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Part I.—Original Articles.

A STUDY OF THE CHANGES IN FUNCTION FOUND IN SCHIZOPHRENIC THOUGHT DISORDER.

By KONRAD ZUCKER, M.D.Göttingen,
Late Commonwealth Research Fellow, Maudsley Hospital; and

W. H. DE B. HUBERT, M.R.C.S., L.R.C.P.
Assistant Medical Officer, Maudsley Hospital.

INTRODUCTION.

IN this paper a series of twenty-six cases of schizophrenia are analysed. This study has been confined very largely to a consideration of their feelings of unreality, hallucinations and disorders of imagery, as it was found that the particular method used was most applicable to these features of the total symptomatology. Such a selection from the whole range of schizophrenic activity might appear arbitrary since there is, of course, an essential unity in all psychic happenings, as, amongst others, Mignard (1), Berze (2) and Kronfeld (3) have pointed out. Nevertheless, Mignard himself says that affect, will, knowledge and memory are involved in *every* single psychic act. C. Schneider (4) also has demonstrated that schizophrenic characteristics show the same easily recognizable form in all their deviations from the normal psyche.

Our procedure aims at bringing the problem of schizophrenia, so far as is possible, into relation with the conceptions which have resulted from the experiments of Beringer and Ruffin (5) in the analysis of function. This particular functional point of view was introduced by Goldstein (6) in his investigation of figure-background relations, and was further elaborated by one of us in a previous work (7). This method has the advantage of making it possible to include in a general scheme not only phenomena always considered from the psychological, but, also, those usually treated from a somatic point of view. It may be as well to summarize briefly the conceptions used.

" Intentionality " may be regarded, following Kronfeld (3), as the whole of the psychic potentiality for action. It cannot itself be brought within any scheme of functional analysis. As soon as intentionality becomes active in

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any particular direction some kind of " activity " becomes manifest. One may regard this activity from either a psychological or biological standpoint, but so far as formal relationship is concerned both may be regarded as identical. As soon as intentionality shows " activity ", one may refer to this as the manifestation of " tendency ". This " tendency " may be regarded as a function in that it is quite independent of any psychological or physiological content. It may be said that the " aim " of the tendency is a construction of a certain " figure ", or, rather, the definition of a figure from the background. The particular " shape " of this figure will be determined by the particular kind of tendency, its content will be the " material " which is selected by the material from the background. This latent material may be regarded as a storehouse of previous sensory impressions, motor patterns and more general experiences. The particular selection made by any given tendency from this will be transformed into the formal content of a special performance. Of course it does not follow that this material when latent is chaotic; it must have a particular form dependent on previous experience. When a tendency is re-directed upon this material the previously formed complexes will be transformed into new shapes, and entirely new complexes may be created.

Functional analysis has " tendency " as its subject, and is concerned with the particular deviations this shows from the normal tendency.

Our method of investigation will now be described.

The Method.

It was at first proposed to study the formal characteristics of schizophrenic performance in general, but such an attempt would probably be too difficult, for the stream of spontaneous thought of the schizophrenic is so many sided and capable of so many interpretations. Certain quasi-experimental conditions were imposed—the patient being given certain set tasks to perform which involved auditory and other imagery. The advantages of the method may be tabulated as follows:

(1) The capability of the patient to follow our directions could easily be determined, the normal range of performance being roughly known.

(2) The point at which the patient departed from this range could be shown and the degree and manner of deviation demonstrated.

(3) Patients when they reach the threshold of their capability of performance for any particular task could compare the difficulties they experienced and the deviations they showed with their abnormal experience occurring spontaneously. They could thus describe to some extent the difference between their own imagery and their hallucinations.

(4) The method allowed, to an extent unobtainable by ordinary questioning, the experimenter to grasp the essence of the patient's abnormal experience.

(5) It was possible to find in the spontaneous stream of thought of patients

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features which had been demonstrated in the more limited experimental field.

Selection of Cases.

Twenty-six cases of indubitable schizophrenia were selected. Most were well preserved and could follow the questions easily, often with considerable interest, while communication by means of language was still possible in all. Before selecting a case a preliminary test was made to ensure that the patient was of a type habitually capable of vivid imagery, or at any rate was not definitely limited in that direction. It must be pointed out that after a certain amount of experience little difficulty was found in distinguishing between a lack of clearness in the patient's experience during imagery experiments—that is, a real inability to experience vivid imagery at all—and those alterations in the form and course of imagery which were the particular subjects of the investigations.

To gain some idea of the material used, the following list of cases is given, arranged in five groups, which depend upon their degree of preservation at the time of the experiment—not upon either their previous history or their later development :

Group I.

Case 1 : Æt. 22. Married. Gradual onset, with compulsive impulses, 4 years ago. Later, auditory hallucinations and, suddenly, the feeling of being altered. At the present time approaching recovery. Well-preserved in personality and affect.

Case 2 : Æt. 23. Single. Acute onset 3 months ago with the constant, distressing feeling of being altered. Occasionally auditory hallucinations and compulsive impulses. At present stationary, with a well-preserved personality. Highly intelligent, with a good insight into her illness.

Case 3 : Æt. 60. Married. Six years ago, onset with auditory hallucinations, strange thoughts and thought disorder. Some compulsive features. Now stationary. Well-preserved personality and good insight.

Case 4 : Æt. 42. Single. Always seclusive. Gradual onset six or seven years ago with thoughts spoken aloud. Auditory hallucinations, a few delusional beliefs, but well-preserved personality.

Case 5 : Æt. 32. Single. Onset ten years ago with depersonalization, auditory hallucinations and strange thoughts. Now stationary, but with considerable limitation of affect.

Case 6 : Æt. 21. Single. The third attack of schizophrenia ; always, previously, with good remission. During the last attack, florid signs for two months—auditory hallucinations, many delusional ideas ; at times in stupor. Later, improvement, but lamed affect. Shy, good insight, and talking well about herself.

Group II.

Case 7 : Æt. 26. Single. Onset, sudden, one year ago with rapidly increasing signs—passivity feelings, visual sense deceptions, auditory hallucinations, foreign thoughts, and periods of excitement. At present, good remission in speech and affectivity, but with some residual delusional ideas.

Case 8 : Æt. 29. Single. Onset 2 to 3 years ago with abusing voices, bodily

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influences and delusional ideas, but able to keep herself as housemaid. In speech very well, but affect limited, and with no insight.

CASE 9: Æt. 28. Single. Always quiet and aloof. Onset 2 years ago; since, stationary. Hearing of voices and seeing of "figures" the main features, but some delusional ideas in addition. Intelligent; well-preserved personality.

CASE 10: Æt. 28. Single. Onset 6 months ago with hypochrondiacal features, otherwise well-preserved. Later, rapid increase of delusional ideas, feelings of significance and, finally, catatonic stupor. At time of investigation, condition was rapidly developing.

CASE 11: Æt. 26. Single. Low-grade intelligence. Onset 7 months ago with "talking to himself". Later, auditory hallucinations and deprivation of thought. Now stationary. Fairly well in speech and affect.

CASE 12: Æt. 31. Married. Onset 6 months ago with the feeling of being altered and hypochondriacal delusions. No sense deceptions. Affectively, very dull and inadequate. In talk, well-preserved.

CASE 13: Æt. 50. Married. Always "nervous". One year ago acute attack with excitement, voices and thought disorder. At present, good remission but apprehensive and manneristic. Talks well.

CASE 14: Æt. 51. Married. Onset 20 years ago; never in hospital, and now stationary. Paranoid delusions of paranoiac kind. Auditory hallucinations, thought disorder, passivity feelings. Now manneristic, but well-preserved and intelligent.

GROUP III.

CASE 15: Æt. 25. Single. Always aloof. Sudden onset 2 years ago with auditory hallucinations and paranoid delusions. At present, sometimes has hallucinations, is manneristic, affectively indifferent, speaks little, and is occasionally difficult to understand.

CASE 16: Æt. 16. Single. Gradual onset 2 years ago. Affect stiff; sullen and indifferent. Frequent grimacing. No signs except auditory hallucinations, for a brief period.

CASE 17: Æt. 24. Single. Gradually developing over 4 years. Never in hospital. Foreign thoughts, blocking, deprivation, auditory hallucinations, passivity feelings, some delusional development. Gross grimacing with pronounced stretching, writhing moments which appeared related to his thought disorder. Apart from this, easy to get into touch with. Affectively, indifferent.

CASE 18: Æt. 28. Single. Sudden onset 6 months ago. Sometimes rapid changes of affect—excited and incoherent, or well in touch. Formerly an artist, highly intelligent. At present, auditory hallucinations, passivity feelings, thought disorder, manneristic.

CASE 19: Æt. 32. Married. Formerly of intact personality. Onset 8 months ago. At present, deteriorating rapidly. At times stuporose and mute; at others, delusions of reference, auditory hallucinations, feelings of significance, affectively sullen, with occasional smiling for no reason.

GROUP IV.

CASE 20: Æt. 23. Single. Onset 3 years ago with strange feelings and delusional interpretations. At present puzzled and bewildered. Usually incoherent and difficult to get in touch with.

CASE 21: Æt. 24. Single. Sudden onset 5 months ago with excitement and delusions of persecution; then, for 3½ months stuporose. At present difficult to get in touch with; very incoherent. (Later showed a good remission.)

GROUP V.

In this group are five patients who have, at the present time, certain features in common, though differing very much in their onset, development

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and prognosis. They showed no florid signs and no thought disorder, but were affectively dulled and limited.

RESULTS.

I. The Formal Aspect of Disorders of Imagery.

Findings will be described under the heading of the groups, although it will occasionally be necessary to speak more generally for the sake of clearness.

In schizophrenic imagery features are often found which are common also to normal imagery. Nevertheless, the two can be distinguished by the fact that such features would be temporary in the normal and permanent in the schizophrenic. Secondly, in schizophrenia, they show a close relationship to the formal schizophrenic disorder as manifested in the spontaneous stream of thought, and thirdly by the quality of the experience to the patient.

Patients were given particulars, to start with, of tasks resembling those set in the experiments. They were then asked to picture single objects—an apple, a horse, and so on; later more general geometrical figures; finally a short sequence of events of a dramatic kind, familiar to them in everyday life. They were then asked to imagine as vividly as possible various sounds—a gunshot or a familiar voice. They were also given tasks which involved tactile imagery. The special requirements of some cases led to further tests which will be referred to later.

Going over the results, it is striking how, apart from Group V which must be considered separately, no patient shows one abnormal feature, all show several. Furthermore no patient constantly shows the same deviation; in all there is a constant change, first one feature then another becoming prominent.

GROUP I.

In the first group the following features are found: When told to picture, sometimes nothing would appear; the desired picture might only appear after a delay sometimes as long as twelve seconds. It often happened that the picture disappeared almost immediately after it came.

Example 1.—Case 7 could always signal, by a movement of her hand, the moment of appearance and disappearance of the picture. It was found that the object would appear to her after a delay of from 3 to 6 seconds, would last 1 to 3 seconds, then after 4 to 6 seconds, would appear again, and disappear after 1 to 3 seconds, and so on. [Four weeks later, during a very good remission, this phenomenon was no longer found.]

It is the *sudden disappearance* of the object that characterizes this group. This feature was not alway present and tended to be much less evident with the more complicated tasks of imagery. If the object reappeared after such a disappearance—without any further order—the patient described the interval in various ways, most often by saying there was a " blank ".

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Very frequently the patient described *changes* in the picture, saying that it fluctuated in intensity or that it seemed to " threaten " to disappear. One might, perhaps, regard this as an early state of a complete stop in imagery, particularly as the same patient frequently showed both phenomena.

Often a patient would get a picture that differed from the one given.

Example 2.—Case 3, when told to picture a dog, saw one with a giraffe's head. A triangle appeared bounded by curved lines. Case 2, instead of a travelling trunk, saw a plum pudding, and so on.

It is remarkable that even in this group in which clinically there are few schizophrenic features one comes across the fact that the object, at first well pictured, alters rapidly and is often changed for other pictures which appear in its place.

Example 3.—Case 2 was told to picture a wrist watch. " I saw it clearly, but only for a short time, then it became a wedding, and I saw the bride and bridegroom. ("A brush.")* " I saw it but it changed to a basket, and then the brush came again, and it became a white brush, and then it changed to a flower."

Example 4.—Case 5 was told to picture an apple. " I saw only a dish with apples on it, and it was difficult to keep." Then, after 12 seconds, " No, I had it at first, but then I could get it no longer in my visual field. I always had to imagine my radio set." (" Where is your radio set ? ") " Beside the dish of fruit on the sideboard at home."

Frequently the patient will succeed on the first trial while later success becomes difficult or impossible.

Example 5.—Case 5. ("A triangle.") " Clear at first, then not." ("Again.") " Only very hazy." ("Again.") " Only a red mist. Nothing else." (" The letter B.") " Not clear, but I got it." (" Z.") " Yes, clearer." (" B.") " No, impossible." (" Z.") " Not clear." (" K.") "At first clear, but I couldn't keep it." (" K.") " Indistinct, not clear." (" K.") " Not at all, only red fog." (" B.") " Only red fog."

In those experiments in which the patient has to picture short scenes, previously described to him, fresh features appear. Sounds occupy the picture without any direction to that effect, and the patient spontaneously remarks upon them. Again, the story may fade out, or—more frequently—alter from the given sequence, apparently against the will of the patient. When this happens, it is the rule that these alterations in the pictured story are clearly related to the theme given. They remain within the " sphere " of the task set.

Example 6.—Case 3 said : " . . . he comes out of the house, signals a bus, gets in, travels beside the Park, gets off and enters the house." So far he conforms to the outline of the given story. Then " something not very pleasant happens now. I saw Park Lane and Marble Arch. A man stepped out of a car, entered a house and brought out a woman in a long dress and said to her, ' It's time to come home ' ; they were quarrelling."

* Brackets ( ) in Examples indicate the directions of the investigators.

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Acoustic imagery corresponds to visual imagery; the same patient varies very much in the success he makes of the task. Very frequently, visual images of great vividness occur spontaneously and at the same time.

Example 7.—Case 2 shows an interesting feature. She is unable to call up voices of those she has heard *after* the onset of her illness. The voices of her relatives whom she has seen since that time, and her own voice, cannot be called up in imagery.

As to tactile imagery, Case 1 need only be mentioned.

Example 8.—Case 1 was at first unable to picture any tactile stimulus. After actually being touched, imagery became so vivid that she grew excited and jumpy and insisted on opening her eyes. This unpleasantly overwhelming type of imagery was only found again in Case 3 in relation to imagined voices. This patient, as will be mentioned later, belonged to a group of schizophrenics who can make clear statements about their auditory hallucinations, but who are not always able to distinguish between them and strange thoughts.

Group II.

In this group, as the psychotic features become more pronounced, so does their imagery show more profound disturbances as compared with the first group. The features shown by Group I are present certainly in Groups II and III; in Group IV, although they are not complained of or easily made out, yet one cannot say that they are necessarily absent.

An additional feature found in this group is a complete inability to picture in the ordinary way, or to keep the picture unaltered, even for a few seconds.

Sometimes one finds in this group a tendency to have two or more pictures in the "mind's eye" at the same time. The most striking example of this is Case 9.

Example 9.—Case 9 was told to imagine the following series of pictures, 6 to 7 seconds' interval being given: a car, a church, ink-bottle, umbrella, waterfall, pyramid, lion, tennis racket. She said: "For each object I saw two pictures; the one appeared at once of its own accord, the other I did myself. At first the former was clear and the second hazy; towards the end, the former was hazy and the second clear." ("Was it always like that? The pyramid, for instance?") "I did not see the pyramid, but when you mentioned the lion I saw a sphinx, and then I only saw one racket, and that was by my own effort."

Sometimes there are multiple pictures, the patient being unable to say whether they appear successively or simultaneously.

Example 10.—Case 12. ("Picture your father.") After 3 seconds' interval: "I saw him but in several positions." ("How?") "In the garden, at the dinner table, home from work, sitting in an armchair." ("All at once?") "I can't say exactly. Probably."

It is, above all else, distinctive of this group that deviations do not quite leave the "sphere" of the set task; i. e., there is *some* connection between the two, in meaning, which one can easily follow. Thus, if a picture changes

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it changes to something fairly closely related, whilst if a wrong picture appeared that too would show some sort of connection.

Example 11.—Case 13 was told to picture a turning wheel ; after 10 seconds she said : " I saw a sewing-machine and then my daughter sewing." (" Was there a wheel to the machine ? ") " Not clearly."

Case 11 was asked to picture a red apple ; after 6 seconds : " Not an apple but a parrot, and that was red." ("A cow.") "A lion with a curly tail." (" Your mother.") " Some shops where she buys things." ("A tobacco pipe.") " Only a water-pipe, for a moment. I knew what I had to do, but it wouldn't come."

The last example shows a deviation through a purely verbal connection, a happening referred to by Kleist and to which we shall return later.

Some patients complained that the slightest external noise troubled them and changed their train of thought.

In the tasks involving the picturing of scenes, elaborations are very striking ; sometimes this also occurs in auditory imagery, both of sounds and voices. Departure from the original story is often very marked. Cases 10 and 13 show a similarity in that they could only imagine scenes when brought in close relation to their own ego. Case 10 had to imagine each action performed by himself ; Case 13 had to change the situation to one he had himself experienced.

Example 12.—Case 10 was told to picture a bird sitting in a tree ; a cat comes through the garden, looks up at the bird and starts to climb the tree. " I saw the bird and the tree and I also saw the cat, but when the cat moved I myself had to make the movements." (" Did you *become* the cat in your imagination ? ") " I seemed to lose the distance between the cat and myself. I became the cat to a certain extent." (" Did you have a tail ? ") " No, I was a man, but I made the movements of a cat. I can't explain the *moment* I became a cat. In any case the cat was no longer there." (" Picture a girl throwing a ball in the air and catching it again.") " I saw the girl, but when she had to throw the ball I became the girl myself and threw the ball. I realized it was wrong and tried to call up the picture again. I could do it, but as soon as she came to throw up the ball, I took the part again."

In this group the scenes are interrupted, different pictures arise, connected, but not exactly corresponding to the sequence of the story, although the deviation is always easy to follow.

Example 13.—Case 12, on being asked to picture a story told to him, connected with a dog, said : " I had difficulty in picturing the dog in front of the kennel as you told me ; then I got it all right. Then another picture arose. A huntsman going over a hedge with a pack of hounds. Then a new picture came, a dog running after a carriage."

Example 14.—When told to picture a scene involving a man getting on a bus, said : " I repeated the story to myself, but I couldn't think and picture at the same time. I saw three or four different parts of London. I couldn't picture the man and the bus in any particular spot ; they went from one place to another."

This may be compared with the description given by Case 8.

Example 15.—Case 8 said : " While you tell me the story I can see it in my mind clearly, but when I try later on to try on my own, then I can't do it. Too many versions come into my mind at once and I can't do it."

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Case 12, a professional draughtsman, put it well.

Example 16.—Case 12: " It is two different things to see something and to know it, and to see something so you can draw it."

Of course this particular contrast is nothing new; normals experience such a difference but without the emphasis felt by schizophrenics. This particular emphasis is shown well in the following example.

Example 17.—Case 14, on being told to picture a certain scene, said: " I know, I know, I know—now I see it—oh, now it's stopped—I know, I know, I know it. Now it's there again—ah, no, there are different pictures but I *know* what should be there."

As far as acoustic imagery was concerned they showed only slight alterations and little more than that demonstrated in the previous group.

Example 18.—Case 13, on being told to picture various sounds, said: " There is *knowing* but no picturing."

Example 19.—Case 9, in addition to very definite auditory hallucinations, heard peculiar voices, connected with visions she saw in the air, which she described as " figures ". She said: " The figures don't speak, but there are metallic voices, different from ordinary human ones, connected with them." She was unable to imagine either voices or sounds, she could only *remember* them. When she attempted to do so " tinny " voices came and " carried away " the voices to the figures in the air.

This case will be referred to again later.

Group III.

There is no need to discuss the details of visual and acoustic imagery here, as they resemble those described above. In addition, one finds in this group —serving in part to characterize it—the frequent appearance of experiences from several sensory territories at once.

Example 20.—Case 18 *smelt* cordite when told to call up the report of a gun.

Example 21.—Case 15 *saw* dark figures arising in her mind while she was imagining the noise of a waterfall.

We see also that the pictures which come instead of, or with, those asked for often appear to have no connection with them, although later one may find that some detail has formed the link. The following examples show that these links may be of different kinds, even in the same case.

Example 22.—Case 18, on being asked to picture a red apple, said: " I saw one. It was lying on an old Roman coffin of white stone: then it changed. As it lay on the coffin it was rotten; without the coffin it was a fresh one."

Example 23. The same patient (Case 18) was asked to picture an apple, and at the same time a running spring. He said: " That is difficult because it is autumn." (" Why ? ") " Apples are not in spring. It is not in the nature of things."

Example 24.—Case 19 told to picture an apple: " It's not easy, I see a red and a white one." (" Try and picture one only.") " No, it must be a *pear*." The verbal connection is here clear.

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Example 25.—The same patient, Case 19, supplies a more complicated example. On being asked to picture a circle the patient said : " It looks like a winding stair. No, it sleeps. It must be a railway track." One can suspect here the verbal links involving perhaps : circular stairs, the underground, inner circle, railway sleepers, and so forth.

A transition can be seen between this and the next group, as the connection between the fresh pictures that appear and those that were asked for are only in part realized by the patient. Also, they only notice their unusual and often bizarre experiences *after* their attention has been drawn to it by questioning.

Neither spontaneous statements nor answers to question revealed the presence, in this group, of foreign thoughts or blocking. Thus the failing and stopping or deviation of imagery is all the more important as they actually appear to be the same, not only in principle but also in actuality. This group differs from the previous one in that, when gaps in imagery occur, they do not remain blanks, but become filled with related material which may even take the place of the original train of thought. In other words, when a gap occurs it is filled with material which, as the cases get more advanced, departs more and more from that which was originally intended, while at the same time the patient feels less and less that this new material is unwanted or " wrong ".

The following case illustrates a condition in which the patient is on the border-line between realizing and failing to realize that the material which comes to him at any moment is " wrong ".

Example 26.—Case 12. As long as he is left alone, apart from some grimacing and minor (probably catatonic) movements, shows nothing very particular in his motor behaviour. When walking down the road he is comparatively normal, and during intervals in a discussion he has merely a dull, blank appearance. But as soon as an attempt is made to gain his close attention or he is asked to perform some task of imagery, he starts immediately all kinds of rubbing, twisting movements—pinching, banging, tearing his head, arms, legs, body, until one fears he will do himself serious injury—grimacing to an extraordinary degree all the time. As long as one did not tend to suggest the answer by one's question, it was impossible to get any clear statement as to the reason and aim of his behaviour.

Further observation and experiment showed that as soon as he had accomplished the task set and had the picture in his mind, the movements ceased. For instance, on being asked to picture a red apple, he began making the movements described above, and said : " I can look for it—I can see it, but not clearly—I see red and white—I saw the shape of an apple—I can see the red of an apple—No, I can't see an apple at all, the shape escaped me—Yes, I see the apple now—a red apple." At that moment his movements ceased altogether. He then, without further direction, started the movements again, saying : " I can *think* it, I know the shape of an apple, a pippin—I can think what an apple is—I can't see it—I have a vague, sudden impression of an apple—if there was an apple on the table I could see it—Yes, I can see it—just for a moment I could." During these last words all his movements stopped. The words spoken during the movements were spaced and slow. When questioned after the attempts as to whether he had been able to picture what was asked, he regularly replied that he had been able to do so easily. Only when another attempt was made immediately after such a statement, did he say that it was only possible to picture at certain times, and only for a moment.

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Of this group the patient just mentioned said least about his deviation of thought during imagery. It seems justifiable to regard his movements themselves as expressions of his struggle against the parallel thoughts which threaten to overwhelm him. It is surprising how little the patient could tell us about this.

Another feature which distinguishes this group from the preceding one is that much more frequently an apparently unwanted feeling of some particular *significance* arises during the experiments with imagery. This is only of importance when one can show a definite connection in meaning between this experience of significance and the forms arising at that moment in the process of imagery, i. e., not something occurring quite independently. Of course this relationship between the two need not always be of the same kind. For instance:

Example 27.—Case 15 was asked to call up in her mind the voice of a friend. After 26 seconds she said: "Yes, I can do that." ("Does it remain the same?") "No, it was different." "(Were you able to imagine a definite voice?") "Yes, several." ("All at the same time?") "I can't tell you." ("How did they differ?") "I saw two figures as well." ("At just the same time you heard the voices?") "No, the voices came and went several times. I could not keep them there the whole time." ("How about the figures?") "They stayed there—my mother and my brother." ("Can you explain?") "They came to get the 'instinct' of the voices." ("What do you mean by 'instinct'?") "The thought went through." ("Was the voice you imagined first that of your mother and your brother?") "I heard several voices. My mother and brother were there later on."

In this example one can trace the carrying over of significance from one form of imagery to another.

Example 28.—Case 18, told to picture his father, said: "Yes." ("What position?") "He was standing, leaning to the right a little. I must not tell you any more." ("Why not?") The patient shook his head. ("Was there only one picture of your father?") "Two at least. The pictures of my father are all wrong. He has changed in my imagination. He is altered; like I have become someone else. One seems to be less compact somehow."

Example 29.—Case 10 altered very much as his illness developed. The present example is at a later period than the time at which he was regarded as falling within this group. As has been noted, this patient could only imagine action and movement by making, in imagery, the same movements himself. When asked to picture a turning wheel, he said after 9 seconds: "I saw a steering wheel, and when it came to turn I was turning it myself and moved it myself." ("Could you picture another wheel, in the distance?") "No. It means I'm elected to steer the ship of State."

Example 30.—Case 19, when asked to picture his father, said: "Yes." ("Is he standing still?") "Yes." ("In what position?") "Half profile, looking to the right." ("Can you imagine his voice also?") After a few moments he weeps bitterly. ("What has happened?") "Only a flower-pot." ("Any particular flower-pot?") "No, only a flower-pot. It came into my mind. It was a black flower-pot and the sunshine was outside." ("What has it to do with your father?") "It was in another region of thought. The flower-pot was in the second region." ("Explain.") "One leads to another." ("Did both appear together?") "No." ("Did you see both with the same 'mind's eye'?") "No. They were different. My father was above the flower-pot." ("Could

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you have drawn a line between them ? ") " No ; a circle. There was a space-line between them." (" What had the flower-pot to do with your father ? ") " It was a warning." Later, he said that the flower-pot signified a warning from his father, but he must not tell us anything about this. He added : " You told me I must picture my father talking." Shortly afterwards this patient passed into a stupor, and no further experiments were possible.

These examples show how the impression of some particular significance may arise and play a leading rôle in the subsequent imagery. Other instances could be given where such a feeling, although less striking to the patient, can be seen to be yet even more closely connected with the imagery. This feeling of significance cannot be isolated and traced directly to any particular sense territory. Therefore it has all the more power to impart to a whole constellation of ideas, even when composed of the most heterogeneous elements, a certain quality—one might almost call it a " colour ".

Later on, it will be pointed out how intimately such characteristics are related to the fact that the patient can no longer recognize as inconsequent, or at any rate is no longer able to reject, much that arises in his mind.

We will now turn our attention to what it is that carries this factor of " significance " in any particular case and from whence it comes. There are several alternatives. To give an instance, Case 10 was, at the time of the last experiment, in a pre-catatonic condition (which is, of course, usually brief and often accompanied by megalomanic phantasies). He believed that he was sent from God, probably as Christ himself ; that a secret meaning to all names had been revealed to him ; that the Biblical prophecies were all being fulfilled before his eyes, and so on. It was not possible to discuss anything with him, unless it was in the direction of this pre-occupation. Such a striking and unified mood, combined with the fact that the patient had always to place himself in the situation described in the task is shown well in the steering-wheel incident described above. In other words, here we see that the factor of significance, springing from the total mood, determined all details of the imagery.

In Example 27, Case 15 said, almost spontaneously, that the total significance of the experiment was given by the first auditory image that arose. Her imagery failed several times, and in the gaps appeared the visual image of her brother and sister ; these obtained the " instinct " of the voices she had previously imagined.

The same considerations apply to Case 19 who, on being told to imagine his father speaking, found that the visual image of the flower-pot took over the significance of the warning speech that his father was to have uttered.

On the other hand one may find that the significance that covers the whole constellation or complex comes from the secondary thoughts, i. e., the rising parallel thoughts.

For instance : in Example 22, Case 18 found that as he pictured an apple, it became rotten as soon as the arising picture of the coffin arose, secondarily.

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It would seem that the coming on in this way of some significance quite unsuited to its subject is not at all uncommon. We meet it occasionally in experiments with patients in Group II, where we could understand it fully, and using our experience gained there we have learnt to appreciate it in Group III. It is most easily seen, and occurs most frequently, in the free stream of thought of the patient.

We must now study, in another example, what happens when a patient is asked to change the significance himself in the course of an experiment with imagery.

Example 31.—Case 15 was asked to picture two men in serious discussion, with gloomy, mournful expressions. Then their mood was to change, gradually becoming more and more cheerful, until finally they were to laugh heartily. She said: "It came and went several times; I had to keep noting it afresh. Only one man ended up by being gay, the other remained sad. In connection with the gay one there were other pictures of men in different positions which interfered with the development of the whole scene." ("Explain further.") "Only the first man, the man that laughed, altered to different people six or seven times; the other man remained serious. I did not see the last one all the time, but he remained the same I think."

As far as one can consider as similar the mood connected with a picture and the feeling of significance which we have discussed, the above experiment calls attention to the following point. If the significance is altered by the intention of the patient, there occurs also a breaking, or a change, in the imagery. The closeness of this relationship is shown by the fact that in the above example it is only in the part of the imagery where there is a changing of significance that breaks occur, the rest remains unaltered.

Group IV.

From our present point of view the two patients of this group have this in common: they have great difficulty in telling us about any alteration in their imagery. Case 20 could say very little about this, Case 21 nothing. Both patients paid close attention, and apparently took trouble to get the desired picture; but neither patient was able to say anything that allowed one to gain any understanding of, or insight into, the direction their imagery took or in what way it was abnormal. Often their statements were of a kind which led one to think that very probably their reply had no connection with the question whatever.

Example 32.—Case 21, on being told to picture a horse, said: "I screwed it to the white mast of a cider machine." ("No; picture a horse.") "Well, a white horse, you see . . . There is an exhibition . . ." He then goes on to talk disconnectedly of other topics.

Example 33.—The same patient was asked to picture an apple. "Yes, it's a marsh-mallow; yellow with green shading." ("Where was it?") "From where I took it; the plate. 'Shairman' was on the plate [a patient's name], one who shares." ("Picture it again.") After 4 seconds, "Whiteway's whisky, a reddish

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apple. The background was motor-brown." (" Was it a car ? ") " No, a van." (" What else ? ") " At first I saw a carriage and then the apple. You said ' Whiteway's ' and then it became a sea-green apple, and then it all turned into a dentist."

Example 34.—Case 21. (" Picture a horse.") " It was Hyde Park Corner "—[he then mumbled some words]—" There, near Oxford Street, in the neighbourhood, at the back in Queen Anne's Square."

Example 35—Case 20. (" Picture a horse.") " I can't see any horse." (" Try.") " I see Wills' Capstan cigarettes; when you open a Capstan packet, like a rake in the middle."

Case 21 was able to give a good retrospective account of the development of his imagery during a remission he had soon after the above experiments. A feature of some importance in Case 20 was that, even when asked to pay the closest attention, he was quite unable to state the moment at which an image disappeared. Often at the end of the experiment he was doubtful whether he had pictured the object at all, and occasionally would be quite convinced that he had *not* done so when there was every reason to think that actually he had.

Example 36.—After having it impressed on him again that he must signal with his hand the moment the image disappeared, he was told to picture the figure 3. He closed his eyes, and after 3 seconds said : " I can do that. It was a black three." After 4 seconds he opened his eyes and said : " It is gone ; I didn't see it at all." (" Not at all ? ") " I think I did." (" Yes or no ? ") " Yes, I saw it quite clearly, but when there was a noise outside it went. No—it went before the noise started."

He is always certain that he sees what he is told to at the time he is actually picturing and, moreover, will often describe it in some detail; but he is never aware of the moment it disappears. He is unable to realize the actual disappearance, he can only state the fact that it *has* disappeared. This experience must be something quite different from anything with which we are familiar, for, seemingly, one may say that, for him, there is " nothing there ", rather than " it is no longer there ". This inability to appreciate the termination of his internal processes must make the details and the outline of what is remembered very uncertain. This may be paralleled in the experience of falling asleep; a comparison to schizophrenic thinking made by C. Schneider. One need hardly point out that any parallel thoughts which may arise in such a condition are no longer recognized as such. In so far as these patients fail to realize gaps in their train of thought or even normal divisions or cæsuras between its units, they will reply to a question not only in relation to their main thought but also to any parallel thought which happens to arise at that moment. Thus, even if there seems some remnant of sense in their answers it may be because their answer merely happens to fit in with the question by chance. That this is likely, is borne out by the statements of Case 21 during his remission about a month later.

Example 37.—He first gave a general description of his state at the time of the experiments referred to above. " I remember it all quite well. When you asked me anything my thoughts went into a muddle, and I gave as answer just what passed through my mind." (" Did you realize it was wrong ? ") " I did

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not intentionally give you a wrong answer. It was simply what came into the focus of my mind, and I gave that as the answer." ("Were you able to think whether it was wrong or not ?") "No, I thought you would know and tell me whether it was right or wrong. I didn't think about it." ("Will you picture a horse ?") "Yes, I can." ("One horse ?") "No ; it changes from one horse to another." ("Anything else ?") "No." ("Do you remember, before, I asked you to picture a horse and you said something about cider." "Well, I thought of the trade mark of a cider firm which is a white horse. Then I thought of an exhibition and a mast being erected." ("What had that to do with cider ?") "Because a doctor once told me that beer was good for painters, and I'm a painter. It cancels the acid that comes from smelling the paints." ("Another time when we asked you to picture a horse, you said something about Hyde Park.") "When I was asked to picture a horse that day I saw at once the police and a crowd at Hyde Park Corner, where I once got a blow on the head. Then the apple came into my mind again and I asked myself what colour shall I choose for it, and there came to my mind all the fruit shops in Oxford Street, and in that neighbourhood all the streets are built in squares."

It is easy to see how, in patients of the kind illustrated by this group, feelings of unwanted significance may arise. They are no longer able to realize the breaking off of their thoughts and hence are defenceless against other thoughts that may arise and give their significance to the main stream. For similar reasons it is very difficult to get any satisfactory description of this from the patient. Thus, Case 20 had during his imagery experiments many experiences of unwanted significance, but only in a few cases could we form any opinion as to whence it came.

Example 38.—Case 20, when asked to picture the room in which we had been sitting some days earlier, said : "Yes, there must be children born there." ("Why ?") "There are blue curtains ; that means blindness." ("What do you mean ?") "I don't know. Because they can't see. Blue curtains mean child-birth."

Here with fair certainty one may interpret in this fashion : the room he had to picture has, as a matter of fact, blue curtains. Thus one may assume that the patient was actually picturing the room. From "curtain" to "blind" is simple—hence "blindness". We can see a connection between "because they can't see" and new-born creatures. This is confirmed by his going on to say "Blue curtains mean child-birth". Finally, the total complex gets in this way the significance which has secondarily arisen and we have the patient feeling that in this room children must be born.

Discussion of Results.

Let us go over once again our principal findings in the above experiments.

Cases, who show clinically no very pronounced deviations from normal thinking, tell of a difficulty in obtaining pictures and of their delayed arrival more often than an actual interruption in their imagery—they will speak of a "threatened" interruption or of a loss of clearness. It seems justifiable to conclude that this difference is but one of degree, for not only do both occur in the same case but also when a real interruption occurs this may not be sudden—it may pass first through a stage of fading or a loss of clearness.

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In the case in which there is a fading of the picture various other features may appear. In a well-preserved patient, after the picture has faded, we may be told that after a little delay it has appeared once again. Often this repetition occurs several times. In such cases the intervals between the pictures are not filled with other material. In other patients, or even in the same patient at another time, it is found that instead of the repetition being of the same picture, one that is only similar will appear ; the two are not completely identified and the patient talks of " several pictures ", " a dozen horses " and so forth. As the cases become more severe, the pictures that appear later bear less relationship in their meaning to the first one—this is particularly noticeable in picturing the scenes. The patient will now often say that this occurred without any interruption at all in his stream of thought.

As we have seen in the examples given above, there is no reason to think that even in Group IV the pictures or thoughts which arise secondarily bear no relation whatever to the main thought. We may say therefore that a *transformation* of the content of thought has occurred rather than a complete *alteration*. In considering such a transformation two problems arise : (1) the direction this takes ; (2) the degree it departs from that which was originally intended.

First, as to the direction of deviation. It is clear that this may vary very much even in the same case. We can distinguish, for example, that which depends on meaning, on significance, and on simple verbal connection. The last, it may be noted, is most frequently found in the more deteriorated case. The direction is found to be ultimately connected with the material which, in that individual patient, lies to hand, in his " memory ". During a schizophrenic illness this material, in so far as it is re-experienced (by becoming conscious), must undergo a transmutation in form. Thus it will take steadily a more and more schizophrenic colouring—and this very change must of necessity lead to its being used still further in the schizophrenic process.

Discussion of this transformation and of schizophrenic " re-stamping " of material will be resumed later ; here we mention only that particular alteration of tendency found in Cases 10 and 13, who imagined everything in intimate relationship to the ego. This of course may also occur in normal imagery, but here it is particularly striking in that it is very clear, very definite, and, one may almost say, seems to be the patient's last hope of performing the task. From the point of view of an analysis of function this " last resort " of the patient may be regarded as a form of " sensory enrichment " without which he would be unable to carry out the task at all. The conception of " sensory enrichment " and its value in connection with imagery has been pointed out by one of us in a former paper on a case of aphasia (8).

For our present purpose it is more important to study the degree of departure of the secondary thoughts, from what the patient had primarily intended.

Kleist (9), who has interested himself in this point, finds that schizophrenics

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are unable to imagine or to define in the right way: objects, persons, scenes and their connections. Other conceptions related to, or loosely bound up with them present themselves, all being frequently confused together. He goes on to point out that, as the cases to which he refers show a clear consciousness, pay close attention and are willing to co-operate, the phenomena cannot be explained as due to a general " damping down " of psychical activity and attention or by a kind of " half asleep " thinking, as do Berze, Schneider and Gruhle. Of course C. Schneider (4) does not *explain* these conditions by pointing out their resemblance to a half-waking state; he merely uses—and has used very successfully—the latter as a model in order that he may elaborate, by comparison, the formal characteristics of the other. No observer acquainted with phenomenology would contest that there is some essential difference between thinking in schizophrenia and thinking when one is tired. This opinion of Kleist does suggest that both schizophrenic and the more general performance of thinking lie on a certain level of consciousness. Thus it may be possible to differentiate consciousness and the performance of thinking in the same way as, to quote the frequently used comparison, one can think of certain performances developing upon the " stage " of consciousness under different " lightings ". But, as a matter of fact, conceptions like " consciousness ", " attention " and so on are not of particular value in our present connection, useful as they are in another and merely psychological use of language. When one is using a structural and functional analysis, one deals only with those things that are classified in terms of form and content. Therefore terms such as the above, which essentially describe a " state ", become unnecessary.

Of course, as this is merely a preliminary attempt, we cannot hope to reduce all conceptions of purely psychological origin to terms of function, but those conceptions that are used will be found in the main to be concerned with the " material " which is to be used by the function—the term " significance " for example.

The following features emerged clearly in the experiments with imagery. The more florid the clinical picture, the further did the secondary material depart from that which the patient had first intended. In practice, we were often unable to find any connections at all—clinically this would correspond to incoherence and " talking beside the point ". The more such a condition was present, the less would the patient tell us about it, and the less did he seem to realize the abnormality of the process. Although in a deteriorated case by more detailed inquiry one might get further statements, no really satisfactory description would ever be obtained. Case 21, retrospectively, described this condition very well, by saying that on his own account he was unable to determine whether his answer was right or wrong, or even had any connection at all. It seems very likely that such points did not occur to the patient.

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An important feature, from a formal point of view, is that patients with less severe disturbances, such as Example 1, Case 6, are well aware of the moment a picture appears, fades or is interrupted; whereas, as the condition becomes more severe, patients increasingly lose this power—see Example 36, Case 20. In such patients it is only the content of their answers that suggests the same formal disturbances.

It must be mentioned again how very important to the patient is the loss of the experience of the termination of a psychic process.

As soon as there is such a loss, all knowledge of a break in thought and all awareness that what is arising in the mind is fresh and "unwanted" is abolished. It does not matter whether the newly arisen thoughts correspond to the main trend or not, or from what direction they come. There is no longer any beginning or ending. Finally one has merely an undifferentiated mass of single complexes of thought—all details become confused together.

Of course, one must differentiate clearly between the occurrence of a pathological break in thought and the patient's realization of it. We have seen how the latter (which is not "present" or "not present" but is there to a varying degree in the same patient) depends for its extent on how far the investigator by his question directs the patient's attention to it.

Although self-observation is not even in the normal always of the same degree of clarity, the schizophrenic loses the *ability* to obtain a clear view of himself. In the normal this ability may vary; he loses it progressively, for example, when going to sleep—cf. Schneider's examples (4). An example may here be quoted from our own experience. An extremely wide deviation from the primary intention is here evident, but it is still possible to see the connections.

Example 39.—One of us had been occupied before going to sleep with the calculation of the cephalic index. A number with two figures after the decimal point had to be multiplied by a hundred, and therefore the decimal point would be omitted. Vague doubts about the correctness of this calculation arose. They came from the thought that the figures referred to minutes and must therefore be treated in the duodecimal system. A dream picture then developed and these thoughts seem to have been carried on into it. The subject found himself standing by a pond in which some men were sailing model yachts. In the centre of the visual field a man was occupied in arranging the steering mechanism of his own boat, part of which apparatus consisted of a metal sector clearly marked out in degrees.

Whilst this was going on, any relationship between the previous calculation and the dream picture was not realized by the dreamer.

We may see from this example that very often it may only be chance that leads the subject to find the link showing the connection between the primary intention and the secondary deviation. We therefore have no right to speak of any real *disconnection* in this type of thinking or imagery, just because a connection cannot be demonstrated.

With regard to the feeling of an unwanted or strange significance which

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appeared in the experiments, it was found for the most part only in those cases who failed, more or less, to realize the *onset* of their deviations of thought. As has been already pointed out, one must take the significance that colours a complex as part of the material and not of the tendency—a more exact description from the point of view of a functional analysis has not yet been made. In performances of imagery it is appreciated very little, if at all, as a thing in itself but only in connection with material. In other words, one does not find it closely connected with sensory experiences, as is the more concrete content of imagery. By reason of this very poorness in sensory connections it is able to " carry over " to the content of the imagery that next arises. But what above all characterizes the schizophrenic experience of significance is the *unsuitableness* of the significance to the content to which it has become attached. Not only is this evident to the observer, but the patient himself may become aware of it—so far as his power of self-observation allows. In addition, in schizophrenia, the feeling of significance is able to colour, by " running backwards ", the original development of the complex (see Example 38, Case 20). Both these things, the latter more particularly, can only occur in cases where the spaces or cæsuras between the contents of imagery are lost to the experience of the patient—one might put it, that by this means " bridges " are created for the passing forward or backward of the feeling of significance.

In this way, one may understand the patient's growing uncertainty of the order in which experiences occur or whether they occurred all at the same moment or not. Of course we must confine our explanation at first only to our experiments with imagery.

Our experiments also showed how interruption and fading of imagery varied in degree very much in the same patient. As we have shown, it might occur little or not at all in the imagination of scenes, while in the picturing of single things it might be very evident. This did not always occur. Case 5 for instance had no interruption during his performance of ordinary imagery, but complained of it frequently in his spontaneous thoughts. Of Groups I and II it is only Case 12 who had interruption and removal of thoughts during conversation, and then only occasionally. The conditions that appear necessary for this to occur will be discussed later.

Another point must now be mentioned. All those patients who tell of gaps and blanks after an interruption of thought can nearly always call up the original picture once again, even several times. As the patients studied become more seriously affected, the less is one told that a blank has occurred after the first picture has faded. The patient may remark that there has been an interruption, but he will at once notice other pictures bearing more, or less, relation to the original one coming to fill in the gap. In conclusion one may say that, in general, it is in those patients who are, clinically, less seriously affected that one is told of the occurrence of gaps or blanks which are not at once filled up.

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This may be the place to discuss an objection that might be raised. Surely, one might say, normal people when set these experiments in imagery would make statements with nothing like the clearness or definiteness that one finds in schizophrenics and very little could therefore be concluded as to their form. One must remember that our cases were selected originally with an eye to vivid imagery in the subject, but, quite apart from this, we have found in schizophrenia, even when the material was not clear, that the patient still noticed sharply, and stressed, a break or an interruption, describing a clearness and vividness unknown in the normal. One may conclude that the *impressiveness* of the experience to the patient is independent of the clearness of the imagery. Another point in favour of the singular force of the experience to the patient is the patient's frequent complaint of some somatic happening at these times—a "snap" in the head, a blow, a rumble, and so on, which is often found to be but another expression of the sudden withdrawal of thought. The following example illustrates most of the points discussed above.

Example 40.—Case 15 was told to call up the following words: "He carefully worked the whole time." The patient said: "It was not very clear, but I could imagine it all right. Before the word 'whole' and then before 'time' there was a stop." ("Did the stop occur in the words or in the sentence?") "No. The sentence and the words 'went through.' Only the imagination of them broke off." ("Explain further?") "By imagining the word 'whole' and 'time' they got quite a different meaning." ("Different from each other?") "All three made quite a different impression on me, and thus the meaning of the sentence was changed. One goes deeper and one goes lighter through the head. It went a different way through the head"—[touches the back of her head]—"and the whole meaning of the sentence altered." ("Do you often experience this?") "I used to, often. Now it's getting better. It only happens now when we talk such a lot."

To sum up, then, it may be said that the experience of interruption, of the arising of new thoughts or of a special significance are features which are, at any rate not directly, dependent on the clearness of the content of the imagery. This further stresses our contention that there is in the schizophrenic experience something which completely differentiates it from the normal and which makes a dramatic impression on the patient, so far as his power of self-observation allows.

To summarize the main points that have so far emerged:

(1) In any given patient the stopping or the development of the main intention fluctuates in degree in different experiments. Similarly, there is a fluctuation in the degree of transformation that occurs and how far it continues to develop. Nevertheless, for each patient there are certain limits within which this fluctuation can take place, and moreover these limits are fixed for the particular condition of that patient and are directly related to it. Also we have traced the relationship of the condition, at any given moment, to the situation (of testing, etc.), at that particular moment. On these points we could obtain reliable information from patients in Groups I and II and in

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some patients of Group III ; that is to say from patients who still have at least fairly good powers of self-observation left. Starting from careful observation of these cases, it was possible to see the same happenings in patients whose self-observation was defective and who could no longer furnish us with precise statements. How far these are comparable has been discussed.

(2) We have found a close relationship between the *increase* of the transformation, referred to above, and the *decrease* of self-observation.

A Functional Analysis of the Results.

We will now discuss and analyse the findings from our particular functional point of view. In what follows we propose to make use of conceptions originated by Goldstein (6), which were further elaborated by one of us in a previous work (8), in connection with figure background relationships.

These conceptions have been briefly defined at the beginning of this paper. We must now consider in further detail what is implied by a " tendency ".

The tendency must be regarded, in an ultimate analysis, as a complicated structure which may show certain deviations from the norm. The deviations are, in short, the subject of functional analysis. In any given instance, upon the strength or the particular structure of the tendency will depend whether there is a *complete* " restamping " of material or whether the morbid changes in the structure of the tendency lead only to inexact, or otherwise slightly aberrant, figure-formation.

In any tendency two spheres of action may be distinguished. On the one hand it is simply directed to ordinary material ; on the other it is directed to the very process it has set in motion, i. e., it has also as its material *itself* as well as its original material. To put it in another way, we can always, as Heidegger (10) remarks, treat our own selves as the object of our observation. This must never be lost sight of when considering any given tendency. We may thus say that a tendency treats as its material the whole figure-formation which it has itself created.

The fact that one may observe oneself may be taken as a final fact not deducible from anything else. All we need say for our present purpose is that it is the *degree* to which the potentiality for self-observation is present that is important. In addition to the variation in this power of self-observation that is directly dependent on disease there will of course be a difference between different individuals which will approximate roughly to their degree of intelligence. Also, it may be added that under certain conditions in the same individual this potentiality varies markedly ; for instance, in falling to sleep it becomes increasingly less, to the point at which, in dreams, it is scarcely present at all—so that images are experienced as perceptions. In the functional analysis of dreaming, other factors of course are involved ; it is only mentioned here because of the parallels, referred to above, that C. Schneider (4)

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draws between schizophrenia and falling asleep, though not—it must be noticed—with dreaming. From this point of view we may regard schizophrenia and the half-waking condition as lying between normality and the condition of dreaming in which self-observation is reduced to zero—a condition never present in schizophrenia.

As has been said, the tendency may be regarded as multiform—besides being the definite direction taken by intentionality, it is also the agent that gives the process a particular shape. Not only is the material for a particular figure-formation picked out, but that which is unsuitable is actively kept apart from the process and the resultant figure-formation. Since, as has been mentioned, the material is already in definite shape and arises in definite complexes, this last process of separation becomes particularly important. In this very process of choosing and rejecting, disturbances can appear. They have been studied already from the point of view of function-analysis both in mescaline poisoning (11) and in the amnesic aphasic symptom-complex (8).

At any rate, in the disorders with which we are now dealing, it seems clear that the tendency to self-observation can only be directed to the processes which at that time are concerned in the figure-formation. Here lies the reason for our being able to say that in such states the tendency occupied with its primary material becomes itself its own material. The important fact therefore emerges that a disturbance of the tendency which is directed on the primary material will lead to a similar disturbance of the tendency when it is directed towards self-observation. This is not the only way in which disturbances of self-observation may arise, but it is the one which is of importance in the further development of our view.

We will now apply these considerations to the results we obtained in our experiments.

C. Schneider (4) draws a distinction in the thinking of schizophrenics between the removal of thoughts and the substitution of thoughts. Further, he shows that while both are often associated, one quite often appears without the other. Nevertheless, he emphasizes the intimate relationship between them. To this last statement we can only give conditional assent. It has already been stated that, from our observations in the imagery experiments, a removal or "stopping" of thoughts with succeeding alterations were experienced chiefly by patients who were well or moderately preserved, whilst a removal without changes ever occurring was noticed *only* in well-preserved patients. Changes from what had been first intended in thought without any experience of a removal or stopping of thought were chiefly, though not exclusively, found in patients who had a more severe disorder.

It is a relatively common finding that in a tendency disturbance, however conditioned, unprecise figure-formation occurs in such a way that material related in meaning is also included in the figure (cf. aphasia, mescaline poisoning, thinking during fatigue). It has been shown that in schizophrenics it is a

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matter of the degree of disorder whether a relationship of meaning between the material that arises secondarily and that which was originally intended, is still evident or not. Fundamental differences nevertheless exist in this particular between schizophrenics and, for example, aphasics. First of all the total figure-formation with all its deviations is completed in an essentially higher and more complicated functional level than with aphasics. Also in the latter one never gets that vivid experience of strangeness and unfamiliarity in connection with the associated images. This feeling towards the deviations, however, gradually disappears in advanced cases of schizophrenia. It is a mistake to consider that the loss of this feeling is a result of habituation and a consequent indifference. We have known fairly well-preserved cases who have had hallucinations and feelings of strangeness and unreality for eighteen and twenty years or longer, and continually complain of them and of nothing else. Also, it is not possible to find a case that has lost this feeling of strangeness in connection with deviations, who did not show strikingly in addition: (1) that he has lost all experiences of removal or stopping, and (2) deviations going far beyond the range of what is an easily grasped relationship of meaning. In other words, one who is clinically more or less incoherent. There *must* be in such cases great changes in the tendency towards figure-formation which has led on the one hand to a slurring of the individual contents, and on the other hand to a weakening of the power of self-observation. We have discussed this in more detail in connection with Cases 20 and 21.

One might ask: Is a defect in the experience of termination found only because one no longer gets its expression in self-observation, or does a disorder of the primary tendency directed towards the material lie at the root of it? It is certain that in such cases (cf. Cases 20 and 21) self-observation is no longer adequate for noticing this disorder. The only way one can explain the *extent* to which the changes occur in such conditions and, further, the way the experience of some special significance may go back retro-actively over the material, is by supposing that in the primary tendency that is directed to the material there is a slurring-over of divisions between the separate contents of experience.

Since tendency to self-observation is nothing more than a "reflection" of the tendency which at the same time is directed to the material, we can only answer our question in the following way: The point at which the possibility for the experiencing of termination is lost is also the point in the degree of the disorder at which, through a change in the primary tendency, self-observation also becomes inadequate. We can regard this also in a different way: where the act of self-observation succeeds, it must necessarily have shown up against, with adequate clarity, and as distinct from the process upon which it was directed. This, however, is of course no longer possible when the whole content is slurred over.

In such circumstances therefore it would be wrong to say that the loss of

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self-observation is primary. Nor can it, as a matter of fact, ever be completely lost; this is not permitted by the theoretical considerations which we have just developed. Still that in itself is hardly an adequate reason! But we do, in practically all such cases, see something that enables us to conclude with certainty that there is *some* self-observation left, however imperfect. This is the extreme bewilderment that is often so striking. We shall come to understand this behaviour as the expression, or the consequence, of an imperfect self-observation, when we come to consider later the continual changes in the experiences of significance.

From this point of view the thought removal, so far as it occurs suddenly, may be seen as something special in the experience of schizophrenics. It is characterized: (1) by its striking quality, immediately appreciated by the patient, (2) by its occurring only where there are fairly well-preserved powers of self-observation, and (3) by its occurrence, as Schneider (4) has already established, without consequent changes in the course of the tendency. We incline to regard this last feature, on the strength of our own observations, as something found only in cases which are still well-preserved. For one must assume that cases in which, after thought removal, unfilled gaps in thought occur, have still the power to keep away unwanted thoughts that threaten to appear, even though there is a real discontinuity in the course of the main process. It must be noted that another structural disorder may also be present although the main course of thought is carried on satisfactorily; i. e., these parallel thoughts that have "threatened" to fill the blanks may yet colour with their significance the succeeding course of the tendency. That both sorts of disorder often occur together need not be stressed again.

II. The Experience of Strangeness.

It has been emphasized above that the formal characteristics described may change much in the same patient, both in the way they arise and in their severity. Often the reason for this lies in the situation or in the sort of performance required. Thus, in the same patient, removal or deviation of thought becomes less apparent when scenes rather than individual objects are imagined. In many patients they occurred oftener in conversation than during experiments. This difference cannot be explained entirely as depending on conditions present at that moment, because the same task at different times led to descriptions of experience of a very varied kind.

Example 41.—Case 2, following on some other experiments, was asked, after five minutes, on two occasions to imagine the same thing: namely, that she was slowly lifting her right arm. The first time she said that she had been able to imagine it only by feeling it and not by seeing; the second time she said just the opposite.

Often patients, who at first pictured everything correctly, suddenly are unable to do what is asked, or something wrong may arise at once, and so

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on. The frequent clinical observation, that hallucinations or the experience of strangeness occur only at certain times, also compels us to conclude with certainty that we must reckon with spontaneous changes in the strength of the fundamental disorder.

The phrase " experience of strangeness " is used to describe a feeling of which the schizophrenic complains, either with or without an associated thought content. It consists of a change in the *quality* of experience, unfamiliar to the patient, which he is unable to explain and which he finds always unpleasant. He may refer to it as " a terrible fear that I will lose touch with everything " ; he may say that particular thoughts, images or perceptions are " wrong ", " strange ", and so on. Heretofore referred to as a variety of unreality, we have but described it ; we will now attempt to interpret it. We have tried to discover the conditions necessary for the occurrence of this experience, and then have varied those conditions, so that, finally, we may be able to test conclusions as to our view upon the essence of the phenomenon.

It is well known to every clinical observer that a feeling of strangeness, present at the beginning, will often disappear with the increasing severity of the schizophrenic disorder. But, as it is found that the stationary and relatively well-preserved patient, often retains the feeling of strangeness for many years, we cannot accept habituation alone as the explanation of its disappearance.

C. Schneider (4) points out, as does Schröder, that one can obtain an experience of strangeness in connection with all sorts of happenings. Among the things on which this sensation of strange experience is based, he enumerates : the peculiar ways in which thoughts are constructed, the fading and substitution of thoughts, thought withdrawal—in short, what we have called thought removal and transformation ; in addition, he cites the lack of freedom and weakness of volition as well as changes in ego consciousness. We shall see whether this diversity can be further simplified from a functional point of view. Often enough, and especially in the spontaneous thinking of patients, an experience of strangeness is associated with the cropping up of parallel thoughts or with a transformation in thought content. But, so far as it is legitimate to identify the formal features which show themselves in imagery experiments with those in spontaneous thinking, it is apparent that an experience of strangeness is by no means always associated with such happenings. In Cases 1, 2 and 4, who often had feelings of strangeness during the imagery experiments, it was found that they did not occur necessarily in close association with arising thoughts, deviations or transformations. Other patients, especially Case 8, had this feeling of strangeness in association with thought removal alone.

Example 42.—The patient, Case 8, though she was otherwise quite co-operative, refused after the first imagery experiment to undertake any others, and continually opened her eyes in a frightened way. She said : it was too much,

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she couldn't stand it, that it was too peculiar a feeling, that she did not know where she was, etc. At the same time she said very definitely that she had experienced only thought removal with gaps.

But where, in the experiments, the changes in significance occurred with a feeling of strangeness (as in Cases 3, 9, 14, 15, 17 and 18), there the changes showed a considerable remoteness in meaning from what had originally been pictured by the patient.

Example 43.—Case 3 had to imagine a horse. After ten seconds she said: "The horse wouldn't do, it shook, and then I saw a hand quite clearly. I don't know whether it was to hold the horse, but it had some purpose. I don't know what was going to come of it. It was too horrible."

The conclusion from this seems to be that it is marked changes in the intended course—i. e., changes in the primary tendency—which lead to the feeling of strangeness. However, for it to appear in experience, a relatively well-preserved power of self-observation is necessary.

We must now turn our attention to tracing the further conditions necessary for the occurrence of the feeling of strangeness to the degree of capacity for self-observation, and, finally, to the changes of the primary tendency.

The observations made are well illustrated by Case 2, who was very intelligent and set herself in the appropriate frame of mind for the experiment. We here present material gathered over several weeks.

Example 44.—Case 2. At the beginning of her illness she had, as opposed to foreign thoughts, only a feeling of strangeness. Very soon she felt that almost everything she experienced was strange and false. "In the beginning it was a feeling of queer ridiculous thoughts; not confused but queer. I never felt they were other people's thoughts. They were my own thoughts, but I could think of *nothing that I wanted to*." ("An example?") "I wondered how people could ever go about and think properly." ("Including yourself?") "The same." ("Could you get back to your former way of thinking?") "No, I know only that it is different now and that it is queer. I don't know why." ("How is it while you are talking?") "No, I forget it then." ("Really forget?") "Perhaps I really don't notice it then, but perhaps it is only forgetting." ("Could both be the same?") "When I speak, my own voice seems foreign. If I don't speak for a fair while, I am always amazed at the foreignness of my own voice—I used to see everything quite clearly, but it is all foreign and false as I see it now." ("Does the shape of things alter?") "No." ("Does their meaning alter?") "No." ("Quite sure?") "No, I'm quite sure it doesn't. Years before my illness I often had queer thoughts. Those I have now are often not particularly different in their contents from the earlier ones, but the impression that they make on me is quite different." She likes being with others because she can pay attention to the conversation, and her feeling of strangeness is then a little less. "While I'm talking [you asked me about that once] it is as if the queer feeling overshadows what I am saying, but if I am thinking sometimes, then the queer feeling may be bound up with it. If I read, then the strange feeling is at first better, but after I have been reading a bit, then one of the queer thoughts come, and I ask myself: What's happened to what I've been reading? Or if something else is happening, then I always ask: What part of me is enjoying that? I don't want to think that, but *it comes to me suddenly* at everything I do, and I can't therefore enjoy anything. Also when I take up anything to occupy myself, immediately a queer thought comes on me of itself, or rather, it is a feeling with the thought." ("But isn't it the other way round,

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that you cannot enjoy something and then the thought comes ? ") "No, it isn't that way, no. I never have this thought or the feeling when I want something, or am hungry, or if I want to go for a walk. I go to the pictures in order to distract myself. Yet as soon as the picture begins I immediately get the thought : 'What part of me is enjoying that ?' This thought is a part of the feeling of strangeness. The feeling of strangeness is often there without any such thought, but if it comes with a thought then it makes it worse. When I had toothache lately I was amazed that I could feel pain without the feeling of strangeness."

For ten to fourteen days the patient just after waking up had, almost daily, compulsions, which were accompanied by a specially penetrating feeling of strangeness.

She said : " It is horrible. I suddenly got an impulse to jump out of bed and harm somebody. I had to pull myself together to stop myself doing it." (" Did you feel that as a command ? ") " No, it wasn't a command." (" Was it a thought or a feeling ? ") " It was a feeling." (" Was there any definite content at that time ? ") " No, but more a sort of pressure to do something." (" No speaking in your head ? ") " No, I only get a sort of impulse to do something stupid ; but what it is I am not sure myself, only something stupid. It only lasts a short time, but it is bad enough then."

When she was asked about a feeling of strangeness in dreams, she said : " I only dream sometimes that everything is wrong. Mostly I feel quite well in my dreams, or I would say rather that I feel as I used to." (" Do you really feel so then ? ") " I do not *think* that I am healthy then. I *am* quite normal. I do not bother about it." (" Well then, how can you judge of it ? ") " Only just because the feeling of strangeness isn't there. That's the reason." (" And in dreams in which everything is wrong ? ") " I do not feel or see everything wrong as I do when I am awake. I know in my dream that everything is wrong with me and it worries me, and then I ask people what I can do to get better." (" Which is more normal, your dreams or your thoughts during the day ? ") " Oh, there are dreams which could never really happen as dreams often are, but so far as they are coherent and could be real I feel healthy and more normal than in the daytime."

From these statements we can see the more important constellative conditions on which the appearance of a feeling of strangeness depends. In a dream, with consequently complete absence of self-observation, the feeling of strangeness is also absent. As far as the dreams are concerned in which this plays a part, her explanation shows clearly that she is there dreaming *about* the feeling of strangeness, not dreaming *with* it. The feeling of strangeness is of a special penetrativeness, however, in the experience of compulsion she has which occurs only after waking up. The content of these impulses is very diffuse : " To do something stupid." It follows therefore that as the primary tendency must be so very vaguely directed, at this time there can be nothing in the tendency towards self-observation to correspond to it. This state coincides with the feeling of strangeness which the patient experiences until she is herself once more. The more precisely, the more unitarily, even the more actively—we may say—the primary tendency is directed, the more does the feeling of strangeness retire into the background. It must be noted that in every experience primarily induced from the world without, in perception as well as in the appreciation of one's movement, there are passive (or " receptive ") and stimulating factors. These are in many ways decisive for the further course of the tendency directed upon them. The point we

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must emphasize here is, not that there *are* external stimuli, but that it is the passive quality they carry into the experience-complex and with which the experience of strangeness seems to be allied that is of fundamental importance (cf. Example 50 also).

Example 45.—The conditions for this may be investigated even experimentally. Certain objects are displayed to the patient for a short time. She states each time that the feeling of strangeness when she looks at them continues unchanged. Then after she has had a look at the object she has to shut her eyes and picture it—for example a wrist watch. " I pictured it quite clearly, but only for a short time and then it was gone, and then it was there again and soon it disappeared again." (" No feeling of strangeness ? ") " No. I tried to picture the watch and then I forgot myself and forgot the wrong feeling as well." Then the same thing was tried with a brush as the object. The patient was also told during the picturing of the object to pay attention as far as possible to the feeling of strangeness. " Only for a few seconds it was so clear in front of my eyes that I was able to picture it, and for that length of time I hadn't the strange feeling ; but as soon as it disappeared I got the strange feeling again."

Then a meaningless drawing composed of letters and figures was shown to her. She looks at it for a while attentively. Then she was interrupted and asked about the feeling of strangeness during the time she was looking at it. " It had become much less while I was looking at it to find out what it meant. My head became much clearer, but not quite clear." Then something in small print on wrinkled paper was offered to her to read. " It was difficult to read because it was wrinkled, but my head wasn't clear. The feeling of strangeness was the same." In other experiments she was told to shut her eyes and try to think of nothing. Then, immediately, she was to pay special attention and say whether anything appeared before her mind's eye. She reported that she had seen nothing. But, in later experiments, she saw a soldier from Nelson's time ; a servant girl cleaning away dust and, when that disappeared, a man on a bicycle, etc. Towards all these phenomena she had a definite feeling of strangeness.

One morning, an hour after she had again had another of her compulsive experiences, she was told to imagine this again as intensely as possible, and to do so with any content she liked. After six seconds she said : " Yes, I pictured that I was going to jump up now and throw something through the window." (" Was the experience the same as before ? ") " No." (" What was the difference ? ") " There was nothing compulsory about this." (" How so ? ") " I didn't have any fear now that I should really do it. This morning I had that queer, unreal feeling with it, that I might lose contact with everything." Finally, the patient was given the task, as soon as she again got this feeling with compulsive impulses in the morning, to try and picture to herself how she had felt just before, or how she had felt while talking to the physician on this occasion.

After four days she reported that she had often carried out this exercise and had been certain that she had been able to attempt it satisfactorily. (" And at the moment you were doing it ? ") " Yes, I remembered your task very well, but I couldn't do it. When the condition comes I am so horrified that I can't think of anything else." (" Yet you remember the task quite definitely ? ") " Yes, I remembered what you had said, but I couldn't do it."

The important point in these observations is this : the more receptively the total process is shaped, the clearer is the experience of strangeness. The more *active*, however, the factor is in the experience, the less evident is the feeling of strangeness. If we add observations from other cases, we would have to enlarge what has just been said by stating that both the extent of the capacity for self-observation and the capacity for strengthening the activity

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of the tendency play a part. The difference is probably only a matter of degree. In that it is to some extent dependent upon some purely spontaneous change—related perhaps to volitional influences—a *complete* explanation is at the moment, and may remain, outside the possibility of a functional interpretation.

But another question is this. How can a process acquire such a passive "colouring" that it mirrors itself in self-observation as "strange"? The reason lies in the formal changes in the primary tendency directed to the material, the complete independence of which to the clarity of the material has been demonstrated. A feeling of strangeness is, indeed, often observed without any objective material that can be adduced to explain it: for example, when such a feeling appears in the gaps after the removal of thought. These pathological changes of the tendency fall outside the aim anticipated by the self-observation tendency which overlaps the whole process. Expressed in functional terms, they represent irregularities in the tendency directed on the material to which no parallel processes correspond in the self-observation tendency that anticipates the aim of the former. In this manner we can get a better understanding of the essence of what has been called, so far, the self-observation tendency: from a consideration of the mutual relationships of the anticipatory tendency and the material tendency, we are able to gain an understanding of the phenomena of self-observation.

With defective functioning, or indeed with complete absence of the overlying tendency, changes in the material tendency and its consequent transmutations are not experienced any longer as such—i. e., there is an absence of a feeling of strangeness and of the feeling as to whether it is adequate or inadequate. In normal experience, definite change in the material tendency is possible only with the absence of the overlying tendency, i. e., in dreaming. For the schizophrenic processes so far considered, the abnormal element would seem to lie in this, that changes within the material tendency already occur even while the overlying tendency may still be fairly well-preserved. Further abnormal changes of function of the latter tendency which set in with development of the disorder, however, take their origin as was said above, out of the deeper changes of the material tendency. So here lies then the functional differences between schizophrenic thinking and dreaming or the thinking when going to sleep. In going to sleep, the overlying tendency disappears primarily, and it is only secondarily that the material tendencies, no longer controlled, can show definite changes which are in many ways like schizophrenic processes. Psychologically they can be designated as a gradual loss of consciousness.

The schizophrenic processes that have to be considered here show primary changes of the material tendency which secondarily lead to a pathological change in the anticipating overlying tendency, but not to its actual loss; for this reason we do not speak of a *complete* loss of consciousness.

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By this mode of approach to the relationship of both tendencies to one another we easily get a clearer understanding of further processes that are related; such as dozing in a normal person. It is characteristic of this state that the material tendency is indistinct, and that it fluctuates, often considerably. Experiences are never felt as " strange ", " unwilled " or " made ", because, as recalling them shows, we can scarcely anticipate the aim, or only very indistinctly. In other words, changes of the material and of the overlying tendency correspond in some way, mutually. This also helps to explain, how, within a certain range of schizophrenic disorder, the patient does not complain of any thought removal in superficial thinking, but only in such thinking as demands great concentration. The more sharply the material tendency is directed and the more narrowed the required performance is; the more markedly do the deviations of the former mirror themselves in the now more sharply defined anticipating tendency—compare the behaviour of Case 17 at rest and when required to picture (Example 26).

Example 46.—Case 14 said : " For a long time I had the feeling that my thoughts suddenly are taken away suddenly and are interrupted, and then I cannot go any further. When such stops occur only my deep thoughts are lost. I can only think of superficial things, for example, what I see in front of me."

III. Hallucinations.

The descriptions given by schizophrenic patients of their hallucinations, as is well known, are very variable. The reasons for this have been examined by C. Schneider (4). Schröder (12) pointed out that reports on the quality of experience in hallucinations can change in the same patient with more detailed investigation. Even when the patient denies any real difference between his perceptions and his hallucinations, an experimental reproduction of the hallucinated object makes it clear that a complete differentiation between the two is possible to the patient. Schneider (4) repudiates the reference of schizophrenic hallucinations to any ordinary perceptual experience, regarding it as quite inappropriate.

In general, though not sufficiently in the literature, it is recognized that the individual patient very often is unable to distinguish between different pathological experiences which we keep separate by terminology and ordinary clinical usage. We often find that a patient when questioned makes express distinctions between foreign thoughts and hearing voices, or between visual and acoustic hallucinations; but often at the next interview the patient's statements on this point differ widely from the earlier ones, whilst distinctions formerly made become uncertain.

We made extensive observations on this very point. The following reports given by one patient may be quoted as an example, as the most varied schizophrenic phenomena here find expression.

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Example 47.—Case 3 is a Swiss by birth. Until her fifteenth year she chiefly spoke Swiss-German, but since then she has not spoken it. She lived partly in France and partly in England, where she married, but was soon left by her husband. Six years ago she had an acute schizophrenic attack. Since then she has been stationary, well-preserved, looking after her own little household. It is easy to get her attention ; her affect is scarcely changed.

In the first examination she said that voices spoke to her, mostly only one voice at a time, which she could clearly recognize as either male or female. Lately it had been, for the most part, a child's voice. [That it is a child's voice which speaks to her, in the dialect known to her as a child, is of importance for the structural background of the " material " ; this cannot be gone into further here.] It speaks to her exclusively in Swiss-German. Furthermore, she reports occasional visual phenomena, which she does not bring into connection with the voice. " I look at a newspaper. There was a caricature, and then there comes out of the paper a whole face of my dead brother ; it came out towards me, and then I called his name." With regard to the voices she said expressly : " I don't think it myself ; it seems an answer to what I have thought." Two days later, at the next examination, she answers the question whether she can clearly keep separate her thinking and the content of the voices : " Yes, they can be separated, but often they get mixed up. If I have thought something, then something says in German that must go through the brain. Then I know that's me." She describes the voices : " Yes, I can hear every single word. It is not a loud voice. I don't hear that. One thinks that one hears it." And further : " It speaks from the table, from the wall, from everywhere, whatever is in the room. Earlier I thought as though there were spirits there, although I don't believe in anything like that." (" Do you see anything at the same time ? ") "As I hear something then I can picture it, and even if I don't want to, then it occurs by itself." (" How is that ? ") " First I hear it, and then it comes into my mind and, I can't express how it happens, but I see it "—(" Really ? ")—" It's the things which force themselves on me."

During the next examination, while the physician was making notes, some bells were heard outside. The patient interrupts spontaneously : " Do you see ? Now I hear the bells outside "—[this is so]—" Then I hear ' Ah jetzt lute sie ' [' now they are ringing '] ; this comes to me in Swiss-German, and then I hear ' Jetzt denk aber nicht auf die Lut ' [' now you must not think of people '] ; ' Unsere Lut sind andere Lut ' [' our people are different people '] ; to them you must speak English ; and then—ring the bell for Church and School. I shall now hear all day ' De Lut, De Lut ' [' the people, the people '] ringing in my ears. But these are not English people and it says—they are Germans. Through the idea of the church, it goes on to work itself out, and it may be a priest and it may be a clergyman—these are the people. It may come to be a prayer, but I must not think of that, for it brings with it all sorts of people like worshippers, priests and the like—and I must get out of it and think of women who won't have anything to do with that sort of thing either. For if I give one thought to that it would force me ' to go to Rome ', and it would be that ink bottle they would force me to worship, and that would not be the right sort of prayer, would it ? Later on it makes this ' Ferindenrot, Ferindenrot ' [' the sound of peals of bells '] ; now you see how it is connected with something like bells ringing. It's as if it was trying to explain itself. One could hear it far down the street, that ringing—when you go further still you hear it—now they come again, women and child and a man ; I've seen them somewhere—and then come imaginations, and I myself don't have imaginations. Then it comes to something one might compare to it. You see how it seems to work itself out further and further—there's a ring on my finger for instance. You see it compels me to look at something." (" At what ? ") " What there is in the room that belongs to it " [she points to a curtain ring that happens to be on the table] " I must look at the thing that is connected with the thing that is made in me. Now this seems to be the end. ' Nun gehet leise, ringsum im Kreise, der liebe Herrgott durch den Wald ' " [a German song which she has altered from " Nun gehet leise auf seine Weise ", i. e., she

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has changed " Now walks the Good Lord in his own way, silently through the forest " to " Round in a circle," etc.]. " That all arises from the church. You see, we have been talking about a church, and a ring is a circle. It means as well that now is the beautiful time that one may go into the forest ; and it also means, now is the beautiful time that you may go into the forest alone with your sweetheart, and you may hear there a little sound ' rrrrh ' in your ears, and that is the breath of God " [here she points to her ears, ? " ringing " in the ears]. " That is the meaning of the whole thing ; you can see how it all comes out."

At a later examination she gave us an excellent example of her way of thought. Outside there was to be heard the clatter of plates. The patient, who was smoking a cigarette, said " The noise of the plates outside forms itself into words. I'm smoking and when there's cooking there's smoke—and cooking and gas are the same thing—then suddenly I heard distinctly ' gas-oven ', and the voice says ' you're just such a rotten gas-oven.' So it starts with what I've got to cook and it starts to give me orders, and it gets something to do with boiling water, and then it goes to 'Wasserleitung ' [water-pipes], ' and then comes Leitungleid ' [grief], ' and Traurigkeit ' [sadness], ' and out of this I'm suddenly on the road ' [? roadmenders and water-pipes], ' and when one lives in a house one has to pay for the water or else the inspector will come and make a fuss—for ' meals ' one can say ' grub ', and that's like the German ' Grab ' [a grave], so it goes on turning and sadness comes again. It seems to me as if every word was ' practising ' on me. When it speaks to me then I have to go and do it till the meaning of the word comes. The word itself may alter as well ; for instance, if it says ' Leiden ' [suffering] then I am to ' Weinen ' [weep]. It wants to do that on me as a proof. It doesn't only tell me that but I must also feel it. Real tears run down my face and I have to feel sad, but *I* don't want to. If it lasts a long time then I'm really sad, but at first I can brace myself together and stop it. It seems to me as if there is a man inside who does this in me, who forces me so that I must do things." (" Do you really believe that ? ") " Well you see that's just what I want to know, and I want to know whether it might be something like telepathy. . . ."

On the other hand, in a conversation the patient shows very little of this confused and almost incoherent way of thought ; but in the experiments with imagery the same disorder is evident. For instance, on being told to picture a wheel, she said : " Yes, now the wheel is coming ; now I seem to be going into the wheel. One can run into it and it goes round with you. On the other side I see a cleaning machine. Ah, now I see how the ring is made. It's my brother in America and he has a cheese factory. Now I see my sister ; she is ill and limps. Now an old woman is coming in very slowly ; she limps and the child says [she refers to her hallucinated voice] ' Would you like to go with them ? ' Now I can see clearly that she is standing here."

It is almost impossible in these examples to distinguish between the different pathological phenomena ; strange thoughts and impulses, visual and auditory phenomena are all confused. The surprising thing is that there is running throughout a meaning which it is still possible to follow. The changes never lie quite outside our understanding and, indeed, the patient will often help us with an explanation. The changes take place in the most varied ways. Sound-, word-, sense-, meaning-, memory-, or even sight-related material arises, but nevertheless each has its own particular quality of experience. A complete sentence, an interruption, an answer are all experienced as voices. If it is a change in sound then she says the voice " practises " on it. If the change is in meaning, then it " brings " somewhere, or it " makes " her. If something compulsive is the content, then it is as though a man is in her who forces her to do things ; and finally, if changes come about through visual

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recollections, things come up which she can actually see. In conclusion, she gives a comprehensive explanation which leaves no doubt that one thing has developed out of another—on the way, so to speak. One thing only is common to all, namely; it is not *she* who does it, or is alone able to change it. It *is* done; she is passive. Here, very properly, we cease to make sharp distinctions between thoughts heard aloud, hearing voices, strange impulses, and visual hallucinations or illusions. Here it seems only a matter of material, i. e., in what form it lies prepared or may lie prepared; things related in sound are met with, less often related in tactile form, and very seldom in olfactory relation. The material comes up in the form in which it is found by the deviating tendency. That, according to the degree of the disturbance and the duration of the disorder, we get inadequate formation of the material can be brought into accordance with the views previously expressed. What distinguishes this case is, that in correspondence with the relatively slight development of the disorder and corresponding preservation of the overlying tendency, we get only changes which, for the most part, can easily be followed. In the same way these changes are not yet experienced or accepted with the degree of passivity which is so characteristic of many other schizophrenics.

Naturally, in examination it depends often in what way the question is put, how far one can appreciate the fact that the fundamental value of the experience of the different phenomena named above is similar, or that it only differs for secondary reasons. Patients do not usually spontaneously ventilate these matters for the same reason that, usually, they do not spontaneously differentiate between what exists, and what is hallucinated.

Example 48.—Case 7 said she heard sounds and heard voices, and, further, that she saw " figures "—" visualizations "—which were not clear, but became clear the more she was afraid of them. They could all be distinguished. (" Is there anything there which ' binds together ' pictures and voices ? ") " Yes, what they have in common is that they are both disagreeable, sad, and horrid." And then spontaneously she said : " The pictures are nearly always bound together with a sort of sound in my mind." (" Is the difference between the pictures and the voices the same as between ordinary seeing and hearing ? ") " The difference is not the same. The important thing is the disagreeable, sad part of it. Whether I see or hear them is in the background. But I am more scared by the voices than by the pictures. The voices are clearer and I can nearly always tell the difference between the two."

Example 49.—Case 9 said that in 1930 she had, for the first time, heard a voice. It was the voice of a physician, then on holiday. She then, in the summer, had seen figures in the air—often coloured ones. " The persons who seem to be talking to me seem to mirror the figures before me." These figures also create strange thoughts for her. She said spontaneously : " Often I can catch the thoughts which go from one figure to another." (" How do you know that these are the thoughts of the figures ? ") " The thoughts are quite apart from me and foreign to my mind." (" Can you easily get the difference between voices and foreign thoughts ? ") " Mostly yes, but sometimes the thoughts of the figures can use the voices as a medium to get into my mind. This last week I haven't heard the voices any more, only when I think of that doctor earlier, then these thoughts bring back the hearing of his voice. The seeing of figures is not actual seeing, it is more feeling. I can also see them behind me." (" Is there then between seeing

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figures and the voices the same difference as between ordinary seeing and hearing ? ") " Yes, you know, those foreign thoughts—they are tied up with the ' seeing ' of the figures and also with the ' hearing ' of the voices in the air ; so far as that *they* are the same. I can mostly differentiate them quite well if you ask me."

Perhaps the most illuminating example of the patient's attitude to his hallucinations is that of a case, not included in any of the groups, of schizophrenia in a man æt. 28. His illness is of three years' duration, and in spite of pronounced thought disorder his personality is well-preserved.

Example 50.—(" How do these hallucinations differ from a cinema display, for example ? ") " If one looks at the cinema screen or the page of a book, one uses a mental effort. Where these pictures or voices are concerned, they cut right across and are quite apart from my own effort. I'm quite negative as it were." (" Suppose a loud-speaker was concealed in this room, could you distinguish between it and the voices you hear ? ") " Yes. In the case of the wireless I'd be merely startled and surprised. My mind has already disposed of it. In the other case I'd be anxious. I haven't been satisfied as to what their motive is." (" But suppose the words were the same in both cases, what would be the *real* difference ? ") " I receive the wireless through my mental awareness. In the case of the voices it's as much subconscious ; it occurs on my ear-drum *without any receptive willingness* on my part. It catches me mentally bending, as it were."

Example 51.—Case 10. A spontaneous statement : " Two days ago, in the night, all my fingers curled up like claws." ("A kind of cramp ? ") " No. Not cramp, but it was quite involuntary. Later, I remembered and started thinking about it again, and I got a sort of animal feeling. I did not think that I would become an animal, but that something animal-like was happening in me. I felt that I was losing my reason and that I no longer had any control."

Example 52.—Case 14, when asked about her abnormal experiences, reported : " I see or feel and hear all that, but I can't distinguish which. My mind is open to all sorts of strange influences."

Such reports could be repeated indefinitely. They, and especially the fact that the patients often contradict themselves in their statements, show that for them the chief impression lies in the quality of their having been " made " —the quality of being heard, felt or seen, often goes quite into the background as compared with this. Only thus can one understand how often patients are not clear as to whether they have seen or felt them or experienced them as voices It then becomes evident that they only obtained their meaning. We are too ready to interpret into definite terms what to the patient is indefinite. Let us make clear once more what was said as to the transformation of the material. In every experience the material, to which the tendency comes, undergoes a transformation and is left thus on the tendency leaving it for other material. With the next experience it is again transformed by the activity of the tendency. So a schizophrenically-changed tendency may come upon normally-formed material and only change it in its significance, whilst another time the tendency may come upon material already changed in the way mentioned. Hence what often appears to us to be the patient's explanation is already part of the changed material, and has come to belong to the *immediate* experience. We meet these relationships in a weakened form

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also in the normal. We would remind the reader of vivid fever dreams in which there are sometimes queer synæsthetic experiences, for which it is difficult to find verbal expression. Such abnormally-formed material is then often inadvertently in later waking experience taken in to the figure-formation and one gets resultant vague synæsthetic images.

In the analysis of the feeling of strangeness it was pointed out that this experience can be understood in the clearest way only formally, and that the contents of the feeling of strangeness—i. e., the material with which it is experienced—can change in its clearness and, indeed, that the feeling of strangeness is to a large extent independent of it. Our last discussion suggests that we should assume a similar relationship in hallucinations. It would certainly be desirable if we could confirm our conclusions by the statements of patients directly. We have only found, so far, that hallucinations show *among themselves* considerable similarities in the fundamental quality of the experience. We shall now show how they behave in relation to the images of the patient.

For this purpose patients were asked to picture to themselves things which corresponded as much as possible to the contents of their hallucinations. It is important to note that they were told first to imagine something, the content of which corresponded to their hallucinations without, however, suggesting that they should bring the two into relation. Then they were expressly told they should again imagine to themselves what the voices, etc., had said, and this time if possible with the same feeling as they had at the time of their hallucinations. The patients were closely questioned as to the differences. The findings are here given briefly.

Example 53. Case 1, after imagining real voices. (" The character of these ? ") "The voices I pictured go out from myself. The others I hear [hallucinations] on the other hand come out by themselves without my doing anything."

Example 54.—Case 2. She said : " Shortly after I woke up I heard two voices again." (" Had you the feeling of strangeness ? ") " Yes, the same feeling." (" Had you been dreaming ? ") " Yes." (" Was the dream connected with the voices you heard later ? ") " No, I woke up through something that I dreamt—I don't know now what it was—and then after some minutes I heard the voices." (" Single words ? ") " Yes, as I always hear it ; single words that don't mean much." She suddenly remembers the dream. (" What was it ? ") " I dreamt something was wrong with me, and then that you gave me advice about it." (" Had you the feeling of strangeness in the dream ? ") " No, I only knew that something was wrong with me. Only when I woke up and heard the voices of the sister and your voice I again noticed the feeling of strangeness." (" You heard my voice while you were dreaming, and later after you woke up ? ") " Yes." (" Were they different ? ") " Oh, quite different. When I was dreaming I could only *know* what you said ; I couldn't catch the tone of your voice. But afterwards when I was awake I could hear the tone of your voice quite clearly." (" The words too ? ") " Yes, I can no longer remember what, but as I heard it I knew what it was." (" How did I speak English then ? ") " It was just as broken as you are speaking now." (" And in the dream ? ") " No, I don't know. I remember that I later thought about your broken English, but I didn't refer it to the dream." (" What was the difference between my voice when you imagined

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it and my voice when you hallucinated it ? ") " For one I have to concentrate, the other comes into my head without my needing to." (" Otherwise the same ? ") " Pretty well."

Example 55.—Case 3. (The difference between imagined and hallucinated voices.) " If I try to do that by my will, then it doesn't come out so clear, but if it comes in the other way (meaning the voices), then that comes exactly as though it had really been spoken. *Now* I imagine the tone of the voice, otherwise it is only words without a voice."

Example 56.—Case 4 hears voices clearly, can notice differences in dialect even. (Difference between imagined and hallucinated voices ?) " In the first case it is I who wishes it, who presents it to myself ; in the second case, however, the voices come without my intention. The character is otherwise the same."

Example 57.—Case 5. (The difference ?) " The voices, when they are there, are clearer and more real than when I picture them, and they make an impression on me, but the others don't."

Example 58.—Case 7. (The difference between visual phenomena and the corresponding visual images ?) " If I picture them, then it is much clearer than my visualization. There's a fundamental difference." (" Yes ? ") " The present images I made without anxiety by my own will, and I can control them. The visualizations came into my head without my intention. The images are always clearer and one feels that one can get them." (" But why then are the visualizations more real although they are less clear ? ") " Because of the anxiety, the difference lies more in the mood."

Example 59.—Case 9. (The difference ?) " The more I concentrate, the clearer I can imagine. The voices, however, come of themselves, in a moment." Spontaneously later she said : " Yesterday at home I suddenly heard a piano being played high up in the air. I tried to get rid of it by imagining to myself another sound, such as when one bangs with a spoon on a pot. But this also went up in the air. Then I tried again. Everything went up, and then I *saw* the kettle and heard its sound at the same time." (" Was there a difference between the piano playing and the noise of the pot ? ") " The difference was that I created one but not the other." (" Were not both sounds, as it were, real ? ") " Oh no, only that which I didn't create was real."

Example 60.—Case 10 was required to picture something like an animal, and at the same time to take up the appropriate attitude and describe the difference between this and the feeling in the night. " Yes, I can imagine that, but it isn't the same. This is voluntary and doesn't make the same impression on me, and I can stop it if I want to."

Example 61.—Case 14. (The difference ?) " No comparison. You see, the voices *are* there clear and plain, and, in imagining, one has to think of them."

Example 62.—Case 15. (The difference ?) " They are not the sort of voices that I can imagine. It is rather a visualizing that comes from my head to my ear ; it seems a different sense." (" Which is clearer ? ") " If I picture my friend's voice." (" What is more real ? ") " The voices are often indistinct, but they exist."

If we compare these statements with those we get when we ask schizophrenics directly about the difference between their hallucinations and their *perceptions*, we are struck by the fact that the reports here given are from one point of view very much more unitary. In the essential point of the difference in experience they are all at one. The imagined object is felt as subordinated to one's own initiative whereas the hallucinated thing is " made ". This difference is emphasized even when the sensory clearness is less than that of the images. For us, this is the important point. The experience can change from the greatest clarity to the utmost haziness, but it is quite independent of

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the nuclear experience of passivity the structure of which we have already discussed.

The patients' report is noteworthy also on account of the manner in which they try and imagine their hallucinations when asked to do so. It is understandable that only a small proportion are capable of this. Many of the patients who were no longer hallucinating, or only did so rarely, said it was impossible to imagine them.

Example 63.—Case 3. " I only need to sit and say nothing ; and not pay any attention, and then it comes on all by itself."

Example 64.—Case 4, when asked to imagine her hallucinated voices, said : " It's just the same. I can't imagine it without hearing it as well." (" Then do they always come ? ") " Yes, I could do it, but I fight against it." When she is imagining hallucinated voices she always holds her hands over her ears, which she never does when she is imagining real voices, nevertheless.

Example 65.—Case 7, after 35 seconds, said in answer to the same question : " Yes, I can do that." "(How is it done ? ") " By remembering." (" Could you remember it at once ? ") " No, I got it quite gradually." ("And the other, imagined pictures ? ") " I can see them practically at once if I shut my eyes." (" Was the experience the same as if you actually saw the pictures ? ")—hesitating —" Yes, but before, when I saw them it was more real. It frightened me more, and besides that I have the possibility of stopping *these* pictures. (" Is it the same before your mental eye ? ") " Yes, I'm sure it is the same."

Example 66.—Case 9 said : " The difficulty of imagining the figures in the air lies in this, that I have first to remember them." (" How ? ") " The things that you tell me to imagine, like the umbrella and so on, they came before my eyes when I closed them." She tries to do it again—she remembers the figures, and then she sees them actually. (" What is the difference between imagining ordinary things and these figures in the air ?") " The way is different ; opposite. For example, the ink-well there I can see it first, and then the image comes more easily ; but the figures, I picture them first and then some of them are really there. I have called them up by imagining them. It is the other way round."

When asked to imagine her voices she said : " That is very difficult. I have to force myself to remember." (" In the same way that you pictured the doctor, before ? ") " No. With him it was this way, that I remembered him all the better the more I thought, but with the voices it has to come suddenly by itself." Next time, when she succeeded in picturing her voices she said : " I had to go back to remembering, and then it came suddenly."

C. Schneider (4) pointed out that with patients of a certain type the voices increase in frequency with increasing direction of attention. The fact that in schizophrenic end-states, as a rule, definite hallucinations are not demonstrable, he explains by the conception of habituation and also by saying that the patients can no longer so clearly grasp their immediate state of experience. We must examine these cases rather more precisely than Schneider did, who rather unfortunately made use of " habituation " as an explanation. Have we any right to differentiate between some immediate state of experience and the impossibility of being able to grasp such an experience ? (We speak in this sense of some absolute impossibility, not denying, of course, that thoughts may be incompletely realized—even in normal life.) Making fewer assumptions, and from our point of view more satisfactorily, we can say that the one

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is merely the expression of the other. In other words, whereas in schizophrenic end-states the overlying tendency with its end-anticipating is seriously disturbed, there can be no self-observation, and, in addition, and for the same reason, we can no longer demonstrate the structure which lies at the basis of the feeling of strangeness and also of hallucinations.

As to the " toning " of attention which can allow hallucinations to increase, the statements of patients given above show that it is a question not of any general attitude of attention but one of a particular kind. It has at any rate quite a different character to that which is brought into action for evoking images of real objects. In the last case it only exceptionally happens that hallucinations arise from the attitude adopted, whilst it appears to be the rule in the former case—that is, when the particular " tone " of attention is attained. We would conclude from this that the patients who can imagine their hallucinations satisfactorily take on an inner attitude which approximates to or is the same as the state which is present at the time of the spontaneous occurrence of hallucinations. With Case 7, who at the time was no longer hallucinating, the attainment of this state lasted 35 seconds, while the picturing of real objects could be done at once. This patient and Case 9 also told fairly clearly the way in which they attained the condition. They would go back to the memory of the state of total experience at the time they were hallucinating—a state attained with varying difficulty in different cases; Case 3 has merely to let her attention wander. It is much the same with Case 4. For the last two patients it is rather more difficult.

These different degrees of possibility we can study in the conditions attending the half-waking state. This state can be conditioned by circumstances; then it will need some active process in order to awake. In other circumstances, if this state is not given primarily we can *wish* or intend to doze. This active process depends upon an intact overlying tendency. What the intended process develops into, after the attitude is attained, depends on the behaviour of the tendency directed on the material and its relation to the overlying tendency.

Definition of Hallucinations and of Feeling of Strangeness in Terms of Analysis of Function.

What, so far as our observations have gone, are schizophrenic hallucinations?

(1) From the point of view of their content they are " by-products " of thinking—certain changes in thinking. Corresponding to the degree of fundamental disturbance their content shows clearly, indefinitely, or no longer recognizably, a connection of meaning with what was primarily intended. This deviation from the intended course can occur in different ways: by sensory connections, by form, by sound, by verbal connection or through the meaning.

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These changes are conditioned by primary disorders in the tendency that is directed on the material, this being no longer directed with sufficient strength and precision on figure-formation. As soon as the material used by the tendency is touched upon, lying as it does in the form of a complex, it has to be " re-stamped " in the direction of the figure-formation that is being striven after. This " re-stamping " may only occur incompletely so that the old complex as a whole, and perhaps other complexes which have been drawn by the unprecise tendency into the process, are activated. As was previously pointed out, material that is quite inappropriate, but yet will always spring up in the mind, cannot be kept away by the unprecise tendency at all satisfactorily.

(2) The experience acquires a certain quality which leads the patient to believe that something has actually been perceived. This results from that particular passivity with which the patients regard the happening. They have no feeling of having intended the hallucination as, for example, is the case in experiments with images. We may say that the tendency which overlies the process of figure-formation and anticipates the direction of aim has not set its mark on these side-complexes. Or, expressed in a different way, there are structurally no similar changes in the overlying tendency to correspond to changes in the material tendency. Thus these parallel complexes are formed *outside* the anticipated aim. Psychologically expressed, they appear both unexpected and strange.

These relationships between the material and the overlying tendency come to expression most readily in the phenomena of self-observation. If, through profound changes in this pair of tendencies, the overlying tendency has become in particular insufficient, then as the changes of the intended material reach a greater degree, they are no longer realized as strange or as percept-like phenomena, because, for the latter tendency, there is no longer a clearly anticipated aim with which what *has* developed may be contrasted.

(3) As regards the sensory quality imparted to these side-complexes, we have to differentiate between intensity and quality. If, for example, in many cases, without sharp differentiation, foreign thoughts go on to thoughts spoken aloud and to the hearing of voices, or, if the patient at the same stage of the disorder experiences foreign thoughts as well as hears voices, this can only be regarded as a gradually increasing *degree*, or perhaps a situation-conditioned fluctuation, of the disorder.

The actual quality of the investment at a certain moment can be referred back to the sensory investment of the particular material-complex that is selected. Let us consider the level at which the schizophrenic changes occur, in contrast, for example, to the amnesic, aphasic or the agnostic. Here, there *is* a sensory connection, but a very distant one, in which the disorder comes to expression, and therefore these relationships will be completed primarily in inner speech. Thus we arrive at the interesting conclusion that

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the by-complexes also have predominantly the character of inner speech and, corresponding to this, are experienced as voices. Undoubtedly here individual differences play a part for the formation and investment of the material complexes. If anyone is accustomed to clothe his thoughts in a visual form, then he may, as a schizophrenic, not only hear but also see his foreign thoughts —a statement that is, of course, not infrequently made. One of our patients, whose memory material must be regarded, from his own statements, from his school record and from the imagery experiments, as being predominantly visual, began in his schizophrenic attack to see foreign thoughts " round about his head ". We cannot otherwise understand how it is that so often a particular sense is hallucinated, or how the content is often in some way sensorily blurred or experienced as synæsthesia. (How far this is true also for bodily hallucinations, such as the feeling of being electrocuted, was not investigated, and must therefore remain uncertain.)

(4) The absence of an external stimulus, or at least of an adequate external stimulus, can often determine the total character of an experience in schizophrenic hallucinations. In such cases one is told, as with Case 15, " the real voices come from my ear into my head, but *my* voices go from the head into the ears." Such explanation, however, can be lacking, and then we find that the patients do not know even whether they would hear the voices as well with closed ears before they have actually tried. Now every real identifying perceptual performance is under the influence of a presumption as to direction given by the overlying tendency. By this, as also in other ways, it is protected from false or overwhelmingly inappropriate images that might come into the performance. In hallucinations, however, it is these very side-products that make up the total content. So in conjunction with the absence of an external stimulus we can easily understand the reaction of almost all schizophrenics towards their hallucinations, namely, that with even uninteresting content, they regard their hallucinations quite otherwise than they do real perceptions of the same content.

(5) So far, in this connection, as the reality judgment interests us, it may be regarded as dependent on two things.

(*a*) The alternative that is given the patient by normal experience, i. e., perception or image ? and

(*b*) the fact that the possibility of self-observation is still preserved.

From what has been said on this point, at least this is clear : the way in which hallucinations that appear to have a perceptual character need not be taken for real by the subject.

We will now make some brief remarks on the difference of these sensory disturbances to those of delirious hallucinations. The important point with regard to the latter lies in this : through the primary loss of self-observation there is no clear differentiation between perceptions and images. Here images, hallucinations and perceptions are actually along one line of direction

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—for example, as to their suggestibility. That alone makes delirious experiences qualitatively dreamlike.

Here the *active* element in the images cannot be differentiated in experience from the *passive* element of the perceptions, or only for a relatively short time. So the patient, in the real sense of the word, can no longer *survey* his experience. As another expression of the loss of the overlying tendency, we can add that the aim or the direction of the perceptual performance is anticipated only indistinctly or not at all; thus, wrong image material is taken from the side of the material tendency and is included in the performance (for example, illusionary mis-identification). In this way the possibility of control given him by the external world is accessible to the patient only within a very limited range.

We have a very interesting record from an arterio-sclerotic patient worth mentioning in this connection.

Example 67.—The patient was well orientated in space and time, and showed only slight signs of dementia. She had been almost blind from choroiditis since 1918. Nine years earlier after a small, or several small, cerebral accidents, she gradually had acoustic and, later, visual hallucinations which, until the present time have remained unchanged. She sees figures (human beings) and hears them talking and speaking to her in " lovely singing and clear voices; every word they say is quite clear ". The attitude of the figures always corresponds to what they say and sing, " they dance to some unspeakably lovely music ". The figures are many-coloured and are quite easy to see in all their details, much more clear than she sees actual things. When asked how this can be, she says: " Its all quite possible, there is nothing surprising or improbable in it." Her attitude contains no desire to explain them. She regards them as an entertaining occurrence—at least not as morbid. She only talks about them to doctors " in case that interests them." With this patient a series of imagery experiments were made. It was found that the hallucinated and the imagined object were present at the same time and in the same region of experience. At the beginning of each experiment both showed for a considerable time a certain independence of one another in their behaviour; regularly, however, they gradually became fused into an inner unity. Here is an example of this. The patient was required to imagine a telephone on the wall. " Yes, I see that quite clearly." (" What are the figures doing?") " They are wandering round." (" Any figure at the telephone?") " No, they are wandering through the wall where the telephone is." After a minute and a half. (" Now look at the telephone and tell me what is there?") " Yes, now a lady, one of the figures, is taking the telephone and talking." (" What is she saying?") " I can't hear." (" Listen.") " She has the ear-piece in her hand, but she says to me: 'Mrs. B—, I am not talking through the telephone.' "

Such a fusion of the imagined and the hallucinated voices both as to content and as to quality in experience—which we can call an actual identity—is not to be expected in schizophrenics, and has never occurred in our very numerous experiments. We cannot, of course, deny that there is a difference between the hallucinations and images in this patient, for she distinguishes them, at any rate at the beginning of the experiments, but there is no essential factor, as in the schizophrenics, which distinguishes them absolutely in experience. This sort of hallucination lies on the way to delirious hallucination.

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With regard to the experience of strangeness in the schizophrenic we can now put the matter briefly. We found that it could appear independent of any content. Its essence corresponds to the purely formal changes (such as thought removal and deviations) of the material tendency, for which there is no anticipating correspondence in the overlying tendency. These pathological changes must often be of considerable intensity ; they are frequently described by the patient as bodily sensations (blows on the head, etc.). This independence of actual content can best be seen from the statements of patients. " It is a horrible feeling, as if I lose contact with everything "—an expression we hear frequently in almost the same words ; this also expresses with great vividness that it happens quite apart from anything which might be anticipated by the patient.

In this way the feeling of strangeness and the hallucinations of schizophrenics have been brought functionally into close relationship. Apart from the different degrees of intensity and clearness with which both can be experienced, hallucinations would only, so far as they are being discussed here, be differentiated *by the presence of material* from the feeling of strangeness. Also the experiencing of strange or queer thoughts does not represent anything essentially separate, and is only differentiated from hallucinations in that in the former case the contents do not usually go very far from what was primarily intended, so that the meaning can still be grasped. Or, expressed in functional terms : in such cases the deviations lie in a smaller circle around the aim that is anticipated by the overlying tendency.

Remarks on the Material.

If the schizophrenic change in these cases is a primary disorder consisting of an alteration of the material tendency, then we should have to keep apart, both on theoretical and practical grounds, three different conditions with respect to the relationship of the tendency to the material. In the first, the tendency would be already changed, but normally-formed material would still be there to be transformed in experience. In the second case, together with schizophrenic tendencies, there would be already schizophrenically transformed material present. In the third case there would be normal tendency and schizophrenically changed material. We have already said that it is by no means simple to differentiate between such transformed material and the explanations given by the patient. But other schizophrenic features are at this point brought closer to our understanding : thus, for example, the propensity to neologisms. This shows the comprehensible and common principle of linking a material complex of definitely limited or striking stamp with a verbal expression in order that it may become easily capable of expression. If such a material complex comes about through schizophrenically changed tendencies, then its " name giving " will have to be appropriate to

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this relationship. Often such neologisms betray something of the manner in which such complexes have come to be. Thus a mechanic who feels himself electrically influenced speaks of " brain-kilowatt-hours ", or a resistive patient talks of " behelling " injections. A normal child often produces neologisms which point to newly-founded material complexes that from the standpoint of the adult, have come about in an incorrect way. For instance, a child who, one Christmas, had been frightened by a loud noise in the room above, puzzled its mother by asking where was the " Christmas-bang " on the next anniversary. Mayer-Gross has pointed out how often quiet schizophrenics regard their absurd conduct and completely incoherent thoughts as the most natural thing in the world. This fact is explicable by thinking of complexes that have been formed in this way and which now lie ready for later use in experience. But since the florid schizophrenic phenomena, that is, thought disorder, may persist at the same time, complexes so found do not remain long in the same shape, because, with each experience, they are re-stamped anew and even more aberrantly. Thus one rarely obtains the statement that a certain thing is " the most natural thing in the world " twice from the same patient—he has gone on to another reshaping of the material, and furnishes other explanations. This has been observed by every clinician, but is too little emphasized in the literature.

If now the argument that has just been developed is correct, then in the cases where there is good remission, a third state should be demonstrable in which the tendencies no longer show any changes, but in which the material still shows clear traces of a schizophrenic imprint. In this connection we would refer to the many-sided residua of cured schizophrenics. This is well shown in Case 2, who two months after the experiments described above, showed a very good remission.

Example 68.—When imagery experiments were undertaken with this patient, she showed no abnormalities, but she complained bitterly that she was far from being quite well. " I feel in myself somehow that I can't explain." (" How ? ") " I'm better than before, certainly, but not right yet." (" Is there still a feeling of strangeness ? ") " No, that is better ; but I don't know. It is queer at the present moment and often is, but not as it used to be. If I sit in the day-room, for example, then everything looks queer, just as before, but I don't feel myself as queer as before. I could not express it in simple words. I am sure if I were now to look out of the window of the ward [where this patient had spent three months] everything would look quite as wrong as before. In the garden there is no corner which, when I look at it, doesn't look queer to me in some way." (" Everything else too ? ") " No, that's why I would like to go away from here. When I was with my family for two days at the sea and one day at home, everything was all right and did not look wrong." ("All the time ? ") " Only when I looked sometimes at my mother and sister did I get that queer feeling." ("And your father ? ") " I always see him right." ("And your three brothers ? ") " Yes, they are all right." (" Who visited you during your illness ? ") " My mother and my sister." (" Your father and your brothers ? ") " No, they were never here." ("And the people here ? ") " They all look rather strange still." ("And the doctor who came to see you two weeks ago for the first time ? ") " No, I didn't notice anything wrong about him." (" Me ? ") " You are still a bit strange. When I got into

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the car yesterday the impression which one has in driving by houses was as queer as ever." (" How did you come here in the beginning ? ") " In a car. That was my worst day. I had the feeling again yesterday, but it was rather different." ("And you yourself ? ") " Yes, my hands still look wrong." (" And people and things at the seaside, the day before yesterday, and yesterday ? ") " That was all all right."

This conversation, with the questions put by the investigator, shows that it is possible to predict the answers of the patient—all the material that was re-stamped schizophrenically during the first phase of the illness still bears clear signs of this re-stamping. Now though normal tendencies are directed upon such material, there yet comes from it an experience that reminds the patient, in certain characteristics, of the experience during the acute phase. On the whole, however, it is experienced otherwise because, on account of a normal tendency, the actual experience of strangeness is lacking. The other material which was not transformed during the illness (father, brothers), or which is now being shaped for the first time, shows nothing peculiar in experience. It is clear that this observation represents an important keystone of the ideas that are being presented in this paper.

The Fifth Group.

The five patients of this group have not so far been mentioned. They are different essentially from all the other patients, but are very similar among themselves in the various points that characterize their total state, whether this state was attained by gradually progressive development or after a succession of florid attacks. They showed no hallucinations, no interruption or substitution of thought, no feeling of strangeness—in short no phenomena that could really be called florid. They only exhibited abnormal affective behaviour. This could in all of them be called definitely one-sided. One patient showed continually a slight grumpy and paranoic attitude, although it did not always come to expression in words. Another was completely indifferent and reserved ; a female patient was always superciliously recalcitrant ; another, slightly querulous with, commonly, an attitude of defence ; and the last was simply always bored. It was easy to get in touch with all of them for a superficial conversation, but its limits were defined clearly by the affective attitude. Here and there abnormal contents were produced which, however, were less the expression of a momentary disorder of thought than strange notions which were fixed and not the product of the moment. This general description will suffice to show that it is a question here of a well-defined and not uncommon schizophrenic state known to every psychiatrist. We believe that in outlining the examination of these five, we have given sufficient attention to this type.

The findings in the imagery experiments were just the same in all. They showed not one of the features which were found in the patients of the first four groups. Not only that, but in imagining single objects they could all

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keep the imagined thing for an extraordinary length of time unchanged—far longer than it is usually possible for normal people. Naturally there were differences in so far as one imagined better acoustically and another visually; or perhaps in some individual sensory field (usually tactile) nothing could be imagined at all. At any rate, where something was imagined a duration of 12 to 30 seconds was common. With the pictured scenes, details were mostly left out, but even here there were no features characteristic for the other groups. But what was quite impossible in all these patients was to imagine or to reproduce a particular mood or a particular affective state when they were asked to do so. Characteristic of this is the statement of one patient who, when asked to imagine herself particularly pleased, replied: "I cannot imagine any mood other than the one I'm in now." Similarly the rather paranoic patient who could not feel himself either anxious, angry or pleased, when asked to imagine two people telling him a good joke said after 8 seconds: "I have been able to imagine it." ("Did you see it or feel it?") "I saw it. I didn't know what it was, it might have been anything conceivable they were telling me."

Since this group cannot be worked out from a function-analytical point of view as yet, this short report must suffice for it. Its separation was made on the following grounds: The cases in it showed among themselves points of similarity which were clinically and psycho-pathologically characteristic; the chief of these were the affective peculiarities and the lack of really florid phenomena. It is just on account of the latter that our function-analytical considerations are not applicable to this group which we have applied to the patients in this paper who had hallucinations, a feeling of strangeness, and disorders of thinking. By this their special position is emphasized. This certainly does not mean any shortcoming in the point of view that has here been put forward the application of which to psychotic behaviour has here been attempted for the first time. Our findings will need to be carried further and deeper before we can investigate such a condition with likelihood of success.

In conclusion we desire to express our indebtedness to Dr. Edward Mapother for permission to use case material at the Maudsley Hospital.

References.—(1) Mignard, *L'unité psychique et les troubles mentaux*, Paris, 1928.—(2) Berze, *Psychologie der Schizophrenie*, Berlin, 1929.—(3) Kronfeld, *Perspektiven der Seelenheilkunde*, Leipzig, 1930.—(4) Schneider, C., *Die Psychologie der Schizophrenen*, Leipzig, 1930.—(5) Beringer u. Ruffin, *Zeitschr. f. d. ges. Neurol. u. Psychiatr.*, Bd. cxl.—(6) Goldstein, *Schweizer Archiv. f. Neurol. u. Psychiatr.*, Bd. xix.—*Idem*, *Monatsschr. f. Psychiatr. u. Nervenkr.*, Bd. lxviii.—*Idem*, *Deutsche Zeitschr. f. Nervenheilkunde*, Bd. lxxxvii.—(7) Zucker, "Experimentelles über Sinnestäuschungen," *Arch. f. Psychiatrie*, 1928, Bd. lxxxiii, p. 706,.—(8) *Idem*, "Über die pathologischen Funktionen bei amnestischer Aphasie, *Monatsschr. f. Psychiatr. u. Nervenkr.*, 1933, Bd. lxxxvii, pp. 65, 193.—(9) Kleist, "Vortrag auf. der 76sten Versammlung des Schweizer Vereins für Psychiatrie, 1929, Basel," *Zentralbl. f. Neurol. u. Psychiatr.*, Bd. lvi, p. 458.—(10) Heidegger, *Sein und Zeit.*, 1927.—(11) Zucker, "Versuche mit Mescalin an Halluzinanten," *Zeitschr. f. d. ges. Neurol. u. Psych.*, Bd. cxxvii.—(12) Schröder, *Monatsschr. f. Psychiatr. u. Nervenkr.*, Bd. xxxvii and xxxix.—*Idem*, *Zeitschr. f. d. ges. Neurol. u. Psychiatr.*, Bd. ci.—(13) Mayer-Gross, *Bumke's Handbuch der Geisteskrankheiten*, B. ix. Spez. Teil 5.

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