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Original Papers

MESCALIN AND DEPERSONALIZATION*

THERAPEUTIC EXPERIMENTS

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DEPERSONALIZATION is a syndrome which occurs in various states and psychic disturbances. In spite of several interesting studies its psychopathology still deserves to be analysed and defined, as different experiences seem to have been conceived under the same topic. From a purely descriptive point of view, the syndrome has been classified as a disturbance of 'Ichbewusstsein.' Henderson and Gillespie call it 'a subjective condition in which the patient feels that he is no longer himself.' But patients also complain about changes in their surroundings (the 'derealization' of Mapother). Therefore this definition is apparently too narrow.

Mayer-Gross has recently written a paper in which he gives a survey of clinical findings and psychopathology of depersonalization. He accepts Mapother's distinction of depersonalization and derealization depending on whether the feelings of unreality are related to the patient's own personality or to the outer world. He also analyses the particular significance of the person's own body in relation to the self and the world, or as a part of both of them.

For these investigations, patients were used whose complaints fit in with Lange's description of the symptoms. 'The feeling of belonging to one's own body is lost. The patient feels like an automatic machine, like a statue. The sound of his voice, his face in a mirror seem strange to him. His mental pictures are shadowy. His perceptions do not awaken a feeling of reality. His actions are mechanical, without the feeling of will. Thoughts come and go without personal effort. The patient feels like an apathetic spectator without connexion with his own perceiving and doing.'

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As mentioned, these symptoms are to be found singly or collectively in various states. They can be observed even in normal persons, for example, in states of exceptional fatigue.

It seemed of special interest that the symptoms of depersonalization could be produced experimentally by mescalin intoxication. The psychic effects of this drug have been studied by different authors. Beringer published a large number of protocols and self-descriptions and tried to give a systematic clinical description of the mescalin psychosis. The most striking symptoms which have attracted the main interest of different authors are the hallucinations, especially the visual ones. Sensory perception and its disturbances have also been the object of valuable psychological investigation (Stein and Mayer-Gross). Before Beringer, less attention was paid to the change of consciousness in the widest sense of the word. This author described as quite characteristic, in addition to abnormality of sensory functions, the alteration of consciousness and abnormal state of mood as the main symptoms.

The question whether there is one specific *alteration of consciousness* or several, will not be discussed here. Beringer, who apparently is inclined to take the alteration as a uniform one, distinguishes two ways of being aware of it, one the opposite of the other : on the one hand, there is an awareness of an abnormal distance between the self and what happens in its consciousness, on the other hand, the experience of an abnormal fusion of subject and object. The symptoms of the former group are very reminiscent of the complaints of patients in states of depersonalization.

The following are some examples of such observations, the first two being quoted from a paper by Buchanan, the others from the authors' own experiments with normal people.

1. ' At this stage of intoxication (beginning) I had a certain sense of the things about me as having a more positive existence than usual ' (Weir Mitchell).

2. ' My state at this period can but be described as a supernormally clear focus of attention with practically no background of consciousness ' (Fernberger).

3. ' I drew my hand across my face and it felt as if the hand had no connexion with me and did not belong to me. I looked at it as if it was not my own, then the feeling faded and not even by using my imagination could I recapture it.'

4. ' Gradually, the surroundings began to show a particular change. Objects stood out more distinctly. The faces of the people around appeared to be more sharply outlined and more deeply furrowed than before without appearing actually disfigured. My own face appeared strange to me, although I recognized that its proportions were unaltered.'

5. ' The whole surroundings appeared to me as if I were returning after a long absence into a room which had previously been very familiar to me, but where now all the objects were as if they had become quite strange and

were saying : " Go away again, you will not find your previous relationship to us. You are quite strange and altered." '

6. ' Her own body seems to her difficult to separate from its surroundings : there appears to be an uninterrupted continuity. Also the integration of her personality is gradually lost. At first the loss of distance is very unpleasant. The solid form melts away. It is no longer possible to feel oneself a separate personality. Also the objects in the surroundings lose their solid shape. They melt away, only to form themselves again from the distance.'

The *changes of mood* in mescalin intoxication may be important in judging the results. Beringer says euphoria is very characteristic in mescalin intoxication. In his observations it usually started near the beginning of the intoxication after about an hour. After small doses, he writes, ' It appears as cheerfulness and elation, usually with the inclination to make little jokes and malicious remarks. They get into a state of mental exhilaration ; they become talkative and disinhibited ; they commit social errors and enjoy committing them. Very often they are ironical and feel superior to others. They see everything from a comical angle.' This euphoria can increase up to a very ecstasy, but in the early stages and in its manifestations after small doses it reaches only a limited degree. Sometimes the mood is altered by anxiety attacks, occasionally, according to Beringer's description, by depressive states. Only two of Beringer's subjects reported depression, either in the period of recovery or even after the end of intoxication. Finally, Beringer mentions the retrospective attitude of the patients towards their experiences of intoxication, a point which the present authors specially stress, because Beringer's observations can be confirmed by their own previous experiences with normal persons and also because they are of the opinion that it may be possible to use this effect of the drug indirectly for psychotherapeutic purposes. The experience of the intoxication, as Beringer also observed, makes a particularly deep impression ; neither the details nor the new and fantastic sensory perceptions are the decisive factors, but there is something strange and mysterious which remains. The personality is touched to its core and is led into provinces of psychic life otherwise unexplored ; light is shed on boundaries otherwise dark and unrevealed and in this some aid may be given to *Existenzerhellung* (illumination of existence). These experiences suggested the idea of making psychotherapeutic use of the intoxication, or, to be more exact, of the state after it.

PERSONAL EXPERIMENTS

Depersonalization states seemed particularly suitable for experiments with mescalin, because there is apparently a special relationship between the symptoms of the morbid state and those of the intoxication. The extraordinary similarity of the symptoms on the one hand and their antag-

onism on the other aroused our interest, both theoretically and practically. It was hoped that some information about the character and the pathogenesis of the syndrome, or of the disease causing it, would be gained by observing the relationship of the experimentally produced symptoms to the original ones, particularly if the effect happened to be parallel. On the other hand, if the effect of the drug was an antagonistic one, some therapeutic results might be expected.

For various reasons, the large doses generally used for experimental purposes were not given. In the first place, it was desirable to avoid the disagreeable vegetative symptoms, as sick people were being used. For the same reason the drug was not given by injection (as was done in former investigations in accordance with the custom of other authors), but by mouth, thus avoiding the troublesome pain at the site of injection. In addition it was necessary to avoid producing alarming psychotic symptoms in order not to upset the patients themselves and to avoid gossip among other psychopathic patients in the ward. Finally, it seemed that only the beginning and the end of the experimental states formerly observed showed the phenomena which were of special interest, and it was considered possible to produce just these symptoms, and perhaps only these, by using small quantities of the drug. A synthetic preparation was used, prepared according to the method published by Slotta and Szyszka, the substance being kindly given by Dr. Slotta himself. 0·1 to 0·2 gm. of the drug dissolved in a small amount of water was given between breakfast and lunch. Generally small doses of quinine or some other ineffective substance were given as a control on the day previous to the experiment, quinine being chosen because its bitter taste resembles that of mescalin. The relatively small doses given by mouth did not produce nausea or vomiting and the only vegetative symptoms observed were mydriasis, flushes and sometimes acceleration of the pulse.

The eleven observations briefly reported in Table I were made between June, 1934, and February, 1935.

In trying to draw conclusions from these experiments, the impossibility of comparing the different results in different patients in the same way as is done in experiments with animals must be remembered. The doses can never be said to be relatively equal, nor can they be estimated per unit of body weight, especially when using a drug of so high an efficiency. The individual variation of resistance against mescalin is marked, as is known from previous experience. Taking all this into consideration, it must suffice to say that the intoxication produced by the above-mentioned doses remained within certain limits, viz. in the stage before alarming hallucinations started. Only two of the group had visual hallucinations (Cases 6 and 8). One of these and two others had a slight alteration in the field of the perception of their own body. Three other patients (Cases 2, 10 and 11) had vivid visual sensations when their eyes were pressed (Liepmann's sign). Another measure

TABLE I. OBSERVATIONS ON MESCALIN

Case No.	Dosage of mescalin	Main symptom: Change of	Hallucinations. L= Liepmann's sign	Effect of mescalin on		Type of case
				Mood	Depersonalization	
1	gm. 0·1	Self	0	Euphoria, anxiety	Intensified	Psychasthenic depression
2	0·1 0·2	Self	L	1. Depression 2. Euphoria and confusion	Intensified	Recurrent endogenous depression
3	0·1	Images, objects	0	Slight euphoria	Improved	Endogenous depression
4	0·1 0·2	Things and self	0	More cheerful	Things clearer	Endogenous depression
5	0·1 0·2	Self	0	Bewildered	Distracted from symptoms	Schizophrenia or atypical depression
6	0·1 0·2	Self	Yes	Bewildered	Unchanged or intensified	Obsessional state
7	0·1	Self and surroundings	0	Depressed and laughing	Worse	Schizoid reaction: depressive illness
8	0·1 0·1½	Self*	Yes	More anxious	Intensified	Schizophrenia
9	0·1	Self*	0	Depressed and anxious	Intensified	Obsessional depression
10	0·1 0·2	Pictures, self	L	Contented, later depressed	Pictures improved	Endogenous depression
11	0·2	Images, self	L	Depressed, later slightly euphoric	Pictures improved, otherwise worse	Endogenous depression

* Described some kind of external change due to change in themselves.

of the degree of intoxication was the fact that the state never lasted more than five hours, which was the minimum time of intoxication in Beringer's experiments. The absence of vegetative symptoms has already been mentioned.

TYPES OF REACTION

In examining the effect of the drug upon depersonalization symptoms, two distinct groups can be isolated: on the one hand, those who said that their symptoms disappeared or were less intensive for some time; on the other, those who stated that their symptoms were intensified.

GROUP 1

1. 'I felt better during the two hours. My mental pictures were clearer after I had had the medicine' (Case 10).

2. ' Can now picture as she used to do before. On the following night had first dream since onset of illness. On the following day pictures still vivid but not as clear as yesterday, when she could imagine as formerly (Case 3).

3. ' Things were clearer ' (Case 4).

4. ' Could picture better than she can to-day ' (Case 11).

GROUP 2

1. ' Now all is unreal ' (Case 2).

2. ' I felt further away than I feel now—worse ' (Case 8).

3. ' My head seemed to go more dead. It made the dream feeling worse ' (Case 9).

In Cases 6 and 5 depersonalization symptoms were certainly not improved, but it was uncertain whether they were intensified or not. Another patient (Case 1) stated : ' I felt as if everything would look brighter. . . . I have learned that I can feel brighter.' In this case the improvement described was probably only due to the euphoria, not to a real change in the depersonalization symptoms.

In looking through the symptomatology in the cases of Group 1, a striking fact comes to light. In this group are all those who complained predominantly about a change in the perception or imagination of the objects around them in the world outside, much less about changes in themselves, changes in their personality. There are no cases of this type among the other patients. Therefore the simple deduction can be made that *mescalin may remove depersonalization symptoms in so far as they are related to the outer world* (' *derealization* '). It does not remove, and may even intensify, the feeling of change in the self.

In investigating the clinical diagnosis of the cases in Group 1, it was found that three were depressive states of mainly endogenous character and periodic course. There are doubts whether one or other of the cases might finally turn schizophrenic. One was a cycloid psychosis. In Group 2 also there was no concordance from the clinical diagnostic standpoint. The opinion has just been mentioned that in Case 1 the change of symptomatology was probably caused by a change of mood due to the toxic euphoria. Therefore, results in the other cases must be considered from the same point of view. Two of the cases in Group 1 showed depression during the experiment and noticed improvement of their special symptoms in spite of that (Cases 10 and 11). In the third case (no. 3) the improvement of sensory perception lasted considerably longer than the euphoria, and in the last case (no. 4) the patient, even after the experiment, distinguished between mood and perception. Furthermore, this euphoria was so slight that it was only noticed by the patient himself, not by the observers. It therefore seems reasonable to separate the change in the depersonalization symptoms from the emotional reaction.

EUPHORIA

According to Beringer's description, as above-mentioned, the prevalent mood in mescalin intoxication is euphoria. Depressive states are rare and the euphoria is seldom pure; often it is in striking contrast to the bodily uneasiness. Often it is mixed with, or interrupted by, anxiety, excitement or bewilderment. Euphoric states were not found so regularly as might have been expected, but in the majority of cases the descriptions of intoxication were not unusual for mescalin. There was an alternation between euphoria and anxiety, laughing and crying, bewilderment and amusement, and only in four cases were there clear distinct emotional states.

1. More cheerful (Case 4).
2. Slightly euphoric (Case 3).
3. Pleasant feeling, afterwards depressed (Case 10).
4. Depressed, later slightly elated (Case 11).

A fifth case can be added (no. 2), which during the first experiment with very small doses showed an intensification of depression, while with slightly larger doses, the patient showed a state which she described as 'sometimes happy; later on, muddled.'

In regard to mescalin euphoria, caution is necessary before drawing any conclusions from these observations, but it is striking that the pure emotional reactions were found in just those cases which were clinically diagnosed as endogenous depression with the previously mentioned proviso. The results call to mind an interesting paper by Kant, who examined the effect of hashish on manic-depressive and schizophrenic patients after the end of their acute psychosis. He observed that the manic-depressive patients reacted in the form of their previous psychosis, i.e. the depressive ones become depressed, in marked contrast to the otherwise euphorizing effect of the drug. The schizophrenic patients, even the depressed ones, developed euphoria and anxiety.

Exactly parallel observations were made by Zador, who used nitrous oxide, which also produced depression in depressive states, euphoria and anxiety in schizophrenic states. In the same way it can be taken as probable that in our cases the drug produced constitutionally preformed reactions. The manic and melancholic reactions can be considered as akin, and the opinion is held that psychopathological analysis justified the conception that the clear cyclothymic euphoria can be distinguished from hebephrenic and other euphoric states. Beringer thought of such connexions between the constitution and reaction-types and mentions that cyclothymics might be expected to show more homonymous (emotional), schizoids more heteronymous pictures, and that these reaction-types might be indications of the personality, but he could not prove such relationships.

Bensheim is the only investigator who claims, with some caution, to have found different features in the course and content of mescalin intoxication dependent on the cyclothymic or schizothymic character of the per-

sonality. In regard to the question discussed here, he mentions the emotions between euphoria and depression as significant for the cyclothymic group, ecstasy as significant for the schizothymic group. Furthermore, he points to the fact that the sensory phenomena in the first group are nearer to reality than in the latter.

If it is asked why he and Beringer did not find striking correlations between personality and the picture of the intoxication it must be remembered that their observations are mostly based on experiments with large doses, producing severe intoxication ; and it can be taken for granted that with the majority of drugs higher degrees of intoxication produce stereotyped pictures of the so-called exogenous reaction-type.

DRUG EFFECTS AND REACTION-TYPES

The discussion about the origin of this uniformity is not yet at an end ; even the question whether these symptomatic psychoses are really so uniform is not yet settled. All authors concerned with the subject see exceptions to the respective rules. Curran, for instance, who made a wide study of confusional states, emphasizes that mescalin and hashish do not fit into the general scheme and that these intoxications have peculiarities which distinguish them from other symptomatic psychoses. The whole question of exogenous reaction-types will not be discussed here, but it is worth mentioning that our observations point to the likelihood that small doses slowly administered are more likely to produce individual and homonymous reactions, whereas big doses are more apt to lead to heteronymous reactions with a varying degree of clouding of consciousness, even to the extent of coma. For details of the different theories about symptomatic psychoses reference can be made to Ewald's chapter on this subject in Bumke's *Handbuch der Psychiatrie*. Case 2 shows different reactions depending upon the amount of the drug very well. We have previously observed the same difference, comparing the transition stages at the beginning and end of intoxication with its acme. Many more investigations are needed with more exact analysis of all the circumstances which may influence the picture.

Knowledge of the connexion between a drug and its psychic effect is still very limited, particularly so far as the individual reaction of the personality is concerned. Different drugs are known to have different effects and different persons are known to react differently to the same drug, but it is still almost impossible to prophesy with scientific exactitude or even with probability how a given person will react to a given quantity of a given drug. There is not even any exact knowledge about alcohol, although so many have experienced its effects. Meggendorfer in Bumke's *Handbuch* makes general statements only. ' Depending on his constitution, an intoxicated person may be frank, confiding, good-natured, gentle or angry, excitable or inclined to violence. . . . The symptoms of intoxication are, to a large extent, dependent on personal qualities, mood and behaviour being especially apt to show

features differing from typical drunkenness. Morose excitement instead of elation is one well-known variation. . . . There are also variations in the course of intoxication, as for example those people who, in the early stage, have only a very short period of excitement so that they quickly get tired and sleepy after small quantities of alcohol and may even fall asleep.' In all this there is no hint of the type of personality which may react in one way or another.

If only ' acute drug psychoses ' occurring after only one dose of the drug are considered, it can be briefly stated that the picture of the psychosis probably depends on :—

1. The drug : type, amount, speed of supply and absorption.
2. Personality :—
   (*a*) Bodily constitution, individual resistance.
   (*b*) Bodily disposition : state of infection, fatigue, previous intoxications, acquired resistance, actual state of metabolism (e.g. hashish effect is intensified by sugar).
   (*c*) Psychic constitution.
   (*d*) Psychic disposition (mood).

Lindemann and Malamud in their interesting experiments compared the effects of different drugs in the same person. They found that each drug undoubtedly has certain specific characteristics, but these are quite closely related to the conditions which are present at the time when these specific effects are produced. The changes produced by a given drug will not only be elaborated in the light of the pre-existing psychic state, but totally new types of reaction may result from such an interrelationship.

CONCLUSIONS

In these experiments the dispositional factors have been eliminated only by standardizing the experiments in the atmosphere of the hospital. Future investigators will have to analyse the complicated network of direct drug effects and bodily and psychic reactions of the personality in every single case. Only an exact knowledge of these factors will make possible real therapeutic use of such a difficult method of treatment as drug intoxication. In the present series an effect which could be regarded as a therapeutic one in that it lasted longer than the actual intoxication was only seen on three occasions. A priori the opinion was formed that it was only the psychic response to the experimental psychic state which could produce some effect. The three patients made very similar statements regarding the value of the experience ; e.g. ' I have seen that I can be as I used to be before.' In two of the cases the progressive recovery appeared to depend on the nature of the process (endogenous depression) and neither more nor less significance is attributed to the effect of the experiment on the course of the disease than to any other pleasant or encouraging experience, but it is known that during the period of recovery from endogenous psychoses psychic factors are not

without influence, and so this test for the capacity to recover may be a useful adjuvant for psychotherapeutic activity in patients, who show the syndrome of depersonalization and are amenable to psychotherapy. While these investigations were being made, a striking therapeutic result in a similar type of case was reported. Claude and Ey have observed ' Une malade internée pour depression mélancolique avec sensation de depersonalisation qui a récuperé sa personalité, les impressions corporelles normales au cours de la mezcalinisation. Elle est sortie guérie quelque jours après.' These authors used 0·25 to 0·5 gm. of the drug. It is unfortunate that no data about the special case were given and no details about the mechanism of the recovery.

If it was a case of real endogenous depression, it must be considered whether the bodily shock of a severe intoxication could produce such a result or whether the psychic effect was the more important factor. Owing to using the previously mentioned small doses and the slow action due to taking the drug by mouth, such impressive psychic reactions were not seen, though well known both from personal experience and from many self-descriptions (see also the quotation from Beringer's book). The state of bewilderment and upheaval occurring after severe intoxication may be suitable for intensive psychic influence, as Bensheim pointed out, but it requires an atmosphere of personal contact and discretion which it is difficult to achieve in a hospital ward.

What can be learned from the therapeutic failures, especially those who showed no improvement, but stated clearly that the feeling of depersonalization had been intensified ? Zucker proposed and used intoxication as a method for more exact description and analysis of psychic symptoms. He did this by asking patients whether and in how far they could distinguish the psychotic symptoms from the artificially produced new ones, e.g. hallucinations. He found, for example, that schizophrenics always differentiated mescalin hallucinations from their endogenous sensations, whereas delirious patients generally did not. Conversely it can be said that the group of patients considered in this paper was unable to distinguish the mescalin depersonalization from the original depersonalization (sensory perceptions are not considered here), and the conclusion can be drawn that the psychopathological experience of both may be similar if not identical, that they are commensurable and of the same denomination. This may or may not point to a deeper relationship between the two states. In any case it suggests a method for carrying on this comparative research work. After seeing some mescalin psychoses, every investigator is at first struck by their similarity to schizophrenic states, but with more experience is disappointed when he notices the great difference. Experiences, such as described, teach us that the whole psychosis must not, or at least not primarily, be used for comparison, but only single traits.

We should like to thank Dr. E. Mapother for his permission to use the clinical material.

SUMMARY

1. Mescalin is able to improve depersonalization symptoms in so far as they consist of changes of the surroundings (derealization), not of the self.

2. Mescalin depersonalization is identical with this symptom in morbid states, and therefore can be used as a model for therapeutic experiments.

3. Patients of the manic-depressive group answer to an intoxication with small doses by reactions of their own endogenous types.

4. The patients' experience of the improvement of their symptoms, even if only of short duration, may be used as an adjuvant for psychotherapeutic activity.

CASE RECORDS

Case No. 1. Woman, æt. 23 years

Complaint.—Attacks of panic and complaint of feeling changed.

Family History.—One paternal aunt committed suicide. Father was irritable and quick-tempered. Mother was neurotic.

Personal History.—Early development was normal except for bed-wetting till six years old. She was at a special school on account of heart trouble and did quite well but never tried very hard. Her work record was satisfactory ; she married at the age of 21.

She has always been considered delicate and in consequence family were inclined to spoil her. She liked having a good time and was fond of sport, dancing and cinemas. She was inclined to be romantic.

Since her marriage in 1933, she has felt lonely and disappointed at the dullness of married life. Six months before admission while sitting reading she suddenly developed symptoms of an acute anxiety attack ; she screamed with fear and rushed out of the house. Since then she has been unable to live alone or even to go from one room to another without panic.

On admission she was a thin reserved girl who looked frightened and apprehensive. She said she was afraid of going mad, thought that she was not the same person and that her voice was not her own. She wept easily and had frequent anxiety attacks, which were especially well-marked when she was visited by her husband or relatives.

Mescalin intoxication.—Dose 0·1 gm.

Two hours after the mescalin she looked frightened and restless. On two occasions she jumped from her chair and clutched the doctor's arm, being only persuaded to sit down again with difficulty. From time to time she smiled but would give no reason for doing so and would give no account of her feelings.

Next day she said : ' I felt like two different people. I felt happy and yet I felt hopeless at the same time. When I was laughing it seemed as if I had my sister's personality and her face. Once I thought I was mother, then I felt very happy. The feelings seemed to come in waves. After you had gone I couldn't stop laughing, I don't know why, it didn't seem to be me laughing. The laugh sounded like my sister's laugh. I felt as if everything around looked brighter, I wondered why everyone around looked bright and happy. It was a strange feeling that came over me, I suddenly felt as if I was different in some way.'

Case No. 2. Woman, æt. 36 years

Complaint.—Depression and a feeling of being partly dead.

Family History.—One brother is in a mental hospital suffering from recurrent depression.

Personal History.—Her early development was normal. She had a good education and a good record as a clerk in a good position. She has always been easy-going, popular, and is fond of amusement and social life.

She has had two previous depressive illnesses, one in 1926 when disappointed in a love affair, the other in 1930 when her brother went into a mental hospital.

Two months before admission she again began to feel depressed. She lost her appetite, could not sleep, could not concentrate, wept easily, was self-reproachful and had suicidal thoughts. In the period of recovery depersonalization symptoms appeared. She felt different, felt that her hands looked changed, and that she was partly dead.

On examination she showed psychic and motor retardation. She looked depressed and felt that 'she could never make another start.' For a time she was almost stuporose. Mescalin was given during the period of recovery.

Mescalin intoxication:

1. Dose 0·1 gm. She showed slight intensification of her symptoms of depersonalization, and of her depression. No hallucinations.

2. Dose 0·2 gm. After an hour she showed marked vasomotor reactions and began to ask for her discharge from hospital in a stereotyped childish manner. Then she seemed to become muddled, crying at one moment and smiling the next. She said, 'I feel so happy, I want to go home, happy but always unreal.' After six hours the euphoria had gone; she looked frightened, but denied it. During the intoxication there were no spontaneous hallucinations, but she perceived colours and patterns when she closed her eyes and pressed her eyeballs. She continued to ask for her discharge all through the following day, explaining that she felt restless and did not like to be left alone.

Case No. 3. Woman, æt. 39 years

Complaint.—Worried and depressed and complains of inability to picture things in her mind as she used to do.

Family History.—One sister had a nervous breakdown and committed suicide.

Personal History.—She was considered rather nervous as a child but there were no specific neurotic traits. She did well at school and was in domestic service until her marriage at 26. She has two children.

She has always been cheerful and energetic, an excellent wife and mother but overconscientious, and has a very high standard both for herself and her children.

Five months before admission she had an acute anxiety attack during the illness of one of her children. This was followed by similar attacks. She then became worried and irritable; she lost weight and feared that she was going mad. Every now and then a state developed in which everything seemed abnormally still and her own bodily functions seemed quite stationary. On examination she was tense and anxious, complaining of feelings of unreality, loss of affection for her family, and inability to concentrate. Her most bitter complaint was that she could not picture people and things in her mind's eye as she usually could. There was some disturbance of the sense of time.

Mescalin intoxication.—Dose 0·1 gm.

She became a little drowsy, then slightly elated and what she described as 'jerky in her mind.' She said that she could picture things as she used to do, for example, her late husband, St. George's cathedral, etc.

On the following night she had her first dream since the onset of her illness. Next day she was still able to picture things much better but not so well, in her opinion, as during the intoxication when she said that she could imagine things just as before her illness.

Case No. 4. Man, æt. 23 years

Complaint.—Depression, sleeplessness, inability to concentrate and a feeling that everything about him had changed.

Personal History.—His early development was normal; he reached the top standard at school and then worked for eight years satisfactorily in the same position.

Ever since leaving school he has complained at various times of feelings of inferiority and depression.

For three months before admission he was depressed, slept badly, and thought that people were looking at him. He complained that things around seemed changed, that he could not enjoy the visits of his friends and relatives, and said: ' My head feels empty; I feel that everything I do is unconscious, mechanical. I eat, I drink mechanically. I am a different man from what I was.'

Mescalin intoxication:

1. Dose 0·1 gm. No effect.

2. Dose 0.2 gm. He showed little effect, but said that he felt more cheerful and that things looked clearer. The effect passed off quickly. The following day in the same state as before. Denies that he has been more cheerful. Describes that things had looked much clearer and complains that the effect has gone again.

Case No. 5. Woman, æt. 34 years

Complaint.—Depression with suicidal thoughts and a feeling that everything is unreal.

Family History.—Nothing relevant.

Personal History.—Early development and school history were uneventful. She worked as a chemist's assistant with the same firm for 15 years till the onset of her present illness.

She is said to have been lively and energetic, but had a short depressive illness after influenza four years ago.

For six months before admission she had been getting more and more lethargic and increasingly depressed. On admission her main complaint was that she felt unreal. She was inclined to get into a panic and wanted ' to run away from herself.' Tonsillectomy was recommended, but the thought of this worried the patient greatly, as she feared that an operation would ' separate her entirely from reality.' She felt compelled to repeat things and to go over conversations and actions to make sure that they were all right.

Mescalin intoxication:

1. Dose 0·1 gm. No effect.

2. Dose 0·2 gm. Two hours after getting the drug she began laughing, then crying. She said that she did not know what she wanted, but just thought it funny. When asked if she felt as usual she replied, ' No, it seems different somehow. I feel more muddled now, as if I had to think something out. I don't know what it is.' She wept and repeated her remarks, then looked thoughtful and anxious, covering her face with her arm and shaking her head. When asked if she was frightened she said, ' Yes, I believe I am, of what is going to happen. It all seems such a hopeless muddle, always striving, striving to get out, I can't think. Perhaps I am imagining all this, all this muddle, I'm all right when I am sitting here. Is anything going to happen to me? ' ' Does the garden look the same? ' ' Yes, the same as yesterday, it is me that is different, I feel as if it will never come right.' ' Have you lost the strange feeling? ' ' Yes, and now I feel in a muddle. It is different to what it was this morning, and yet I couldn't go on like I am now, I seem in a muddle, in a trance.'

A week later she felt that she had grown more hopeless about herself since getting the medicine.

Two weeks later she was still depressed, but the feelings of unreality were less marked.

Case No. 6. Woman, æt. 23 years

Complaint.—Inability to stop thinking about herself and about such questions as ' Why am I me ? '

Family History.—Mother had a breakdown at the menopause, nature of which is unknown.

Personal History.—Early development normal. She had the reputation of being a tomboy. She worked as a saleswoman until her marriage at 21. The marriage has been happy ; there are no children.

She has always been temperamental, works hard but spasmodically. She has always been highly sexed. She has always blushed easily and is sensitive about it.

Three weeks before admission she had a sudden choking feeling followed by shivering and fright. She had three similar attacks and then began to complain of an ' awareness of herself.' She became depressed and wanted to be left alone. She said that she wished she was dead. On admission she was depressed and complained, saying ' I'm absolutely conscious of being conscious, I suddenly became outside myself and saw myself. When I am more or less normal I have to keep analysing the feeling.'

Mescalin intoxication.—Doses 0·1 gm. and 0·2 gm.

During intoxication she became very flushed, very interested in the experience, giggled a good deal and then looked profoundly serious and rather bewildered.

She wrote an account of her feelings during her intoxication and another account retrospectively two days later. These accounts are appended.

Self-description A :

How can clumsy words possibly describe, and even then, being translated into other brains (such as doctors), how can one set of feelings, clumsily worded, ever reach another ? How can they understand ? Perhaps they have an entirely wrong impression of my state. It's much too complicated being a person. However can one get back to a nice sensible oneness ? Honestly it's been no joke. I have been kidding myself lately it may have all been thoughts. How have I got the sense to write this ? There is always a person deep down somewhere saying, ' Don't be a damned fool ; don't be theatrical.' No, it has not been just thoughts. I've always been much too sane to allow just plain thoughts to get the upper hand. If I can't have the consolation of thinking that something has definitely gone wrong in my brain and might heal, I might just as well be dead, because if it is just a matter of control, just pure control of my own thoughts, I shall never feel different.

As I hold this pencil, which seems suspended . . . and feels like a piece of india-rubber, I feel just like Alice in Wonderland. This room and myself feel one. When I drank tea it seemed silly to pour it down through the centre of the room. I feel miles away from the paper—and why should I bother. . . .

(Apparently later.)

Now that my body feels more normal I realize my brain is right back to where it started five and a half months ago. I haven't gained an inch ; who am I ? The feeling of time and space, me, all one awe-inspiring whole ? In my desperate struggle to feel normal I can't find a standard of normality—can't remember what normality is. D.D. is quite dead. The five and a half months isn't time, it's a great space of blackness, separating her from this something that is left. I realize, as ever, that this feeling or state is far too delicate, too subtle, too utterly indescribable to put into words.

Self-description B :

I was first made aware of a difference during dinner time, when everything appeared to be faintly tinged with pink, and a bright white light seemed to be over

my head which always lifted away just beyond my sight. Then I lay down and closed my eyes—I think I felt tired and heavy. When I opened my eyes things seemed still pink and jazzing about a bit, so I shifted my position round to the other end of the bed and I looked out of the window. I did my utmost not to think about anything at all. Then up cropped all the old bewilderment. How should I feel anyway? There really was not any standard to judge by—was I worse than I had been the last few weeks? Did I feel so bad as when it all started? I certainly had managed to avoid thinking lately. Yes, these were the old feelings back again—who am I? What am I? What and where is the feeling of being 'me'? What is the feeling of being normal? It was no good, I couldn't remember. My thoughts flew round and round, seeking a proper level—I kept saying: 'Don't think, don't think.' When I sat up, my body felt like lead; I felt hot and my heart was racing. I got off the bed and walked to the mirror, feeling rather like the first signs of influenza. As I looked into the mirror, my face looked all puffed and the pupils of my eyes were immense. I staggered back to bed and nurse pulled the blind. After a while I could make out all kinds of pictures in the weave of the blind—sort of cubic Egyptian designs in red and green. I was kept quite busy and interested for some time, watching these pretty designs. After a while, with the aid of a nurse, I walked out through the dayroom, absolutely on air; my body felt just like indiarubber. I could hardly see owing to the coloured lights—muzzy feelings in my eyes. When the doctor came in I felt hysterical. I can't remember what I said then; I didn't know where I stopped and the room began; we all seemed one big rubber substance, and my voice seemed to come from the corner of the room. At teatime I felt really amused by it all. The spoon felt as if it were made of rubber; my mouth felt as if it were a big warm rubbery thing in the middle of the room down which I was pouring tea. I felt that surely if I let go the cup it would just float away. I remember roaring out laughing; it wasn't a sound, but a pattern. It was just like a fairy tale. I remember thinking, I wonder if I tried hard enough if I could change myself into something else, say a seagull. No, it's no good, my nose is not long enough. Shut up, you fool, lie down and go to sleep. Then I lay down perfectly still and I felt like a block of marble. I could feel my face setting in hard lines. Then I began to think about this awful illness, really it was tragic. D.D. was dead. Imagine, at 22 years of age, with everything to live for, being dead. It was ghastly. I howled with self-pity and remained dejected for the rest of the evening. About 8.30 my body started to come back to normal, but I still feel depressed and hopeless.

Case No. 7. Woman, æt. 22 years

Complaint.—Depression and feelings of unreality.

Family History.—Father is subject to outbursts of temper and home life is unhappy.

Personal History.—She has always been inclined to worry and to be self-conscious. She worked in a printing works until she left at 19 years on account of present illness. Since then she has tried various jobs but never stuck to them. She had a boy friend for two years and dates her illness from the time of parting from this young man when she was 19. She has gradually become increasingly anxious and self-conscious. About four months ago the above-mentioned youth died, and soon afterwards she developed feelings of unreality. On admission she was cooperative, but reserved, tearful and unhappy. She complained that she did things mechanically and that everything appeared strange and unreal. She felt that she had lost her ability to feel emotion. She felt dazed and depressed, sulked miserably and occasionally developed spasmodic twitching of her limbs.

Mescalin intoxication.—Dose 0·1 gm.

During the intoxication she wept and flushed and said, 'I feel as if I am going

away. When I think of Miss M. oh dear, it's awful. I can't make it out, I don't care. I don't care if I die even, it doesn't matter if I die, I could never get better, I don't know which is me, I don't know which is me really. I just don't know where I am or where I have been this terrible long time, I don't know what I'll be next. Awful! I never knew how I felt, I just go on. Doctor, I still seem. . . . Oh dear, oh dear.' Then suddenly she started to laugh, became self-absorbed, would not obey or pay any attention to requests from the doctor, but sat and either smiled quietly or wept quietly, sometimes saying to herself, ' Oh dear, it's terrible, I can't believe I am here.' The effect seemed to be an accentuation of her previous state and the impression was given that she was glad to have a reason to emphasize her illness again.

Retrospective Account written after an Interval of Ten Days :

Shortly after drinking the medicine I began to feel very hot, and my eyes felt strange and when I shut them and opened them I could see little flickering lights ; I wanted to push off what I knew was coming on me and tried to act normal, started knitting, but everything was becoming vague. I thought it was the end and I was going out of my mind, I remember looking out of the window and seeing the sunshine, and wanted to be all right, or even the way I was before I took it. I started to walk about, trying to hang on to the atmosphere of the ward and the nurses. You came up to the ward and I went into the clinic ; when I sat down a struggle seemed to go on inside me, all things mixed up, like all different people trying to come to the surface. Then a voice started to talk, it did not seem like me, and yet I did not seem to have gone right out, just balancing on the edge. I knew I was sitting in the chair, I remember feeling fascinated by this voice. It was saying, ' I wouldn't mind if I died,' and then I felt the struggle again of being all different people, and felt I didn't know what I was. I looked down at myself and it seemed impossible that it could be me. For five years after I left school I worked at printing, and for a few minutes I seemed to become that person again. Then I felt that I was my sister. All this time the voice wanted me to go on ; I wanted to explain that I couldn't go on any longer in the hospital ; the atmosphere of the ward and everything else had gone completely. I also seemed to realize fully how long I had been away. I knew before, but could never quite break through. It came over me what a terrible long time it was. I remember crying and feeling amazed because it didn't seem like me. The builders were in the ward at the time, and somehow it all seemed to fit in with something in the past, seemed familiar. The corridor was a street, and I kept thinking that the door was open ; I feel sure it was some past atmosphere that I felt. There was a little girl in the ward at the time and I could hear her running up and down, and it all seemed to fit in. I am not sure whether it was my home ; it could have been my sister's kiddie ; I think they stayed with us when we had some repairs done. It all wore off, and things were as usual, although I felt relieved it was over. I remember feeling very depressed and disconcerted to find myself in the same state, with that awful feeling going on. I really don't know how I am now ; I don't know if I am better or worse ; it's me all the time. Who am I, what am I ? I keep to a sort of routine, and work hard in my home.

Case No. 8. Woman, æt. 24 years

Complaint.—Depression, attacks of feeling unreal and numerous phobias.

Family History.—Parents were caravan-dwellers and little is known about them. Patient was brought up by foster-parents.

Personal History.—As a child she was sensitive, shy and timid, but got on well with others. She was intelligent and serious minded, occasionally stuttered. After leaving school, she went into domestic service.

At 15 years she had a short attack one day of feeling unreal and wanting to scream.

Four months before admission she began to be depressed, had many fears, e.g. of trains, going out alone, making a fool of herself and screaming. She was greatly worried by obsessional thoughts of exceptional nature. She had attacks of feeling unreal, and complained of pains in her head, and nightmares. On admission she looked anxious and bewildered, and was never willing to discuss her troubles frankly. Her main complaint was of feeling unreal and of having impulses to do silly things. She was also horrified by the sexual nature of her obsessional thoughts. During her stay she became more detached, asocial and hypochondriacal.

Mescalin intoxication :

1. Dose 0·1 gm. 2. Dose 0·15 gm.

She denied any effect during the intoxication, but later said : ' When I closed my eyes I could see hundreds of things, like patterns and cartoons, and sort of faces. I could see patterns like linoleum, they kept changing. It was only when I shut my eyes that I saw them, otherwise I would not have noticed anything at all. If I saw a negro then hundreds of profiles flashed past. There was so much, everything went through my mind. It seems silly, shoes were hopping about. Then I saw someone diving and the legs came off. I remember horrid faces grinning, then soldiers marching, hundreds of them. I was interested, not frightened. I wouldn't have known if I had not shut my eyes. I felt further away than I do now, worse. It was sort of interesting, something to remember.' She also stated that some of her obsessional thoughts (' too nasty to tell anyone ') passed through her mind in the form of hallucinations when she closed her eyes.

Case No. 9. Woman, æt. 23 years

Complaint.—Fear of madness, and a feeling that her voice and her body did not belong to her. Thoughts of harming her son.

Family History.—Nothing relevant.

Personal History.—She was a little backward at school and used to worry about it. She was always friendly and popular, attractive but inclined to be selfish. She married at 19. At first she was happy, then she became pregnant, and this caused much unhappiness, as her husband did not want a child, was angry, started to knock her about, and finally left her. She has returned to live with her parents, but she is very discontented, as they treat her like a child and spoil her baby. She has always been excessively tidy and had many little obsessional traits.

She has felt ill for a year, but has been worse for the last four months. She feels as if she was going off her head and has an unreal, dreamlike feeling. She says that her voice sounds strange and rough like a man's and that she has to look down at her feet to see if it is herself. She has had fears of harming her small son who reminds her of her husband. In hospital she was self-centred and irresponsible, did not seem to be anxious to get better or to leave hospital, and her favourite occupation was quietly to make trouble in the ward among other patients.

Mescalin intoxication.—Dose 0·1 gm.

On the following day she said : ' It only made me feel more dead, my head seemed to go more dead. It made the dream feeling worse, I felt more in a dream this morning. When I moved my eyes it felt like moving weights round. When I put a cup to my mouth, it seemed as if I could not feel it, I could not feel my body, I was afraid of going off my head.' She did not describe any change in things around. She wept and said that since getting the medicine she knew that she would not get better. She said that her nerves were dead and that therefore the medicine could not affect her.

Case No. 10. Woman, æt. 28 years

Complaint.—Loss of interest in life and feelings of unreality.

Family History.—One sister gets depressed and worries a great deal.

Personal History.—Early development was normal. She won a scholarship and went to a secondary school until she was 17 years. She then became a shorthand-typist and secretary until her marriage at 23. Married life has not been very satisfactory and has caused her a good deal of worry.

She was always sociable, energetic, cheerful and had many friends, but was inclined to be a worrier.

At 17 years of age she was off work for eight months with an illness during which she lost interest in everything, did not want to meet people, cried a lot and said that she had lost all sense of time. She maintains that she has never properly regained her sense of time. At 26 years of age she had a slight recurrence of similar symptoms.

Eight months before admission, following an infatuation with another man, she began to lose interest in life, could not concentrate, feared she was going insane, and had suicidal thoughts. She complained of having lost her sense of time and of a marked feeling of unreality.

Mescalin intoxication.—Dose 0·2 gm.

She showed marked vasomotor reactions and was affectively labile but on the whole elated. She thought back through her life, pictured herself going home, but only reached the bus stop. She felt thoughts were nearer to her. After lunch she tried to sleep, but could not on account of visual hallucinations. Later she became depressed and wanted to be in her previous condition.

In a retrospective account she wrote : ' I thought about different incidents in my childhood. I felt pleasantly content, but could not say if I felt my natural self. When I pressed my fingers on my eyelids I saw colourful and intricate patterns and made a few poor attempts to draw what I saw. The medicine I had did not alter the feeling I have with regard to time. The evening and next day did not seem any closer to me than before. I thought of my husband, and when the doctor came back I had been crying. After lunch I felt tired with a heavy head and a feeling that my arms and legs were weighted. When told to try and go to sleep, I couldn't. When I shut my eyes I saw what seemed to be rats and mice and I would have seen snakes if I had not kept them away by an effort of will. I also saw a stage with a figure of a girl dressed in pink lying huddled in a corner and all the audience were calling to me that they had killed the person who had taken my place, and that I could now come back. I was waiting for myself to appear on the stage, but I didn't arrive. My mental pictures were clearer after the medicine.'

Case No. 11. Woman, æt. 27 years

Complaint.—Depression. Lack of emotional feelings. Feels changed and unreal. Things look strange. Cannot picture things as she could before.

Family History.—Nothing abnormal.

Personal History.—Early development normal. Got on well at school. Worked as a waitress. Married when 18. Has four children. No sexual desire since last pregnancy, previously normal. Always rather depressed during her menstrual period. As a child for a fortnight ill, (?) ' Saw things yellow.' Twelve months before admission, after birth of fourth child, had nervous breakdown, felt depressed, in the morning more than in the evening, had difficulties in doing her housework. A few months ago and two months ago new attacks of depression with marked depersonalization symptoms. Admitted after suicidal attempt. Depressed, retarded. Occasionally hypnagogic hallucinations and paranoid misinterpretations. Previous personality bright, cheerful, intelligent.

Mescalin intoxication.—Dose 0·2 gm.

Feels like in the hospital where she got her baby. Sees her mother in the hospital. Cannot picture her husband in her mind. Can't think why she cannot look after him. Terribly depressed. Limbs weak. Hands look longer and thinner than before. [Eyes pressed]: Spots like the sun, so bright. Lot of stripes, ivy leaves falling and falling. All different colours coming in. Can see the Rorschach pictures better than she could the other day. Hopes nobody is laughing. [Later]: Worrying went off. No mad feeling. Quiet, contented, perhaps slightly elated. Saw waves of yellow, reminding her of her experiences during her previous illness. [Next day]: Could picture things better than she can to-day.

Self-description:

The first thing I remember was having the medicine about 10 a.m. Then as soon as I had taken it I felt I was falling through the bed and felt very weak. Then I had an awful fear that the nurse that was with the doctor was laughing at me. After that I went through all the worries of money matters and the other things that had been such a trouble to keep going and yet lost everything in the world, but after that I could not worry about anything. I just had a feeling that I would give everything to die so that . . . [her husband] could enjoy his life. I felt just as I do now. What is the good of living when you can't seem to enjoy anything and have lost all your love for your own children? But what I could not make out was, I felt just as if everything was in a dream, and yet I could tell anyone the name of the people that passed the door, when they were going to the concert in the evening. At the time I had not any idea of what time of the day it was.

I also had the fears that I have had, such as that my brain had gone; also that it was only God that was telling me what to say so that I would not be laughed at and be put away in a mental hospital. . . . I also felt that I could not turn on the left side; for one thing my left arm was very heavy and if I turned on that side I had the awful swelling in my head again, and felt as if I was going off into one of those awful faints again like I used to.

I do not know why I am writing this even now, although things seem more real to me. I shall feel as if I do things just because I am told to do. I never really enjoy anything, and yet I keep with people all the time and seem to be able to enter into the conversation all the time.

I also remember that I wanted to look in the mirror and to keep looking on my hands all the time. It seemed that something made me look at my hands. In the evening I kept crying and just for a second I wanted to go home, but what for I don't know. I just wanted to get out of here. . . .

REFERENCES

BENSHEIM, H., 'Typenunterschiede bei Meskalin-Versuchen,' *Zeits. f. d. g. Neurol. u. Psychiat.*, 1929, **121**, 531.

BERINGER, K., *Der Meskalinrausch*, 1927.

BUCHANAN, D., 'Meskalin Intoxication,' *Brit. Jour. Med. Psychol.*, 1929, **9**, 67.

CLAUDE, H., and EY, H., 'La mescaline, substance hallucinogène,' *C. R. Soc. de biol.*, 1934, **115**, 838.

CURRAN, D., 'A Clinical Study of Delirium,' *Proc. Roy. Soc. Med.*, 1934, **27**, 1713.

KANT, F., 'Über Reaktionsformen im Giftrausch,' *Arch. f. Psychiat.*, 1931, **91**, 694.

LANGE, J., in Kraepelin-Lange, *Psychiatrie*, 1927, **1**.

LINDEMANN, E., and MALAMUD, W., 'Experimental Analysis of the Psychopathological Effects of Intoxicating Drugs,' *Amer. Jour. Psychiat.*, 1933, **13**, 853.

MAYER-GROSS, W., 'Apraxia and Space,' *Proc. Roy. Soc. Med.*, 1935.

MAYER-GROSS, W., and STEIN, H., 'Veränderte Sinnestätigkeit im Meskalinrausch,' *Deut. Zeits. f. Nervenheilk.*, 1926, **89**, 112.

SLOTTA, K. H., and SZYSZKA, G., 'Neue Darstellung von Meskalin,' *Jour. f. prakt. Chem.*, 1933, **137**, 339.

ZADOR, J., 'Der Lachgas (NO_2) Rausch in seiner Bedeutung für Neurologie und Psychiatrie,' *Arch. f. Psychiat.*, 1928, **84**, 1.

ZUCKER, K., 'Experimentelles über Sinnestäuschungen,' *Arch. f. Psychiat.*, 1928, **83**, 706.

ZUCKER, K., 'Versuche mit Meskalin an Halluzinanten,' *Zeits. f. d. g. Neurol. u. Psychiat.*, 1930, **127**, 108.

ZUCKER, K., and ZADOR, J., 'Zur Analyse der Meskalinwirkung am Normalen,' *Zeits f. d. g. Neurol. u. Psychiat.*, 1930, **127**, 15.