LSD and Creativity

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The effects of lysergic acid diethylamide (LSD) on creativity were examined in a unique experiment in the late 1950's. In this project, artists were asked to draw and paint a Kachina doll both prior to and one hour after the ingestion of LSD. Evaluations of these artistic productions were analyzed by a professor of art history in order to investigate the impact of LSD on artistic creativity. Certain representative changes were found in the artists' predominant style. The most significant change was noted in those artists whose styles were intrinsically representational or abstract to more expressionistic or nonobjective. Other changes noted included the following: relative size expansion; involution; movement; alteration of figure/ground and boundaries; greater intensity of color and light; oversimplification; symbolic and abstract depiction of objects; and fragmentation, disorganization, and distortion. Many artists judged their LSD productions to be more interesting and aesthetically superior to their usual mode of expression. The above-mentioned changes contributed to the artists' convictions that they were fashioning new meanings to an emergent world.

The eminent novelist Aldous Huxley has written that the twentieth century may well be remembered for the impact of hallucinogens on society. One of the issues debated regarding the use of these drugs, particularly lysergic acid diethylamide (LSD), is that they may heighten creative capacity in the individual. There is a large and often-cited literature of self-reports by such drug users concerning their perceived enhanced creativeness. In addition, there are a number of anthropological accounts that relate the use of mind-altering ethnobotanical substances to artistic inspiration and productivity. Objective analysis of these data is difficult, although there is certainly a need for their systematic examination and evaluation.

Capturing the elusive elements of a creative act is like trying to weigh a pound of leaping mice. Janiger and his colleagues were fortunate to have been present when several mice seemed to hit the scale at the same time. This opportunity came during the course of a large clinical project that was begun by Janiger in the spring of 1955, with the cooperation of the Sandoz Pharmaceutical Corporation.

Many papers had been published prior to that time regarding the unique properties of LSD. The several clinical reports were almost all of psychiatrically ill subjects in hospital settings, and little was known about the effects of LSD on normal subjects in a controlled nonmedical environment. Janiger designed a series of experiments to study the behavioral and psychological effects of LSD in a varied population of human subjects in a natural setting. This was done at a time when the investigational use of the drug was legally permissible, its clinical testing selectively encouraged among researchers, and no public knowledge of LSD was generally available. By the close of the project, more than 2,000 administrations of the drug had been given to 848 people who reported their experiences.

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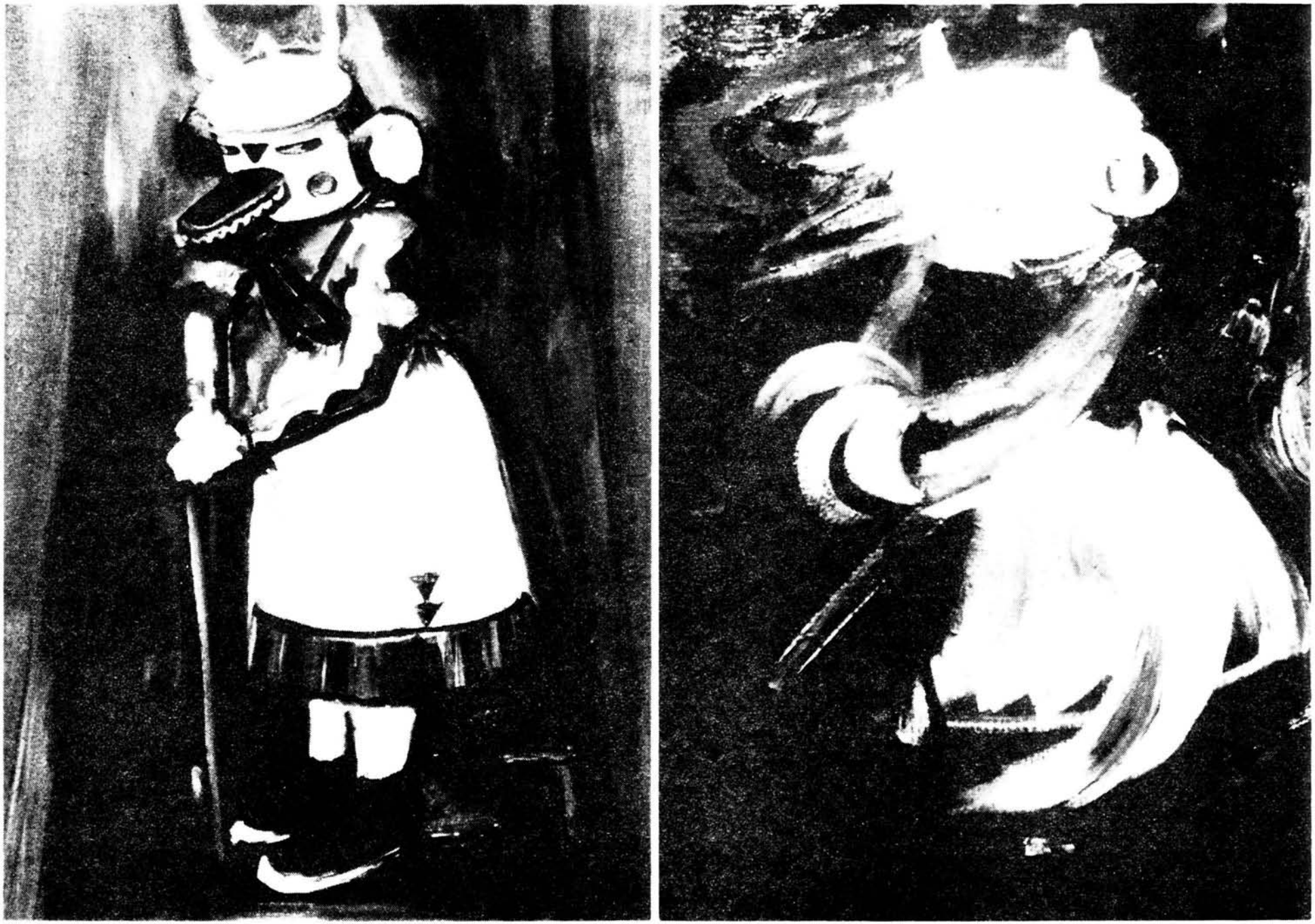
PLATE 1

DEER KACHINA BEFORE AND AFTER LSD INGESTION



Candidates were selected from a large number of applicants on the basis of health and demographic factors, such as ethnicity, religion, age, sex, marital status, occupation and education. Two settings were provided: One was a comfortable living room and the other was an artist's studio, with facilities for painting, drawing, and sculpting. An adjoining garden was also accessible. The subjects were given LSD (2.5 µg/kg of body weight) and were unobtrusively monitored during the period of heightened drug activity. They were encouraged to provide a written account of their experiences as soon as they were able. In addition, one-month and one-year follow-up questionnaires were submitted by 70 percent of the participants.

The art subproject began serendipitously when one of the early subjects, a practicing professional artist, insisted on having some object to draw. A decorative and colorful Deer Kachina (see front cover) taken from the mantel of Janiger's office proved to be a fortuitous choice. The artist drew furiously and later exclaimed, "This is four years of art school!" He felt that it would be most insightful for other artists to experience this process of perceptual change. It was decided to pursue this concept, and a separate art project was formed. By the close of the study, almost seventy practicing professional artists had participated under controlled conditions.

This preliminary article will examine the corpus of artwork produced by these artists who drew and painted the Kachina doll both prior to and one hour after ingestion of a prescribed dose of LSD (see Plate 1). Additional data were obtained on several occasions from artists who chose to draw self-portraits or their internalized imagery. Whether these transformations represent enhancement or deterioration of the artistic product is a question to which this study of LSD-created art may provide a tentative answer. Aside from occasional presentations at professional meetings and some partial exhibitions of the artwork, this research material has not been previously published.

LITERATURE REVIEW

The research literature on LSD and creativity is scant. The little information that is available is either inconclusive or the measurements used lacked sensitivity to the issue. Six studies were undertaken to examine the subject of hallucinogenic drugs and creative performance. Most were pilot studies rather than full-scale investigations. Berlin and colleagues (1955) investigated the effects of mescaline (400-700 mg) and LSD (50 µg) on four graphic artists of national prominence. They found impairment of finger-tapping efficiency and muscular steadiness; however, all were able to complete paintings. A panel of art critics judged the paintings as having "greater aesthetic value" than the artists' usual works, with the lines bolder and the use of color more vivid. However, technical execution in the material was somewhat impaired.

In another study, Barron (1963: 284) administered psilocybin to a number of highly creative individuals and recorded their impressions. He concluded that "psilocybin dissolves many definitions and melts away boundaries, permitting greater intensities or more extreme values of experience to occur in many dimensions."

In 1967, McGlothlin, Cohen and McGlothlin studied seventy-two graduate students, each of whom volunteered to receive 200 µg of LSD. A number of creativity tests were given before the session and one week later. The main finding was that 62 percent of the subjects asserted that they had a greater appreciation of music. They purchased more record albums, visited art museums, and attended musical events more frequently in the postdrug period. The authors concluded that the increase in aesthetic appreciation was not accompanied by an increase in sensitivity and performance.

Zegans, Pollard and Brown (1967) investigated the effects of LSD (0.5 µg/kg on creativity test scores of thirty volunteer graduate students. The indices of creativity showed that the administration of LSD to a random sample, for the purpose of enhancing creativity, is not likely to be successful.

The fifth study, which was conducted by Fadiman and colleagues (1966), examined the effects of mescaline (200 mg) as a facilitating agent in the creative process. Subjective reports culled from the participants' responses yielded the following: the increased capacity to restructure a problem in a larger context, an enhanced fluency of ideas, a heightened capacity for visual imagery, an increased ability to concentrate, a greater accessibility of unconscious material, and an ability to associate dissimilar ideas and to visualize the completed solution. About half the subjects reported that they had accomplished a great deal more during the session than they usually did. Twenty percent were not able to concentrate on their project because they were diverted by the hallucinogenic effects, and 30 percent fell in between the two groups.

As Krippner (1969) has pointed out, two of the five studies that were cited above indicate that experimental LSD use in unselected graduate students does not seem to increase their creative ability. However, in the three remaining studies utilizing hallucinogenic drugs, an enhancement of creative ability among artistic individuals was demonstrated. In 1967, Krippner surveyed ninety-one artists reputed to have had one or more LSD-like experiences. He defined the psychedelic artist as one whose work was produced during an LSD experience or as the result of the influence of a psychedelic experience. Ninety-seven percent of Krippner's respondents stated that their art was influenced in three general areas: content, technique, and approach. Seventy percent stated that their experiences affected the content of their work, particularly the heightening of eidetic imagery. Forty-four percent noted improvement

in their techniques; the use of color was the most cited example. As for the creative approach, 52 percent of the artists stated that the experience eliminated superficiality from their work and gave them greater depth as people and as creators.

Cohen (1964) wrote that whether LSD does or does not increase creativity remains an open question. Certainly, no systematic research to date has been available to help in finding an answer. All that can be definitively said about the effect of hallucinogens on the creative process is that a strong subjective feeling of creativeness accompanies many of the experiences.

ANALYSIS OF THE ARTWORK

During the seven years of the experiment, 250 drawings and paintings were produced. These were examined by Carl Hertel, professor of art history at Pitzer College, Claremont, California, who undertook a stylistic assessment of the artwork. An inherent difficulty of this formal analysis was the wide range of individual stylistic tendencies characteristic of the works of contemporary Western artists. Hertel has stated that "it is probably simpler to formally analyze the work of any tribal group where definite traditional stylistic conventions are operative than our task here. A heterogeneous group of non-traditional artists in this study reflects the numerous conventions that characterize post-Renaissance art in the West."

When the results are examined in light of the many stylistic tendencies in twentieth-century paintings—such as expressionistic, abstract-expressionistic, and nonobjective works of art—at a glance, it is difficult to separate the drug-influenced works from the historic examples. There is a striking homogeneity of stylistic effect. One is also tempted to compare certain of the drug-influenced drawings with examples of Ch'an (Zen) Buddhist works by traditional Chinese and Japanese artists and to observe equally striking stylistic similarities.

There may be some bias in the individual attitudes related to the drug-taking experience. Some of the artists were content with quick sketches of the subject matter presented, while others were motivated to execute rather finished drawings and paintings. A more ideal research design, which was not available to the study, would have been to conduct longitudinal studies of individual artists before and after the experimental period. Some of the most significant data and impressions received in dealing with these particular paintings and drawings will now be reviewed.

A Deer Kachina series, consisting of fifty-six items of before-and-after samples of twenty artists, was selected for detailed analysis. Twenty-five items by eight artists were labeled *series* and represented *free* paintings and drawings during the experimental period. They comprised a wide variety of subject matter, including self-portrait series, random drawings, and paintings. Of the eighty-one items, seventy-three were paintings done in various media and eight were drawings.

RESULTS

This section summarizes the results of the formal analysis of the Deer Kachina series, which were classified under the following eight categories:

1. Dominant style—whether the work was predominantly abstract, representational or of another genre.
2. Compositional characteristics—whether the composition was architectonic, a vignette or of another style.
3. Linear characteristics—whether the quality of line was nervous, angular, curvilinear or another form.
4. Stroke characteristics—whether the predominant stroking was short and broad, broken, flat field or another technique.
5. Textural characteristics—whether the predominant textural quality was a heavy impasto (actual), illusionistic or another format.
6. Color characteristics—whether color was noticeably local, arbitrary, brilliant, muted or otherwise portrayed.
7. Value characteristics—whether the use of lights and darks was strong in contrasts, close value or another blend.
8. Dimensional characteristics—whether the nature of the drawing and/or painting was suggestive of volume and mass, flat, two dimensional or otherwise presented.

The most predominant changes were in the following categories: dominant style (1); color (6); line (3); and texture (5), in that order. Focusing on the representative changes in the dominant style category (1), three general stylistic tendencies in the pre-LSD state were represented in the Deer Kachina series. First, ten of the artists were classifiable as predominantly representational in their approach to the subject matter (i.e., their primary motive lay in representing the object as it presents itself to the eye). Of course, there was a great deal of individual variation within this style category, as well as within the other two.

Four of these ten changed their style under the influence of the drug to a noticeably expressionist one (i.e., their primary motive lay in alterations of form, color, line, and medium). Within this group, the major tendency was to radically distort stroke, and therefore medium and form. Image was retained in varying degrees. Three changed their style to a nonobjective one (i.e., image was lost and was replaced by an interest in color and personal symbolism). One artist changed to a predominantly abstract style (i.e., the primary motive lay in the reduction of forms or simplification of forms and formal elements generally). In this case, the focus was shifted to a single part of the Deer Kachina. It

might be noted that reduction is a characteristic of this Kachina's style, but the reduction utilized by the artist and those in the category below exceeded what might be considered to be within the realm of naturalistic representation.

Second, six of the artists were classifiable as predominantly abstract in their approach to subject matter. Of these six, three changed their style to a nonobjective one; two changed their style to being notably expressionist and engaged in radical distortions of composition and color; and one retained an essentially abstract style.

Third, two artists were classifiable as distinctly expressionistic in their approach to subject matter. In both cases, the predominant stylistic tendency was retained. However, changes in articulation of various formal elements, particularly line, were observable.

In summary, eight of the changes were to an essentially expressionistic style. Six were to a nonobjective one, which in many cases entailed expressionistic distortions of medium and color. In fact, one can state that fourteen of the changes were to a style in which the primary motive was alteration of the representational image. Two of the changes were to a predominantly abstract style. Two other changes were ambiguous and unclassifiable. The changes generally manifested were as follows: There was a movement toward alteration and fragmentation; the *enlargement* of the composition through focusing on parts rather than the whole, and with filling up the page; intensification of color; the *loosening up* of the line to either a chiefly curvilinear (flowing) or sharply angular motive; and a general intensification of the textural properties of the medium used.

These results are not surprising. One could suggest tentatively that although the work done under the influence of LSD was more interesting on a sensational level, it was not immediately clear that the individual artist—in the majority of cases—was able to produce aesthetically superior work during the period when the drug was operable. To be more specific, in a majority of cases a residual imprint of the artist's aesthetic preferences was retained. This was especially evident in choice of color and in technical facility. In those cases where technical proficiency appeared deficient in the pre-LSD state, a certain increase in articulateness (confidence) was noted due to the freedom apparently provided by the drug experience.

PERCEPTUAL CHANGES

The most commonly reported phenomena resulting from an LSD experience and having particular relevance to this question of creativity were greater freedom from prescribed mental sets and syntactical organization, an unusual wealth of associations and images, synesthesia, the sharpening of color perception, remarkable attention to detail, the accessibility of past impressions, memories, heightened emotional excitement, a sense of direct and intrinsic awareness, and the propensity for the environment to compose itself into perfect tableaux and harmonious compositions.

The data from this study and others by Janiger (1959a, 1959b) seem to support the thesis that the evidence from LSD-induced artwork reveals perceptual changes indicative of those generally found under the influence of hallucinogenic drugs. The powerful global statement of the artists' work bears witness to these perceptual transformations. They can be examined at will and serve as a prototype of the visual record of consciousness changes accompanying the creative process.

As evidenced by this study, the alterations in perception can be categorized as follows:

1. Relative size, expansion—the figure tends to fill all available space and shows difficulty being contained within its borders.
2. Involution—objects shrink down or fill less space; they become more compact or are imbedded in a matrix.
3. Alteration of figure/ground—or to a circular viewpoint.
4. Alteration of boundaries—figure and ground may be considered a continuum. The object tends to merge with the surroundings, with observer and observed not rigorously delineated, with less differential between the object and the subject.
5. Movement—the object or environment is in continuous movement, with greater vibrancy and emotion.
6. Greater intensity of color and light.
7. Oversimplification—elimination of detail and extraneous elements.
8. Objects may be depicted symbolically—or as essences.
9. Objects are depicted as abstractions.
10. Fragmentation and disorganization.
11. Distortion.

CONCLUSION

Contrary to popular belief, most artists find it possible to exercise some technical proficiency, with varying degrees of success, under the influence of LSD. This seems to improve with repeated experiences. The artistic productions are not ipso facto inferior to those performed in ordinary states of consciousness. However, in evaluating the reports and follow-up questionnaires, they are often judged by the artists to be more interesting or even aesthetically superior to their usual mode of expression. A review of the follow-up information shows that, in many instances, the artists in the series described herein felt that the LSD experience produced some desirable lasting change in their understanding of their work, which continued to influence the form and direction of their artistic development. A so-called confu-

sional or disorganized phase may represent a creative crisis in which the artist struggling, to maintain his/her traditional approach, finally reaches another level of integration and expression.

These metamorphoses all contribute to the artists' convictions that they are able to create new meanings in an emergent world. It is of special interest to note that many of those elements that are universally reported under the influence of LSD are those features traditionally associated with heightened artistic creativity. The ultimate explanation for these changes may lie in a biochemical basis of perception and/or the cultural history of the individual.

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