LSD and Psychotherapy

RICHARD YENSEN*

In the four decades since the discovery of lysergic acid diethylamide (LSD), the scientific community had produced a torrent of research papers on the psychological effects and psychotherapeutic utility of this compound. This vast literature is confounded by the variety of results and conflicting claims about LSD. It is possible to create some order and understanding of this apparently bewildering data by considering the history and development of three major conceptualizations of the effects of LSD: (1) the *psychotomimetic* view that LSD creates a model psychosis; (2) the *psycholytic* view that LSD alters the relationship between the conscious and unconscious portions of the personality, thereby creating a state useful in psychoanalytically-oriented psychotherapy; and (3) the *psychedelic* view that LSD facilitates peak and mystical experiences when administered in the proper dose and setting. The latter experiences are considered to be capable of producing profound, lasting and positive changes in personality.

The origin of the psychotomimetic (psychosis-mimicking) view precedes the discovery of LSD. The existence of a substance capable of creating schizophrenic or catatonic psychosis was suggested around the turn of the century by Kraeplin (1892), who suggested that schizophrenia and catatonia might be produced by an endogenous toxin that poisoned the brain. In 1924, Louis Lewin—an extremely influential German pharmacologist—published a seminal volume titled *Phantastika—Die Betaubenden und Erregenden Genussmittel*, which was published in English in 1964 as *Phantastica—Narcotic and Stimulating Drugs—Their Use and Abuse*. Lewin described a category of drugs, phantastica, that included the peyote cactus (*Lophophora williamsii*) and that would have reasonably included LSD. He suggested that these substances could be extremely useful to ethnologists and students of religion. In addition to describing mystical and transcendental effects, Lewin mentioned that phantastica can create a mental state similar to psychosis, which he felt ought to interest psychiatrists. He concluded that phantastica gave rise to sensory illusions.

*Institute for Human Development, 2403 Talbot Road, Baltimore, Maryland 21216.

THE PSYCHOTOMIMETIC PARADIGM

Lewin appears to have been the first to conceive of a psychotomimetic categorization for the effects of phantastica. His understanding of the drugs in this classification far surpassed that of his contemporaries. His colleague, Kurt Beringer (1927), published an influential book on the effects of mescaline—the major psychoactive ingredient of peyote—in which he described the drug as purely psychotomimetic in its effects.

In 1928 Heinrich Klüver published a monograph titled *Mescal: The Divine Plant and Its Psychological Effects* that examined the sensory and perceptual phenomena occurring after the ingestion of the peyote cactus. In his choice of title he demonstrated the powerful association of peyote with divinity and religious ritual established by anthropological reports on indigenous use (Shonle 1925; Gilmore 1919; Daiker 1914). The link with ritual prevented the claims of the psychotomimetic school

from totally dominating the literature about peyote. The cactus might induce madness, but certainly the madness must have divine aspects if the Indians used it in their rituals. Klüver (1966: 55) did acknowledge the "Mescal Psychosis" in the title of the fourth chapter of another of his books and focused more on the power of the altered state experience to affect normal consciousness: "In some individuals the 'ivresse divine' . . . is not very pleasurable; in fact it is rather an 'ivresse diabolique.' But in either case it is true that the experiences in the mescal state are not easily forgotten. One looks 'beyond the horizon' of the normal world, and this 'beyond' is so impressive or even shocking that its after-effects linger for years in one's memory."

The psychotomimetic paradigm was furthered by the publication of an article titled "Mescaline and Depersonalization" (Guttman & Maclay 1936). This article in turn prompted G. Tayleur Stockings to publish "A Clinical Study of the Mescaline Psychosis, With Special Reference to the Mechanism of the Genesis of Schizophrenic and Other Psychotic States." Stockings (1940: 29) completely embraced the paradigm of psychomimesis: "The discovery of mescaline . . . has placed in our hands the property of reproducing in a normal individual all those phenomena which are met with in psychotic patients, without risk to the individual."

THE DISCOVERY OF LSD

Following the synthesis of LSD in 1938 at the Sandoz Research Laboratories in Basel, Switzerland, by Albert Hofmann, the substance was set aside for later study. In 1943 Hofmann decided to explore the possible psychological effects of the substance. The first step was to synthesize a fresh batch of LSD. After completing the synthesis, Hofmann found himself restless and dizzy. He stopped work, rode his bicycle home and went to bed, where he experienced "a not unpleasant state of drunkenness which was characterized by an extremely stimulating fantasy." With his eyes closed, Hofmann (1975: 111) experienced an inner world populated by "fantastic images of an extraordinary plasticity. They were associated with an intense kaleidoscopic display of colors." These symptoms lasted for only about two hours.

Hofmann wondered afterward if it was possible that he had absorbed some of the LSD during the synthesis, but was somewhat suspicious of this explanation because it implied that the compound was unbelievably potent. He decided to experiment by ingesting what seemed to him a most conservative amount of LSD, 250 micrograms (μg) or 250 millionths of a gram. Hofmann (1975: 111-115) learned that he had discovered the most potent psychoactive substance known and gave a detailed account of the experience.

Because Hofmann's description contained statements reminiscent of depersonalization and autistic thinking—and possibly because of the influence of Beringer and others who elaborated on the original psychotomimetic conception suggested by Lewin as but one facet of phantastica—LSD came to be described and studied as the inducer of a model psychosis. The strength of this concept is not to be underestimated, for it served the same organizing and limiting functions for research in this area as have the other major paradigms of science described by Thomas Kuhn (1970) in the *The Structure of Scientific Revolutions*. The belief that LSD and related substances mimic psychosis dominated the research of the late 1940's and came to the United States in 1949 when LSD was first introduced.

The psychotomimetic view gained wide exposure among Western researchers investigating the effects of LSD on human subjects. It served as a point of departure and consequently affected the direction, design and results of experiments throughout the early 1950's. This assumption has continued to appear in the literature, although it represents only one aspect of the multifaceted subjective reactions to LSD. The psychotomimetic understanding of LSD has been as tenacious as it is incomplete, probably because it allowed researchers to think in a familiar way by associating a specific drug action with LSD.

The appeal of the model psychosis viewpoint to investigators included the resurrection, with a new scientific basis, of the old theory of the endotoxic origin of schizophrenia and catatonia. This was synergistic with the excitement over the introduction of major tranquilizers. Their dramatic effects led many psychiatrists to the supposition that with the aid of the research on antipsychotic and psychotomimetic drugs the understanding of the riddle of schizophrenia was imminent and it would have a biochemical solution.

THE PSYCHOLYTIC-THERAPEUTIC ADJUVANT PARADIGM

In 1950 a new experimental paradigm began emerging with the publication of an article by Busch and Johnson that described LSD as an aid to psychotherapy. They had observed that psychotic patients were sometimes able to verbalize repressed components of their conflicts during a toxic delirium.

They had interviewed patients under the influence of sodium pentothal, sodium amobarbital, insulin shock and during recovery from electroshock therapy. Their many failures as well as a few successes with these techniques led them to investigate pharmaceuticals that might induce

a temporary state of delirium. Sandoz offered LSD as a possibility. Consequently, small doses (30 μg for females, 40 μg for males) were given intramuscularly to 21 psychotic and eight neurotic patients. Busch and Johnson (1950: 243) concluded that "on the basis of this preliminary investigation, LSD-25 may offer a means for more readily gaining access to the chronically withdrawn patients. It may also serve as a new tool for shortening psychotherapy. We hope further investigation justifies our present impression."

In 1953 Walter Frederking of Hamburg, West Germany, published one of the first European articles on LSD as an adjunct to psychotherapy in *Psyche*, and in 1955 he published a similar article (in English) in the *Journal of Nervous and Mental Disease*. Frederking used low doses of LSD to shorten the course of therapy, to ease affect or memory blocks, and to promote catharsis. This was claimed to produce positive results in the context of ongoing psychoanalytic treatment.

In 1954 Sandison, Spencer and Whitelaw published an article in England that emphasized the abreactive qualities of LSD. Being of a Jungian persuasion, they described contact with the healing archetypes of the collective unconscious as the curative factor in their therapy with neurotics. Sandison, Frederking, Leuner, Alnes, Arendsen-Hein and others later formed an association of European psycholytic therapists. Psycholytic therapy may be defined as the use of LSD and similar drugs in low to moderate doses with the aim of shortening and facilitating psychoanalysis and psychoanalytically-oriented psychotherapy. This involves multiple drug sessions (from two to 100) within the framework of an ongoing therapeutic relationship.

The psycholytic school gained considerable support in Europe and the United States in the early 1960's among psychiatrists with an analytic background. A large number of articles that cited favorable results was published from 1953 to 1967 (e.g., Abramson 1967; Rolo et al. 1964; Butterworth 1962; Chandler & Hartman 1960; Ling & Buckman 1960; Eisner & Cohen 1958; Martin 1957; Sandison & Whitelaw 1957; Frederking 1955; Sandison, Spencer & Whitelaw 1954). The psycholytic approach focuses on regression to and reexperience of painful childhood memories. Some psycholytic therapists, such as Sandison, reported encounters with Jungian archetypes of the collective unconscious, but the more usual approach among therapists of this school of thought is to regulate drug dosage to produce material from the patient's personal history. Experiences with a mystical flavor are usually interpreted as wish-fulfillment or regressive avoidance of traumatic material. Material of a primordial or archetypal nature is often felt to be a symbolic psychotic defense and indicative of excessive drug levels.

The psycholytic-therapeutic adjuvant paradigm emerged quite smoothly from the psychotomimetic view, often maintaining the concept that LSD was a toxin. As previously mentioned, the original investigators who reported therapeutic utility began with the intention of creating a toxic delirium in their patients. However, therapists later realized that clear memory for the experiences under the effects of LSD was of primary importance for the therapeutic integration of new insights into normal consciousness. The most helpful quality of the LSD experience is not a characteristic of delirium. Patients under the influence of amobarbital, sodium pentothal, insulin shock or electroshock recovery all are plagued with amnesia, slurred speech and a profound delirious alteration of consciousness that makes communication extremely difficult or impossible. In this light, LSD seemed to be almost the perfect adjuvant to psychotherapy. An excellent example of the psycholytic-therapeutic adjuvant paradigm description of LSD was given by Ling and Buckman (1963: 40-41) in *Lysergic Acid (LSD-25) and Ritalin in the Treatment of Neurosis*. Researchers did not immediately recognize this difference between LSD's effects and delirium, probably because of the effects of the psychotomimetic paradigm (i.e., toxic psychosis) on their conception of LSD. To recognize this and other unique qualities of the new drug would require the creation of a new paradigm.

The early reports that LSD was useful in therapy were anecdotal clinical notes, not scientific studies. Advocates of the psychotomimetic paradigm, in contrast, had published many seemingly respectable scientific papers studying the model psychosis, including double-blind clinical trials. Nevertheless, several researchers began to question the assumptions underlying the psychotomimetic school (e.g., Felsinger, Lasagna & Beecher 1956; Savage & Cholden 1956). Hollister (1962: 81) published a description of the effects of certain phantastica (LSD, mescaline and psilocybin) and observed that the adjectives used to describe the effects of LSD in the psychotomimetic literature were primarily negative clinical judgments: "Somatic symptoms (nausea, loss of appetite, dizziness, blurred vision, weakness, drowsiness and trembling) are frequent, usually associated with sympathomimetic effects. Perceptual changes are impressive, especially the marked visual illusions and hallucinations, less often increased acuity of hearing. Psychic changes are also marked (decreased concentration, slow thinking, difficulty in expression, depersonalization, dreamy states, changes in mood and anxiety)."

The attempt of the psychotomimetic school to fit the effects of a new drug into old diagnostic and prescriptive frameworks gives an important insight into the effect that

paradigms have on the perceptions of researchers. Because both psychosis and delirium had been extensively described, researchers naturally began their exploration of this new drug's effects by applying old descriptors to the new phenomenon. It took many years to begin reappraisal of these initial impressions, which had biased attempts at scientific investigation. The psychotomimetic and psycholytic viewpoints on LSD's effects and applications were then joined by a third, more radical, view of the new substance.

THE PSYCHEDELIC PARADIGM

Abram Hoffer and Humphry Osmond came to a reassessment of the effects of LSD following a study in which they administered large doses of the drug to chronic alcoholics. The hypothesis that guided the design of this study was psychotomimetic. Hoffer and Osmond thought that a large dose of LSD might mimic delirium tremens and produce an experience that was frightening enough to discourage further drinking behavior. Instead they found that the alcoholics who benefited from the treatment program were those who reported mystical experiences through which they gained new insight into the meaning of life (Hoffer & Osmond 1967; Osmond 1957, 1952).

The possibility of attaining mystical experience through drug ingestion rather than years of hardship, yearning, prayer and meditation was repugnant to conservative religious scholars and clergymen. One scholar (Zaehner 1957), after having a psychotomimetic experience, wrote a scathing indictment of chemically induced religious experiences. Of course, drug-induced mystical experiences were already a part of Western scientific literature. For example, William James (1902) had written of his transcendental experiences with nitrous oxide in *The Varieties of Religious Experience*.

In 1957 Humphry Osmond introduced the term "psychedelic" (mind-manifesting) to provide a label for experiences of great and lasting benefit. He and other investigators employing LSD had observed profoundly positive personality changes in their subjects following transcendental or mystical experiences. Osmond proposed psychedelic as a new label for these substances and their effects, in the hope of liberating scientific investigation from the enduring influence of the psychotomimetic paradigm, which offered limited fields of application and a definite pejorative bias.

Osmond (1957) reported that LSD, mescaline and psilocybin were useful not only in studying psychopathology, but might shed new light on the greatest philosophical enigma of human existence, the purpose and meaning of life: "Our subjects . . . include many who have drunk deep of life; authors, artists, a junior cabinet minister, scientists, a hero, philosophers, and businessmen. . . . Most find the experience valuable, some find it frightening, many say that it is uniquely lovely. If mimicking mental illness were the main characteristic of these agents, psychotomimetics would indeed be a suitable generic term. It is true that they may do so, but they do so much more. . . . I have tried to find a more appropriate name."

The psychedelic paradigm proposes therapeutic improvement in patient populations and superior adjustment in persons of normal adjustment after phantastica-induced experiences of a death-rebirth, mystical type. The focus in the psychedelic approach is on the mystical insights gained through the drug experience as potentially curative. Psychotherapy is considered to be a preparatory and facilitative for the mystical peak experience rather than the object of drug facilitation itself, as in the psycholytic-therapeutic adjuvant paradigm.

In the psychedelic paradigm there is a return to a more ritualistic use of phantastica. Not surprisingly, Osmond (1961) reported contact with the tribal, ritualistic use of peyote. In ancient Greece a similar attitude was held toward the value of healing dreams. The temple of Aesculapius was originally held to be a place of great healing energy where a person suffering from illness might come, sleep and have an intrinsically curative dream. The rite changed somewhat over time and the temple attendants or *therapeutēs* came to serve as interpreters of the healing instructions concealed within the symbolism of the dream.

The dreams came to be regarded less as the couriers of some healing force or experience and more as cryptic messages indicating the procedure to be followed for curative results (Reed 1975). The English word "therapist" can be seen to have more than an etymological origin in Greek. The introduction of the psychedelic model was a return on the part of therapists to a role more closely approximating that of the earliest Aesculapian temple attendants.

An eloquent spokesman for the psychedelic view has been Charles Savage, a psychoanalyst and researcher who moved from a psychotomimetic to a psycholytic and finally to a psychedelic view of phantastica. Savage, Terril and Jackson (1962: 426) wrote about alcoholics and psychedelic treatment: "Our conception is that alcoholics live an inauthentic existential modality (i.e., alienation), and that illness arises from an inability to see meaning in life. LSD provides an encounter which brings a sudden liberation from ignorance and illusion, enlarges the spiritual horizon and gives new meaning to life." It is interesting to note that these researchers referred to LSD as having some intrinsically curative properties, as if this

sort of reaction was usual. This posture is common to many researchers using the psychedelic model, just as the psychoadjuvant model sees the psychodynamic reaction as usual and the psychotomimetic model sees the psychotic or psychosis-mimicking reaction as usual.

It is clear that differences among the competing paradigms are great. This conclusion was inescapable as early as 1959, when the Josiah Macy, Jr., Foundation sponsored an LSD conference (Abramson 1960). Investigators of the psychotomimetic persuasion indicated that their subjects found the LSD experience a horrifying one and lacked any desire to repeat it. This was in keeping with the earlier published conclusions of Paul Hoch (1957: 442; 1955: 788), one of the leaders in the psychotomimetic group, that mescaline and LSD are essentially anxiety-producing drugs and that "LSD and mescaline disorganize the psychic integration of the individual."

At the same meeting, Mortimer Hartman reported (Abramson 1960: 115, 132) that his group had two Freudians and two Jungians. He noted that after LSD experiences, the patients of therapists with a Freudian view reported a higher incidence of childhood memories, whereas the patients of the Jungians more frequently reported transcendental experiences. The patients of both these groups achieved considerable therapeutic improvement after these experiences. What was particularly fascinating, however, was that when Freudian patients *accidentally* reported transcendental visions, they were not accompanied by improvement. It is also interesting that although transcendental experiences are reported in anthropological accounts of phantastica, childhood memories are apparently unmentioned in the literature of anthropology or in the early experimental work.

Savage, who as previously indicated had been a member of each of the competing groups, gave an excellent summary of the results of this first conference (see Abramson 1960: 193-194):

> 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.

In Savage's remarks one can see an emerging respect for and recognition of the importance extrapharmacological variables have in determining the drug reaction. These extrapharmacological factors have also been called set and setting. Set refers to the attitude of the individual taking the drug: the personal history, psychological condition, expectations for the experience, and the relationship with the person administering the drug. Setting refers to the physical surroundings and its power to suggest a certain response or interpretation.

EXTRAPHARMACOLOGICAL FACTORS: DEMAND CHARACTERISTICS

When considering the demand characteristics (the cues that communicate what is expected of the subject and what the experimenter hopes to find) of the experimental situation encountered by subjects participating in the early psychotomimetic studies, the results become understandable and are a direct consequence of the belief by researchers that LSD was a psychotomimetic agent. These researchers frequently wore hospital-like laboratory coats and either openly shared their belief that this drug would produce a temporary psychosis or unwittingly communicated to the subjects what response was expected. The subjects found themselves in a novel situation and were extraordinarily open to accepting the experimenter's clues as to what interpretation to give an ambiguous, but powerful, change in subjective state.

LSD may also produce a state of extraordinary emotional lability that allows the ongoing experience to change according to the interpretation given by the experiencer. In a psychotomimetic setting the likelihood of a psychotomimetic response is increased because through their actions the experimenters provide the subjects with a framework for interpreting his/her responses. What results is a sort of mutual hypnosis in which the boundaries of the experimenters are lowered along with that of the subjects and information about the expected response is shared, often without the conscious awareness of the participants in this pseudoscientific drama.

In a psycholytic-therapeutic adjuvant setting, the experimenter provides an environment with specific demand characteristics that generally direct the subject toward the recall of past experiences. Naturally, the psycholytic subjects produce such experiences with much higher frequency than would be the case in a psychotomimetic environment. The limits of the interpretational systems used in psycholytic therapy often lead the therapist to manipulate doses in order to minimize the occurrence of experiences that fall outside the interpretational mainstream of the analytic system in use.

In the psychedelic setting there is a decisive orientation toward the production of a mystical-religious experience. Large doses of LSD are used to facilitate dramatic changes in consciousness with a powerful, overwhelming quality, and to bring subjects into transpersonal and collective dimensions of awareness. The environment is prepared to be as aesthetic as possible. For instance, music may be used that has been carefully selected for its evocative and religious qualities. The therapist's communication to the subject is weighted in a mystical-religious direction.

Phantastica, such as LSD, mescaline or psilocybin, appear to be unique among psychoactive compounds in their extreme sensitivity to extrapharmacological factors. This has created a tremendous problem for researchers attempting to assess the effects of these drugs. Every researcher has his/her bias and opinion about what the drugs do or at least has been exposed to the thinking of others in this regard. This communication of ideas influences the approach taken in studying the effects of the drugs and the interactions with the subjects in the studies.

Another issue that was debated in the literature was whether or not the experimenter should experience the effects of LSD. Whether the experimenter had experienced LSD or not, this question clearly reveals the controversy that raged about the nature of the LSD experience. It is evident that virtually all of the clinical research with LSD in human subjects has been affected by the biases of the researchers and clinicians involved. It is also ethically and scientifically relevant to consider that attempts to create an unbiased environment may be potentially damaging when dealing with human subjects and LSD. An examination of society's reaction to the introduction of these drugs is pertinent to the discussion of factors that influence research.

SOCIOLOGICAL AND JUDICIAL REACTION

In 1962 Timothy Leary and Richard Alpert—two Harvard psychologists conducting research with LSD, mescaline and psilocybin—had their contracts terminated by the trustees of the university. This touched off a series of articles in the popular press about the "Harvard drug scandal" and the growing popularity of LSD among college students. There were many so-called authoritative articles that appeared in the press, written by misinformed journalists who had paid little or no attention to professional articles and books on the topic. This irresponsible stance was joined by Leary's ill-advised travels around the country advocating the use of LSD. The birth of the counterculture centered around, among other things, the use of LSD and marijuana. All this attention provoked a series of legislative actions that made unauthorized manufacture and sale of LSD illegal as well as its use by the general public.

In March 1967 a new scandal arose over reports (Cohen, Marinello & Back 1967) of genetic damage from LSD use (for a review of this research see Dishotsky et al. 1971). The early findings were based on the application of extremely large doses of LSD to human cells cultured in the laboratory. The mean rate of chromosomal breakage increased in the cell cultures receiving the largest doses of LSD. Even though caffeine, aspirin and many other commonly-used drugs would do the same, LSD was singled out and depicted as the sole offender in the lay press. It should be noted that how such in vitro experiments on blood cells extrapolate to the living organism and its reproductive cells is open to speculation.

Later, controlled studies with human volunteers (Tjio, Pahnke & Kurland 1969; Bender & Sankar 1968) failed to confirm early reports of chomosome breakage. The popular press covered the previous breakage scare impeccably, which was no doubt partly a consequence of the general alarm about LSD abuse by the country's youths. In increasing numbers, young people were being exposed to experiences beyond the psychosocial frontiers of society's world view. There seemed to be no reasonable approach to stopping this spreading menace to the prevailing social order until the chromosome breakage results were announced. There was little press coverage of the subsequent studies with contrary findings.

EFFECTS ON RESEARCH

The combination of illicit use and reports of genetic damage resulted in legislation severely limiting the availability of LSD and related drugs to responsible researchers wishing to conduct studies with human subjects. In 1965 there were over 200 research projects in this country using LSD or other phantastica in human subjects. Presently there is no research institution actively conducting clinical trials with LSD and human subjects in the U.S. The Maryland Psychiatric Research Center in Baltimore was the last institution to stop its clinical research with LSD and related drugs. However, approval to treat cancer patients with LSD-assisted psychotherapy has been given to the research group in Baltimore (Di Leo 1980).

In a late 1960's survey of researchers (Dahlberg, Mechaneck & Feldstein 1968) that were using or had used LSD in studies on human subjects, it was reported that many felt that lay publicity had adversely affected subject recruitment, subject attitude and the scientific respectability of their work. Several of the researchers also reported difficulty in recruiting staff as well as changes in attitudes of therapists to an overcautious and even fearful stance.

Although street use of LSD appears to have been self-limiting (McGlothlin & Arnold 1971), the official governmental and institutional response to illicit use has been crippling to scientific research in this area.

IMPORTANT ISSUES IN LSD RESEARCH

Research with LSD and related compounds in human subjects is beset with considerable methodological difficulty. One area in which there has been criticism is the absence of control groups. In those studies utilizing controls, the procedure has been to assess the effects of drug factors by controlling for the placebo effect. This is a most difficult and questionable task. If the double-blind technique is used, then in order to make the blind effective a drug must be found that the experienced therapist will mistake for LSD in its activity. This pseudo-LSD must not possess the therapeutic qualities of the drug from which it is indistinguishable. Such a drug has yet to be found. The easily distinguishable differences between a subject under the effects of a placebo and one under the effects of LSD are obvious to the experienced observer.

In Walter Pahnke's classic "Good Friday" experiment (1963), half of his sample of seminary students received niacin as a placebo. Niacin provided subjects with a flushed sensation intended to stimulate some drug action. The subjects who received niacin were readily distinguished by the guides and were themselves aware that they had received a different substance than the experimental group. The psilocybin group wrote reports about their experiences that were all in excess of three pages in length, whereas the control group's reports were all quite concise. In their subjective reports, all of the control group complained that aside from some flushed feeling, they experienced no drug action. A few of these subjects complained about the unusual behavior of the experimental group. So in this attempt at a double-blind study there was in fact no blind at all. The double-blind studies in the literature are better described as double-blind *attempts*, because in actuality the blinds were not effective.

Focusing on the drug effects and controlling for the placebo effects in the study of psychotherapy is of limited value, because psychotherapy itself meets all the qualifications of a placebo. The placebo and psychotherapy parallels were clearly outlined by Shapiro (1964: 56): "The placebo is defined as the psychological elements in treatment; psychological elements constitute psychotherapy; therefore psychotherapy is a placebo."

The double-blind design has been questioned (Tuteur 1958) even in the area of its greatest stronghold, the evaluation of psychotropic drugs—usually tranquilizers and antidepressants. The validity of inert and active placebos has been questioned by Ditman (1963). The inactivity of any substance had been disputed by Shapiro (1964), and the possibility of isolating any pure drug effect from the field of administration has been questioned by Lyerly and colleagues (1964).

The difficulty noted in maintaining a true double-blind protocol in research with LSD has been directed at research with psychotropics in general (Barsa 1963). Rickels (1963) held the double-blind design to be impractical for psychiatric research because of its departure from medical ethics. He mentioned that studies without a double blind may be influenced by the experimenter's optimistic and enthusiastic bias, but pointed out that clinical trials can just as easily be influenced by an explicit or implicit negativity in the experimenter's relations to the subjects. These observations are more relevant to research with LSD than to medical research in general, inasmuch as this particular drug is among the psychoactive substances most readily influenced by extrapharmacological factors. These factors cannot be simply discarded, because an important ingredient in both successful psychotherapy and placebo are the positive expectations of the patient and the therapist.

It is not feasible to assess a drug or treatment, particularly a psychotherapeutic one, in a vacuum without the intrusion of psychological, sociological and cultural factors (Dobkin de Rios 1975). It has become clear that LSD is not intrinsically therapeutic, regardless of milieu (Savage 1960).

Central to this discussion is the contention that placebos are valid tools for medicine and psychotherapy, and that their effects are real. While the discovery of the placebo effect is recent, the effectiveness of suggestion has been known throughout human history. Krasner (1962) has mentioned the placebo effect as the primary element in all influencing processes. Moreover, if LSD is considered to be a nonspecific catalyst of mental activity—inasmuch as all attempts at linking LSD with specific effects on consciousness have failed—it is apparent that set and setting must be appropriately utilized if specific results are to be achieved. It is also apparent that these drugs, as early researchers pointed out, have a diversity of uses. Therefore, the experimenter must begin by asking whether or not a specifically desired result may be produced in a specifically designed set and setting, accompanied by a given attitude on his/her part and on the part of the subject. This result cannot be attributed to the influence of one or the other of the specific elements within the experimental field, but it comes about through the interaction of all of the elements in the experimenter-subject field. One valid question would be, Can the given experimental field affect a given subject population to

produce a given set of results with some reliability? And a subsequent question would be, Is it possible to describe the important variables in this field well enough so that another experimenter could produce the same results?

Psychotherapeutic research on LSD has, to an unfortunate extent, failed to consider and/or describe variables beyond the drug and dose used. Although set and setting have been known to be crucial elements in drug research for some time, the literature on LSD and related compounds is remarkable for the almost total absence of any thorough description of set and setting. The myth of objectivity that cloaked all of these studies was maintained by the failure to describe the biases of the experimenters and the milieu in which the studies were conducted. With this shortcoming in mind, perhaps a new generation of researchers may be better equipped to report their investigations with greater candor and thus enhance possibilities for understanding and replication. As a result of the collective naiveté of the investigators of LSD and related drugs, the literature is rich in the variability of its results and premature in most of its conclusions.

Despite the problems and criticisms of LSD research presented here, there is significant evidence that this substance is useful in psychotherapy. Reports of therapeutic efficacy published by researchers embracing the psycholytic and psychedelic paradigms indicate that a broad range of disorders are amenable to treatment with LSD. Most of this literature is based on clinical impressions rather than controlled studies. This fact prompts many scientists to reject the findings without understanding the factors that make controlled studies with LSD impractical and unethical. Nevertheless, there is an impressive consistency of positive reports across theoretical and cultural orientations. In over 300 articles, researchers described findings that group and individual psychotherapy may be enhanced by the use of LSD and similar drugs (e.g., Hoffer 1965; Mogar 1965; Spencer 1963). The most impressive results mentioned were for chronically unresponsive patients. The reports encompassed the major schools of psychotherapy and spanned the world's cultures from the Americas to Europe to Asia.

THE PSYCHODELYTIC PARADIGM AND THE MARYLAND PSYCHIATRIC RESEARCH CENTER

As previously mentioned, the Maryland Psychiatric Research Center was the last facility in the U.S. to conduct clinical studies with LSD and related compounds, and a review of the direction and intent of this work will prove helpful. Research with LSD began at this center in 1962. The early studies were large-scale attempts at controlled applications of LSD to inpatient alcoholics. This research used the psychedelic paradigm, focusing on the production of a single overwhelming mystical-religious peak experience. The greatest therapeutic gains were observed when this end was achieved.

As the clinical staff viewed individual cases who returned for additional treatment several years after the original studies, it became apparent that these individuals had experienced a relatively long-term withdrawal from alcohol (i.e., up to five years). It seemed that the psychedelic, peak therapy provided these individuals with a mystical experience and new insight into the meaning of their lives. However, the new sense of meaning in their lives slowly diminished following the treatment because important conflicts were not completely worked through in the preparatory and post-LSD integrative therapy. For varying amounts of time these individuals remained sober, but when confronted with high-stress situations they responded by drinking. These cases indicated that psychedelic psychotherapy might be improved by the inclusion of a more traditional analytic approach.

Consequently, the last research conducted with LSD and related substances at the Maryland Psychiatric Research Center was guided by the psychodelytic or extended psychedelic paradigm. This approach involved several high-dose sessions with a psychedelic drug in an environment that had been previously used for psychedelic therapy. The number of sessions was increased and the theoretical framework expanded to include a greater emphasis on personal dynamics, perinatal dynamics (Grof 1976), ego transcendence and other transpersonal experiences. The thorough exploration of the personal history of the patient was recognized as an important factor determining the facility with which the individual would achieve a peak experience. Thus the aim of this therapeutic approach was to work through the early childhood traumas that surfaced in the course of individual psychotherapy and the early drug sessions.

Working through these traumas was aided by later mystical experiences that were used to integrate traumatic memories from childhood. These profound experiences provided the patient with a deeply experiential, philosophical position from which life had new meaning: life itself was intrinsically healing. This approach combined the positive aspects of the psychedelic and psycholytic paradigms (Di Leo 1975-76; Grof 1969).

The Clinical Sciences Division of the Maryland Psychiatric Research Center conducted several studies using the psychodelytic approach on neurotic outpatients and inpatient alcoholics by administering compounds with a shorter duration of action than LSD, such as dipropyltryptamine and psilocybin (Richards & Berendes

1977-78; Rhead et al. 1977). The results of these studies and a pilot study (Yensen et al. 1975) that explored the use of the milder psychedelic drug MDA (3,4-methylenedioxyamphetamine) in neurotic outpatients had promising results. The psychedelic paradigm appeared to be most useful in work with terminal cancer patients (Richards et al. 1977), whereas the newer, more involved paradigm seemed most promising with neuroses and character disorders (Richards & Berendes 1977-78; Yensen 1973). All psychotherapeutic research with LSD and related substances at the Maryland Psychiatric Research Center were focused on individual psychotherapy.

A CONTEMPORARY APPROACH TO GROUP THERAPY

Working in Mexico City (in the late 1960's and late 1970's) and greatly influenced by the indigenous use of psychedelic plants in that country, Salvador Roquet (Roquet et al. 1975; Roquet 1971) developed a most intriguing form of group therapy. Most notable in Roquet's approach, which he called psychosynthesis, is the use of group demand characteristics and audio-visual stimuli (Yensen 1973). A detailed description of this technique is beyond the scope of this article, but a review of the innovative aspects of Roquet's approach will reveal interesting new directions for future research.

Roquet was, to the best of this author's knowledge, the first therapist-researcher who employed psychedelics to be profoundly influenced by indigenous groups. In Mexico there are several Indian cultures that have been using plants containing psychedelics in their healing ceremonies for several centuries. Roquet visited the shamans of several of these groups and developed his approach as an attempt to create a modern healing ritual that would combine psychotherapy with the ancient shamanistic practices (Roquet 1971).

One of Roquet's sessions would typically involve from 10 to 20 patients and would last for 18 to 22 hours. The patients would be a carefully selected mix of classes, sexes and diagnoses. The patients' interactions with each other would help to structure the expectations for the session. Individuals who were about to finish their therapy would talk with patients just beginning. Naturally, the subculture of patients regarded therapy as useful, and communicated these expectations to the new members of the group. This self-reinforcing group process established great and positive expectations that enhanced the patients' receptivity to the treatment approach involved.

During the actual drug sessions, the patients would be given any one of a number of different psychedelic substances, such as LSD, psilocybe mushrooms, peyote or morning glory seeds. The environment was manipulated by Roquet and his assistants using three stereo sound systems, several 35 mm slide projectors as well as 8 mm and 16 mm motion picture projectors. By using this equipment in different combinations, the environment could be modulated throughout the session from calm and comforting love scenes to overwhelming confrontations with horror and violence. This environment would be used to create a devastating and frightening encounter with the unconscious. During these sessions powerful catharsis and intense abreaction were common. Roquet would integrate the material released in the session during the following morning and afternoon using family pictures and dialogues between the group participants and significant family members.

Psychosynthesis—not to be confused with the psychosynthesis of Roberto Asogioli—was oriented toward both psychodynamic material focusing on the Oedipus complex and on transpersonal material with a great emphasis on love, the meaning of life, and religious experiences. Patients would experience one drug session per month followed by a nondrug consultation. Occasionally the patient might receive an individual drug session. The patient population consisted primarily of persons with character disorders and character neuroses. The course of treatment was usually from 18 months to two years. Roquet reported encouraging results in 85 percent of his patients (Roquet et al. 1975).

SUMMARY

A review of the historical trends in LSD research clearly indicates that LSD and similar drugs are too powerful and unique in their psychological effects to be mistaken for and studied as just another group of psychotropic compounds. The importance of the theoretical understanding and expectations of the researchers in determining the subjective effects and results of LSD treatment is undeniable. In addition, double-blind controlled studies have been demonstrated to be an inappropriate methodology for studying LSD, because it is not feasible to create an effective blind for LSD with either an active or inactive placebo. It must be realized that when attempting to scientifically study such ephemeral and easily influenced processes as those involving human consciousness, methods of study may influence the process and outcome of the research.

In 1937 Werner Heisenberg demonstrated the uncertainty principle in relation to any attempt to measure with accuracy the minute processes of electrons in the atom. One must consider the possibility that current tools and methods for studying the effects of LSD are presently so crude as to demonstrate a similar uncertainty principle in LSD research: The methods of measuring actually

influence the process under study to such a degree that the results that are garnered are primarily the effects of attempts at measurement.

The continuing crisis in psychiatric and psychological treatment demands that the most powerful of the psychoactive drugs cannot simply be shelved and forgotten. The need is too strong to advance knowledge of the role and function of the human mind in health and disease. LSD and similar drugs hold a tremendous promise for humankind if only ways can be found to further understanding of how to use them responsibly and appropriately. Perhaps other societies that have integrated these substances into the very fabric of their social order may offer models. As Silberman (1970) has written: "No approach is more impractical than one which takes the present arrangements and practices as given, asking only 'How can we do what we are doing more effectively?' or 'How can we bring the worst institutions up to the level of the best?' These questions need to be asked to be sure; but one must also realize that best may not be good enough and may, in any case, already be changing."

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