THE INFLUENCE OF MESCALINE ON PSYCHODYNAMIC MATERIAL

JAMES P. CATTELL, M.D. *

Some of the relationships between personality structure, psychopathology, and the psychologic phenomena associated with the administration of mescaline and other toxic agents have been considered by several groups of investigators (1, 6, 7, 9, 10, 11). The major aspects of the responses of the present group of schizophrenic patients to mescaline have been dealt with in other communications (3, 4, 5, 8). The physiologic changes and the effects on behavior and emotions were considered. Brief comments were made on the mental content, including recall of memories, flow of associations, and sexual material.

The purpose of the present paper is to consider some of the relationships between psychodynamic material obtained in direct interview, during long periods of psychotherapy, and the productions during mescaline intoxication. These will be considered under four headings: (a) elaboration of meaningful mental content including relationship of mescaline productions to drug-free dreams; (b) recall of childhood memories; (c) emotional responses, including transference phenomena; (d) flow of associative material and ego defense mechanisms.

Material and Method

The study was conducted as part of an investigation of mescaline intoxication, several phases of which have been reported (3, 4, 5, 8). Synthetic mescaline sulfate (Bios Laboratories, New York City) was administered intravenously to 59 patients (24 men and 35 women) in 0.4 to 0.6 Gm. doses. Careful records of each experiment were kept, beginning with the patient's responses just before the injection and continuing for the next 24 to 48 hours. During the injection and the subsequent three to four hours, essentially verbatim reports were obtained either by recording machine or written notes. In general, the productions were quite spontaneous or elicited by asking the patient how he felt or what he was experiencing. More specific questioning was carefully recorded for later evaluation of its relationship to the patient's response. The protocols were obtained by the author and his colleagues.

* From the Department of Experimental Psychiatry, (Paul H. Hoch, M.D.); New York State Psychiatric Institute.

The co-operation and assistance of Dr. Paul H. Hoch and Dr. Harry H. Pennes in the preparation of this paper are appreciated.

All the patients were thoroughly studied psychiatrically. In the majority of cases, patients had been studied closely either through previous psychotherapeutic contact with the author or a departmental colleague, or on a serial observational basis. Most of the patients had been treated with psychotherapy, many for years before coming to Psychiatric Institute, and some had been in psychoanalysis.

For convenience, the patients were divided into three groups on the basis of diagnosis and deterioration: Group I: Schizophrenia, pseudoneurotic type as described by Hoch and Polatin (2), 17 patients. The leading symptoms and superficial mechanisms were neurotic, including any or all of the following: diffuse anxiety in all realms of behavior, obsessive-compulsive-phobic phenomena, depression, hypochondriacal preoccupation, psychosomatic disturbances, sexual dysfunctioning and marked emotional dysregulation. Group II: Schizophrenia with absent or mild deterioration, 26 patients; hebephrenic, 2; catatonic, 3; paranoid, 4; and mixed type, 17. Group III: Schizophrenia with moderate to marked deterioration, 16 patients; catatonic, 4; paranoid, 5; mixed type, 7.

Results

A. General Observations. The value and pertinence of observations was necessarily limited by the accesibility of the patient to psychodynamic study in the months and years of evaluation and treatment before mescaline administration, as well as by the quantity and quality of his productions while under the influence of mescaline.

TABLE I.

Group	*Pre-Mescaline Dynamic Study*			*Total Patients*	*Elaboration of Content and New Material Under Influence of Mescaline*		
	THOROUGH	PARTIAL	MINIMAL		HIGH	MEDIUM	LOW
I.	13	4	0	17	8	6	3
II.	6	12	8	26	5	8	13
III.	0	0	16	16	0	5	11

As might be anticipated, the pseudoneurotic group was the most valuable for this type of investigation (Table I). All of the patients had been carefully studied, though 4 had been particularly resistant to treatment and hostile to a series of therapists. Of the 13 whose dynamics and historical pictures were fairly clear, 8 gave material under the influence of mescaline that was considered especially valuable in the study. Six elaborated to some extent on pertinent dyamic and psychopathologic material, while 3 accepted the experience in an

"objective," intellectualized manner. These were 3 of the 4 resistant patients in the pre-mescaline study. The pseudoneurotic group of patients, being more accessible, had a more thorough dynamic study before mescaline and were more productive under the influence of mescaline.

Of the 26 frankly schizophrenic patients in Group II, 6 had been extensively studied in dynamically oriented treatment during accessible periods for months to years before receiving mescaline. All but one of these gave useful material while under the influence of mescaline. Twelve of this group were studied dynamically before mescaline to the limited extent that rapport could be established, while 8 were not accessible except for grosser psychopathologic investigation. Of the former, 8 gave material during mescalinization that threw some light on the illness and personality structure, while the remainder of the group gave no special content or were so catatonic or aggressively paranoid that nothing new was learned.

Of the 16 deteriorated schizophrenic patients in Group III, 11 were not satisfactory subjects for intensive study before or during the mescaline intoxication in view of the gross psychotic reaction and the paucity of material associated with deterioration. Five gave some pertinent material under the influence of mescaline.

B. Elaboration of Content. Details of content elaboration under the influence of mescaline were considered under three subheadings: (a) Mescaline material which was confirmatory or an extension of data obtained directly in the drug-free state, (b) that which was confirmatory or an extension of dream material in the drug-free state, and (c) new material. Of the 17 patients in the pseudoneurotic group, we noted the following incidence of response: a-13; b-8; c-9; a and b-8; a, b, and c-6. Group II, 26 patients: a-16; b-3; c-6; a and b-3; a, b, and c-1. Group III, 16 patients: a-5; b-0; c-1. Confirmation of previously know material was relatively common in Groups I and II, while confirmation of dream material occurred less frequently and new material was noted in only half of Group I patients and a quarter of Group II. The reporting of a, b, and c material obtained in a third of the pseudoneurotics. Some of the data from pre-mescaline studies and mescaline protocols of two patients with pseudoneuroitc schizophrenia will illustrate these points.

Case 1.—A 36-year-old salesman, son of an American missionary, who had a 15-year history of severe diffuse anxiety and depression, with several suicidal attempts. He had graduated from college with honors, but subsequently his symptoms forced him successively to give up medical school, divinity school, and teaching college French. Specific fears had never

been expressed except rare references to fear of cancer and death. There was a great deal of psychotherapy as well as psychoanalysis for several years with different analysts. The patient's father, an ardently religious man whom the patient idolized, became mentally ill when the patient was 16 and committed suicide a year later. His mother was a controlling woman who punished him by having him beat her. Under our observation and treatment, the patient was courteous, reserved, and slightly disdainful. He was a rigid, religious man of high moral standards. There had been a succession of steady girl friends, sexuality having been limited to occasional reciprocal masturbation. Frank castration dreams had been reported as well as frank incest dreams involving mother and sister.

Under the influence of mescaline, he was openly hostile, vindictive, and belligerent toward one of the psychiatrists, was quite suspicious and felt persecuted. There was a pervading apprehension, at times approaching panic. He expressed specific fears of death, insanity, attack, and of being alone. In a short period of religious ecstasy he jubilantly reported that all the Jews were being converted to the Kingdom of Christ. Later he was alternately in Heaven and Hell. Heaven was unbelievably good and death was no longer frightening. He spoke of a "new life" which was a "feeling of being God." In Hell, he saw devils with tails and pitchforks.

He commented openly on the nurse being pretty, his wanting to kiss her and of her resemblance to his mother. He asked her to undress and volunteered he should feel embarrassed, but did not. Following recovery, he apologized profusely to the psychiatrist and nurse.

The hostile behavior, some of the phobias, and the religious ecstasy, grandiosity and persecution had not been noted in the drug-free state. His unabashed requests of the nurse and the comments on her resemblance to his mother are consistent with the previous dream material. Certain repressed or unconscious impulses apparently became conscious during the mescaline experience and he was partially freed of his usual conscience-ridden state.

Retrospectively, one might say that these are logical developments of the material available in the drug-free state. They deal with his feelings of helplessness, infantile omnipotence, incestuous strivings, fear of loss of body integrity, and, to some extent, with guilt and punishment in Hell. His ego was essentially defenseless under the influence of mescaline. It must be emphasized that one cannot predict the quality of the response under mescaline, what conflictual material the patient will "select" or how he will handle it.

Case 2.—A 42-year-old woman with a 24-year history of a shifting obsessional-phobic and depressive syndrome. Important considerations included rigidity of character, unresolved attachment to her father, inability to regulate hostility, confusion about male-female differences and genital-

excretory differences, envy of the equipment and prerogatives of a man, fear of sexual contact with men and an inclination to turn to women. In an effort to keep her philandering husband at home she had a younger sister, in the bloom of youth, spend week ends with them. The husband and sister engaged in sexual play while the patient slept. Upon learning of this, the patient was resentful and repudiated any association with the sister. Dreams dealt with the husband-sister-patient triangle, usually in an erotic setting, as well as with sexual-excretory confusion, and with unexpected gifts from women.

Under the influence of mescaline, the leading material was an hallucination of the sister with a dagger in her heart, and covered with blood. She also saw many accusing eyes and heard voices accusing her of killing her sister. Later, the patient denied this, protested she loved her sister but that the sister had stolen her husband. Throughout mescalinization, the obsessive-phobic syndrome was not evident.

This material was previously unconscious and may also refer to the triangle with her parents as well as with the husband and sister. This woman selected one specific phase of one of her several conflicts for no clear or predictable reason.

Despite the high frequency of visual hallucinations under the influence of mescaline, there was little resemblance between these and the manifest content of previously reported dreams. Most of the visual phenomena were relatively nonspecific, including a variety of ever-changing, geometrical patterns. There was no evidence to suggest that these forms were particularly meaningful, though some were secondarily endowed with affect, nor were they repetitions of dream symbols.

C. Recall of Past. Infantile Experiences. This material was classified according to: (a) memories previously reported, and (b) those not available in the drug-free state. The incidence of each type of material in the three groups of patients was as follows: Group I, 17 patients: a-6; b-6; a and b-3. Group II, 26 patients: a-5; b-2; a and b-2. Group III, 16 patients: a-0; b-0.

Memories of previously reported material and newly recalled memories are best illustrated by considering certain details of 2 specific cases. Possible dynamic connotations can then be commented upon and some observations on screen memories can be given.

Case 3.—A 34-year-old man with an eight-year history of phobias, diffuse anxiety and depression, as well as bizarre ideas about the horrible appearance of the right side of his face. Feelings of genital inferiority, fears of sexuality with women and fascination with homosexualty also obtained. He had lived with an alcoholic, ne'er-do-well father who showed some affection, and with a carping, increasingly psychotic mother, until the age of five, when both parents were institutionalized and he was sent to

an orphans' home. He spontaneously anticipated the mescaline experience with much optimism, hoping it would cure him. Afterward, he said he had relived his childhood from three to five.

Under the influence of mescaline, he was attending the circus with his father, seeing the animals and alternately enjoying himself and being frightened by the animals. He carried on a conversation with his father, expressing much enthusiasm about the circus, alarm at seeing the snakes and fearful concern that the monkeys were laughing at him. In the midst of this, he said: "Oh God, I have to go to the bathroom. I wet the bed. I'm sorry, Dad." He made several references to his having the anatomic structure of a girl. Later in the day, he stated he used to go to the circus with his father, though this had never been mentioned during a long period of psychotherapy. Most of his drug-free memories about his father were condemnatory and disdainful. He made no reference to mother, playmates, orphanage or foster homes during the mescaline experience.

There is a dream-like quality to the circus experience with oscillations between frightening elements and fairly simple, wish-fulfillment scenes. His retrospective comment that he had relived his life from ages three to five is an exaggeration. The mescaline material might be looked upon as a condensation of his personality problems with particular reference to his concept of himself, body image, ambivalent relationship to father, and his fearful, rejecting attitude toward women, who were seen as threatening, ridiculing, dangerous animals, prototypically the mother. To believe that all of this dynamic material was included is open to question, and a number of the other aspects of his personality structure were not evident. As noted above, this crystallization of content under mescaline was new, though the dynamics were reasonably clear before mescaline.

Case 4.—A 32-year-old man who had a five-year history of phobias, depression, paranoid attitude, and marked anxiety. As a child he had feared being alone. His mother died when he was five and when he was lifted to kiss her in the coffin, he screamed. Subsequently, he had fears of coffins, of being buried, and feared the stove legs because they reminded him of coffin legs. At five or six, he saw a playmate with his clothes on fire and believed the child subsequently died because he saw a wreath on the door.

During the mescaline experience when he was left unattended, he recalled his childhood fear of being alone. He saw his mother's coffin with her relatives and other people crying at the funeral. Then he became quite indignant and said that these people were dirty bastards for they had not really come to the funeral. He was reminded of death on several occasions. Frequently he reported smelling smoke though there was none in the room and one or two occasions he saw fire. This reminded him of the boy with his clothes on fire.

The drug-free memories of his mother in the coffin and the playmate burning to death may be screen memories. The death of the mother and the attendant events were obviously of great importance in view of the stove and coffin-leg phobias and the memory of screaming when he was lifted to kiss his mother in the coffin. Under mescaline, he elaborates on this—observing the sad funeral scene with many friends and relatives mourning his mother's death. The sudden emotional shift to vindictive anger over their actual absence suggests the impotent rage he felt in his helplessness and loneliness at her death. After the mother's death he was placed in an orphans' home. The father removed him from the place two years later, but committed suicide shortly thereafter. The memory of seeing the child on fire when he was five or six recurred frequently in the drug-free state and was recalled under mescaline, during which he smelled smoke and saw fire. A pre-mescaline dream of an older brother lying on a couch and burning to death and other memories of fire suggest marked preoccupation with this topic. The brother, who resembled the father, had beaten the patient when he was small. The fire preoccupation may be associated with guilt feelings concerning the death of the mother, later of the father, with punishment by burning.

D. Emotional Responses. Transference Phenomena. There was no evidence of any correlation between anticipatory responses to receiving mescaline and the productivity or co-operation during the mescaline experience. The majority of patients in all three groups were apprehensive, but in general co-operative. Patients were persuaded to take the drug and those who refused did not receive it. About 25 per cent of the patients were hostile, resentful during the initial stages, and some of these were resistive while others submitted resignedly. One patient in Group II and several in Group III were blandly indifferent, as they were to most external events. Two of the patients in Group I spontaneously expressed great optimism, anticipating a remarkable therapeutic effect with mescaline (Cases 3 and 4.).

During the mescaline experience, the outstanding emotional reaction was one of anxiety, the determinants and discussions of which are given in other papers (4, 8). Several of the patients, especially in Groups I and II begged not to be left alone even briefly. The presence of a psychiatrist or nurse had a markedly reassuring effect, apparently a nonspecific wish for a parent figure. Often there were whimpering pleas to have the experience terminated. These fears were most extreme in a 29-year-old woman with obsessive-phobic, anxiety and depressive symptoms who wished to be held in the nurse's arms and who held and kissed the nurse's hand. She screamed for help if left alone for a minute.

Three quarters of the patients in Group I, half of those in Group II, and a quarter of the patients in Group III showed some degree of hostility and anger. In most, this was an extension of the same sort of reaction in the drug-free state. In some it was characterized by sullen resentment with refusal to report experiences, veiled or direct sarcasm, vindictive remarks, and threatening demands that the drug action be terminated. In others there was a more active display evidenced by shouting, upsetting furniture, minor and rarely major assaultiveness. In these patients, a definite paranoid trend often obtained with suspiciousness, ideas of reference or persecution.

Case 5.—A 25-year-old housewife with obsessive-compulsive symptoms cried, pleaded, cursed the psychiatrist for giving her the drug, and slapped the face of a resident psychiatrist. After recovery she volunteered that she had made a fuss in order to persuade the psychiatrist to give a counter-injection. All this was in some contrast to her drug-free behavior, which was characterized by sullen aloofness and occasional sarcastic remarks.

Other examples of such contrast between drug-free and mescaline behavior are noted in the case extracts above.

There is little evidence of specific object displacement in the mescaline experience. The psychiatrist is recognized as the powerful person who gives the drug, who wishes to record the patient's experiences, and who can relieve the patient of the effects of the drug. Two patients in Group I and 2 in Group II hallucinated or called for one or both parents and conversed with them. This is well illustrated in Case 3.

Under mescaline there are many emotional reactions to the experience and to personnel. The patient's positive feelings for the psychiatrist in the drug-free state are temporarily jeopardized because of the psychiatrist's role in making the patient uncomfortable. Drug-free feelings of hostility are often increased under mescaline. In some instances the patient does not need to transfer his feelings or displace the object of his feelings for the parent is present in the experience. The parent is seen in the hallucinations.

E. Flow of Associative Material and Ego Defense Mechanisms. A few of the patients held themselves aloof from the mescaline experience, a typical response being that seen in a woman, a Greenwich Village artist, who reported her visual experience as if she were conducting a tour through a museum. In some there was an admitted refusal to report anything but gross physical discomfort and many were obviously selective in their reporting. Frank blocking was of fairly common occurrence in a majority of patients at one time or

another. Some volunteered having difficulty in describing their experiences, there seeming to be no adequate words in the usual vocabulary. However, neologisms were infrequently noted and were seen mostly in the deteriorated schizophrenic patients (III) in whom they were not uncommon in the drug-free state. In a majority of those who verbalized reasonably well, it was often reported that perceptions were changing so rapidly that accurate description was impossible. A relatively free flow of mental content was approximated in about half of the pseudoneurotic group and about a third of Group II. Examples of the extent to which content can dominate a patient and still be satisfactorily reported are seen in some of the case extracts given above.

The ego defenses are weakened and simplified during the mescaline experience. The patient is aware of much more frank and acute anxiety. There is evidence of release of some previously repressed material in a number of patients in Groups I and II, especially among those rated "High" in Table I. Social and sexual behavior were much less inhibited in several of the patients. A number of the patients invoke the partially conscious defense of suppression in an effort to deal with newly appearing, anxiety-laden material. Much of the elaboration of material represents an expansion of previous condensations as illustrated in the case extracts. The emotion which is usually focused on neurotic symptoms and mental content is often displaced to somatic discomfort.

The perceptual phenomena during mescalinization, especially the visual hallucinations, are of two different varieties. The constantly changing, colored geometric patterns and simple formations are probably entopic phenomena (6), and are not to be considered as meaningful symbols. The other type, examples of which are given above, may be looked upon as elucidating previously unconscious material in some instances. Content which is repressed, condensed, and displaced in the drug-free state is expressed more straightforwardly. The erotic wishes are in evidence, the parents are present in hallucinations, and the hostile impulses are carried out in the hallucinations.

Regressive phenomena were noted in several of the patients in Groups I and II, including crying, thumb-sucking, screaming, helpless pleading, and hand-kissing. To what extent such regression represents ego defense in the usual sense or a release phenomenon could not be determined. Both simple and pathologic projection (delusional formation) were commonly observed, as were dissociation and denial. These data have been commented upon in other communications (3, 5). Isolation, undoing, and atonement were rare as new defense mechanisms in a given patient, and usually were absent from obsessive-phobic patients who had employed them extensively in the drug-free state.

Discussion

There has been some discussion in the literature concerning drug-specific versus personality-specific responses to various noxae, especially to mescaline (1, 7, 8, 9, 10, 11). In a consideration of mescaline hallucinations, Klüver (6) makes some discerning comments on the possibility of their having affective determinants and of their meaningfulness to the patient.

Theoretically one can differentiate (a) nonspecific perceptions which are essentially neutral, or which elicit a primitive type of fear or pleasure response; and (b) those which are specific to the patient, being quite meaningful to him and involving his whole personality. The first type usually occur as monotonous repetitions or as unorganized, fragmented perceptions, while the latter are usually little dramas or complex scenes of lifelike nature. Actually it is not possible to achieve this nice differentiation. One can often discover some personality-specific responses, as was done with the present material, in which percept and concept center about a certain theme.

Among the nonspecific mescaline responses, on the perceptual-verbal level, there are many similarities among the patients' responses and some dissimilarities. One may say that the latter are individually determined, if "personality" is considered in the broadest sense. To date, there has been insufficient investigation of these to warrant any conclusions.

Given the personality-specific mescaline productions, it is possible to see the association between this material and the drug-free personality structure. Even those clinical and dynamic trends that were unrecognized or unemphasized prior to mescaline can be seen as consistent with the personality of the patient. Only rarely was such material considered somewhat alien by the patient. However, it is not possible to predict the dynamic material upon which the patient will concentrate during the mescaline experience. Even though some of the basic personality manifestations are discernible in successive mescaline experiences, the predominating material is different in successive interviews.

The therapeutic value of the isolated mescaline experience has been emphasized by other workers (1, 10). In our material some release of formerly repressed ideation and affect was noted, but this was fragmentary, unpredictable, and did not prove useful to the patient. The fact that the patient was dominated by the physiologic and psychologic effects of mescaline with attendant anxiety and often with reactive hostility, tended to impair the establishment and maintenance of rap-

port with the therapist, frequently neutralizing positive feelings which had prevailed in the drug-free state. The nature of the mescaline situation precluded the development of transference phenomena in most instances, thus obviating the possibility of analyzing these. Aside from accepting gross reassurance, the patient was not accessible to the therapist. The usual drug-free defense mechanisms and resistances were altered in the direction of simplification. Therefore, analysis of these, even if possible, might not be particularly pertinent.

Mescaline has a profound effect on the psychodynamic material. It presents us with a technique for investigating personality structure and further exploration is required. However, its usefulness is definitely limited by the artificial aspects inherent in the mescaline experience. There is no indication that it can serve any useful therapeutic end as employed in the present study.

Summary

This paper deals with the relationship of productions during mescaline intoxication to psychodynamic material obtained in drug-free psychotherapeutic sessions. The 59 patients in the study include 17 with pseudoneurotic schizophrenia (Group I), 26 with more overt schizophrenia, but without deterioration (Group II), and 16 deteriorated schizophrenic patients (Group III). It was found that the pseudoneurotic group was more accessible to study both in the drug-free and the mescalinized states, while the deteriorated schizophrenics were least accessible. Confirmation or elaboration of dynamic material obtained in the drug-free state was relatively common in mescalinized patients in Groups I and II while confirmation of dream material occurred less frequently and the appearance of new material was noted in only half of the patients in Group I and a quarter of Group II. The findings in Group III were minimal with reference to these types of data. The ego defenses are weakened and simplified during mescalinization and the patient is aware of much more frank and acute anxiety. Social and sexual behavior is less inhibited. Much of the elaboration of material represents an expansion of previous condensations. Displacement of affect from usual content to somatic discomfort was frequently observed. The mescaline hallucinations include definite scenes which appear to be specific to the patient's personality and contain material which had been condensed, and repressed in the drug-free state. The present study suggests that mescaline has a definite effect on dynamic material and presents a useful technique for investigating personality structure. Its value in therapy is not evident at the present time.

BIBLIOGRAPHY

(1) Guttmann, E.: Artificial Psychoses Produced by Mescaline. *J. Ment. Sci., 82:* 203-221, 1936.
(2) Hoch, P. H., and Polatin, P.: Pseudoneurotic Form of Schizophrenia. *Psychiat. Quart., 23:* 248-276, 1949.
(3) Hoch, P. H.: Experimentally-produced Psychoses. *Am. J. Psychiat., 107:* 607-611, 1951.
(4) Hoch, P. H., Cattell, J. P., and Pennes, H. H.: Effects of Mescaline and Lysergic Acid (d-LSD-25). *Am. J. Psychiat., 108:* 579-584, 1952.
(5) ——: Effect of Drugs: Theoretical Considerations from a Psychological Viewpoint. *Am. J. Psychiat., 108:* 585-589, 1952.
(6) Klüver, H.: Mechanisms of Hallucinations, in *Studies in Personality.* New York: McGraw-Hill, 1942.
(7) Lindeman, E., and Malamud, W.: Analysis of Psychopathological Effects of Intoxicating Drugs. *Am. J. Psychiat., 13:* 853-881, 1934.
(8) Pennes, H. H.: Clinical Reactions of Schizophrenics to Sodium Amytal, Pervitin Hydrochloride, Mescaline Sulfate, and D-lysergic Acid Diethylamide. (Publication pending.)
(9) Rubin, M. A., Malamud, W., and Hope, J. M.: Electroencephalographic and Psychopathological Manifestations in Schizophrenia as Influenced by Drugs, *Psychosom. Med., 4:* 309-318, 1942.
(10) Stockings, G. T.: A Clinical Study of the Mescaline Psychosis, with Special References to the Mechanism of the Genesis of Schizophrenia and Other Psychotic States. *J. Ment. Sci., 86:* 29-47, 1940.
(11) Wolff, H. G., and Curran, D.: The Nature of Delirium and Allied States, *Arch. Neurol. & Psychiat., 33:* 1175-1215, 1935.