. Sometimes objects develop life-like qualities and pulsate, as though they were breathing. Words on paper may move up and down or sideways, and lines may appear to crowd together. Parallel lines or patterns on wooden objects or in floors may flow in and out as if alive.

(iii) *Misidentification.* The ability to distinguish one face from another depends upon being able to see properly. The slightest change in a face is enough to make it seem strange or different.

One male patient said people's shapes did strange things. Sometimes their faces were triangular or square. Sometimes their heads got larger or smaller. Sometimes one shoulder went up and the other went down. For this reason, he couldn't look at people for very long, but had to look away.

"But you're looking at me now," said the social worker.

"Yes, but you don't bother me," he said. "I'm used to you. In fact, you look rather funny."

If visual perception is disturbed the subject may lose his ability to recognize people. *The New York Herald Tribune* February 12, 1964, carried the following story under the heading, "Killer Says Voices Told Me To Shoot":

When he came down the stairs he had unnatural feet, iridescent eyes and his fangs were showing. My voices told me to shoot him. Police said A had suffered a nervous breakdown after his father's death.

Clearly what happened was that A was very psychotic and suffering from auditory hallucinations. When poor young Mr. Burke came down the stairs A saw him coming down. Looking up at him could strongly enhance any failures in constancy, since it seems our perceptions are more stable along the horizontal plane.

Another patient had a similar misidentification with serious consequences. During a period of deep depression and anxiety he looked up and saw a young girl coming down the stairs. She seemed to be surrounded by a halo and looked like an angel. This psychotic man immediately fell in love with her. This eventually led to his divorce and to a prolonged period of extreme tension and unhappiness.

An elderly schizophrenic who had been sick for ten years knew she was married to Mr. Jones. But when asked if Mr. Jones was sitting beside her, she was unable to recognize him and denied it.

A male patient lost his ability to tell one face from another. All faces seemed the same to him, leading him to believe he was being followed.

Some patients notice changes in themselves when they look in the mirror and find these disturbing. One patient's chief symptom was that she saw bags and lines under her eyes. None of these was present but she could see them and this had a profound effect upon her. She became quiet and seclusive and refused to go out.

Some patients may also see themselves as being much younger or older than they really are and this leads to problems.

(iv) *Changes in Far Vision Perspective.* A common complaint of schizophrenic patients deals with the ability to orient themselves. Subjects who ride in cars become insecure and feel either that passing cars are coming toward them too closely when they are not, or that they themselves are too close to the ditch. Because of this, several patients stopped driving cars as their illness developed. These visual changes also make it difficult for patients to estimate correctly the size of people and objects far from them. Some see other people much smaller than they really are.

These changes send patients to oculists or ophthalmologists from whom they demand glasses. Most often the new glasses do not solve the problem, and a frequent symptom of schizophrenia, therefore, is a frequent change of glasses with no relief.

A common problem among sufferers from the disease concerns the ability to judge whether people are looking directly at them or not. The ability to decide whether one is being looked at depends upon a proper binocular vision and a very exact coordination of a variety of cues. If the area of the brain which judges convergence is not functioning properly, subjects would be inclined to see people as looking at them when they are not.

In a study involving schizophrenic and non-schizophrenic patients, we found that twenty-five schizophrenic patients were less able to decide whether an investigator was looking into their eyes than a group of thirty non-schizophrenic patients.

The schizophrenic is liable to feel that he is being looked at long and more often than usual, when this is not so. The earliest symptom of schizophrenia may be the inability to lose the feeling of being watched. Recently a professor of biology sought a psychiatric consultation because he was continually and painfully aware that his students were watching him as he lectured to them. He was disturbed that, after many years of lecturing, this feeling was still present and much stronger than it had been. The urine test showed he was very ill with malvaria.

Whether people are looking at us or not, and how they look at us, produces an emotional reaction in most people and would, therefore, have a profound effect on the schizophrenic.

In a letter to Dr. Osmond, Edward T. Hall, Department of Political and Social Science, Illinois Institute of Technology in Chicago, wrote, "I think that the point about the schizophrenic not being able to tell when people are looking at him is very important. Its importance, as a matter of fact, has undoubtedly been overlooked. Recently, I have had my students doing experiments on eye behavior. . . . One of the first things I discovered was that my own feelings, about being looked at in certain ways that often caused me to be quite anxious, were actually shared by a great many people. I had thought that my own discomfort was due to a failure on my part in working through some old dynamism that laid buried in my past experience. This may also be so, but the data indicate that the reaction is a normal one and can be exceedingly painful."

He went on to point out that "dominant baboons can cause a younger baboon to scream with a pain at a distance of around thirty feet simply by looking at him." He concluded that if the schizophrenic's capacity to tell when people are looking at him is seriously disturbed, he could be in deep difficulties. He also had observed that "they use their eyes in a very improper way," creating hostility or anxiety in those around them.

In ordinary life there is a kind of visual exchange between one person and the other and the eyes are normally used to facilitate social relations. When people talk, they look at each other and look away again. They may look at a person's mouth, shoulder, the top of his head. They rarely look directly into each other's eyes except for short intervals, for being stared at makes many people uncomfortable. In fact, small children are often told not to stare.

Many animals are disturbed when they are stared at. A bore



can be temporarily halted or completely silenced by gazing straight into his eyes. Freud placed his patients on a couch because he disliked being looked at for hours on end.

The feeling of being watched or stared at, then, would be reason enough for a person to remain in seclusion.

(v) *Illusions and Hallucinations.* Schizophrenics do not, as we are told, "imagine" they hear or see things which are not there. They actually hear and see them. They have illusions because something has gone wrong with the way they perceive things and, therefore, they misinterpret what they are looking at. The coat hanging in a cupboard may momentarily look like a man or a bear.

Hallucinations are things, scenes, people, etc., which patients see but which other people do not see. Visual hallucinations can be anything familiar to everyone in everyday life, or may be fantastic visions of the kind seen during transcendental states or during experiences induced by psychotomimetic drugs like mescaline and LSD-25.

(vi) *General Comments.* Visual changes may range in intensity from very slight to very severe, and may endure from a hallucination of a single moment to hallucinations lasting many decades. The response or reaction of the subject to his visual changes depends upon many things. This will be discussed further on in this book when the comprehensive theory of schizophrenia is considered in Chapter IV.

Some psychiatrists try to distinguish between so-called true and pseudo- (not true) hallucinations. They accept hallucinations to be true when the patient sees any physical familiar object which no one else can see, and believes it to be real. Pseudo-hallucinations are said to be the same visions, but when the patient realizes them to be phantasms or visions.

If this were the only matter at issue, there would be no quarrel with these arbitrary definitions. But psychiatrists have used these distinctions to make diagnoses even more unclear and difficult, for it is now said that schizophrenics have true hallucinations and hysterics have pseudo-hallucinations. If the psychiatrist wishes to give the patient psychotherapy he will be tempted to call them pseudo-hallucinations.

Actually, diagnosis depends not upon the patient and his hallucinations, but upon the psychiatrist. If the latter thinks the patient has hysteria, he terms the hallucinations "pseudo"; if he believes the patient to have schizophrenia, his hallucinations are said to be true. The definition, therefore, is tied to the idea of the diagnosis. It would be scientifically better to drop these terms "true" and "pseudo" and merely say instead that the patient has hallucinations.

## 2. Auditory Changes

There can be fewer changes in hearing than in seeing. Sounds may be louder, or not as loud.

"It's as if someone had turned up the volume," one patient said. "I notice it most with background noises—you know what I mean, noises that are always around but you don't usually notice them. Now they seem to be just as loud and sometimes louder than the main noises that are going on. . . . It's a bit alarming at times because it makes it difficult to keep your mind on something when there's so much going on that you can't help listening to."

Sounds may become less intelligible and harder to locate. One patient, for instance, said that though he knew the sounds were coming from the wireless in front of him, they seemed to be coming from behind his back.

Very few schizophrenic patients are free from auditory changes. As a result, textbooks of psychiatry regard auditory hallucinations as a sign of a more serious disease process, while visual hallucinations are taken more lightly. However, the evidence to support these views is not strong, since psychiatrists fail to make careful studies of the visual changes which occur in schizophrenia. They don't see the importance of changes in perception. Perhaps, too, their preoccupation with patients' life histories leaves them little time for these studies.

One schizophrenic tried to get admitted to a psychiatric ward because he thought others were talking about him, yet knew this was not so. At the same time he had visual disturbances and he decided he must be getting sick again. He was refused admittance, however, and told to go home "because you are normal."

There are two excellent ways for psychiatrists to become conscious of perceptual changes in patients. The first is long and arduous. It involves many years of experience with psychiatric patients, during which each is carefully examined for these changes. The second method, a faster and more effective one, is to take one of the hallucinogenic drugs such as LSD-25, mescaline and psilocybin, and study these changes at first hand. We think most psychiatrists would profit from the experience, and their understanding of their patients would improve.

Auditory hallucinations occur after schizophrenia is well established. The changes appear to occur in order as follows:

- a. Patients become aware of their own thoughts.
- b. They hear them in their head.
- c. They hear them as if outside their head.
- d. They hear voices.

The hallucinations can be anything from voices giving orders and conversations with God, to music, unearthly sounds and buzzing noises. There is no way of predicting in advance what the patient will hear. This will probably depend upon his personality, the part of the brain that is affected by the body chemical producing these changes, and other factors. The voices may belong to people known to the patient, alive or dead. They may teach the subject, or hold conversations with him. They may make fun of him or give him orders such as, "Do not eat any more." Religious communications have been very common, but in recent years sexual comments seem to have become more frequent.

The nature of the communication is not as important as the ability of the patient to act, or refrain from acting, on the advice given him. The only exception is the case of the patient who came to the hospital in response to a voice which told her to.

A person may have the most vivid hallucinations, yet appear normal as long as he can refrain from doing what the voices tell him to, and telling others about them. One patient, a physically and mentally rugged individual, heard voices telling him as he shaved every morning, "Cut your throat, cut your throat." But he *knew* this was nonsense and carried on as if these voices did not exist.

This man had lost both legs in action in 1917 during the First World War and had made a splendid adjustment to this disaster. His schizophrenia did not develop until 1947, thirty years later.

One of the stages in treatment, therefore, is to convince patients not to tell others about their hallucinations.

### *3. Changes in Sense of Smell*

Patients may become either more or less sensitive to odors. Since smell is an important factor in taste, any change in the former may lead to a change in the latter. The patient may become acutely aware of odors he normally did not notice before. Body odors may become exaggerated and unpleasant. Other people may smell strange. Consequently, patients may wash themselves excessively or insist that others do so.

Of course, hallucinations of the sense of smell can occur and in this case, patients will be aware of odors which are really not present. These hallucinations seem rare in schizophrenia but as questions about smell are not commonly asked, we really do not know. Patients will complain about them only when the changes are pronounced.

#### 4. *Changes in Sense of Touch*

These changes seem to occur less frequently than in any of the senses described above. Patients may become more or less sensitive to touch. Usually they become less sensitive to pain. Decrease in touch sensitivity is generally not troublesome unless the patient's job depends upon a keenness of touch.

But an increased sensitivity can be very troublesome. The feel of a fabric can be exaggerated until it feels like animal fur. There might be bizarre sensations, like the feeling that worms are crawling under one's skin. Unusual touch sensations may be interpreted as having electricity applied to one's person, being stuck with needles and so on.

There may be increased or decreased sensitivity in the genital organs, resulting in sexual delusions.

Normal subjects commonly experience the feeling of being out of the body when they take LSD-25. This usually occurs when the subject is so relaxed he is unaware of his own body. The medical explanation for this may be that messages from the outside of the body to the brain are temporarily suspended, and the patient's "perceived body" is distorted.

"Perceived body" is awareness of the limits of one's own body. This is undeveloped in babies, but well defined in adults. It is likely schizophrenic children have defective perceived body images and so easily run into solid objects. Also, if the body image is diffuse, patients can invade other people's "personal" space.

In their research in Weyburn Hospital, Dr. Osmond and Dr. R. Sommer, research psychologist, found that there is a space surrounding each person which, if invaded by another, makes him very anxious. You have seen some people talking face to face, while others are at least a yard away. The extent of personal space around each individual is determined psychologically and by the customs of the society in which he lives.

If a young female schizophrenic loses the ability to judge body image, she may unwittingly get too close to men and so appear to them to be forward or seductive, with many undesirable results. Staring at another is a violation of personal space and makes one feel anxious. One may feel threatened or "dominated" if an individual we dislike gets too close to us in conversation.

Sometimes, in another disturbance of "perceived body," the subject who has taken LSD-25 sees his own body from the outside, as though he were on the ceiling looking down on himself, but this is rare. This also occurs with some schizophrenic patients. One patient was placed in a jail cell because of his asocial behavior.

During this incarceration he woke up one day and, hearing footsteps in the corridor, went to his cell door to look out. In the corridor he saw himself pacing restlessly up and down. He examined himself, said, "I must be crazy," and retired to his cot to finish his nap.

*5. Taste Changes*

In schizophrenia the proper balance of flavors is altered. Patients may become less sensitive to taste so that foods taste unusual. New tastes may occur.

The only dangerous changes are those which lead the patient to believe someone has tampered with the food. In our culture bitter things are often associated with medicines or poisons, and it is very likely that the common delusion of schizophrenics that they are being poisoned stems from the hallucinations that the food tastes bitter.

Dr. John Connolly in 1849 believed that many of his patients' delusions arose from disorders in taste perception. He reported many patients would not eat because foods had a coppery taste.

*6. Time Changes*

We will include time as one of the important senses even though there seems to be no definite organ which deals with it. It is likely time perception is a function of the entire brain which acts as a computer integrating all sources of information from the senses to estimate the passing of time; for example, the eye sees day and night, sun, stars and shadows. The ear hears different noises at different times of the day, while the body feels hunger and other sensations from bladder, bowel, fatigued muscles and heartbeats. All these impulses, taken together, help us to tell whether it is morning, noon or night.

This skill has to be learned, and time- or clock-conscious societies force their members to learn it more thoroughly than others, although no human is ever free of the need to know that time is passing.

Few people realize how important the sense of time passing is to them until they are deprived of external aids such as wrist-watches, or unless they find themselves in a world where time has lost its normal qualities, such as in the world of LSD-25. Today, when so many new demands are being made on our ability to perceive the passing of time, we can imagine the havoc which would result in our daily lives if we suddenly found ourselves un-

able to judge, or be aware of, time passing normally. Yet schizophrenics are continually living with a distorted time sense.

Patients in mental hospitals are frequently disorientated for time, possibly due to the lack of external aids which other people depend upon. The sense of days and weeks passing is normally diminished when one is removed from one's daily occupation. People on vacation and patients in hospitals are more disoriented than they are at home. In general, calendars, daily newspapers and daily visitors help maintain orientation. But mental hospitals are not so well blessed.

One of our chronic schizophrenic patients was completely disoriented for time until the nurses were instructed to show her the calendar and daily newspaper and to ask her frequently the day of the week and the date. With these aids she soon became normally oriented.

In schizophrenia there can be very few changes in the sense of time passing, but their effects are very profound. In our research we have found that schizophrenics are more confused and muddled about time than any other patients except those in confusional states, for example, in senility or toxic states of other illnesses. They seem to be in long slow delirium, resembling the state normals find themselves in when they take LSD-25.

Time may appear to pass very slowly, as in the hour spent listening to a dull lecture. Time may pass very quickly, as in the three hours spent in an interesting chess game or in hours of love which fly by in minutes. Time may stop altogether when there is no sensation of time passing at all.

Some catatonic patients seem to be suspended in time. When they recover from their catatonia (the state suffered by some schizophrenics when they do not move or speak) they can remember things that happened around them, but not the order in which they happened. Time is normally sequential. That is, "today" follows "yesterday" and is behind "tomorrow." It would be very disturbing if this normal flow of time were reversed. This happened to one of our subjects who, when given LSD, found himself drinking his coffee before the cup was lifted to his lips! We have not yet seen this in patients but we have not made a particular point of inquiring about it. We do not doubt it does occur, but it is rare. The order of events in schizophrenia, however, can be confused.

The changes may be of short or long duration and one may follow the other. A patient may sit down for a few moments, stay there several hours and "come to" thinking only moments have passed. Schizophrenics alternate between periods of time passing slowly, and time passing quickly. When it is passing slowly, they may be depressed. When it is passing quickly, they may be excited

and elated. It is usually believed the mood sets the time sense, but there is no reason why the time sense cannot set the mood.

In fact, in hypnotic experiments which we will describe later, the mood was exactly correlated with the change in time passing. The slowing down of time movement produced depressed emotions. The speeding up of time produced euphoria, cheerfulness and even mania. When time was stopped, catatonia was produced.

It is surprising that so little attention has been paid to time perception in schizophrenia and its relationship to mood, even though this has long been a matter of general knowledge. It is also surprising that so little use has been made of this knowledge to develop diagnostic tests for schizophrenia.

#### *Additional Notes on Perceptual Changes*

It is impossible to describe all the changes which can occur in the whole range of perceptions, nor would it be desirable to do so. For one's attention should not be directed to the details of the changes, but rather to the fact that the changes are present.

For anyone to function normally, each sense has to be linked smoothly and easily to all the others. We make judgments on the basis of what our senses tell us. If anything goes wrong with any one of our senses, our lives at home, at work and in the community can be seriously disrupted.

Some people experience a phenomenon called "synesthesia" which may be normal for them, but surprising and frightening for others. In synesthesia some people see a flash of light at the same time they hear a musical note.

This commonly happens when one has taken LSD-25 or its related compound, mescaline. It also occurs in schizophrenia. One may feel a pain in the chest at the same time one sees a flash of light. This can be very disturbing to patients and can easily lead them to believe they are being controlled by magic, or by the influence of others. One patient kept getting messages from the planets. Some patients have a feeling of omnipotence and power.

The first responsibility, when changes do occur, is to diagnose the presence of schizophrenia. In order to do this accurately, the simple fact that perceptual changes are absent or present is most important, and when they are present, a diligent inquiry must be made before schizophrenia is ruled out.

It is important to know the kind of perceptual changes which are present in order to treat the subject intelligently. Very often a proper explanation to the patient will weaken the emotional effects of the perceptual change and make life simpler for him.

## THOUGHT

We will not attempt to list all the varieties of change in thought which occur in schizophrenia. They may all be classified into two main categories: change in thought process and change in thought content.

*1. Changes in Thought Process*

By process of thinking we refer to the act of putting thoughts into words in a logical manner. Ideas follow one another simply and logically, and are appropriate to the time and situation. Random and stray thoughts do occur, but they are under control and do not interfere with the normal flow of thinking. Memory for recent and remote events is adequate and the timing of one's thoughts are in tune with, and appropriate to, the group engaged in the conversation.

Any major change in brain function may disturb or disrupt this normal flow of thinking. The following changes in thinking have been found in schizophrenia:

(i) *There are no ideas whatever: the mind is blank.* This happens momentarily now and then to all of us. Repeated momentary blocks of this kind are called blocking. But when there are minutes or hours of blankness, it is highly pathological. One patient was mute. After many hours of trying to get him to talk, he blurted out that he could not talk, for his mind was blank. When he was given a book to read, he was able to read it aloud perfectly correctly. The words on the page were properly registered on his brain and properly reproduced as words, but he had no thoughts of his own to put into words.

(ii) *The process of thinking may be slowed down.* This is found more frequently in patients who are severely depressed, whether or not schizophrenia is present, and may be related to a slowing down of the sense of time passing. One schizophrenic patient spoke extremely slowly, and answered questions only after prolonged pauses. When her sense of time passing was speeded up by hypnotic suggestion, she was able to respond much more quickly and speak more rapidly for several weeks.

The opposite of this, a marked acceleration of thought and speech, is also found in schizophrenia although it is more typical of manic states. This may account for the increased brilliance of many young schizophrenic patients when their schizophrenia is just beginning.

(iii) *Thought processes may be so disturbed that one thought*



*is followed by another which has no direct connection with it.* Thoughts may jump about at random. Bizarre thoughts may intrude and interfere with normal thought.

*(iv) Memory and recall may become so disturbed that clear thinking becomes impossible.*

Patients have described some of these changes to Dr. Andrew McGhie and Dr. James Chapman as follows:

Sometimes I can't concentrate because my brain is going too fast and at other times it is either going too slow or has stopped altogether. I don't mean that my mind becomes a blank, it just gets stuck in a rut when I am thinking over and over again about one thing. It's just as if there was a crack in the record.

I may be thinking quite clearly and telling someone something and suddenly I get stuck. What happens is that I suddenly stick on a word or an idea in my head and I just can't move past it. It seems to fill my mind and there's no room for anything else. This might go on for a while and suddenly it's over. Afterwards I get a feeling that I have been thinking very deeply about whatever it was, but often I can't remember what it was that has filled my mind so completely.

My trouble is that I've got too many thoughts. You might think about something, let's say ashtray and just think, oh! yes, that's for putting my cigarette in, but I would think of it and then I would think of a dozen different things connected with it at the same time.

My mind's away. I have lost control. There are too many things coming into my head at once and I can't sort them out.

These are some of the changes that can occur in thought process. They are frequently found in schizophrenia. They are invariably present in well-established cases but they may not be present very early in the illness.

Because the patient cannot control ideas or thoughts, or perceive normally, his speech is disturbed, leading some professionals to believe there is a "schizophrenic language." There are some writers in the psychiatric literature who even give the impression that they know and can even hold conversations in a schizophrenic language. This is another myth.

Dr. Osmond and Dr. Sommer tested patients in the Weyburn Mental Hospital, Saskatchewan, with the Word Association Test which was originally used by Sir Francis Galton in 1879. The test is completely objective and can be given and scored by an untrained technician.

Dr. Osmond and Dr. Sommer became interested in this question while studying autobiographies of mental patients. When

they compared these to books by former prisoners, they found that they could hardly read some prison books without a glossary because of the special language of prisoners. But there was no special language among mental patients. They felt this could explain the lack of organized social activity among schizophrenics, and the fact that schizophrenic patients did not organize mutinies, riots or protests.

In their studies with patients they found that schizophrenics not only had less in common in word associations than non-schizophrenic patients and normals, but that they did not understand one another's speech better than anyone else did. In fact, they found that patients were intolerant of the delusional and incoherent speech of other patients, and only paid attention when their fellow patients talked more or less normally. Patients sometimes complained about "crazy talk" by other patients and even walked out of meetings and group therapy sessions if there was too much of it.

They found that though the speech of schizophrenics may appear bizarre to us, they were actually responding to information received through their senses. Thus, rather than having a language of their own, they associate with their own associations to the words given them. Furthermore, as additional proof, a schizophrenic's associations to the same word may vary.

This leads us to believe there is no schizophrenic language, but that the schizophrenic's disjointed, rambling and often incoherent speech is another symptom of the schizophrenic process which has broken every line of contact with the world.

These are some of the changes that can occur in thought process. They are very frequently found in schizophrenia. They are invariably present in well-established cases, but they may not be present early in the illness.

## *2. Changes in Thought Content*

Everyone has wrong ideas. Superstitions, beliefs in certain "miracle" foods, prejudices against groups, extraordinary belief in one's own abilities are examples of commonly held wrong ideas.

We may go along quite contentedly with these ideas for most of our lives, particularly if most people in our society share them with us. When our wrong ideas conform to ideas generally accepted in the community, we are not sick even though other societies believe they are abnormal. For example, enormous numbers of men believe in racial superiority, while enormous numbers of

other men believe this is a delusion. Yet the individuals who share this widely held belief are normal in their own society.

But at some time or another we may have to ask ourselves, is this idea true? Does it make sense? Is it normal to think that way?

We can decide for ourselves whether our ideas are true or normal by testing them. We can search for supporting evidence. We can compare them with the consensus of ideas in the community. We may then find our ideas are indeed wrong or different, but that we cannot help believing them. In that case we have to decide whether we want to keep our ideas even though they are wrong, or whether we want to change them.

If our ideas interfere with our jobs, with our relationships with relatives and friends and with our general effectiveness in our community, then we must examine them closely and decide either to take the consequences or to reject the ideas.

Many schizophrenics at one time or another in the course of their illness also have wrong ideas, but these are more extreme and may fluctuate. They may believe that someone has poisoned them or that they are victims of some community plot. This of course is not so, yet they may develop a long line of logical reasoning to explain why they believe this is so.

When he is well, the schizophrenic is able to judge whether his observations are true or not. But when he is sick his judgment is impaired. This, together with the changes in perception which characterize his illness, can lead to an infinite number of bizarre and unusual changes in thought. Again we must remind the reader that thought can be considered abnormal only if it differs markedly from the culture one is in.

We do not mean the kind of culture which refers to art or literature, nor do we mean a "cultured" person who is well versed in these matters. By culture we mean the total number of factors which have molded or shaped the person in which he has grown and lived. Westerners grow up in a western culture of competition and judging status and prestige by wealth and accomplishment. North American Indians had varying cultures, where status meant different things in different tribes. Thus, a paranoid whose thoughts may be bizarre in our culture, is normal in a community where everyone else's ideas are also more or less paranoid.

It is relatively unimportant to know all the kinds of content changes which can occur in schizophrenia. There is hardly any idea which cannot be imagined and undoubtedly these have been found among schizophrenics. But if the ideas become extreme and unusually different from the thinking of people around them, they may be a symptom of schizophrenia.

## MOOD

Again few changes are possible, but these may vary. One may be depressed, normal in mood, too happy or completely lacking in feeling, that is, flat or uninterested. The mood may not be consistent with the thought content expressed by the subject in his speech, and in this case may seem inappropriate to the observer.

Depression is the most common change in mood.

Everyone at times is depressed, especially when one is sick, or frustrated, or has failed in some endeavor. In fact, it is so common that most people are convinced every depression must be the result of some failure, some reverse or some clear physical disease like infectious hepatitis (jaundice).

It is very difficult to convince many patients that the depression is primary and may occur in the absence of a precipitating event. Nearly all patients and most psychiatrists search ceaselessly for a reason and this search, which is so often fruitless and degrading, is aided and abetted by careless professional probing.

Depression is often the earliest symptom of schizophrenia, just as it is the first symptom of many other illnesses. Whenever depression occurs in a young person where there is no physical illness or other clear reason for it, schizophrenia should be suspected.

The depression (sadness) may come on slowly, endure for several days or weeks, and then vanish until the next episode. The subjects are then hounded by inexplicable moods of despair and irritability. When this occurs, together with clear perceptual changes, the diagnosis can be made early.

But when depression occurs alone as the first symptom, the patient is not so fortunate. It is likely he will then be diagnosed as a depression or an anxiety neurosis for many years. The unfortunate schizophrenic will then fall into the group of depressions who within ten years are clearly schizophrenic, or in the group who respond to ECT (electric shock treatment) or to antidepressant drugs with a gratifying change of mood but, to the horror of their doctors, now appear schizophrenic.

Meanwhile, many valuable years have been lost during which the patient could have been given specific treatment and spared useless therapies.

The period of depression may be followed by a feeling of euphoria, when the patient feels much too happy when all circumstances are taken into account. But these periods of elation are few. The usual story is to have periods of depression followed by periods of normality. If the moods are too short and follow each other rapidly, especially in young people, schizophrenia is very likely the reason.

During the early stages of the illness the depression is always appropriate to the patient's circumstances. This, too, makes diagnosis difficult since many psychiatrists wait for the depression to become inappropriate before they will entertain the diagnosis of schizophrenia. But this delay is very dangerous, for the disease becomes well entrenched and chronic before the mood becomes inappropriate enough to satisfy the psychiatrist. No research has come to our attention which shows how long it takes for a schizophrenic's depression to become inappropriate, but it must be several years.

The most common inappropriateness is flatness, in which the patient feels neither depression nor happiness. He feels no emotion at all and is completely apathetic. This can be a disturbing symptom for subjects who once did feel appropriately, but if it occurs very early in life, and has been present many years, they get used to it and eventually find it quite tolerable. It is probably easier to endure than the severe tension and depression which precede it.

Upon recovering, however, the ability to feel emotion often returns, and this too can be disturbing to patients. Dr. Hoffer and Dr. Osmond have often seen this happen in patients who were receiving adequate treatment with nicotinic acid. It is a mistake in this case to assume that the occurrence of anxiety and tension indicates the disease has recurred. It is on the contrary a heartening sign. The patient's tension can be easily controlled with anti-tension compounds or barbiturates, which can be slowly withdrawn usually after a month or so.

The flatness of moods is puzzling. It is very characteristic of schizophrenia but there are no adequate explanations for it. It is possible it is responsible for the inappropriateness of mood for, if a person can feel no mood, in time he will lose the ability to judge what his mood should be. Many schizophrenics compensate intellectually for their inability to feel emotions by observing others in a social and group situation, and role-playing the appropriate mood. If the others are sad or gay, they feel they must also be sad or gay and act accordingly. This is very hard on them and may lead them to avoid group situations.

One beneficial effect of this flatness of mood is that it probably keeps many schizophrenics from killing themselves. It is well known that many severely depressed people do kill themselves but it is not generally known that schizophrenics also have a very high suicide rate and it might even be higher if they did not have some flatness of mood.

Research in Saskatchewan and elsewhere shows that out of any group of schizophrenics, about 0.2 percent will kill themselves each year. If one started with one thousand fresh cases of schizophrenia, one would expect that two will die each year from suicide,

whether they have or have not received psychiatric treatment. The only exception we know of is the treatment program which includes nicotinic acid. Out of over three hundred schizophrenic patients treated adequately with nicotinic acid, who have been followed up in Saskatchewan for nearly ten years, there have been no suicides.

With the flatness of mood, therefore, it appears as if the disease itself acts as a poor tranquilizer. This will be discussed in a subsequent chapter. The only hallucinogens (drugs capable of producing hallucinations as in schizophrenia) which reproduce this peculiar mood flatness are adrenochrome and adrenolutin. These are two compounds formed from the hormone adrenalin which are probably present in the body, and which we think are somehow responsible for the disease process called schizophrenia. This hypothesis will also be discussed in the next chapter.

#### ACTIVITY

It should not be surprising that changes in perception, thought and mood should lead to changes in behavior. We will not describe these for they lead directly from the other changes. If a person feels he is being spied upon, it seems only natural he should take some action, either defensive or offensive.

We wish only to discuss briefly the common belief that schizophrenics are dangerous. They are, indeed, somewhat more dangerous to themselves than they would be if they were not schizophrenic, but they are not more dangerous to other people.

The risk of homicide among schizophrenics is no greater than it is for non-schizophrenics. Nevertheless, this belief is so well engrained it has until recently been an article of faith for mental hospital architects, society and even for nursing staff. This is one reason mental hospitals have been built like fortresses and jails. The best evidence that this is false is the fact that one or two rather small female nurses can herd as many as forty to sixty or more chronic schizophrenics.

There are, of course, isolated incidents of homicide. These result from certain delusions, especially when the hospital staff does not treat the patient appropriately. It is a general rule that a violent aggressive patient is a sign of poor psychiatric treatment. Most modern mental hospitals have done away with physical restraints, cuffs, guards, etc., with great success.

The behavior of schizophrenic patients is predictable when one takes the trouble to find out not only what they think, but what they perceive.

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