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PERSONALITY AS OBSERVED IN PSYCHO-
LOGICAL TESTS

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A. INTRODUCTION

The purpose of this report is to describe the effects of LSD-25 on personality as measured by projective and non-projective psychological tests.

Although a number of investigators have reported the effects of LSD-25 on personality, only a few have made use of psychological tests. Stoll (11) administered the Rorschach test both at the height of a 30-microgram LSD-25 reaction and subsequently without the drug to 11 normal adult subjects. He stated that LSD-25 produced a non-specific exogenous type of intoxication, with both "typical psycho-organic traits" as well as "others suggestive of schizophrenia." Rinkel *et al.* (8) gave LSD-25 in doses ranging from 20 to 90 micrograms. Rorschach tests were given to five subjects and concrete-abstract thinking tests were given to two subjects both with and without the drug. They found principally schizophrenic or paranoic abnormalities under LSD-25 in the Rorschach tests. Sloane and Doust (10) gave 40 micrograms of the drug to both a group of normal control subjects and to depressed and schizophrenic patients. They report no significant changes in either a qualitative or quantitative analysis of the Rorschach tests. Like Sloane and Doust who found the Rorschach test unsuitable, Savage (9) in his study of five normal control subjects and 15 depressed patients reported that projective testing under the drug was not as revealing as testing done during the subject's normal mental state. A paper published previously by the members of this laboratory showed that the peak effect on subjects receiving a small dose of LSD-25 is obtained 1½ to 2½ hours after ingestion of the drug. The peak for the high dose

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occurs $1\frac{1}{2}$ hours after ingestion of the drug and the effect is longer lasting. It was also demonstrated that for all subjects, whether or not they received LSD-25, anxiety as reported by the subjects, was highest in the first period or $\frac{1}{2}$ hour after taking the drug and declined thereafter (2).

B. METHOD

1. Procedure

In the present study the following tests were used: (a) Bender-Gestalt test with recall; (b) House-Tree-Person test; (c) Word Association test; (d) Rorschach test; (e) Wechsler-Bellevue Intelligence Scale; (f) Cards 1, 2, 3 BM and 13 MF of the Thematic Apperception test.

The battery was administered twice; the first time (control) before the drug (*Pre*) and the second (experimental) under the drug (*During*). The Word Association test was administered only to the first half of the subjects. The time interval between the *Pre* test and the *During* test ranged from $2\frac{1}{2}$ weeks to 14 months. The *Pre* battery usually required $2\frac{1}{2}$ to $3\frac{1}{2}$ hours to administer while the *During* battery required a longer time extending in some cases to six hours; in three cases, the *During* testing was broken up into two sessions. By comparing the *Pre* drug and *During* drug data, the following null hypothesis was tested: the *During* data will not differ significantly from the *Pre* data in any specific area of functioning.

2. Subjects

The subjects of this study consisted of 12 female and 9 male, paid volunteers who were not considered to be psychotic by both psychiatric interview and psychological examination. Their ages ranged from 22 to 43. The median age was 29. The mean Full Scale *IQ* was 122.9, while the *IQ* range extended from 100 to 137. A fuller description of the subjects is discussed elsewhere (7).

3. Method of Analysis

Two types of analyses were used: (a) quantitative analysis based on the formal scoring of the Rorschach test³ and (b) qualitative analysis based on

³The scoring system employed is a modification by Brown of the Klopfer and Kelley (6) technique. The major innovations being that if there is more than one determinant to be scored for a response the added determinants are not scored in the additional column but are tabulated as main determinants. The other modification is that parts of humans and parts of animals in motion are scored as *m*. The rationale for the former change is based on the idea that there is really no valid reason for granting *a priori* precedence to one determinant over another, since

the entire battery. As detailed analyses of the other tests will be presented in subsequent reports, greatest mention will be made of the Rorschach test in this paper. For the former analysis, the Wilcoxon test for paired replicates (12) was used. The Wilcoxon test is a non-parametric statistic which makes no assumption concerning normality of distribution. The qualitative analysis was based on 15 randomly selected subjects. When applicable, quantitative findings were also included in this section. A psychoanalytic frame of reference was utilized in the qualitative interpretations.

C. RESULTS

1. *Quantitative Analysis*

Table 1 presents the results of the *Pre* and *During* Rorschach test data. Two variables, human movement (M) and the ratio of whole responses to human movement (W:M) were found to be significant at the .02 level of confidence; small details (Dd), human content (H), percentage of responses to the last three cards (R 8-10) and the ratio of human movement to animal movement (M:FM) were significant at the .05 level of confidence; whole responses (W), space responses (S) and animal responses (A + Ad%) were significant at the .10 level. These 9 of the 31 variables studied showed changes in their *During* scores that would be expected to occur by chance in only 10 or less such comparisons in 100 replications.

2. *Qualitative Analysis*

The qualitative effects of the drug fall roughly into three categories: an overt schizophrenic-like involvement was found in five subjects; a psychotic involvement of a less serious nature was found in nine subjects; and a marked improvement or a more adequate personality was found in one subject. In the first group these subjects exhibited symptomatology which closely resembled a paranoid schizophrenia. In the second group of less severely psychotically involved subjects, the reactions were extremely varied ranging from severe withdrawal, approaching a narcoleptic-like state, to reaction patterns of a psychopathic order.

Changes were observed in the following areas of personality:

a. *Fantasy*. Every subject showed evidence of a disturbed defensive system while under LSD-25. This disruption of the normal defenses per-

in the final analysis, the weight placed on each determinant must be decided by the total record. The explanation for the latter change is that this type of response represents aborted or non-acceptable fantasy activity which makes itself felt as tension in the personality structure.

mitted formerly submerged conflicts and urges to appear on the surface. For example, one male subject, under 100 micrograms gave the following percept to Card 7 (the mother card):

Looks to me like a piece of jewelry, a piece of coral, a very pretty pendant. My mother had a coral necklace and it had an irregular piece

TABLE 1
MEANS, WILCOXON'S *T*, AND LEVEL OF SIGNIFICANCE OF *Pre* AND *During* RORSCHACH VARIABLES

	<i>Pre</i> mean	<i>During</i> mean	<i>N</i> †	<i>T</i>
<i>Location</i>				
W	32.7	27.3	18	—43.0***
D	56.7	59.1	21	96.0
Dd	11.0	13.2	16	28.0**
S	2.2	3.1	15	27.5***
<i>Determinants</i>				
M	3.4	5.0	15	20.0*
FM+m	11.6	11.7	17	—75.5
FM	5.3	4.9	18	—58.5
m	5.9	6.7	20	74.5
K	2.1	2.1	13	51.0
K+k	3.1	2.7	17	—54.0
c	6.2	6.2	20	—94.5
C'	3.6	3.2	18	—70.0
FC	2.7	3.6	17	55.5
CF	2.6	2.2	10	—19.0
C	1.7	1.7	10	—24.5
ΣC	6.4	6.7	19	91.0
<i>Other factors and relationships</i>				
R	39.0	41.2	21	92.0
F%	34.7	32.7	20	—93.0
New F%	80.4	82.3	20	—74.5
F+%	77.8	76.5	19	86.5
New F+%	86.1	84.1	20	—74.5
P	9.2	8.7	16	—59.0
A+Ad%	41.0	37.3	21	—61.0***
H	4.0	5.5	15	24.5**
H+A:Hd+Ad	42.5	37.0	20	—95.5
H:A	43.0	51.7	20	67.0
M:ΣC	75.6	77.2	19	—86.0
FM+m:Fc+c+C'	154.7	154.0	21	—104.0
R8-10%	38.6	43.4	21	59.5**
W:M	42.1	63.4	20	43.0*
M:FM	87.4	132.3	20	50.0**

*Indicates significance at .02 or less.

**Indicates significance at .05 or less.

***Indicates significance at .10 or less.

†In the Wilcoxon technique the *N* is determined only by the subjects who showed a positive or negative change in the variable being studied.

like this here; it was pink in free form. I see a woman's face in it. For some reason I don't want to recognize it. I like the jewelry idea better; perhaps it's safer.

Another male subject, under 150 micrograms responded to Card 9 in the following way:

These are things fencing with each other—creatures. (He identified them later as his parents.) That's what I see. Take it away, please! God! I'm convinced that these things I see now are things I saw as a child, and if they frighten me now, what did they do to me as a child!

With the weakening of defenses and the emergence of repressed fantasies and experiences, autistic and deviant thinking also makes its appearance. Six out of the 15 subjects manifested this irrational thinking (M-), while three disclosed a pressuring into consciousness of this kind of ideation (m-). Of the remaining six, one consciously withheld percepts which contained deviant sexual ideation, and one withdrew almost completely into a stupor-like state in which he strove to stifle his ideation. Three subjects either showed slight change or actually became more constructive and planful in their fantasy. The only subject who revealed an improved psychological state under LSD-25 completely eliminated the autism that was indicated in her *Pre*-record and actually advanced to a more mature level of functioning.

b. Self-interpretation. Some subjects manifested an ability to accept their repressed fantasy, rational or not, which had now emerged. These individuals gave indications of a somewhat "healthier" functioning in certain areas along with a lessening of inner tension and anxiety. They also appeared able to utilize their new insights in a manner that possibly could be directed toward resolving their inner conflicts. But in almost all the cases, one observed the overpersonalization of reactions to the Rorschach test plates in the *During* tests to the point where a considerable loss of distance was manifested. This factor undoubtedly contributed to the actual interpretations of the symbolism of their percepts, a phenomenon often found in psychotic individuals. One female subject, who simultaneously was receiving psychotherapy outside the laboratory, under 100 micrograms responded to Card 6, which is commonly referred to as the sex card, by saying. "This is a totem pole, authority, symbol of protection and benevolence. And this part is skin of an animal, the side you can feel, the furry side." On the inquiry, in reference to the totem pole, she added:

This was the father figure. I saw it as all-powerful, omnipotent, protective, outstretched—seems to be the power and strength and omni-

potence of this figure and the other set of arms or whatever they are, are more enveloping. I saw this as a straight line—this curved line is a womanly line but it's still below the other which to me ties up to my father and his domination of my mother and to my own inability to accept that.

In describing the fur, she said:

You can feel fur. I think this is a good sign. (?). Skin. Just to be able to see the furry side. (?). You like to touch fur, feel it; it means you like to be close to it. So anything you like to be close to is something acceptable to you. So this is acceptable and it is also sex, because sex is—I don't know. I don't know how to tie that up, but it's there. This is a very symbolic picture. It really is all childhood . . . the kind of background up here is the figure of authority and it's tied up with the present.

The foregoing quotation suggests this subject's greater willingness to accept her female rôle and heterosexuality. This is confirmed by a letter she wrote after taking the drug, in which she says:

The after-effects of the drug appear to have some characteristics in common (referring to the two previous experiences with the drug). Today, as the last time, I felt quite relaxed. Also last night and the evening following the last session, I have had two successful experiences with sex. Both evenings I felt less defensive and competitive, was able to accept more, and achieved orgasm. Successful sex experiences heretofore have been rare.

The effect of the drug must be coupled with the fact that this subject was receiving psychotherapy.

In the case of another female subject under 50 micrograms, anxiety concerning masturbatory activity appeared to diminish while she was better able to play a feminine rôle. A male subject retreating from a threatening heterosexuality according to the *Pre* battery, had developed homosexual defenses which were adequate under normal conditions. However, with a dose of 100 micrograms, his homosexual defenses appeared weakened and his strong heterosexual urges came to the surface, showing clearly his greater acceptance of the masculine rôle.

c. *Control*. One of the major alterations in the defensive maneuvers noted in the *During* batteries of all 21 subjects is their ability to exert greater intellectual surveillance of both inner and outer stimuli and to direct their energies in such a way as to increase their volitional control. Fourteen, or 2/3 of the subjects showed an increase in the new F% which is the Rorschach test determinant measuring volitional control. Thus, it ap-

peared that despite the disorganization of defenses produced by the drug, some subjects were able to respond in a way that appeared to reflect a more effective and adaptive remobilization of their defenses, as measured by the new F%.

d. Regression. Some individuals were unable to remobilize their defenses in a constructive manner; consequently, the tests indicated a more regressed, chaotic type of defense. For example, one male subject under 200 micrograms alternated between narcoleptic-like behavior and behavior which more closely resembled his normal state. In the narcoleptic-like state, he appeared to be utilizing an archaic, generalized repressive system. With 150 micrograms, another male subject showed an acute psychotic state with alternating heightening and clouding of consciousness, a disruption of his associative processes and hallucinatory visual experiences on the Rorschach test. Child-like rebelliousness was manifested by a female subject who under 100 micrograms sought revenge against the maternal figure. This weakened her ability to conform and brought out underlying psychopathic traits. Unresolved anal smearing cravings and an underlying transvestite wish, hinted at in the *Pre* record, were disclosed in the Rorschach test of another male subject under 100 micrograms. With very few exceptions, the subjects disclosed a more childish utilization of oppositionalism and negativism. A 43 per cent increase in the space responses of the Rorschach test, which measures negativism, was noted. The difference in *S* responses between the *Pre* and *During* records is almost significant at the .05 level of confidence.

e. Egocentricity. The regressive movement was also manifested by a shifting of interests away from the external world to a heightened self-preoccupation. The following is an example of a male subject's responses to the Word Association test after 150 micrograms of LSD-25.

Breast—12"—"I'm having difficulty in associating, my wife's. Now this was really a struggle."

Love—9½"—"I think it's coming forth, me."

Suicide—7½"—"Me . . . fright and me hooked in, so connected you really can't divorce the two."

Vagina—3"½—"My wife's."

Mouth—25"—"Something is happening here, whole complex, vagina, breast, my wife's, my mother's. I can't make myself do what I want to do."

Penis—1½"—"Me."

Masturbation—¾"—"Me."

Homosexual—6½"—"Me. My first reaction, definitely."

Suck—1¼"—"Me."

In this subject's *Pre* test only three responses of this nature were present. Further evidence of the subjects' tendency to withdraw and to utilize intellectual defenses in order to cope with the drug is the observation that 11 of the 15 subjects showed a clear-cut introversive shift as measured by the changes in the experience balance.

f. Anxiety. Anxiety manifested itself in the Rorschach tests of all the subjects. This is in contrast to the reactions seen in the more structured Wechsler-Bellevue test where anxiety did not directly interfere with functioning. The form in which anxiety is manifested differed from individual to individual. For example, in 11 out of 18 cases that showed concern with small details in the *Pre* record, the *During* record disclosed an average rise of 10 per cent in these Dd responses, while 5 of the 18 cases showed a slight decrease. This increase in Dd was significant at the .05 level of confidence. This provides further evidence for the obsessive, intellectualizing efforts that the subjects were making in order to hold on to reality. Concomitant with the stress on minutiae was an increase in the factor which measures tension and apprehension (*m*). Out of 21 cases, 13 showed such a rise in *m*, while 7 showed a decrease. However, this was not statistically significant. *Thus, it would appear from the comparison of the Wechsler-Bellevue test results with the Rorschach test that it is the nature of the situation or task that determine the kind and the degree of dysfunctioning that anxiety will produce in a person under LSD-25.* It is further noted that 10 of the 13 subjects who showed an increase in *m* were females. Thus, all but two of the females in this study manifested an increase in *m*, strongly suggesting a significant sex difference.

g. Affect. In the affect area, an important trend in the Rorschach test protocols was observed. Nine of the 15 cases disclosed greater effort to behave in a socially adaptive manner (increased FC). It is conjectured that their need to maintain control over their emotions as well as contact with reality was intensified as a result of the apprehension produced by their psychic disequilibrium. They appeared to be aware that they had become somewhat out-of-step with their culture. Of the six remaining subjects, two cases showed a complete inhibition of affect, one showed a slight lessening in spontaneity, one revealed a lessened need to force affective expression, one disclosed some deterioration of affect, and one showed no change. It is likewise observed that in three of the latter six cases the individuals showed reduced ability to respond in a popular, conventional manner (*P*). Among these six cases, two received very high doses, 200 micrograms and 150 micrograms respectively; the other four received 100 micrograms each. *It would*

appear that at the higher dosages the ability to erect defenses which facilitate social relatedness is impaired. As the defensive system is disrupted, formerly repressed conflicts, urges, and memories connected with actual experiences emerge. This might be connected with a heightening of a depressive component. In 12 out of the 15 cases this finding is quite marked; while not a consistent finding in terms of the quantitative (C') factor on the Rorschach test, the more intensely personalized concepts of a morbid and depressed nature which were given, support this conclusion. For instance, one subject who offered the following percept in the *Pre* record: "I get the idea of a country road in autumn with different colored leaves and trees," gives an indication of a generally dysphoric mood in her normal state. In the *During* Rorschach test, the actual intensity of the underlying depressive mood is revealed in her response to the same card:

I see two witches again (not seen previously). . . . This comes out, the pale yellow and it seems to dominate everything in the foreground like the wall. (She saw the wall and the yellow on the card moving in and out.) They seem to be holding some sort of claws or scissors or something. They cut away something. I don't know what it is. The green seems just like the personification of two pairs of eyes just looking at the whole thing. And, oh! This seems to be some sort of a person because I see a hand. The person is lying down and really there are two people because . . . I don't know; it's a sad person.

In the inquiry, she was quite disturbed and in answer to the examiner's question she replied:

. . . I don't know. It just seems to be a life line because (the subject burst into tears). You, I was going to say. Again I see my father (lying dead). It's symmetrical. (Subject became confused.) I'm sorry I got very confused. I don't even know what I meant to say. I was almost off in my dream stages. . . . It was such a sudden—it wasn't really sudden—cutting off the life line.

She connected this life line, projected into the card, with her father, and at another time actually hallucinated the figure of her dead father on the desk. This hallucination produced such a marked hysteric reaction that it was necessary to give her a sedative.

Of the 15 subjects that were closely studied, 7 showed a euphoric reaction. Thus, a female subject who was found to utilize euphoria as a defense against depression in her preliminary psychological tests, showed an exaggeration of this euphoria as the depressive component was intensified with the drug in the *During* battery. Another female subject who showed

mood swings in the *Pre* record, described her feelings in the *During* record as, "I'm depressed but sometimes it lights up like the sun is out somewhere."

h. Disturbances in perception. Instances of distorted perception commonly appeared on the Rorschach test. A very striking example was that of a male subject who was unable to perceive objects as static forms. He seemed unable to receive an instantaneous impression of an object and was therefore forced to build up the concept in a piecemeal, mosaic fashion, experiencing great difficulty and anxiety in doing so. His observations on the Rorschach test of, "I see forming a man's face," "I get transitory images, keep coming and going," "Now a dog is changing to a fish," reflect the disruptive instability of the perceptual mechanism.

Overt hallucinations were not an uncommon finding on the Rorschach test. A male subject responded as follows to Card 6: "A dividing line which the whole thing revolves around. I don't see it revolving. It comes and goes." At this point he had to remove the green desk blotter complaining that he was getting sea-sick. A female subject observed the following on Card 8: "I see lots of patterns on the paper around the picture, almost as if there are geometrical designs. The blue lines move. If I concentrate on the picture it moves so much—it's pretty to sit and watch it." In the inquiry she added, "As I watch I get dizzy and it makes me sick." Another male subject reported the following: "Seriously, these colors seem to change right before my eyes, different shades, different images doing dances. . . . Wow! Scares hell out of me when I start to think this way," and, "Holy mackerel, this picture just changed! You have to believe this! This line seems to recede, and as I stare at it, it changes. Literally, things just flow in front of my eyes," and, ". . . changing right before my eyes, shrinkle and unshrinkle. Get it away!" Many subjects reported a wave-like effect with fluctuations between periods of relative clarity and dream-like states of dimmed consciousness. One subject described it as follows: "I go through periods where my mind is completely clear and then in a few seconds I'll lapse off." The same subject reported difficulty in discriminating between reality and ideation, saying: "I don't know whether I've said it or not. In this state you are never sure what comes out and what's in consciousness. It reminds me of a schizophrenic state—I don't know the boundaries of my own ego. . . ."

Clinically, many subjects reported feelings of having lost the sense of personal ownership of parts of their bodies. This depersonalization phenomenon was observed in the psychological batteries of 6 of the 15 subjects. This was most marked in their figure drawings.

i. *Paranoid trends.* As a consequence of the reliance on intellectualization already discussed, the subjects showed a heightened scrutiny of both internal and external stimuli. Withdrawal trends, the significant loss of ability to understand, anticipate and plan as usual in socio-sexual situations and increased suspiciousness was accompanied by a marked utilization of the mechanism of projection. Paranoid dimensions were reached in 12 of the 15 cases studied. For instance, a male subject disclosed a severe paranoid reaction in the Rorschach test when he checked the backs of the cards, asking, "These are standard Rorschach cards ", and, "I have to assure myself no one is listening." At one point during the testing when the examiner got cups of water for both the subject and himself, he said: "I have the instinct to change cups; it's a horrible thing to deal with all the time." Another male subject with LSD-25 showed a greatly enhanced tendency to draw relationships and to overgeneralize. This was illustrated in his comment of: "I seem to have a much better grasp of the truthfulness of the situation." Another male under the drug, while repeating numbers in the Digit Span of the Wechsler-Bellevue test stated: "I always feel that you're taking a message from some one of those numbers."

j. *Sexuality.* Concomitant with the disruption of the normal defensive system, a more direct expression of sexual impulses was observed in seven of the subjects. While the number of the sex responses in the Rorschach test showed no quantitative change, a qualitative analysis of the records revealed that sexual ideation as well as feelings had been strongly stimulated. In the case of a female subject the most striking feature of the Rorschach test was the frankly erotic manner in which she reacted to the cards, beginning with Card 3. The eroticism mounted until it reached a crescendo on Card 10 when she said, "This is the climax of them all." To Card 4, she said, "That's the one I think I told you reminded me of a vagina up here . . ." This was followed by, "The whole thing . . . has rhythmic pulse to it, the shading . . ." On Card 6, the sex card, she saw ". . . a giant penis . . ." On Card 9 she said, "Oh, isn't that gorgeous, sorta like the hallucination I had . . . sorta joyous, pastels. Might be what heaven is like, if there was a heaven. . . ." Another male subject, with 100 micrograms, revealed a psychological upheaval which was both sexually arousing and extremely threatening to him. His opening remark to the examiner was: "The last time I had this sensation was in a motel when I drank gin with my girl. I had a feeling of well-being. I knew I was going to have sex soon." To Card 6 (the sex card) of the Rorschach test he responded: "This is the same thing I told you before, too. How personal can you get? That's

personal enough for me. It's the same as I said before. I feel that if I get any more personal I'll get into the sex act—that's how I feel."

D. DISCUSSION

Statistically, the results of this investigation which indicated a significant difference between the *Pre* and *During* groups in 10 out of 32 formal variables studied demonstrates very clearly that the null hypothesis, the *During* data will not differ significantly from the *Pre* data, is not tenable for our group. To the contrary, important changes had been affected by the drug.

To cope with what appears to be a stress situation brought about by LSD-25, our subjects experienced a reduction in their ability to achieve an organized and integrated perception of the various aspects of a situation. Concomitant with this decrease in *W* responses was the increased concern with small or unusual details (*Dd*). This change suggests that the subjects were coping with burgeoning feelings of insecurity and fears of losing contact with the world by focusing on minutiae or explicit factual data and objects. The increase in white space (*S*) responses further reflects the effort on the part of the subjects to resist feelings of inundation or disintegration by asserting themselves in an oppositional manner, both against the threatening environment as well as against their own inner disturbed state.

The heightened effort to utilize mature and planful ideation is shown in the significant increase of *M*. However, the fact that the *W* decreases in relation to *M* along with an increase in *Dd* adds a modifying factor to the meaning of the increased *M*. This suggests the failure of these subjects to make constructive use of their increased efforts at planning. Thus, the subjects were not able to do the type of high level thinking usually associated with *M* percepts in their most effective form.

With subjects' increased ability to project human content, together with a drop in percepts containing animal content, it would appear that there were greater efforts at self-acceptance and greater ability to empathize with others in interpersonal relationships. It would seem that by focusing on small details much of which was being directed toward their inner experiences, some degree of introspective and self-interpretive activity must have taken place. The fewer animal responses noted above also point to a loosening of stereotypy in their ideation. A shift in the relationship between *M* and *FM* indicates a greater emphasis on inner resources as compared to impulse life. This suggests that the subjects were making strenuous efforts to apply a mature approach to the stress situation. To some extent,

this emphasis may have been influenced by the wish of many of the subjects to be part of the experimental team.

In agreement with the clinical findings of Busch and Johnson (3) our findings disclosed that the disequilibrium brought about by the drug involved a disturbance of the repressive barriers which, as reported by Savage, produced a state of inner turmoil that brought forth a fear of losing contact with reality in most of the subjects. For with the weakening of the repressive mechanism, there was then permitted the emergence into consciousness of a great many formerly repressed experiences and fantasies. As observed by Busch and Johnson, some of the experiences of our subjects were also "re-lived with frightening realism."

However, since poor reality testing was very often involved in the fantasy activity that emerged under the drug, the ego activity of the *During* group showed defects. This occurred despite the emphasis placed by our subjects on their conscious and volitional controls so that they could be more intellectually watchful of both their inner activity and the stimuli from the outside world. Thus, it is suggested that by compromising and allowing some irrational fantasy to enter into consciousness and thereby reducing the amount of tension and anxiety that was resulting from the state of inner turmoil, these subjects sought to strengthen their weakened egos and their control. The newly emerged and formerly repressed fantasy as well as the pressuring into consciousness of other deviant ideation and instinctual impulses appears to have resulted in an increased reliance by the subjects on the defense mechanism of projection. Their perception of the world then appeared to have been altered by a greater need to scan the environment in a much more careful manner than previously and to deal with the total situation in a piece-meal fashion. They became more receptive to the objects in their environment and their threshold of responsivity became lowered. There was a significant increase in their responses to Rorschach test Cards 8, 9, and 10. There also came about an elevation in suspiciousness that tended to produce culturally disharmonious and paranoid behavior. The disturbances in perception reached hallucinatory proportions in several of our subjects. Not in complete agreement with many of the papers previously mentioned, euphoric reactions were only noted in about half of our subjects while many more of the subjects showed the depressive factor. It would appear that while there was a release of affects under the drug, the fact that higher doses were given in this study than in the other studies may have caused our subjects to be much more apprehensively concerned with remaining in control over their emotions as part of their efforts

to counter their withdrawal bent and to hold on to reality. Consequently, as shown in their *During* batteries, considerable stress was placed on maintaining good affective rapport with those about them. In contrast with the observations of others (11, 4) increased sexual stimulation under the drug was not an uncommon finding in this study. By and large, the kind of reaction of each subject under the drug was primarily a function of his basic personality structure. This fact undoubtedly accounts for the differences in the kind and severity of their responses. This is in keeping with the findings of Abramson (1) who wrote: "The ability of the individual under small doses of LSD-25 to face preconscious or unconscious material and to integrate this material into the dynamic forces of the ego-structure is not part of a loss of ego, but rather that of a reinforced ego which functions more effectively under the drug, in the presence of the therapist." The authors (7) concluded in another paper and in this study that smaller dosages than those used in the present study would undoubtedly be much more effective if this drug were to be used as an aid in therapy.

In contrast to Savage's (9) findings and those of Sloane and Doust (10), that projective testing is less revealing under LSD-25, the results of this study point in a much more affirmative direction. In agreement with the clinical observations of Hoch, Cattell and Pennes (5), data were obtained to show quite clearly that this drug in some way disorganizes the psychic integration to the extent that the individual's "normal" defensive system is no longer applicable under the stress condition produced by the drug. Consequently, projective testing at that time has a much greater opportunity to penetrate through the disrupted network of rationalizations that had evolved into the armor of a character structure and to throw into much sharper focus the actual nature of the underlying conflicts. Thus, like Hoch, Cattell, and Pennes, the authors of this paper also found that this drug greatly facilitates study of personality structures under drug stress. Further, analysis of the data provides an opportunity to observe the defensive maneuvers undertaken by the various individuals in their efforts to cope with the disequilibrium brought about by the drug.

E. SUMMARY AND CONCLUSIONS

1. Using a battery of psychological techniques as the experimental tool, 21 subjects, whose median *IQ* was 122 and who were found to be non-psychotic clinically and on their *Pre* tests, were re-examined after a minimum interval of 2½ weeks. The subjects were tested ½ hour after taking LSD-25 orally.

2. A statistical comparison of the quantitative results of the *Pre* and *During* Rorschach tests was made and the following variables were found significant at the .05 level or less; an increase in M; an increase in M and decrease in FM in the M:FM ratio; increase in Dd; increase in H; increase in R8-10%; and a decrease in W and increase in M in the W:M ratio. The following were significant at the .10 level or less: decrease in W; increase in S; and a decrease in A + Ad%.

3. A more thorough comparative analysis of the entire batteries of 15 subjects was made and the *Pre* and *During* reports on each individual were written. The nature, degree, and direction of a subject's reactions under the drug appeared to be essentially determined by the individual's personality structure, although general consistency in many areas was observed.

4. A consistent finding throughout was that the stressful situation brought about by the drug, produced a disruption of the usual defensive system. This disruption was manifested in the following ways: (a) increased fantasy activity together with an emergence of autistic ideation; (b) tendency to interpret the symbolic significance of their mental products; (c) strengthening of their conscious and volitional controls to enable them to be more intellectually watchful of both outer and inner stimuli; (d) regression to genetically earlier modes of defense; (e) heightened egocentric orientation and self-preoccupation; (f) mounting of anxiety, tension, and apprehension which were primarily experienced in unstructured situations; (g) loosening of affect which together with a withdrawal bent and a heightened state of inner turmoil produced fears of losing contact with reality resulting in strained efforts at establishing interpersonal relations; (h) wider emotional range seen in a marked increase in both depressive and euphoric reactions with more individuals showing the depressive component; (i) disturbance in perception reflected in alternating periods of relative clarity and states of dimmed consciousness together with many instances of hallucinations; (j) heightening of paranoid behavior; and (k) strong sexual stimulation in several subjects.

5. Five subjects showed a reaction which closely resembled paranoid schizophrenia. Nine subjects showed a less striking schizophrenic-like involvement, while one showed a marked psychic improvement.

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