

Mescaline, LSD, Psilocybin, and Personality Change

A Review†

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... our normal waking consciousness ... is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different. ... No account of the universe in its totality can be final which leaves these ... disregarded. How to regard them is the question—for they are so discontinuous with ordinary consciousness.—WILLIAM JAMES.¹

IN RECENT YEARS, how to regard the “forms of consciousness entirely different” induced by mescaline, LSD-25, and psilocybin has posed a seemingly perplexing issue. For articulate self-experimenters from Mitchell to Huxley, mescaline has provided many-splendored visual experiences, or a life-enlarging sojourn in “the Antipodes of the mind.”² For Stockings, it may be recalled, mescaline produced controlled schizophrenia³—a thesis which earned the Bronze Medal of the Royal Medico-Psychological Association and apparently inaugurated, in conjunction with the advent of LSD-25, a period of concerted chemical activity in the exploration and experimental induction of “model psychoses.”⁴ In counterpoint, this same so-called “psychotomimetic” LSD has increasingly found use as a purposeful intervention or “adjuvant” in psychotherapy.⁵ The recently arrived “magic mushroom,” psilocybin, has been similarly equivocal—“psychotogenic” for some, “mysticomimetic” for others.⁶ The present paper will review the literature on drug experience—paying particular attention to the effects of *extradrug* variables, for the realization of the extent of their potential influence has only recently crystallized, and promises to reduce some of the abundant disorder in this area.

The phenomenon of drug-associated rapid personality or behavior change will be discussed in some detail. For example, a number of different alcoholic treatment facilities, especially in Canada, have reported, for many of their patients, com-

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¹*The Varieties of Religious Experience*; New York, Modern Library, 1902; pp. 378-379.

²S. Weir Mitchell, “The Effects of Anhelonium Lewinii (the Mescal Button),” *Brit. Med. J.* (1896) 2:1625-1629. Aldous Huxley, “Mescaline and the Other World,” pp. 46-50, in *Proceedings of the Round Table on Lysergic Acid Diethylamide and Mescaline in Experimental Psychiatry*, edited by Louis Cholden; New York, Grune & Stratton, 1956; see p. 47.

³G. Tayleur Stockings, “Clinical Study of the Mescaline Psychosis with Special Reference to the Mechanisms of the Genesis of Schizophrenia and Other Psychotic States,” *J. Mental Science* (1940) 86:29-47.

⁴For example, see Max Rinkel, Editor, *Chemical Concepts of Psychosis*; New York, McDowell, Obolensky, 1958.

⁵For example, see Harold A. Abramson, Editor, *The Use of LSD in Psychotherapy: Transactions of a Conference*; New York, Josiah Macy, Jr. Foundation Publications, 1960.

⁶Max Rinkel, C. W. Atwell, Alberto DiMascio, and J. R. Brown, “Experimental Psychiatry, V: Psilocybin, a New Psychotogenic Drug,” *New England J. Med.* (1960) 262: 295-299. Stephen Szara, “Psychotomimetic or Mysticomimetic?,” paper presented at NIMH, Bethesda, Md., Nov. 14, 1961.

plete abstinence after a single LSD session.⁷ More generally, neurotic ailments over the full range have been described as practically evaporating.⁸ Given this picture, and the present state and practice of the therapeutic art, it is not surprising to find at least one psychiatrist envisioning "... mass therapy: institutions in which every patient with a neurosis could get LSD treatment and work out his problems largely by himself."⁹ James would have been much attracted by the "spectacular and almost unbelievable results"¹⁰ reported on the modern drug scene; and, in fact, their resemblance to the "instantaneous transformations" attendant on "mystical" religious conversions—which he discussed so eloquently—may well be more than superficial and seems worthy of attention.

THE EQUIVALENT ACTION OF Mescaline, LSD-25, AND Psilocybin

Since the evidence and testimony accumulated over the years on the separate drugs will be treated interchangeably, this raises a preliminary point of some importance. Although the conclusion was delayed by both dissimilarities in their chemical structure and differing modes of introduction to the scientific community, it is now rather commonly adjudged that the subjective effects of mescaline, LSD-25, and psilocybin are similar, equivalent, or indistinguishable. Both Isbell and Abramson have admin-

istered LSD and psilocybin in the same study; Wolbach and his co-workers have administered all three. All have found that their subjects were unable to distinguish between the drugs.¹¹

The reported equivalence in subjective reactions seems quite consistent—or at least not inconsistent—with present pharmacodynamic knowledge. Studies of radioactively tagged mescaline and LSD indicate that the compounds largely disappear from the brain in relatively short order—in fact, at about the same time that the first "mental phenomena" make their appearance.¹² Hence, it has been tentatively suggested that the characteristic effects, which persist for a relatively long period, are to be attributed not to the action of the drug itself but to some as yet unidentified aspect of the chain of events triggered by drug administration. Isbell, observing the "remarkably similar" reactions to LSD and psilocybin, hypothesized "some common biochemical or physiological mechanism" to be responsible for the effects—that is, that the various compounds share a final common path.¹³ The most direct support for this inference of biological identity in ultimate mechanism of action has come from cross-tolerance studies wherein subjects rendered tolerant to one drug—that is, non-reactive after repeated administrations—have then been challenged by a different drug. Present indications are that cross-tolerance among the drugs does in fact develop.¹⁴

⁷ For examples, see: Nicholas Chwelos, Duncan Blewett, Colin Smith, and Abram Hoffer, "Use of LSD-25 in the Treatment of Alcoholism," *Quart. J. Studies on Alcohol* (1959) 20: 577-590. J. Ross MacLean, D. C. MacDonald, Ultan P. Byrne, and A. M. Hubbard, "The Use of LSD-25 in the Treatment of Alcoholism and Other Psychiatric Problems," *Quart. J. Studies on Alcohol* (1961) 22:34-45. P. O. O'Reilly and Genevieve Reich, "Lysergic Acid and the Alcoholic," *Diseases Nervous System* (1962) 23:331-334.

⁸ For examples, see: Charles Savage, James Terrell, and Donald D. Jackson, "LSD, Transcendence, and the New Beginning," *J. Nervous and Mental Disease* (1962) 135:425-439. John N. Sherwood, Myron J. Stolaroff, and Willis W. Harman, "The Psychedelic Experience—A New Concept in Psychotherapy," *J. Neuropsychiatry* (1962) 3:370-375.

⁹ C. H. Van Rijn, "Introductory Remarks: Participants," in footnote 5, p. 14.

¹⁰ Gustav R. Schmiede, "The Current Status of LSD as a Therapeutic Tool—A Summary of the Clinical Literature," paper presented to the Amer. Psychiatric Assn., Toronto, Canada, May 8, 1962 (in press, *New Jersey Med. Soc. J.*, 1963).

¹¹ Harris Isbell, "Comparison of the Reactions Induced by Psilocybin and LSD-25 in Man," *Psychopharmacologia* (1959) 1:29-38. Harold A. Abramson, "Lysergic Acid Diethylamide (LSD-25): XXX, The Questionnaire Technique with Notes on Its Use," *J. Psychology* (1960) 49:57-65. A. B. Wolbach, E. J. Miner, and Harris Isbell, "Comparison of Psilocin with Psilocybin, Mescaline and LSD-25," *Psychopharmacologia* (1962) 3:219-223.

¹² For examples, see: Max Rinkel, "Pharmacodynamics of LSD and Mescaline," *J. Nervous and Mental Disease* (1957) 125:424-426. T. J. Haley and J. Rutschmann, "Brain Concentrations of LSD-25 (Delysid) after Intracerebral or Intravenous Administration in Conscious Animals," *Experientia* (1957) 13:199-200.

¹³ See Isbell, in footnote 11; p. 37.

¹⁴ For examples, see: Antonio Balestrieri and Diego Fontanari, "Acquired and Crossed Tolerance to Mescaline, LSD-25, and BOL-148," *Arch. General Psychiatry* (1959) 1:279-282. Harris Isbell, A. B. Wolbach, Abraham Wikler, and E. J. Miner, "Cross-Tolerance Between LSD and Psilocybin," *Psychopharmacologia* (1961) 2:147-151.

This is not intended to suggest that a drug experience is invariable among subjects—quite the contrary has been the case. In fact, experiences even for the same subject differ from one session to the next.¹⁵ But when relevant extradrug variables are controlled, the within-drug variance is apparently coextensive with between-drug variance, and is attributable to ubiquitous personality differences; in other words, while a range of reactions is reported to *all* of the drugs, there is no reaction distinctively associated with any particular drug. Extradrug variables, which have been uncontrolled and largely unrecognized until recently, are apparently responsible for much of the variance erroneously attributed to specific drug action.

INVARIANT DRUG REACTIONS

By common consent, the drug experience is paranormal—that is, beyond or outside the range of the normal, the everyday. Exclamations of “indescribable” recurrently appear in the literature. However, whenever descriptions are essayed, there is relative unanimity about certain features. These, it may be said, are attributable to the drug administration, per se, independent of the personality of the subject, the setting, or the experimenter's or subject's expectations. A sampling from the literature of subjective reports and testimony may communicate, or at least transmit the flavor of, these invariant reactions.

First, and perhaps most easily conveyed, is the characteristic of the drug experience called by Ellis a “saturnalia” or “orgy” of vision.¹⁶ Subsequent authors have been only slightly more restrained:

The predominance of visual experiences in the picture is striking—not only on account of the persistent hallucinations and illusions, but by the impressiveness of seen real objects, their shape and color. . . .¹⁷

¹⁵ T. W. Richards and Ian P. Stephenson, “Consistency in the Psychologic Reaction to Mescaline,” *Southern Med. J.* (1961) 54:1319-1320.

¹⁶ Havelock Ellis, “Mescal, a New Artificial Paradise,” pp. 537-548, in *Annual Report, Smithsonian Institution*, 1897; p. 547.

¹⁷ W. Mayer-Gross, “Experimental Psychoses and Other Mental Abnormalities Produced by Drugs,” *Brit. Med. J.* (1951) 57:317-321; p. 318.

There is a great intensification of light; this intensification is experienced both when the eyes are closed and when they are open. . . . With this intensification of light there goes a tremendous intensification of color, and this holds good of the outer world as well as of the inner world.¹⁸

When I closed my eyes . . . I experienced fantastic images of an extraordinary plasticity. These were associated with an intense kaleidoscopic play of colors.¹⁹

Changes in the perception of visual form occur in virtually everyone. . . . Consistently reported [are] the plasticity which the forms of the visual world assume . . . the emphasis upon play of light and color, as though light were alive.²⁰

A second invariant set of drug reactions, more difficult to characterize or communicate, has been called, variously, depersonalization, dissociation, levitation, derealization, abnormal detachment, body image distortion or alteration, and the like:

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.²¹

My ideas of space were strange beyond description. I could see myself from head to foot as well as the sofa on which I was lying. About me was nothingness, absolutely empty space. I was floating on a solitary island in the ether. No part of my body was subject to the laws of gravitation.²²

What happens in the LSD experience? . . . the universe is overtly structured in terms of an identification between the perceiver and the thing perceived. You hear the music way off down in a cavern, and suddenly it is you who is way down in the cavern. Are you now the music, or is the music now at the mouth of the cavern? Did you change places with it? And so on? ²³

¹⁸ See Huxley, in footnote 2; pp. 47-48.

¹⁹ From Albert Hofmann's laboratory report, translated and quoted in H. Jackson DeShon, Max Rinkel, and Harry C. Solomon, “Mental Changes Experimentally Produced by LSD,” *Psychiatric Quart.* (1952) 26:33-53; p. 34.

²⁰ Frank Barron, “Unusual Realization and the Resolution of Paradox When Certain Structural Aspects of Consciousness Are Altered,” paper read at the Amer. Psychological Assn., New York, September, 1961.

²¹ E. Guttman and W. S. Maclay, “Mescaline and Depersonalization: Therapeutic Experiments,” *J. Neurol. Psychopath.* (1936) 16:193-212; p. 194.

²² Translated from a subject's account in K. Beringer, *Der Meskalinrausch*; Berlin, Springer, 1927; and quoted in Robert S. DeRopp, *Drugs and the Mind*; New York, Grove, 1957; p. 51.

²³ Gregory Bateson, “Group Interchange,” in footnote 5; p. 188.

Some degree of depersonalization probably occurs during every LSD experience . . . the detachment of the conscious self, a sort of detached ego. This self is in touch with reality and is in touch with the self experiencing the psychic phenomena.²⁴

Regardless of whatever else a drug experience may be reported to include, alterations in visual experience and in experience of self, as detailed above, may be predicted with considerable confidence.²⁵

In connection with the so-called dissociation phenomenon—and in view of the connotations of the "psychotomimetic" and "intoxicant" labels—it may be well to emphasize that drug experiences, at least for most nonpsychotic subjects, do not seem to approximate delirium:

The mescal drinker remains calm and collected amid the sensory turmoil around him; his judgment is as clear as in the normal state. . . .²⁶

It is difficult to classify the state of consciousness during the intoxication which allows such self-observation and, at times, seems to foster detachment and self-scrutiny.²⁷

. . . in a state of clear consciousness [the subject] . . . is able to describe in detail the manifold mental changes during drug intoxication.²⁸

The nondelirious condition of normal volunteers, at least with low to moderate drug dosage, has been objectively attested by their ability to perform psychological tests. The most exhaustive series of investigations along this line has been carried out for LSD by Abramson and

his associates.²⁹ Generally, although not consistently, subjects show slight decrements in performance—at least some of which may well be attributable to an altered state of attention-motivation-affect. However, the test setting itself seems to contaminate the drug experience; Savage, among others, has noted "a less profound effect when subjects are kept busy doing psychological tests. . . ." ³⁰

Another and final set of seemingly invariant reactions concerns the retrospective impressiveness of the drug experience. The succession of testimonials to this effect is a striking and salient feature of the history of research with these compounds:

In some individuals, the "ivresse divine" is rather an "ivresse diabolique." But in either case . . . one looks "beyond the horizon" of the normal world and this "beyond" is often so impressive or even shocking that its after-effects linger for years in one's memory.³¹

The experience of the intoxication, as Beringer also observed, makes a particularly deep impression. . . . 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 *Existenz-erhellung* (illumination of existence).³²

. . . most subjects find the experience valuable, some find it frightening, and many say that it is uniquely lovely. . . . For myself, my experiences with these substances have been the most strange, most awesome, and among the most beautiful things in a varied and fortunate life.³³

To be shaken out of the ruts of ordinary perception . . . this is an experience of inestimable value to everyone and especially to the intellectual. . . . the man who comes back through the Door in the Wall will never be quite the same as the man who went out.³⁴

²⁴ Ronald A. Sandison, A. M. Spencer, and J. D. A. Whitelaw, "The Therapeutic Value of Lysergic Acid Diethylamide in Mental Illness," *J. Mental Science* (1954) 100:491-507; p. 498.

²⁵ Electrophysiological investigations have shown definite alterations in firing at a number of points in the visual system (also in auditory evoked potentials) and in the functioning of cortico-cortical (transcallosal) connections. However, in concluding an extensive review of electrophysiological results, Evarts warned: ". . . it does not appear that we have reached the point of being able to assign any particular psychological effect . . . to a demonstrated disturbance of the electrical activity of the nervous system." See Edward V. Evarts, "A Review of the Neurophysiological Effects of LSD and Other Psychotomimetic Agents," *Annals N. Y. Acad. Science* (1957) 66:479-495; p. 489. Speculation on this issue may best be tempered by consulting Evarts' most thoughtful summation and evaluation.

²⁶ See footnote 16; p. 547.

²⁷ See footnote 17; p. 319.

²⁸ Paul H. Hoch, "Experimental Psychiatry," *Amer. J. Psychiatry* (1955) 111:787-790; p. 787.

²⁹ For example, see A. Levine, Harold A. Abramson, M. R. Kaufman, and S. Markham, "Lysergic Acid Diethylamide (LSD-25): XVI. The Effect of Intellectual Functioning as Measured by the Wechsler-Bellevue Intelligence Scale," *J. Psychology* (1955) 40:385-395.

³⁰ Charles Savage, "The Resolution and Subsequent Remobilization of Resistance by LSD in Psychotherapy," *J. Nervous and Mental Disease* (1957) 125:434-436; p. 436.

³¹ Heinrich Klüver, *Mescal: The Divine Plant and Its Psychological Effects*; London, Kegan Paul, 1928; pp. 105-106.

³² See footnote 21; p. 195.

³³ Humphry Osmond, "A Review of the Clinical Effects of Psychotomimetic Agents," *Annals N. Y. Acad. Science* (1957) 66:418-434; p. 419.

³⁴ Aldous Huxley, *The Doors of Perception*; New York, Harper, 1954; pp. 73, 79.

... the whole experience is (and is as) a profound piece of knowledge. It is an indelible experience; it is forever known. I have known myself in a way I doubt would have ever occurred except as it did.³⁵

THE "PSYCHOTOMIMETIC" LABEL

After the above renditions, a querulous reader may be concerned about the appellation "psychotomimetic drugs." So are many contemporary researchers and therapists, too numerous to mention. Holliday has provided a trenchant analysis of "how the semantics in the field of psychopharmacology became so confused and generally misleading";³⁶ here, only a few points will be noted.

Early mescaline investigators clearly tempered their comparisons between the mescal-induced state and the hallucinations and dissociations of endogenous psychosis. As far back as 1930, it was found that when chronic schizophrenics suffering from persistent hallucinations were given mescal, they distinguished the mescal phenomena, remarked on their appearance, and usually blamed them on the same persecutors who had molested them before.³⁷ Klüver, though he foresaw and extensively discussed the "model" values of mescal, persisted in calling it "the divine plant."³⁸ It was apparently difficult to consider a sacramental substance—"the comfort, healer, and guide of us poor Indians . . . the great teacher"³⁹—as unequivocally psychotomimetic.

With LSD, a laboratory-born drug having no history to contend with, the situation changed. The adventurous Hofmann, on that fateful day in 1943, started his self-experiment with 250 micrograms of LSD, thinking, as he put it, that such a small amount would prob-

ably be harmless. His response to this quite large dose—in terms of present-day experimental standards—was as follows:

I noted with dismay that my environment was undergoing progressive change. Everything seemed strange and I had the greatest difficulty in expressing myself. My visual fields wavered and everything appeared deformed as in a faulty mirror. I was overcome by a fear that I was going crazy, the worst part of it being that I was clearly aware of my condition. The mind and power of observation were apparently unimpaired.⁴⁰

Hofmann went on to list, as his most marked symptoms, visual disturbances, motor restlessness alternating with paralysis, and a suffocating sensation, and added: "Occasionally I felt as if I were outside my body. My 'ego' seemed suspended in space. . . ."⁴¹

Stoll, who in 1947 reported experimental confirmation of Hofmann's experience, is widely reputed to have warned informally of a case of suicide as the aftermath of an experimental trial. The most common accounts thereafter had a psychotic female subject committing suicide two weeks after the administration; or, in another version, a subject committing suicide after the drug had been administered without her knowledge. At any rate, this story, though itself never appearing in print, is referred to in one form or another in nearly all of the early work with LSD; it apparently influenced experimenter attitudes for a number of years.

For many and varied reasons, too involved to trace here, the initial formulation of the "model psychosis" properties of LSD engendered enormous investigative enthusiasm. In this climate, latent reservations on the score of psychotomimesis tended to go unvoiced. In the more recent, postenthusiasm era, how-

³⁵ Philip B. Smith, "A Sunday with Mescaline," *Bull. Menninger Clinic* (1959) 23:20-27; p. 27.

³⁶ Audrey R. Holliday, "The Hallucinogens: A Consideration of Semantics and Methodology with Particular Reference to Psychological Studies," pp. 301-318, in *A Pharmacologic Approach to the Study of the Mind*, edited by R. Featherstone and A. Simon; Springfield, Ill., Thomas, 1959; p. 301.

³⁷ See footnote 17, p. 320, for a review of the findings of K. Zucker, *Z. ges. Neurol. Psychiat.* (1930) 127:108.

³⁸ See footnote 31.

³⁹ James S. Slotkin, *Peyote Religion*; Glencoe, Ill., Free Press, 1956; pp. 76-77.

⁴⁰ Translated from Albert Hofmann's laboratory report, and quoted in "Discovery of D-lysergic Acid Diethylamide—LSD," *Sandoz Excerpta* (1955) 1:1-2; p. 1.

⁴¹ See footnote 40; p. 2. For the record, it may be noted not only that Hofmann recovered, and subsequently synthesized psilocybin, but that he has recently written of the use of "psychotomimetics" in psychotherapy: "... these substances are new drug aids which . . . enable the patient to attain self-awareness and gain insight into his disease." See Albert Hofmann, "Chemical, Pharmacological and Medical Aspects of Psychotomimetics," *J. Exper. Med. Science* (1961) 5:31-51; p. 48.

ever, reservations have been more or less vigorously expressed—for example:

There are considerable differences between LSD-induced and schizophrenic symptoms. The characteristic autism and dissociation of schizophrenia are absent with LSD. Perceptual disturbances due to LSD differ from those due to schizophrenia and, as a rule, are not true hallucinations. Finally, disturbances of consciousness following LSD do not resemble those occurring in schizophrenia.⁴²

Many alternatives to the "psychotomimetic" characterization of "hallucinogenic" agents have recently been proposed. In 1957, Osmond offered, among others, "psychelytic" (mind-releasing) and "psychedelic" (mind-manifesting).⁴³ Other investigators have proposed consciousness-expanding, transcendental, emotionalgenic, mysticomimetic, and so forth. It becomes ever more apparent, though, that old labels never die.⁴⁴

VARIABLE DRUG REACTIONS AND EXTRADRUG VARIABLES

It may probably be stated as a pharmacopoeial commonplace that the effects of a drug administration of any kind are likely to be compounded by factors other than specific pharmacologic action. Often this is attributed to "personality," to individual differences.⁴⁵ However, though there have been as yet very few controlled investigations in the case of the drugs considered here, it has become abundantly clear from the *systematic* variability reported in subject and patient reactions—in both the affective and

ideational dimensions of drug experience—that factors other than "personality" are also at issue.

Affective reactions attendant on a drug administration have varied, according to reports, all the way from hyperphoric ecstasy to unutterable terror—though *not* with all investigators. The opinion leader Hoch, through a decade of observations, consistently maintained:

LSD and mescaline disorganize the psychic integration of the individual. . . .⁴⁶

. . . mescaline and LSD are essentially anxiety-producing drugs. . . .⁴⁷

The following interchange was recorded at the 1959 conference on the use of LSD in psychotherapy held under the auspices of the Josiah Macy, Jr., Foundation:

Hoch: Actually, in my experience, no patient asks for it [LSD] again.

Katzenelbogen: I can say the same.

Denber: I have used mescaline in the office . . . and the experience was such that patients said, "Once is enough." The same thing happened in the hospital. I asked the patients there if, voluntarily, they would like to take this again. Over 200 times the answer has been "No."⁴⁸

Subsequently, Malitz also stated:

None of our normal volunteers wanted to take it [LSD] again.⁴⁹

In contrast, DeShon and his co-workers reported the results of the first LSD study done with normal subjects in this country as follows:

. . . anxiety was infrequent, transient, and never marked. . . . All subjects were willing to repeat the test.⁵⁰

The experience of other investigators has been similar:

During the past four years we have administered the drug [LSD] hundreds of times to nonpsychotics in doses up to 225 micrograms. . . . Those who have participated in these groups are nearly always definitely benefited by their experiences. Almost invariably they

⁴² Translated from B. Manzini and A. Saraval, "L'intossicazione Sperimentale da LSD ed i Suoi Rapporti con la Schizofrenia, *Riv. Sper. Freniat.* (1960) 84:589; and quoted in *Delysid (LSD-25), Annotated Bibliography, Addendum No. 3*, mimeographed, Sandoz Pharmaceuticals, 1961; p. 307.

⁴³ See footnote 33; p. 429.

⁴⁴ In taking issue with the "psychotomimetic" label, it had best be emphasized that the present intent is hardly to transmit a cavalier attitude toward drug administrations; these are obviously potent agents. On the other hand, they are also apparently "safe" when used with reasonable precaution. For a survey of the outcome of 25,000 administrations, see Sidney Cohen, "LSD: Side Effects and Complications," *J. Nervous and Mental Disease* (1960) 130:30-40.

⁴⁵ For example, see Joseph Zubin and Martin M. Katz, "Psychopharmacology and Personality," presented at the Colloquium on Personality Change, Univ. of Texas, Austin, Texas, March 9, 1962 (in press).

⁴⁶ See footnote 28; p. 788.

⁴⁷ Paul H. Hoch, "Remarks on LSD and Mescaline," *J. Nervous and Mental Disease* (1957) 125:442-444; p. 442.

⁴⁸ Paul H. Hoch, Solomon Katzenelbogen, and Herman C. B. Denber, "Group Interchange," in footnote 5; p. 58.

⁴⁹ Sidney Malitz, "Group Interchange," in footnote 5; p. 215.

⁵⁰ See footnote 19; p. 50.

wish to return and to participate in new experiments.⁵¹

... few patients discontinue treatment, in fact, enthusiasm and eagerness to continue are among the features of LSD patients.⁵²

The rapidly expanding use of LSD in psychotherapeutic contexts has provided highly revealing clues to the patterning of extradrug variability. Busch and Johnson were the first to report administering LSD to neurotic patients whose therapy had "stalled" and whose prognosis was "dim." The result was "a reliving of repressed traumatic episodes of childhood," with "profound" influence on the course of therapy.⁵³ Sandison and his colleagues also found that LSD "produces an upsurge of unconscious material into consciousness,"⁵⁴ and that "repressed memories are relived with remarkable clarity"⁵⁵—with therapeutically beneficial consequences.

Since these early reports, whenever psychoanalytically oriented therapists have employed LSD, practically without exception the patient relives childhood memories. The interesting point is that this phenomenon has practically *never* been noted in the experimental literature!

Jungian therapists, on the other hand, have repeatedly found that their patients have "transcendental" experiences—a state beyond conflict—often with rapid and dramatic therapeutic results. As a matter of fact, in an amusing and somewhat bemused account, Hartman has described his LSD-using group comprised of two Freudians and two Jungians, in which the patients of the former report childhood memories, while those of the latter have "transcendental" experiences. In addition, for Jungian patients, the

transcendental state is associated with "spectacular" therapeutic results, while for Freudians, should such a state "accidentally" occur, no such spectacular consequence is observed.⁵⁶

While not from a therapeutic setting, the reports which have emanated from Harvard are noteworthy on the score of ideational content. Under psilocybin, Harvard subjects do not relive their childhood experiences, but grapple with age-old paradoxes:

... the problem of the one and the many, unity and variety, determinism and freedom; mechanism and vitalism; good and evil; time and eternity; the plenum and the void; moral absolutism and moral relativism; monotheism and polytheism and atheism. These are the basic problems of human existence. ... We need not wonder that the Indians called the mushroom sacred and gave it a name which means "the flesh of the god."⁵⁷

Without multiplying or belaboring divergences further, it should be apparent that affective reactions and ideational content may be *systematically* variable dimensions of drug experience; in addition, the possible therapeutic uses or consequences, however these are conceived, seem clearly variable. Once these "facts" are arrayed, in Baconian fashion, they nearly speak for themselves. At the Josiah Macy conference, the emerging consensus was perhaps best expressed by Savage:

This meeting is most valuable because it allows us to see all at once results ranging from the nihilistic conclusions of some to the evangelical ones of others. Because the results are so much influenced by the personality, aims, and expectations of the therapist, and by the setting, only such a meeting as this could provide us with such a variety of personalities and settings. It seems clear, first of all, that where there is no therapeutic intent, there is no therapeutic result. ... I think we can also say that where the atmosphere is fear-ridden and skeptical, the results are generally not good. ... This is all of tremendous significance, for few drugs are so dependent on the milieu and require such careful attention to it as LSD does.⁵⁸

⁵¹ Harold A. Abramson, "Some Observations on Normal Volunteers and Patients," pp. 51-54, in *Proceedings of the Round Table on Lysergic Acid Diethylamide and Mescaline in Experimental Psychiatry*, in footnote 2; see pp. 52-53.

⁵² Ronald A. Sandison, "The Clinical Uses of LSD," pp. 27-34, in *Proceedings of the Round Table on Lysergic Acid Diethylamide and Mescaline in Experimental Psychiatry*, in footnote 2; see p. 33.

⁵³ Anthony K. Busch and Walter C. Johnson, "LSD-25 as an Aid in Psychotherapy (Preliminary Report of a New Drug)," *Diseases Nervous System* (1950) 11:241-243; pp. 242-243.

⁵⁴ Ronald A. Sandison, "Psychological Aspects of the LSD Treatment of the Neuroses," *J. Mental Science* (1954), 100:508-515; p. 514.

⁵⁵ See footnote 24; p. 507.

⁵⁶ Mortimer A. Hartman, "Group Interchange," in footnote 5; p. 115.

⁵⁷ See footnote 20.

⁵⁸ See Charles Savage, "Group Interchange," in footnote 5; pp. 193-194.

The same conclusion has come from experimental quarters as well—for example:

[The effect] of hallucinogens is not limited to any single agent since, in addition to psilocybin, we have seen it with LSD-25 and mescaline. The environmental setting in which the drug is administered . . . affects the emerging behavior pattern. This factor may account for variations in results with different investigators. Our hospital setting, with the subject, a paid volunteer, receiving an unknown agent, in an experimental framework surrounded by unfamiliar doctors and nurses, differs markedly from the mystical setting which Wasson observed. . . . Only one of our subjects reported what might be described as a transcendental experience. . . . The differences in expectation and setting between these two grossly divergent groups may account in part for the disparity in their responses.⁵⁹

More specifically, anxiety in the therapist or experimenter about administering the drug, about "inducing psychosis," seems likely to render the experience anxiety-ridden for the subject. Abramson has flatly declared: "The response of the subject . . . will depend markedly upon the attitude of the therapist. . . . In particular, if the therapist is not anxious about the use of the drug, anxiety in the patient will be much decreased."⁶⁰ Hyde has reported that "impersonal, hostile, and investigative attitudes" arouse hostile and paranoid responses.⁶¹ Sandison has observed that the occurrence of anxiety seems largely to depend on "what the patient is told beforehand [as well as] rumors and myths current among patients and staff, or even in the press, about hallucinogenic drugs."⁶² Huxley had

intimated this before it became clarified in the psychiatric literature:

. . . the reasonably healthy person knows in advance that, so far as he is concerned, mescaline is completely innocuous. . . . Fortified by this knowledge, he embarks upon the experience without fear—in other words, without any disposition to convert an unprecedentedly strange and other than human experience into something appalling, something actually diabolical.⁶³

That the positive or negative character of the experience can be systematically directed, overriding even personality factors, seems now to have been fairly conclusively demonstrated. With "adequate" preparation—that is, with the specific intent of rendering drug experiences "positive"—approximately 90 percent of the subjects or patients, in each of the two most recent studies, reported at least a "pleasant" or "rewarding" session, and nearly as many called it "an experience of great beauty" or something equally superlative.⁶⁴

In content, as in affect, subjects apparently respond to the implicit or explicit suggestion or expectation of the therapist or experimenter. The Harvard subjects were prepared for their metaphysical binges, it may be noted, with such assigned readings as the "Idols of the Cave" parable in Plato's *Republic* and passages from *The Tibetan Book of the Dead*. The preparation of psychotherapy patients hardly needs specification.

Finally, what may be said about therapeutic implications?—given the fact that the compounds under discussion may induce a powerful paranormal experience whose affective and ideational content can be guided. Only perhaps that the extent to which the experience can serve as a

⁵⁹ Sidney Malitz, Harold Esecover, Bernard Wilkens, and Paul H. Hoch, "Some Observations on Psilocybin, a New Hallucinogen, in Volunteer Subjects," *Comprehensive Psychiatry* (1960) 1:8-17; p. 15.

⁶⁰ See footnote 51; p. 52.

⁶¹ Robert W. Hyde, "Psychological and Social Determinants of Drug Action," pp. 297-312, in *The Dynamics of Psychiatric Drug Therapy*, edited by G. J. Sarwer-Foner; Springfield, Ill., Thomas, 1960.

⁶² Ronald A. Sandison, "Group Interchange," in footnote 5; p. 91. Any remaining skeptics on the score of expectation and attitude may want to take note of Cohen's caveat: "Invariably, those who take hallucinogenic agents to demonstrate that they have no value in psychiatric exploration have an unhappy time of it. In a small series of four psychoanalysts who took 100 gamma of LSD, all had dysphoric responses." See footnote 44; p. 32.

⁶³ See footnote 34; p. 14.

⁶⁴ Ralph Metzner, George Litwin, and Gunther Weil, "The Relation of Expectation and Setting to Experiences with Psilocybin: A Questionnaire Study," dittoed, Harvard Univ., 1963. Charles Savage, Willis Harman, James Fadiman, and Ethel Savage, "A Follow-up Note on the Psychedelic Experience," mimeographed, International Foundation for Advanced Study, 1963.

It may be noted that only slightly lower figures have been reported *without* explicit preparation of the subjects—though with an "atmosphere" that was enthusiastic and supportive. See Keith S. Dittman, Max Hyman, and John R. B. Whittlesey, "Nature and Frequency of Claims Following LSD," *J. Nervous and Mental Disease* (1962) 134:346-352.

useful adjunct to traditional interview therapies, or vice versa, or even as a "compleat therapie" would seem to depend on the particular practitioner of the art—his conceptions of therapeutic gains and consequences, his philosophy and enthusiasm, and his orientation toward "placebo" or "faith" cures.⁶⁵ Schmiede has summarized the current state of affairs as follows:

Those using LSD in multiple doses as an adjunct to psychotherapy feel that it is so useful because of its ability to do the following: (1) It helps the patient to remember and abreact both recent and childhood traumatic experiences. (2) It increases the transference reaction while enabling the patient to discuss it more easily. (3) It activates the patient's unconscious so as to bring forth fantasies and emotional phenomena which may be handled by the therapist as dreams. (4) It intensifies the patient's affectivity so that excessive intellectualization is less likely to occur. (5) It allows the patient to better see his customary defenses and sometimes allows him to alter them. Because of these effects, therapists feel that psychotherapy progresses at a faster rate. Of course this poses the age old problem of what is the essence of psychotherapy.

There are many reports of patients receiving meaningful insight about themselves in an LSD experience without the intervention, participation or even presence of a therapist. . . . Those who administer lysergic acid in a single dose have as their goal, in the words of Sherwood, *et al.*, an overwhelming reaction "in which an individual comes to experience himself in a totally new way and finds that the age old question 'Who am I?' does have a significant answer." Frequently, this is accompanied by a transcendental feeling of being united with the world. . . . Some spectacular, and almost unbelievable, results have been achieved by using one dose of the drug.⁶⁶

RAPID PERSONALITY CHANGE

An increasing number of subjects, patients, experimenters, and psychiatrists—spontaneously or with priming—have declared their drug experiences to be transcendental, mystical, cosmic, visionary, revelatory, and the like. There seems to be difficulty in finding the right

name for the experience, even among the professional so-called "mystics":

There is no really satisfactory name for this type of experience. To call it mystical is to confuse it with visions of another world, or of god and angels. To call it spiritual or metaphysical is to suggest that it is not also extremely concrete and physical, while the term "cosmic consciousness" itself has the unpoetic flavor of occultist jargon. But from all historical times and cultures we have reports of this same unmistakable sensation emerging, as a rule, quite suddenly and unexpectedly and from no clearly understood cause.⁶⁷

Whatever this type of experience is called, however, a growing body of "expert" testimony apparently confirms the possibility of its induction by drugs. Watts, the dean of current Western Zen scholars, has recently described "cosmic consciousness," courtesy of LSD, in exquisite detail.⁶⁸ Seminary students and professors in the Boston area are said to have definitely concluded that their contact with psilocybin was "mystico-religious" (as to whether or not it was "Christian," however, they are still in doubt).⁶⁹ Huxley has been most outspoken about the capacity of the drugs to induce "traditional" mystical-visionary states:

For an aspiring mystic to revert, in the present state of knowledge, to prolonged fasting and violent self-flagellation would be as senseless as it would be for an aspiring cook to behave like Charles Lamb's Chinaman, who burned down the house in order to roast a pig. Knowing as he does (or at least as he can know, if he so desires) what are the chemical conditions of transcendental experience, the aspiring mystic should turn for technical help to the specialists. . . .⁷⁰

Nearly invariably, whenever dramatic personality change has been noted following the use of these drugs, it has been associated with this kind of experience—that is, one called transcendental or visionary—with the particular name the

⁶⁵ For example, see Jerome D. Frank, *Persuasion and Healing: A Comparative Study of Psychotherapy*; Baltimore, Johns Hopkins Press, 1961. More specifically, see Colin M. Smith, "Some Reflections on the Possible Therapeutic Effects of the Hallucinogens," *Quart. J. Studies on Alcohol* (1959) 20:292-301.

⁶⁶ See footnote 10.

⁶⁷ Alan W. Watts, *This is IT*; New York, Pantheon, 1960; p. 17.

⁶⁸ Alan W. Watts, *The Joyous Cosmology*; New York, Pantheon, 1962.

⁶⁹ Timothy Leary, "The Influence of Psilocybin on Subjective Experience," paper presented at NIMH, Bethesda, Md., May 29, 1962.

⁷⁰ Aldous Huxley, *Heaven and Hell*; New York, Harper, 1956; p. 63.

experience is given seemingly most dependent upon whether the investigator focuses on affect or content. These experiments in drug-induced behavior change will shortly be reviewed in detail.

Examples not Associated with Drugs

Since accounts of behavior transformations attendant on paranormal experience are not without precedent, it may be helpful to set the stage for present developments by citing some examples not connected with drugs. James reported on the phenomenon in its most familiar and perhaps prototypic context:

In this lecture we have to finish the subject of conversion, considering it first through striking instantaneous instances of which St. Paul's is the most eminent, and in which, often amid tremendous emotional excitement or perturbation of the senses, a complete division is established in the twinkling of an eye between the old life and the new.

After adducing numerous examples, James continued:

I might multiply cases almost indefinitely, but these will suffice to show you how real, definite, and memorable an event a sudden conversion may be to him who has the experience. Throughout the height of it he undoubtedly seems to himself a passive spectator or undergoer of an astounding process performed upon him from above. There is too much evidence of this for any doubt of it to be possible. Theology, combining this fact with the doctrine of election and grace, has concluded that the spirit of God is with us at these dramatic moments in a peculiarly miraculous way, unlike what happens at any other juncture of our lives. At that moment, it believes, an absolutely new nature is breathed into us, and we become partakers of the very substance of the Deity.⁷¹

One may also recall to mind the "vision-seeking" American Indians whom Ruth Benedict immortalized. Adapting Nietzsche's designation "Dionysian" to characterize their cultural pattern, she portrayed its fundamental contrast with the "Apollonian" Zuñi-Pueblo way of life. The Dionysian "seeks to attain in his most valued moments escape from the boundaries imposed on him by his five senses, to break through into another

order of experience." He values "all means by which human beings may break through the usual sensory routine."⁷²

Widespread among the western Indians (except in the Pueblos) was what Benedict called the "Dionysian dogma and practice" of the vision-quest—sought by fasting, by torture, and by drugs. The point of interest, of course, is that when the vision came, it could apparently trigger large-scale behavior alterations which had the stamp and reinforcement of social approval.

... on the western plains men sought these visions with hideous tortures. They cut strips from the skin of their arms; they struck off fingers; they swung themselves from tall poles by straps inserted under the muscles of their shoulders. They went without food and water for extreme periods. They sought in every way to achieve an order of experience set apart from daily living.

On the western plains they believed that when the vision came, it determined their life and the success they might expect. If no vision came, they were doomed to failure. . . . If the experience was of curing, one had curing powers; if of warfare, one had warrior's powers. If one encountered Double Woman, one was a transvestite, and took woman's occupations and habits. If one was blessed by the mythical Water-Serpent, one had supernatural power for evil, and sacrificed the lives of one's wife and children in payment for becoming a sorcerer.⁷³

The final example which will be noted here of rapid personality change not induced by drugs has emerged quite recently from Maslow's studies of "self-actualization." Maslow reports that the occurrence of a dramatic "peak experience"—defined or alternatively described as a "cognition of being," or as "mystic" or "oceanic"—is a major event in the life histories of his "self-actualizing" subjects. Maslow avers "unanimous agreement" among his subjects as to the "therapeutic" after-effects of such peak experiences—for example, that they were so profound as to remove neurotic symptoms forever; or were followed by greater creativity, spontaneity, or expressiveness; or produced a more or less permanently

⁷¹ Ruth Benedict, *Patterns of Culture*; New York, New American Library, 1934; pp. 72-73.

⁷² See footnote 72; pp. 74-75.

⁷³ See footnote 1; pp. 213-222.

changed, more healthy world-view or view of self, and so on.⁷⁴

Drug-Associated Personality Change: A "New Concept" in Psychotherapy

It is an intriguing historical accident that, on the one hand, anthropological studies of the Native American Church (Peyotism) consistently record the peyote-associated reformation of alcoholic and generally reprobate characters,⁷⁵ and, on the other hand, LSD has been increasingly utilized in the treatment of the white man's "fire-water" ills. LSD was first systematically administered to non-Indian alcoholics in order to explore a putative similarity between the so-called model psychosis and delirium tremens. Two independent undertakings along this line, one in the U.S. and one in Canada, resulted in highly unexpected and sudden "cures."⁷⁶

Investigators in Saskatchewan pursued this serendipitous result aggressively. The outcome, with lately-evolved refinements in technique, has been an explicitly formulated "new concept" in psychotherapy.⁷⁷ The following narrative, pieced together from Hoffer's statements at the Macy LSD conference, describes the conditions under which the rapid change phenomenon seems first to have occurred in sizeable numbers:

... we have what we call the "businessman's special," for very busy people, the weekend treatment. . . . They come in because the police or Alcoholics Anonymous or others bring them in. They come in on day one. They know they are going to take a treatment, but they know nothing about what it is. We take a psychiatric history to establish a diagnosis. That is on day one. On day two, they have the LSD. On day three, they are discharged.

Our objective [in using 200-400 gamma

doses] is to give each patient a particular LSD experience.

The results are that 50 per cent of these people are changed [that is, they stop drinking or are much improved]. . . . As a general rule . . . those who have not had the transcendental experience are not changed; they continue to drink. However, the large proportion of those who have had it are changed.⁷⁸

The only other investigators to report a "weekend treatment" are Ball and Armstrong.⁷⁹ They describe a small series of "sex perverts," at least two of whom had had, over a number of years, "a variety of forms of psychotherapy, including psychoanalysis . . . [resulting in] no improvement whatever." The large-dose LSD experience, however, is said to have had "remarkable, long-lasting remedial effects."⁸⁰

MacLean and his co-workers in British Columbia, Canada, have reported on a series which included 61 alcoholics and 33 neurotics (personality trait disturbance and anxiety reaction neurosis).⁸¹ Each patient was carefully and intensively prepared for the 400-1500 gamma, "psychedelic LSD-day"—which was jointly conducted by a psychiatrist, a psychologist, a psychiatric nurse, and a music therapist. Their follow-up data (median follow-up was for 9 months) were interpreted to yield a "much improved" or "improved" rating for over 90 percent of the neurotics and 60 percent of the alcoholics, with just under 50 percent of the alcoholics found at follow-up to have remained "totally dry."⁸² The results of this single LSD session with the alcoholic cases seem most impressive, in view of the picture provided:

These were considered to be difficult cases; 59 had experienced typical delirium tremens; 36 had tried Alcoholics Anonymous and were considered to have failed in that program. The average period of uncontrolled drinking was 14.36 years. The average number of ad-

⁷⁴ Abraham H. Maslow, "Cognition of Being in the Peak Experience," *J. Genetic Psychology* (1959) 95:43-66.

⁷⁵ See footnote 39.

⁷⁶ Keith S. Ditman and John R. B. Whittlesey, "Comparison of the LSD-25 Experience and Delirium Tremens," *Arch. General Psychiatry* (1959) 1:47-57. Colin M. Smith, "A New Adjunct to the Treatment of Alcoholism: The Hallucinogenic Drugs," *Quart. J. Studies on Alcohol* (1953) 19:19-31. By the way, the LSD experience and delirium tremens were found to be distinctly *dissimilar* in most respects.

⁷⁷ See Sherwood and co-workers, in footnote 8.

⁷⁸ Abram Hoffer, "Group Interchange," in footnote 5; pp. 59, 114-115.

⁷⁹ J. R. Ball and Jean J. Armstrong, "The Use of L.S.D. 25 in the Treatment of the Sexual Perversions," *Canadian Psychiatric Assn. J.* (1961) 6:231-235.

⁸⁰ See footnote 79; p. 234.

⁸¹ See MacLean and co-workers, in footnote 7.

⁸² A personal communication (1963) from J. Ross MacLean indicates sustained success in 270 additional postpublication cases of "psychedelic treatment."

missions to hospital for alcoholism during the preceding 3 years was 8.07.⁸³

Since Hoffer's account, procedures in Saskatchewan have apparently been modified to incorporate considerable "psychotherapy"—as an adjunct to, and preparation for, the LSD experience. In a recent report, Jensen has described a greatly expanded treatment method and its results:

The treatment program includes three weekly A.A. meetings. The patients are strongly encouraged, but not forced, to attend. There are also 2 hours of group psychotherapy, in the course of which those who are not already familiar with the A.A. program are indoctrinated mainly by the other patients' discussion. . . . Because of the fairly short time available, the group therapy is superficial in nature and primarily educational.

Toward the end of hospitalization (which averaged 2 months), the patients were given an LSD experience. They routinely received 200 gamma of the drug. . . .⁸⁴

Of 58 patients who experienced the full program, including LSD, and were followed up for 6 to 18 months, 34 had remained totally abstinent since discharge or had been abstinent following a short experimental bout immediately after discharge; 7 were considered improved, i.e., were drinking definitely less than before; 13 were unimproved; and 4 broke contact.

Of 35 patients who received group therapy without LSD, 4 were abstinent, 4 were improved, 9 were unimproved and 18 were lost to follow-up.

Of 45 controls, consisting of patients admitted to the hospital during the same period who received individual treatment by other psychiatrists, 7 were abstinent, 3 improved, 12 unimproved, and 23 lost to follow-up.⁸⁵

Among the reservations that might be expressed about Jensen's study, two are outstanding. First, there is some ambiguity about the assignment of patients to the different treatment conditions—it does not seem to have been entirely random. Second, Jensen's assumption that

patients who broke or refused follow-up contact with the hospital staff are safely categorized, for statistical purposes, as "treatment failures" would seem somewhat overweening. At any rate, on his count, the difference in percentages of patients "abstinent or improved" between the "full program-LSD" group (41 out of 58, or 71 percent) and the "individual psychotherapy" group (10 out of 45, or 22 percent) was highly statistically significant.

The present "official policy" of the Saskatchewan Department of Public Health may be of interest. A recently issued document, which reviews the results of four such follow-up studies as Jensen's, concludes with the directive that the single, large-dose LSD treatment of alcoholism is to be considered "no longer as experimental," but rather, "to be used where indicated."⁸⁶

There seem to have been only two efforts in the U.S. to explicitly and systematically follow the Canadian model. In quite different contexts, both are reported as at least "doing well." Leary and his co-workers at Harvard, over the last two years, have conducted a research and treatment program at Massachusetts Correctional Institution, Concord, "designed to test the effects of consciousness-expanding drugs on prisoner rehabilitation."⁸⁷ This undertaking, which emphasizes the crucial importance of drug-induced "far-reaching insight experiences"—prepared for, supported, and reinforced by group therapy sessions—has resulted in a recidivism rate considerably reduced from actuarial expectation. The number of post-treatment cases on which this evaluation is based, however, is only 26. The program is ongoing.⁸⁸

In a much more familiar setting, a group of workers on the West Coast has

⁸³ See MacLean and co-workers, in footnote 7; p. 38.

⁸⁴ The preparation of the subject and the conduct of the 12-hour session were patterned along the lines described by Blewett and Chwelos. See Duncan B. Blewett and Nicholas Chwelos, *Handbook for the Therapeutic Use of Lysergic Acid Diethylamide-25, Individual and Group Procedures*; to be published.

⁸⁵ Sven E. Jensen, "A Treatment Program for Alcoholics in a Mental Hospital," *Quart. J. Studies on Alcohol* (1962) 23:315-320; pp. 317-319.

⁸⁶ "Apparent Results of Referrals of Alcoholics for LSD Therapy," Report of the Bureau on Alcoholism, Saskatchewan Department of Public Health, Regina, Saskatchewan, Dec. 31, 1962; p. 5.

⁸⁷ Timothy Leary, Ralph Metzner, Madison Presnell, Gunther Weil, Ralph Schwitzgebel, and Sara Kinne, "A Change Program for Adult Offenders Using Psilocybin," dittoed, Harvard Univ., 1962.

⁸⁸ Timothy Leary, "Second Annual Report: Psilocybin Rehabilitation Project," dittoed, Freedom Center, Inc., 1963.

been treating the full range of garden-variety neuroses. The patients are intensively prepared over a two- to three-week period for a large-dosage, "transcendental" drug session. The stated intent is to induce a "single overwhelming experience . . . so profound and impressive that . . . the months and years that follow become a continuing growth process."⁸⁹ Thus far, in over 100 treated cases, at least "marked improvement" in the condition for which treatment was sought has been reported in about 80 percent—after one so-called overwhelming experience.⁹⁰

It is a commonplace that new psychiatric treatments seem to effect remarkable cures—at least for a short time and in the hands of their originators. In raising the spectre of the powerful placebo effect,⁹¹ it need hardly be pointed out that the results reviewed above should be regarded with healthy skepticism. On the other hand, they are more than merely trifling.

Explanatory Concepts

In addressing a recent international assemblage at Copenhagen, Leary asserted:

The visionary experience is the key to behavior change. [In its wake] change in behavior can occur with dramatic spontaneity. . . .⁹²

Van Dusen, who bids fair to become the psychologist-philosopher of the "new concept" movement, puts the issue as follows:

There is a central human experience which alters all other experiences. . . . not just an experience among others, but . . . rather the very heart of human experience. It is the center that gives understanding to the whole. . . . It has been called satori in Japanese Zen, moksha in Hinduism, religious enlightenment or cosmic consciousness in the West. . . . Once found life is altered because the very root of human identity has been deepened. . . . the

still experimental drug d-lysergic acid diethylamide (LSD) appears to facilitate the discovery of this apparently ancient and universal experience.⁹³

Although reminded on all sides of the incommunicableness of "the transport," as James called it, of its ineffability, one may, before following him in the descent toward "medico-materialistic" explanation, inquire further of its nature. James proffered the traditional demurrer ". . . it is probably difficult to realize [its] intensity unless one has been through the experience one's self. . . ." ⁹⁴ He then proceeded, with seeming aplomb, to describe it:

The central [characteristic] is the loss of all worry, the sense that all is ultimately well with one, the peace, the harmony, the *willingness to be*. . . .

The second feature is the sense of perceiving truths not known before . . . insight into depths of truth unplumbed by the discursive intellect. . . . The mysteries of life become lucid . . . illuminations, revelations, full of significance and importance, all inarticulate though they remain. . . .

A third peculiarity . . . is the objective change which the world often appears to undergo. "An appearance of newness beautifies every object" . . . clean and beautiful newness within and without. . . .⁹⁵

In James' view, "melting emotions and tumultuous affections" were the constant handmaiden of "crises of change."⁹⁶ Also Benedict, in the context of the visionquest, remarked on ". . . very strong affect, either ultimate despair or release from all inadequacy and insecurity."⁹⁷ Chwelos and his co-workers, describing the transcendental drug experience as "mainly in the sphere of emotions or feeling,"⁹⁸ exemplify this by quoting an alcoholic patient:

I was swept by every conceivable variety of pleasant emotion from my own feeling of well-being through feelings of sublimity and grandeur to a sensation of ecstasy.⁹⁹

⁸⁹ See Sherwood and co-workers, in footnote 8; p. 370.

⁹⁰ See footnote 89 and Savage and co-workers in footnote 64.

⁹¹ See David Rosenthal and Jerome D. Frank, "Psychotherapy and the Placebo Effect," *Psychol. Bull.* (1956) 53:294-302.

⁹² Timothy Leary, "How to Change Behavior," pp. 50-68, in *Clinical Psychology, XIV International Congress of Applied Psychology*, Vol. 4, edited by Gerhard S. Neilsen; Copenhagen, Munksgaard, 1962; p. 58.

⁹³ Wilson Van Dusen, "LSD and the Enlightenment of Zen," *Psychologia* (1961) 4:11-16; p. 11.

⁹⁴ See footnote 1; p. 242.

⁹⁵ See footnote 1; pp. 242-243.

⁹⁶ See footnote 1; p. 195.

⁹⁷ See footnote 72; p. 78.

⁹⁸ See Chwelos and co-workers, in footnote 7; p. 583.

⁹⁹ See footnote 7; p. 584.

Finally now, turning from the poetry of phenomenal experience to medico-materialism, how did James approach the matter of explanation?

If you open the chapter on Association, of any treatise on psychology, you will find that a man's ideas, aims, and objects form diverse internal groups and systems, relatively independent of one another. . . . When one group is present and engrosses the interest, all the ideas connected with other groups may be excluded from the mental field. . . . Our ordinary alterations of character as we pass from one of our aims to another, are not commonly called transformations . . . but whenever one aim grows so stable as to expel definitively its previous rivals from the individual's life we tend to speak of the phenomenon and perhaps to wonder at it, as a "transformation."

Whether such language be rigorously exact is for the present of no importance. It is exact enough, to recognize from your own experience the fact which I seek to designate by it.

Now if you ask of psychology just *how* the excitement shifts in a man's mental system, and *why* aims that were peripheral become at a certain moment central, psychology has to reply that although she can give a general description of what happens, she is unable in a given case to account accurately for all the single forces at work.

In the end we fall back on the hackneyed symbolism of mechanical equilibrium. A mind is a system of ideas, each with the excitement it arouses, and with tendencies impulsive and inhibitive, which mutually check or reinforce one another. . . . A new perception, a sudden emotional shock . . . will make the whole fabric fall together, and then the center of gravity sinks into an attitude more stable, for the new ideas that reach the center in the rearrangement seem now to be locked there, and the new structure remains permanent.¹⁰⁰

More modern discussions of rapid personality change seem, in large part, to be variations on the theme of "melting emotions and tumultuous affections." There have been two relatively recent efforts to deal with rapid change associated primarily with conversion. Wallace, who attempted an heroic amalgam of Selye's "stress" theory and cultural anthropology, summed this up as follows:

. . . the physiologic events of the general adaptation syndrome [in situations of massive emotion] establish a physicochemical milieu

in which certain brains can perform a function of which they are normally incapable: a wholesale resynthesis that transforms intellectual insight into appropriate motivation, reduces conflict by partial or total abandonment of certain values and acceptance of others, and displaces old values to new, more suitable objects.¹⁰¹

Sargant has linked along an axis of abnormal "anger, fear, or exaltation" such "abrupt total reorientations" in personality as attend religious and political conversion experiences—as well as violent abreaction in therapy, spontaneous or narcosynthetic. His explanatory scheme derives directly from Pavlov—in the final analysis, sudden alterations in behavior are attributed to "paradoxical" and "ultraparadoxical" brain processes, and the like, induced by extreme emotion.¹⁰²

To return to LSD-related developments, Ditman and his co-workers have reviewed a whole range of considerations and theories which might "rationalize" the sudden change phenomenon—including a highly libidinalized psychoanalytic formulation.¹⁰³

It remains to raise just one final query. Rapid personality change, translated into language more congenial to behavioral psychology, could be taken to describe a situation in which formerly dominant or high-probability responses, overt or mediational, were suddenly greatly reduced in frequency of occurrence; and, vice versa, uncommon responses, or those formerly *low* in a hierarchy, appear with greatly elevated frequency. The only experimental results which even approximate this order of events seem to be those which have arisen with the aid of direct intracranial electrical stimulation. With response-contingent reinforcement of this kind—that is, with electrical "trains" delivered to the hypothalamic, so-called pleasure or reward centers—the repertoires of many rats and monkeys have been dramatically altered in a very few

¹⁰¹ Anthony F. C. Wallace, "Stress and Rapid Personality Changes," *Internat. Record Med.* (1956) 169:761-774; p. 770.

¹⁰² William Sargant, *Battle for the Mind: A Physiology of Conversion and Brain-washing*; Garden City, N.Y., Doubleday, 1957.

¹⁰³ See Ditman and co-workers, in footnote 64.

¹⁰⁰ See footnote 1; pp. 190-194.

moments: Utterly new behaviors have been shaped, old responses eliminated.¹⁰⁴ The degree to which such "artificially-induced" learning has been sustained has been a function, as with all behavior, of the ebb and flow of environmental contingencies. Thus, to point the issue: Do transcendental experiences at the human level, however they are interpreted, tread in this area of *superreinforcement*—with a potential for radically altering the probability of occurrence of "heuristic" mediating processes (for example, positive rather than negative self-concepts) which might channel behavior, at least temporarily, in new directions, toward a "new beginning"?

With Ruth Benedict's "Apollonian" Zúñi, the tendency of the modern West is to regard paranormal experiences, indiscriminately and often with little idea of

their nature, as "pathological"—to be distrusted, feared, avoided. The Zúñi Indian, said Benedict, "finds means to outlaw them from his conscious life. . . . He keeps the middle of the road, stays within the known map, does not meddle with disruptive psychological states."¹⁰⁵ It would seem unfortunate were this *Zeitgeist* to unduly prejudice the exploration of therapeutic potential in the drugs here discussed.

In conclusion, let it be noted that the public health implications of drug-associated rapid personality change, should this phenomenon prove *not* to be a will-of-the-wisp, are apparently great. Intensive investigation would seem a reasonable order of the day. The procedures and time involved are manifestly economical—in truth, there seems little to be lost.

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¹⁰⁴ For example, see Daniel E. Sheer, Editor, *Electrical Stimulation of the Brain*; Austin, Univ. of Texas Press, 1961.

¹⁰⁵ See footnote 72; p. 72.