
CURRENT STATUS AND FUTURE TRENDS IN PSYCHEDELIC (LSD) RESEARCH

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SINCE the discovery of d-lysergic acid diethylamide (LSD-25) in 1943, a voluminous literature has accumulated concerning its effects on a variety of animals including man.¹ Despite the mass of published reports, definitive evidence is generally lacking particularly with regard to the subjective and behavioral effects both during and subsequent to the LSD induced state. It well established that this powerful agent produces major alterations in cerebral processes and central autonomic functions. There is also ample evidence indicating a markedly lowered threshold for arousal (Key & Bradley, 1960) and an increased sensitivity to stimuli in all modalities (Klee, 1963). These psychopharmacological effects parallel the findings of clinical and behavioral studies at least on the molar descriptive level. Pronounced perceptual changes have been almost invariably demonstrated with concomitant alterations in affect, ideation, and the relationship between subject and environment (Hoffer, 1965). Beyond these rather global findings, results have been inconsistent and often contradictory even within — species far less complex than man (Cohen, 1964).

The well-known methodological problems encountered in research with centrally-acting drugs are at least partly responsible for the slow progress thus far (Zubin & Katz, 1964). This has been especially true with human subjects. Systematic study of human reactions to LSD poses unique problems associated with greater organic complexity, shortcomings of currently available measuring devices, the ubiquity of individual differences, lack of an adequate theoretical model, and the influence of non-drug variables such as set and setting. In addition to these experimental obstacles, LSD has until recently been the center of a complicated medico-legal-social controversy (Harman, 1964). This has tended to obscure the relevant empirical questions and inhibit investigations which are both imaginative and reasonably objective.

Ambivalence in a Period of Transition

The short but illustrative history of LSD-25 (a) as a subject of research, (b) as a psycho-social phenomenon, and (c) as a theoretical or philosophical enigma may be viewed as a case study of significant

¹ A fairly inclusive bibliography of LSD studies published in professional journals through June, 1964, prepared by Sandoz Pharmaceuticals (Medical Dept., Hanover, New Jersey) lists well over 1,000 references.

trends in contemporary psychology and psychiatry. It is equally instructive to reverse the process by viewing the growing interest and fascination with altered states of consciousness from the perspective of recent shifts in psychological theory and research. As young disciplines lacking stable direction, self-scrutiny and constant revision characterize the social sciences. And in the light of their subject-matter, these fields are particularly attuned to the wider culture. In this connection, recent developments in the philosophy and sociology of science emphasize the transactional interplay between theory, observer, and actuality. Rather than laws of nature, theory and evidence are more accurately viewed as working fictions or convenient myths and reflect the belief system of a given time and place (Holten, *et. al.*, 1965). A rather extreme version of this "Indeterminacy Model" of science has been described by Alfred de Grazia (1963, p. 56):

The model suggests that the spirit of the times and customs dictate what will and will not be science. . . . Scientists operate under the indeterminacy system by various myths — primarily of rationality, of causation, and of power of choice — but in fact do not know what they are seeking, what is available, or what are solutions. That their compensation, whether in esteem, position, or money, is related to performance is only an illusion. What is accepted and what is rejected are therefore only a product of chance encounters of purpose and provision.

A growing body of empirical evidence supports the view that science as a branch of human endeavour is socially and psychologically conditioned just as any other human activity (Rosenthal, 1963). From this perspective, contemporary theoretical issues and recent shifts in psychological research become a sensitive barometer of the present social climate and also a timetable of significant cultural trends. A case in point is the recent emergence of a "third force" in American psychology with its emphasis on personal growth and greater realization of human potentialities. The third force in psychology has counterparts in each of the arts and sciences.² Collectively, they represent a concerted effort to counteract the progressive subordination of personal identity to what Erik Erikson calls the "technological superidentity" (1962). Interestingly, they also share a highly positive vision of modern man's foreseeable possibilities. This ambivalent, somewhat paradoxical position suggests that contemporary humanistic thinking has been inspired not only by the dehumanizing effects of the scientific-industrial complex, but also by its capacity for making the lives of men healthy, safe, and reasonably secure for the first time in history.

Traditionally, the motive power of western cultures has necessarily focussed on survival and environmental mastery — human strivings which are highly congenial to a behavioristic or psychoanalytic

² See Rene Dubos' excellent account of "Humanistic Biology" (1965). Similar trends in contemporary fiction, poetry, and drama have been summarized by Mogar (1964).

frame of reference. In contrast to these orientations, Maslow views the organismic equilibrium made possible by satiated bodily needs, physical safety, and some measure of psychological security as merely prerequisite to more uniquely human pursuits. This hierarchical conception of man's strivings depicts him as a self-directed creature with impulses toward creative expression and self-enhancement as well as homeostatic maintenance (Maslow, 1962).

It is too early to gauge the extent to which Maslow's humanistic image of man meshes with the modern temper. On the other hand, considerable evidence has already accumulated indicating that behaviorism and psychoanalysis, in their orthodox forms, no longer have what Bruner describes as "an immediate resonance with the dialectic of experience" (1962). Yet their continuing impact on our self- and world-view is clearly substantial. Thus, three divergent orientations occupy the same stage concurrently — reflecting and in turn effecting social values and individual conduct. Viewed comparatively, these equipotent theories of man and the research they generate give testimony to the preoccupations and uncertainties of our time.

Placed within this broader context, the diverse descriptions and interpretations of the LSD experience become more understandable. And since psychedelic, "mind-manifesting," substances have been known and ingested throughout man's history (Barnard, 1963), the current fascination with this class of experiences seems particularly significant. Although presently unclear, one general reason for the increasing interest in psychedelic phenomena can be identified: either as a means of investigating higher thought processes or as a potentially valuable personal experience, the LSD-induced state is intriguing because it meshes with the *zeitgeist* in the social sciences and with major trends in the larger culture. There is convincing evidence from a variety of quarters which supports this contention.

Experimental Psychology : The Return of the Ostracized

In a recent issue of the *American Psychologist*, an incisive paper by a well-known research psychologist is entitled, "Imagery: The Return of the Ostracized" (Holt, 1964). After examining the traditional scientific and cultural resistances to such phenomena as pseudo-hallucinations, hypnogogic and dream images, extrasensory perception, and hypnosis, the author goes on to describe the current status in these fields. Echoing Hebb's manifesto as president of the American Psychological Association (1960), he points to a number of recent breakthroughs in a variety of research areas which signal the second phase of a psychological revolution. The first phase, covering the first half of this century, was characterized by the scientific extremism of psychoanalysis and behaviorism; movements which purged psychology of the unique and the private. While both psychoanalysis and behaviorism in their orthodox forms have made valuable contributions to our understanding of man, it seems evident now that these

orientations can no longer exclude altered states of consciousness and novel perceptual experiences from the *primary* subject-matter of a *normal* psychology.

Significantly, some of the leading exponents of both theories such as B. F. Skinner (1963) and H. Hartmann (1958) have recognized these omissions and indicated a need for revision. Consistent with theoretical developments, behavioristic research shows an increasing concern with internal processes including sensations, images, and cognitions (London & Rosenhan, 1964). Similarly, psychoanalytic studies focus more on normal or superior functioning and less on pathology (Frosch & Ross, 1960). These trends are not surprising since some of the most exciting developments during the past decade have occurred in experimental work with dream activity, sensory deprivation, creativity, hypnosis, and the psychedelic drugs. Viewing this rich array of research activity as occurring within a broader cultural context, one convergent finding seems of major significance; namely, that richness of imagination and so-called regressive experiences are not the exclusive privilege of madmen and artists. Instead, this work indicates quite conclusively that under favorable circumstances, most people can greatly expand their experiential horizons without sacrificing effectiveness in dealing with conventional reality.

The significant parallels among relatively independent lines of investigation are most striking. First it should be noted that each of these phenomenon (psychedelic, dreams, creativity, sensory isolation, and hypnosis) have traditionally been associated with the negative, bizarre, and abnormal. Until recently dreams and hypnosis have generally been linked with magic and the occult. Similarly, "hallucinogenic" drug states, sensory confinement, and inordinate creativeness have strong historical associations with defective character and insanity. As a result, these classes of experience have typically been treated as isolated phenomena, discontinuous with other psychological processes and inexplicable in terms of known principles.

Although presently accepted as legitimate areas of study, the tainted heritage of novel experiences has continued to exert strong influence. For example, recent findings indicate that the main features of creativity and the necessary conditions for its development run counter to prevailing ideologies (Getzels & Jackson, 1962; Gruen, 1964). Similar cultural and professional resistances have been documented regarding the psychedelic drugs with particular reference to their presumed "psychotomimetic" properties (Savage & Stolaroff, 1965). The same biases have been noted in perceptual isolation research. In their recent critique, Arnhoff and Leon (1964) conclude that most studies of sensory deprivation effects have grossly misapplied the concepts and terms of pathology. In much the same vein, Shor's (1960, p. 162) work on "hypnotic-like" experiences in normal subjects indicates that:

In our culture naturally-occurring hypnotic-like experiences tend to

be regarded with some misgivings if not as outright pathology. Consequently they are little talked about, but this does not mean that they occur with less frequency or profundity than in cultures where they are encouraged or institutionalized. In many cultures such experiences are seen as a vital source of creative inspiration and gratification.

A second significant parallel concerns the remarkable subjective and behavioral similarities of these experiences. Consistent findings in research on hypnotic, psychedelic, and dream states, certain phases of the creative process, as well as sensory and dream deprivation indicate an almost complete overlap of major effects. Reported commonalities include significant alterations in perception, dominance of sensation and imagery over verbal-associative thinking, relaxed ego boundaries, changes in bodily feelings, and the suspension of conventional reality-orientation to space, time, and self.

Theoretical accounts of these psychological changes have also run parallel. Whether self-induced or situationally-induced by means of fatigue, drugs, or some form of stress, such states have typically been viewed as regressive, infantile, or primitive, indicating sudden loss of ego control and the eruption of unconscious forces. Until very recently, the effects have been interpreted as disturbing, incapacitating, quasi-psychotic, dissociative, or depersonalizing. Consistent with these interpretations, persons prone to altered states of awareness have generally been described as poorly adjusted, suggestible, irrational, passive, and low in ego strength.³

Perhaps the most important parallel concerns the current status and direction of research in these areas. At the present time, work in each area reveals a discernible shift away from investigating the condition or phenomenon per se, focussing instead on the situation- and subject-determined variables. This significant turning point calls attention to the key importance of the psycho-social context in which these experiences are inextricably embedded. Related to this new research strategy, recent findings and shifts in theorizing about altered states of consciousness have taken a more positive turn.

As a case in point, the aftereffects of dream deprivation, both positive and negative, vary widely across subjects. Dement (1960) found that "the kinds of alterations represent extensions or revelations of tendencies native to the individual personality" and that their form, degree, and dynamic meaning were influenced by the setting and by interpersonal transactions. With regard to hypnotic susceptibility, Barber (1964) has established the central importance of attitudinal and motivational variables. Similarly, recent findings indicate that the nature and intensity of hypnotic experiences are strongly influenced by the socio-psychological milieu, particularly the

³ The comparable effects and interpretations described here are well-documented in the research literature. Representative and recent reports may be found in Barron (1963) on creativity, Zuckerman (1964) on sensory deprivation, Cohen (1964) on psychedelic states, Weitzenhoffer (1963) on hypnosis, and Dement (1960) on dream deprivation.

mutual expectancies of subject and experimenter (Sarbin & Lim, 1963).

The same trends are found in sensory deprivation research. Considerable evidence has accumulated indicating that greatly reduced sensory input can impair or facilitate mental functioning depending on the particular interaction of set, setting, and personality (Brownfield, 1964). For example, Leiderman (1964) found that "with the element of fear removed, the imagery of sensory deprivation becomes like the imagery of daydreams, quite familiar and usually not anxiety-producing." Interestingly, sensory deprivation is reportedly therapeutic for some patients (Zuckerman, 1964). The direction of thinking in this area is perhaps best summed up by Suedfeld (1964). Noting that some experimentally-isolated subjects reveal striking creativity in solving problems, he poses the question, "What would happen if creative behavior were externally reinforced by the experimenter?"

Turning to the psychedelics, it has become apparent that adverse psychological or behavioral effects are not drug-specific. More generally, the nature, intensity, and content of the experience are the result of complex transactions between the subject's past history and personality, the set and expectancies of both subject and administrator, and the physical and psychological setting in which the experience takes place (see e.g., Unger, 1964). As in the case of related phenomena, most of these determinants of response to LSD can be intentionally arranged and manipulated so as to foster either a propitious or a stressful experience. In the search for relatively invariant or "drug-specific" reactions, much of the research until recently has failed to assess, control, or systematically vary relevant non-drug variables.

Laboratory studies of behavioral effects during the LSD-induced state have been particularly insensitive to situation- and subject-determined variables. Changes in performance levels on a wide variety of tasks have been extensively investigated with inconclusive results. Instrumental learning has been found to be impaired (Krus, *et. al.*, 1963), enhanced (Rosenbaum, *et. al.*, 1959), and unchanged (Kornetsky, 1957). Both impairment and enhancement of color perception have been reported (Wapner & Krus, 1960; Hartman & Hollister, 1963). Similarly, studies of the effects of LSD on recall and recognition, discrimination learning, concentration, symbolic thinking, and perceptual accuracy have yielded contradictory results (see e.g., Trouton & Eysenck, 1961). It is perhaps significant that most of the laboratory research has used the drug as a stressor with the intention of simulating psychotic-like performance-impairment (psychotomimetic orientation). In contrast, well over three-hundred clinical studies on the therapeutic effectiveness of LSD have reported almost uniformly positive results (Hoffer, 1965; Mogar, 1965). This more recent line of investigation views the drug as a liberator which facilitates accurate perception, self-insight, and performance-enhancement (psychedelic orientation). Consistent with their objectives and positive findings, clinical studies have generally (a) optimized the context of the drug

experience and (b) been particularly attentive to individual differences in personality and set.

A number of studies have demonstrated that personality differences are as important as preparation and setting in determining response to LSD. In a study of immediate and long-term effects of the psychedelic experience, Mogar and Savage (1964) found that post-LSD changes were related to personality styles and modal defense patterns. The results indicated that subjects with a well-defined but flexible self-structure responded most favorably to the drug, while those with either under-developed or overly-rigid ego defenses responded less favorably. Similar differential findings have been obtained recently in work with sensory deprivation and hypnosis. For example, both neuroticism and "field-dependence" correlate significantly with disturbing, stressful reactions to sensory deprivation (Zuckerman & Cohen, 1964). Other isolation studies have found positive relationships between "field-independence" and performance-enhancement (Brownfield, 1964), and between "self-actualizing maturity" and enjoyment of sensory deprivation (Blazer, 1963). Particularly relevant to the psychedelics is the finding that positive visual imagery during isolation correlates highly with (1) intellectual flexibility, breadth, and richness, (2) acceptance of one's passive, feminine side, and (3) freedom from emotional disturbance and constriction (Holt & Goldberger, 1961).

Comparable results in research on individual differences in hypnotic susceptibility have seriously undermined long-standing interpretations. Specifically, a host of studies recently found that hypnotic susceptibility was negatively correlated with neuroticism and placebo-responsiveness, and positively correlated with emotional stability (Bentler, *et al.*, 1963; Lang & Lazovik, 1962). Although generally unrelated to specific personality attributes in normal subjects, independent work by Shor (1962) and Aas (1963) indicate a consistently high relationship between hypnotizability and the frequency of *naturally-occurring* altered states, particularly ecstatic and peak experiences. The range of personal history experiences inventoried in these studies were characterized by constructive use of regression, tolerance for logical paradoxes, willingness to relinquish ego control, and the ability to suspend disbelief or adopt an "as if" attitude. It is worth noting that these correlates of hypnotic susceptibility are also associated with propitious psychedelic states, certain aspects of creativity, and self-actualization.⁴

Current findings and theorizing in the various areas considered here can be summarized briefly. Whether self-induced, stress-induced, or drug-induced, altered states of consciousness will be welcomed and valuable rather than feared and harmful to the degree that the socio-

⁴ The extensive research by Theodore R. Sarbin and his co-workers indicates that the same "as-if" dimension is central to both acting and hypnosis. The as-if attitude prominent in hypnotic states is viewed as analogous to the "creative-if" proposed by Stanislavsky as the very essence of acting talent (Sarbin & Lim, 1963).

psychological demands of such experiences are congenial to the "kinetic" needs and values of a given individual. Based on an analysis of imagery in Rorschach responses, Holt and Havel (1960, p. 311) reach a similar conclusion:

We find primary process thinking in conscious subjects either out of strength or out of weakness. In the former case, it is more likely to appear in a playful or esthetic frame of reference, accompanied by pleasant affect. If, on the other hand, primary thinking breaks through the usual defenses uninvited and unwanted, the subject may feel anxious or threatened and is likely to act defensively.

This view is consistent with recent developments in personality theory, particularly the current emphasis on latent creative potential and self-actualizing tendencies. Representative of this trend, the opposing dualisms in psychoanalytic theory have undergone major revision so as to include regression in the service of the ego and creative fusions of primary and secondary process thinking (Hilgard, 1962). In a similar vein, Maddi (1963, p. 193) refers to the id as "the breeding ground of love and worship, as well as of the novel imaginations which are eventually applauded, instituted, and cherished by society." Stated simply, recent theoretical innovations recognize that greater access to unconscious resources is a cardinal feature of psychedelic, creative, and other novel perceptual experiences, as well as psychosis. And that in contrast to hallucinatory states, creative or revelatory experiences involve a *temporary* and *voluntary* breaking up of perceptual constancies, permitting one "to shake free from dead literalism, to re-combine the old familiar elements into new, imaginative, amusing, or beautiful patterns" (Holt & Havel, p. 304).

Psychedelic Experiences and Contemporary Psychotherapy

Consistent with the scene in experimental psychology, a similar trend *away* from viewing psychedelic phenomena as undesirable or pathological is also apparent in clinical psychology and psychiatry. A growing recognition of the potential value of psychedelic experiences is especially discernible in contemporary psychotherapy. Recent theorizing in psychotherapy reveals an increasing awareness of the restraints imposed by conventional modes of thought and perception. As suggested earlier, current developments in psychoanalytic theory correct the previous over-emphasis on maintaining impulse-control and a sharp distinction between self and non-self. Instead, present formulations recognize the relative flatness of consensual reality as well as the creative potential of novel thoughts and impulses. Representative of this trend, the conditions of mental health proposed by Heinz Hartman (1958) include the ability to "de-automatize" stereotyped perceptions and the ability to maintain fluid subject-object boundaries. It is noteworthy that similar attributes have been found to characterize highly self-actualized persons. More significantly, a

number of studies have found that novel states of awareness including loss of distinction between self and non-self, transcendental or peak experiences, and oceanic feeling states are fairly common in the normal college population (Aas, 1962; Shor, 1960). Furthermore, there has been a greater willingness in recent years to acknowledge and report such experiences without apology or embarrassment.

These conceptual revisions and empirical findings also call attention to the well-documented shortcomings of orthodox therapies and the critical need for more effective techniques. In a recent critique of the status of psychotherapy, Colby (1964) concludes that our current paradigms have demonstrably failed and urges a major transition from ordinary to extra-ordinary innovation. Certainly many therapists readily acknowledge what Colby calls an impending crisis. However, Astin (1961) notes that "the principle of functional autonomy will permit psychotherapy to survive long after it has outlived its usefulness." A similar view is expressed by Korn (1964, p. 38) after examining previous reactions to new methods of treating psychopathology:

It is notorious that virtually no nostrum has ever been abandoned merely because it failed to work. The old method had always to be overthrown by the new — and it is also notorious that the practitioners of the traditional way will attempt to prevent even the first trial of the method on the strange grounds that it has never been tried and proven — a criterion not applied in their own case.

Despite the reluctance to abandon the old and embrace the new, disillusionment with traditional techniques finds expression in the current upsurge of interest among therapists of *all* persuasions in Zen Buddhism (Maupin, 1962), existentialism (Lyons, 1961), and transcendental or peak experiences (Maslow, 1962). Also indicative of present developments is the host of studies establishing personal and cultural belief systems as key variables in psychotherapy. The representative work of Hollingshead and Redlich (1958) demonstrated a significant relationship between social class, incidence and type of mental illness, and the form of treatment received. The relationships found were remarkably consistent with middle-class American values. Numerous studies have indicated that improvement in therapy involves a basic change in the patient's core belief system, that therapists' values influence both the process and outcome of therapy, and that in "successful" outcomes, the patient's value orientation changes in the direction of the therapist's (*see e.g.*, London, 1964; Schofield, 1964).

These trends are relevant to what is perhaps the major issue in psychotherapy today, namely, the search for positive criteria of mental health or personal growth which are explicitly based on humanistic values. It is now generally recognized that psychological health or self-fulfillment involves more than the absence of illness or emotional disturbance. These developments in mental health concepts

have paralleled the recent discovery that most recipients of psychotherapy are *not* suffering from the traditional forms of neurosis and character disorder. While certainly self-dissatisfied and unfulfilled, the person seeking therapy today is generally not unproductive, ineffective, or crippled with neurotic symptoms. Many writers have described the typical therapy patient as one who is relatively free of physical complaints, neurotic anxiety and depression, failures of achievement, and interpersonal conflicts (Strupp, 1963). In short, the hallmarks of emotional disorder are conspicuously absent. Rather, the central struggle for an increasing number of successful and relatively well-adjusted people seems to be "a loss of meaning in life, an absence of purpose, or a failure of faith" (Schofield, 1964). Modern discontent tends to take the form of alienation. In William Barrett's terms, alienation from God, from nature, from the human community, and ultimately, alienation from self (1958). While recognizing that the person with problems in personal identity and life outlook deserves help, some investigators have concluded that the psychotherapist is ill-equipped for such a *priestly* task (Wheelis, 1958). This belief is somewhat substantiated by the disappointment which many patients of this type experience in psychotherapy. Yet a dearth of alternative resources seem open to the person in this predicament.

In the light then of what seems to be an incompatibility between psychotherapy, as traditionally-conceived, on the one hand, and the nature of modern discontent, on the other, it is certainly less than a coincidence that many people who fit this description express an interest in the psychedelic experience and find their way to LSD. It should perhaps be emphasized that the only sentiment these people share with the stereotyped beatnik is a sense of alienation from traditional values.

The attitudes and reactions to LSD, both positive and negative, become more understandable when viewed against this background of present-day trends in psychology and psychiatry. Within this broader context, it is not surprising that the major application of LSD today is to *treat* mental illness rather than *produce* it. Beyond this shift in emphasis, the use of LSD for therapeutic purposes clearly reflects the ambivalence among therapists toward the ever-growing number of meaning- and identity-seekers who request their services. The research and clinical literature concerning LSD as a therapeutic agent reveals two major view points which seem representative of this ambivalence. These two orientations are associated with greatly dissimilar methods of administration. One emphasizes the use of LSD periodically and in small doses as an adjunct to traditional techniques of psychotherapy (Crockett, *et al.*, 1963). The other major approach employs LSD in a single, large dose, producing an intense and prolonged psychedelic experience. Applied in this manner, LSD serves as a catalyst for inducing rapid and profound changes in the subject's value-belief system and in his self-image (Sherwood, *et al.*, 1962). While recognizing the therapeutic benefits of LSD, this latter tech-

nique places greater emphasis on its more unique potentialities and value, namely, as a means of facilitating personal growth and self-actualization. Rather than freedom from emotional symptoms, the primary objective of the psychedelic experience becomes a major reorganization of one's beliefs and life outlook. In short, the first method is essentially illness-oriented, the second, health or growth-oriented.

When employed as an adjunct to psychotherapy, most investigators have associated the beneficial effects of LSD with reduced defensiveness, the reliving of early childhood experiences, increased access to unconscious material, and greater emotional expression. In contrast, when used as a primary vehicle for rapid personality change, emphasis is usually placed on the transcendental quality of the experience, the resynthesis of basic values and beliefs, and major changes in the relationship between self and environment.

With regard to effectiveness, both orientations have reported impressive results. Since over three-hundred studies have been reported, only the most salient and consistent findings will be summarized.⁵ Despite great diversity in the conduct of these studies, high improvement rates have been almost uniformly reported, with both adults and children, and in group as well as individual psychotherapy. Used either as an adjunct or as a primary treatment method, LSD has been found to facilitate improvement in patients covering the complete spectrum of neurotic, psychosomatic, and character disorders. Particularly noteworthy are the positive results obtained with cases highly resistant to conventional forms of therapy. High remission rates among alcoholics, for example, have frequently been reported following a single, large dose LSD session. Based on their findings with over one-thousand alcoholics, Hoffer and his co-workers concluded that LSD was twice as effective as any other treatment program (1965). Other chronic conditions carrying a poor prognosis which have responded favorably to psychedelic therapy include sexual deviations, criminal psychopathy, autism in children, and adolescent behavior disorders.

Since most reports have been based on clinical judgements of unknown reliability, it is worth noting that comparable results have been obtained by investigators in many other countries. Furthermore, Freudian therapists, Jungians, behaviorists, existentialists, and a variety of eclectic therapists have reported positive findings with LSD. It seems safe to conclude from the breadth and consistency of the clinical evidence that LSD can produce far-reaching beneficial effects in some people, under some conditions. However, controlled studies of the process variables involved have yet to be conducted. Specifically, in what particular ways do various kinds of people respond to LSD, both during the experience and afterward? What are the optimal condi-

⁵ For more detailed and referenced critiques of the extensive applications of LSD as a therapeutic agent, see the reviews compiled by Hoffer (1965), Mogar (1965), and Unger (1964).

tions of preparation, administration, and follow-up for given objectives, and for given subjects? How can we account for the various kinds and extent of change which follow an LSD experience? In short, despite the mass of accumulated data on the *outcome* of psychedelic therapy, relationships among *process* variables remain obscure.

Primarily because of the controversy surrounding these chemical agents (which interestingly is confined to the United States), controlled research aimed at maximizing their safety, their effectiveness, and their human value has barely begun. In addition to questions concerning the possible uses of LSD as a therapeutic or educative device, its potential value as a basic research tool for investigating higher mental processes has also been minimally explored. Although clinical evidence and testimonial reports indicate that LSD promises to be a valuable tool for both the study and enhancement of cognitive and perceptual functioning, such claims have been neither supported nor refuted by means of controlled studies. Other hypotheses readily testable include the suggested similarities noted earlier between psychedelic, hypnotic, and dream states, the inspirational phase of creativity, as well as sensory and dream deprivation experiences.

Psychedelic, Nadir, and Peak Experiences

The nature, extent, and duration of effects both during and subsequent to the LSD-induced state has been a major focus of study in the psychedelic research program conducted at the International Foundation for Advanced Study, Menlo Park, California. Over a three-year period, extensive assessments were obtained on almost four-hundred subjects before, during, and at various points following a psychedelic experience. Each subject underwent a single, large dose LSD session conducted in a comfortable, aesthetically-pleasing setting. Although trained staff members were present throughout the session day, primarily for emotional support and human contact, no attempt was made to direct or interpret the experience. Rather, the subject was urged to explore himself and his universe without external guidance or intrusion. Prior to the LSD experience, each subject was given a physical and psychiatric examination followed by a series of preparatory interviews. These interviews were designed to help the individual examine or re-examine his reasons for taking LSD, to clarify whatever problems or questions he wished to explore, and to become accustomed to altered states of consciousness. Following the psychedelic experience, extensive follow-up evaluations were made covering a minimum of six months.

The design of this research program was based on the assumption that significant changes would occur along three major dimensions; values and beliefs, personality, and actual behavior in major life areas. More specifically, it was hypothesized that a profound psychedelic experience tends to be followed by a major reorientation of one's value system and life outlook. It was further hypothesized

that this change in basic beliefs would in terms be followed by *slower* alterations in personality as well as changes in modal behavior patterns.

The findings so far provide considerable support for the general hypothesis concerning parallel changes in values, personality, and behavior (Mogar and Savage, 1964; Savage, *et. al.*, 1965a; Savage, *et. al.*, 1965b). Three days following the LSD session, a consistent and reliable increase was found in the extent to which an individual agrees with test items reflecting a deep sense of meaning and purpose in life, open-mindedness, greater aesthetic sensitivity, and a sense of unity or oneness with nature and humanity. Decreases were found on values pertaining to material possessions, social status, and dogmatism. Also significant was the finding that changes in personal beliefs either remained constant or became still more prominent at later follow-ups. These were consistent results cutting across such factors as age, sex, religious orientation, or personality type. Thus, it seems safe to conclude that a rapid and extensive change in values does tend to occur in most subjects, and importantly, is maintained over time.

The additional hypothesis that slower modifications in personality and behavior would occur has also received considerable support. For example, the data show that if a person values human brotherhood more after his psychedelic experience, his personality and behavior reflect this new conviction. He tends to be less distrustful and guarded with others, warmer and more spontaneous in expressing emotion, and less prone to feelings of personal inadequacy. With regard to modal behavior patterns, parallel changes tend to occur in such areas as marital relations and work effectiveness (Savage, *et. al.*, 1965a).

Although the overall results indicate that almost all subjects derived some degree of benefit along the lines hypothesized, it is important to emphasize that the nature, extent, and the stability of changes varied considerably. Specific sources or correlates of this variability included pre-LSD personality structure, the type of presenting problem, and variations in the psychedelic experience itself. With regard to pre-LSD individual differences, subgroups were objectively defined according to (a) personality structure (anxiety neurotics, borderline psychotics, nonconforming normals, manic-impulsives, and normal depressives), and (b) major defense pattern (hysterical, intellectual-compulsive). Despite the brevity of the LSD program, all subgroups displayed positive personality changes at two and six months following the psychedelic experience. The nature and extent of improvement compared most favorably with longer-term orthodox therapies (Mogar & Savage, 1964).

Although each subgroup maintained significant improvement, subjects varied considerably in their capacity to translate profound insights into attitudes, feelings, and conduct. Individual differences were particularly apparent at six months since by this time a leveling off had generally occurred, that is, most subjects had in large part come to terms with their rapidly altered self-world image. For six months habitual patterns of response to situations had been scrutinized

and repeatedly challenged. Dissonance between thought, feeling, and action had generally been reconciled and a higher level of integration achieved. At six months some individuals maintained and consolidated the gains demonstrated at two months (Nonconforming Normals, Manic-Impulsives, Normal Depressives). Others displayed further personal growth which was still in progress (Anxiety Neurotics, Intellectual-Compulsives). Still others showed a tendency to regress from the level of improvement indicated at two months (Borderline Psychotics, Hysterics). In these subjects, either the pull of well-entrenched maladaptive defenses and/or an uncongenial life environment undermined to some extent the favorable personality alterations demonstrated earlier.

With regard to the nature of changes characterizing different personality types, shifts tended to occur consistent with the symptoms and defense pattern of a given group. Anxiety neurotics were less anxious, compulsive, and withdrawn while close relationships were more gratifying. In contrast, impulsive, hyperactive subjects led a more orderly, less hectic existence and displayed greater impulse control.

The "illness-oriented" nature of these findings reflects the fact that two-thirds of the total sample resembled the typical case load of an outpatient psychiatric clinic. The remaining one-third did not present complaints of a psychiatric nature and revealed minimal emotional disturbance according to both diagnostic evaluation and psychological test data. Instead, the interest expressed by these subjects seemed to be "growth-motivated" rather than "deficiency-motivated." Some were dimly aware of potentialities which they hoped to activate and develop more fully. Others expressed a feeling of emptiness and lack of meaningful purpose while adequately meeting the exigencies of life. Still others sought a deeper understanding or more satisfying resolutions to problems of an existential nature.

As a result of their stable life circumstances and relative freedom from neurotic disturbance, these subjects were more likely to grapple with ultimate problems during the LSD experience. In addition to self-identity and personal worth, questions of love, death, creation and rebirth, and the resolution of life paradoxes received frequent attention. Unlike the neurotic group, childhood memories, intrapsychic conflicts, and specific interpersonal relations were explored minimally. Accounts of the experience written shortly afterward revealed that healthier subjects were less likely to view the psychedelic state as fantastic or totally dissimilar from previous experience. These personal reports together with clinical evaluations and ratings also indicated that this group benefited considerably from the psychedelic experience along the lines of self-actualization, richer creative experience, and enhancement of specific aptitudes and talents. At the present time, these tentative findings are being investigated more objectively with measures appropriate for a normal sample. Thus it will be possible to compare individuals, differing in personality and presenting problems,

with regard to health-growth dimensions as well as decreases in pathology.

Since most subjects in this series of studies were college trained and psychologically sophisticated, it is noteworthy that the frequency of occurrence of transcendental-like experiences is apparently as great in "naive" prisoners and alcoholics (Unger, 1964). Such communalities are not surprising in view of the key role placed by universal and personal symbolism in psychedelic experiences and the relatively weak role of the conscious self (including verbal facility, accumulated knowledge, and intelligence). What seems to be effected by subject-differences is the *content* of the experience, rather than its *form*, *intensity*, or *profundity*.

Differences in the thematic content of the experience were found among subjects with diverse cultural backgrounds. For example, wide individual differences were demonstrated with respect to content in the frequent experience of unity. However, the fact that the majority of subjects experienced a sense of unity or oneness seems far more significant than whether the unity was felt with self, nature, the universe, God, or some combination of these. This is merely another way of saying that to the degree an individual can verbalize the experience, he will draw on his own particular semantic framework and belief system. One can only speculate on the discrepancy between this communicated account of the experience and the experience itself.

These findings suggest that the profundity or intensity of a psychedelic experience is more crucially related to subsequent change than thematic content. More specifically, the hypothesis currently being tested is that subsequent transformations in values, personality, and conduct are a function of the experience's intensity, either positive or negative — or both. In other words, painful experiences can be as personally revealing and permanently beneficial as experiences of great joy and beauty.

The hypothesis that a profound and intense psychedelic experience, regardless of its emotional valence, can serve as a catalyst for rapid personal growth is consistent with current interpretations of both *nadir* and *peak* experiences. Concerning nadir experiences, Erikson's brilliant analysis of the post-adolescent identity crisis (1959) has recently been extended to include periodic "crises of maturation" (Kahn, 1963), naturally-occurring "desolation experiences" (Laski, 1961), and the therapeutic value of "existential crises" (Bugental, 1965). In each case, these writers emphasize that although negative and painful, a personal crisis is: (a) not pathological, (b) a critical choice point in life necessitating a "leap of faith", (c) an essential condition of growth and psychological change, and (d) often a catalyst for an emerging inner conviction or new awareness. The potential value of nadir experiences has been well-stated by Forer (1963, p. 280): "Crisis as a psychological experience is a part of any creative effort, scientific, artistic, therapeutic, or inter-personal".

With regard to positive revelatory experiences, Maslow recently developed the thesis that experiences referred to as religious, mystical, or transcendental actually denote special cases of the more generic "core-religious" or peak experience, described as the hallmark of highly self-actualized people (Maslow, 1964). Similarly, the extensive research on creativity by MacKinnon and his associates indicates that the truly creative person is distinguished from the noncreative individual by his capacity for "transliminal experiences" (MacKinnon, 1964). Following Harold Rugg's study of creative imagination, the transliminal experience is characterized by an illuminating flash of insight occurring at a critical threshold of the conscious-unconscious continuum. MacKinnon's description of the transliminal experience bears a striking resemblance to the more inclusive peak experience. Interestingly, Maslow (1964) suggests that psychedelic drugs may offer a means of producing a controlled peak experience under observation, particularly in "non-peakers."

Although tentative at this point, these lines of investigation seem highly significant and certainly suggestive of future directions in LSD research. And if the historical perspective described earlier is relatively accurate, the exploration of ways of expanding human consciousness will soon occupy a prominent position in the mainstream of contemporary psychology. Should this prediction materialize, we can look forward to a far more extensive application of these powerful agents as a means of facilitating social as well as individual potentialities. For the present, research with the psychedelics will continue to seek those conditions which maximize their safety, their effectiveness, and their human value.

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