"More Than Medical Significance": LSD and American Psychiatry 1953 to 1966

JOHN R. NEILL, M.D.*

Lysergic acid diethylamide (LSD) was synthesized in 1938 by Albert Hofmann for Sandoz, a Swiss pharmaceutical company. In 1943, Hofmann accidentally absorbed or inhaled a small amount (in the microgram range) of the substance and soon after experienced perceptual distortions. He even left an account of this, the world's first LSD trip (Hofmann 1959). From the beginning, psychiatry was interested in LSD. The first clinical paper was published in Switzerland. Stoll (1947), the investigator, gave LSD to various psychotic patients and produced what he thought was a nonspecific toxic delirium. Sandoz marketed the drug in tablets and in injectable form under the name of Delysid® (Hollister 1968) and it became available by prescription in Europe. In North America, work with LSD lasted more than 10 years, from 1953 through 1966. During this period, several thousand research communications were published regarding the substance. Yet, after 1966, when it was banned by federal law in the United States as an illicit substance, research virtually ceased.

LSD sparked some of the most acrimonious debate seen within the young speciality of psychiatry. That LSD proved to be a drug of "more than medical significance," in Humphry Osmond's phrase (1957), casts a revelatory light on psychiatry's relation to medicine, its patients and the government. Within the profession, LSD brought into question the difference between *therapist* and *patient*, the distinction between the *crazy* and the *sane*, and in the end tested the boundaries of the profession quite profoundly.

*Associate Professor of Psychiatry, University of Kentucky College of Medicine, Lexington, Kentucky 40536-0084.

Scientific methodology used by psychiatry would be found wanting, and the myth of a profession operating scientifically, untrammeled by the government, would be found to be false.

In this article, the history of LSD in American psychiatry will be briefly documented, concentrating on attitudes and responses by members of the profession expressed in the mainstream professional literature. Next it will look at what was revealed about the profession in its encounter with LSD, especially points bearing on its relation to clients, the rest of medicine, and the government. The literature dealing with the acid culture of the 1960's is not directly relevant to the purposes of this article and has been excluded.

When LSD first came to the U.S., it was given to normal volunteers, including Mennonite conscientious objectors, at the National Institute of Mental Health (NIMH) (Meyer 1969) and rather indiscriminately to "volunteer patients" at St. Elizabeth's Hospital (Katzenelbogen & Fran 1953). The development of the neuroleptic antipsychotic chlorpromazine (Thorazine®) at about this time had renewed interest in psychosis, especially schizophrenia. Researchers sought substances that would produce a *model psychosis* against which these antipsychotic drugs could be tested.

Although mescaline and other substances were known to produce perceptual distortions, LSD—now classed as "psychotomimetic" or "hallucinogen"—seemed the best candidate (Hollister 1968). Given to animals, schizophrenics and normal volunteers as a psychotomimetic, the drug produced symptoms, but not

the clinical syndrome, of schizophrenia. Hollister, an early and persistent worker in the area, wrote that interest in the use of LSD to reveal the biochemical basis of psychosis was on the wane by the mid-1950's. LSD thus entered psychiatry as an investigational agent, a status it has never entirely lost.

It is to LSD's ill-fated career as an investigational drug in psychotherapy that this article now turns. As early as 1953, there were published reports of psychotherapeutic success with LSD in Europe and North America. In 1955 it was a discussion topic on the program of the American Psychiatric Association Meeting held in Atlantic City, New Jersey. Two symposiums followed in the early 1960's on LSD and psychotherapy: the Göttingen Symposium in West Germany in 1960 and the Royal Medical Psychological Conference in England in 1961.

The symposiums were conducted mainly by and for clinicians who spoke about their work. These clinicians used LSD as an adjuvant to existing therapies, principally Freudian and Jungian psychoanalysis. Therapists felt the drug could facilitate regression to obtain early childhood memories, shorten therapy and, in particular, open up heretofore difficult patients, such as obsessive-compulsives and alcoholics. As LSD passed into the hands of therapists, who were not laboratory researchers, it came to be called a psycholytic, a term adopted at the 1960 Göttingen Symposium (Crockett, Sandison & Walk 1963).

Psycholytic therapy was being conducted in ways that made some uneasy. Martin Roth (1963) of the University of Newcastle reported, "My first introduction to the treatment of alcoholics was a certain university in North America [probably University of Saskatchewan's project run by Abram Hoffer and Humphry Osmond] where I was assured by one of the therapists that it was essential for the therapist to take the drug himself—otherwise he was totally incapable of empathizing with the patient." Other therapists reported using other approaches, such as conversation between therapist and patient, a supportive group and a permissive environment (Crockett, Sandison & Walk 1963). They found that they had to discard the analytic stance of free-floating attention, the cornerstone of psychoanalytic technique. To skeptics and critics alike, the experienced LSD therapist answered as the early psychoanalysts had: "If you haven't used LSD [been analyzed] you can't really understand." Sandison (1963) attempted to be understanding:

> Finally, religious and ethical considerations may lead to uncertainties through arousing emotional and biased attitudes in others, or particularly those whose experience of psycholytic drugs has only been from the outside or experimental situation. We would do well to clear our minds of any unduly mystical or ritualistic approach to this treatment. To do so at once leads to comparisons of other systems of thought and belief [Was he referring to psychoanalysis?] which confuses the proposition that LSD, as used by the psychiatrist, is intended to lay bare the origins of neurosis and thus, assisted by the natural healing powers of the unconscious thus revealed, cures the patient. If one might conclude by meeting a challenge sometimes offered by theologians, that work and suffering are essential ingredients for salvation, I would suggest that successful psycholytic therapy involves a great deal of work on the part of the patient, sometimes accompanied by suffering. But the will to work is derived from the same source as that of healing, from the unconscious.

It seemed that scientific psychiatry was treading on dangerous ground. An embarrassing number of patients were having religious or conversion experiences in therapy with LSD, the erstwhile psychotomimetic. How were these to be understood when the framework of Freudian theory left no room for accommodation to religious or aesthetic discourse? Too many patients were having unitive experiences, too few were having recollections of the primal scene. At this point in the late 1950's, LSD was about to escape the sole purview of psychiatry. It was to become a drug of "more than medical significance."

Humphry Osmond (1957) provided the final transformation of LSD in an article in the *Annals of the New York Academy of Sciences*. Osmond had begun early in LSD work. He worked with Abram Hoffer, a former physical chemist, and had conducted the first group treatments with LSD outside of Europe. Osmond argued that LSD and related substances were not *psychotomimetic*, for they did not produce the model psychosis schizophrenia researchers had sought. Nor was it properly a hallucinogen, for hallucinations were not generally an effect of LSD. Nor, finally, was LSD merely a substance that lysed repressive bonds to bring Freudian material into consciousness. Osmond wrote:

> If mimicking mental illness were the main characteristic of these agents, "psychotomimetics" would indeed be a suitable term. Why are we always preoccupied with the pathological and the negative? Is health only the lack of sickness? Is good merely the absence of evil? Is pathology the only yardstick? Must we ape Freud's gloomier moods that persuaded him that a happy man is a self-deceiver, evading the heartache for which there is no anodyne? . . . I have tried to find an appropriate name for these agents under discussion: a con-

> cept that will include the concepts of enriching the mind and enlarging the vision. . . . My choice, because it is clear, euphonius, and uncontaminated by other associations is psychedelic, mind manifesting.

Osmond went on to state that "these agents have a part to play in our survival as a species." In apocalyptic voice, he described the coming perils to humanity's existence, and how the greater awareness of what humans can truly be will be aided in its birth by these drugs of greater than medical significance.

The Josiah Macy, Jr., Symposium, sponsored in part by the CIA (Marks 1979), was published as a book titled *The Use of LSD in Psychotherapy* (Abramson 1960). The conference, which consisted of several days of informal discussion, began with each participant, at the chairman's request, telling how s/he became involved in LSD work. Many admittedly came in by the back door, from other areas of psychiatry or other disciplines. The clinical perspective was well represented here, but not dominant, and the group was preoccupied with the role of LSD in psychotherapy and psychiatry.

So, within the psychiatric profession over a period of 10 years, LSD had gone through three transformations. As a psychotomimetic, LSD was for, if anyone, mental patients, especially the more severely disturbed ones. Perhaps a substance like LSD caused their disease, or perhaps they had chemical psychotogens already in their blood. As a psycholytic, it was of use to psychiatric patients and their therapists, for therapy and training respectively. In either case, it was a medical therapeutic tool, part of a technique, and professional property. When LSD became a psychedelic, it moved beyond the bounds of control of the professional elite and its clientele as well as psychiatry and psychology.

For the federal government and the psychiatrists who were its employees, LSD had become a public health problem. Reacting to what they thought was epidemic use that was sustaining a counterculture that was opposed to its policies, they sought to ban the use of LSD and related drugs. In 1965, the 89th Congress passed the Drug Abuse Control Amendment (Public Law 89-74), which went into effect in May 1966. It banned the use and sale of peyote, mescaline and several other similar drugs by the public.

Reacting to what they considered to be unwarranted and inaccurate publicity by the lay press (e.g., Dahlberg, Mechanek & Feldstein 1968) and hasty policy making on the part of the federal government, legitimate researchers became bitter. They felt that legitimate research was endangered, as was clearly evidenced by its precipitous decline. Unger (1969a), a researcher, wrote that "qualified, recognized researchers who would be or are authorized to do the work, apparently, do not seem to want to risk the possible notoriety of, or taint of, or embroilment in the controversy and mass media confrontations that surround the psychedelic use of LSD. I cannot say I blame them; often it's a great emotional strain." Times had changed. In regard to his first LSD trip at NIMH, Unger (1969b) stated that "it seems necessary, unfortunately, in 1968, to say at the time, 1962, [that trying LSD] seemed not only logical or desirable, but even a respectable [NB] course of action." He reported that after trying LSD, his section chief at NIMH and the director of clinical investigation quickly followed in succession.

By the mid-1960's, nonmedical use of LSD, especially by young people, seemed nearly epidemic, although this was later shown not to be so (Freedman 1968). Mass circulation magazines (e.g., Ungerleider 1966) ran articles documenting its use apart from the image of the medical establishment. For many during this time, LSD developed a sinister connotation, whether based on myth or fact. Now, of more than medical significance, LSD was experiencing difficulty within the profession of psychiatry.

Also, by the mid-1960's, experienced workers could agree that there were no specific reactions to LSD based on personality or disease classifications. Its therapeutic property (Grinspoon & Bakalar 1979; Abramson 1960) was the ability to "facilitate an altered state of consciousness." Federally funded research continued, however, in the face of mounting criticism within and without the profession. A symposium held in 1967, a book published in 1968 and a review article that appeared in 1968 reflected the growing tensions.

The 1967 Hahnemann Conference Proceedings, which bore the enigmatic subtitle "The Look Before the Leap," showed the new extramedical interest in LSD. Fully one half of the published proceedings (Hicks & Fink 1969) was devoted to side effects, illicit use and legal matters. One finds a clergyman speaking out against "psychedelic religion," an anthropologist who believes LSD can be used as a path for spiritual growth, an educator who deplores its destruction of critical thinking, and a psychologist who believes that it fosters "antinomianism," mysticism and psychosis due to a withdrawal from the "real" world. The drug's clinical use is limited in this volume to only 44 of 243 pages.

The book published that year was by Leo Hollister (1968), perhaps the only experienced clinical psychopharmacologist to work with LSD in America. He found that research was uniformly of poor quality due to the lack of specialized training of investigators. No adequate clinical trials had yet been performed. Yet LSD would seem, in its idiographic and unpredictable effects,

as suitable to group clinical trial as a movie or a novel.

Hollister cautioned that ". . . the more things change the more they remain the same," and "the interplay between drugs which produced chemical psychosis and religion persists even until the present as evidenced by the current interest in LSD." He concluded that therapeutically, for producing insight, "candy is dandy but liquor is quicker," might be pertinent to the facilitation of psychotherapy by LSD. He believed existing drugs could duplicate each of LSD's alleged therapeutic effects. In addition, he rejected the notion that mystical religious experiences might help in the therapeutic endeavor for these cures; but like Lourdes, they do not last. He felt that those who are looking for a psychedelic experience were looking for "an easy way to change the personality." Hollister's concluding chapter, "Drugs in Our Culture," is alarmist in tone, warning of a sort of cultural regression, the loss of rational thought, especially lamentable and unexpected when "we are truly entering a scientific age."

In a long review article, "On the Use and Abuse of LSD," Freedman (1968), a politically influential LSD laboratory researcher, sought to dissociate psychiatry from the LSD controversy. Only one page out of 15 dealt with LSD in psychiatry: "In the late 1950's since some physicians thought they had discovered a new reality of the mind and were not only struck by the drug-induced phenomena, but apparently addled by them. Perhaps they were simply jealous of the subject when they insisted on taking the drug concurrently with him."

Freedman wanted the drug to be federally regulated (as it then was). He thought that in proper hands it could be a "tool" to study the mind. The present problem was that "the real danger of LSD is that the wrong people seem to be taking it at the wrong time for the wrong reason." Furthermore, he wrote, "We must ask whether a stable person is really under sufficient control of his motives and shifting circumstances, let alone the dosage, to take these drugs, as a civil right for whatever personal reason he wishes."

According to Freedman, the popular acid culture was steering young people, in particular, the wrong way when it took the use of these drugs out of professional hands: "We seem to have forgotten that there are trained persons who in fact have more experience than the self-appointed gurus in coping with adolescent turmoil and the more serious dysfunctions. There are scholars in disciplines knowledgeable about man's attempts to understand subjective experience and its manifold aesthetic, literary and intellectual expression." Finally, he warned, "We should not forget to assess the cost of sustained euphoria or of pleasure states. We can seriously wonder if man is built to endure more than a brief chemically induced glimpse of paradise."

When, in 1967, evidence came to light of the mutagenic effect of LSD on human chromosomes (Cohen & Marmillo 1967), the federal government seized on these findings as part of its antidrug campaign. Despite cautionary pleadings by psychiatrists that the government would lose its credibility and that the propaganda was not based on confirmed evidence, the public was warned of genetic damage as a payment for its pleasure. Later shown to be neither a mutagen, teratogen or carcinogen in humans (Dishotsky et al. 1971), the idea that, as one editorial (Ungerleider 1967) in the *New England Journal of Medicine* put it, "a decision today [to use LSD] may very well be reflected by the biologic fitness of the next generation" was probably most effective in curbing casual use of LSD.

With its ostracism from psychiatry, its banishment from use under penalty of law, and reports of genetic damage, use of LSD within and outside of the psychiatric profession ceased to be of significance. In the 15 years since that time there has been little added to document its usefulness or danger. Yet, by examining the psychiatric encounter with LSD, one can learn something about American psychiatric modes and morals.

First, there is what the author of the present article calls the scientific problem. In the study of a new drug, clinical researchers attempt to emulate, in their setting, the technique of the laboratory. Groups of patients rather than individuals are studied in the clinic, much as groups of small animals are studied in the laboratory. Changes measured must have statistical significance (i.e., be molar) in order to study a drug whose effect was so protean or, in pharmacological parlance, "nonspecific." That the drug's effects were unpredictable, even within the individual across time, rendered it suspect as a candidate for study.

A particularly maddening problem was the experiential rather than the behavioral nature of the drug effect. Reports of behavioral changes pale in significance before those of subjective experience. Nonpharmacologic researchers—by definition unequipped to conduct drug research—felt early on that they needed a whole new methodology to study the effects of LSD. Things could not be put into the right words or were completely ineffable (Abramson 1960).

At Spring Grove State Hospital in Baltimore, where the greatest amount of systematic work was done with LSD over a 10-year period, researchers under the direction of Albert A. Kurland tried to develop such a method. Kurland's group gave LSD to alcoholics, neurotics and later to drug addicts (Savage & McCabe 1973; Savage et al. 1973; Kurland et al. 1971). Kurland's group (1967)

found context, not LSD, to be critical (viz., LSD had no inherent therapeutic effect):

> In conclusion, it should be emphasized that LSD is *not* conceived to have any inherent beneficial effects, i.e., its use is different from that of other drugs or chemotherapeutic agents. LSD affects the brain of man in widespread and unusual ways, many of which are irrelevant to its therapeutic use (the production of so-called hallucinations, etc.). The history of experimental work with this compound has abundantly indicated that beneficial results do occur from its mere administration—in fact, indication is quite clear that without therapeutic intent, preparation and management, administration of the drug to human subjects is definitely dangerous. The therapeutic potential of LSD depends primarily on its ability to activate in the patient a period of intense emotionality while still allowing for control, direction and guidance by the therapist. It is the sequence of psychological experience upon which the therapeutic intent and structuring is focused. The analogy that we have sometimes used to try to convey the role of LSD in therapy is that of a scalpel in surgical intervention: The scalpel is helpful, but without the skilled surgeon it is merely a dangerous instrument.

Another psychiatrist, working as a laboratory psychopharmacologist, described the Spring Grove program in a rather skeptical tone (Freedman 1968): "In the so-called psychedelic therapies as they are now being tested, there is an awareness of an immense amount of preparation, of salesmanship with an evangelical tone in which the patient is confronted with hope and positive displays of it before he has his one great experience with a very high dose of drug. The drug's experience is structured by music and by confident good feelings."

A third element in the scientific problem was that it was not always clear what LSD was supposed to do. Was it itself or as an adjunct, curative, facilitator, augmenter? Experienced therapists who were not trained as pharmacologists felt that context or ritual were important for the drug to work, but ran afoul of the charge of being unscientific. In standard laboratory methodology transposed to the clinic, one tries to match drug effects to symptoms (target symptoms) or diagnoses. Contextual effects are supposed to be constant or ignored. If there are contextual changes, they are incorporated into the placebo effect, which is considered to have no direct bearing on the actions of the drug itself.

Psychiatry's psychedelic experience points to the limitations imposed by tending to bring laboratory methods into the clinic, by using molar methods and ignoring contexts. Certainly applicable in some situations, these methods proved to be of little use to the LSD researchers. Perhaps more noteworthy is the fact that over a 10- to 15-year period, when these drugs were under active investigation, although there was an awareness of a need for a method, none was forthcoming that was acceptable.

The second question that LSD raised for the profession of psychiatry was what the author of the present article calls the problem of boundaries. LSD blurred the boundaries of the profession between doctor and patient, and the sick and the well. Osmond began the controversy in his 1957 article, insisting that the golden rule for psychedelic therapists was to "start with yourself" (Unger 1969b). One can see from the list of Macy Conference participants and infer from other presentations that this indeed was common practice. Some therapists took LSD before seeing their patients (Kafka & Garder 1964). Certainly, LSD was used by some researchers recreationally. In public, this was denied, if mentioned at all. Unger (1969b) wrote that "Jonathan Cole [a government psychopharmacologist], at one point, noted with a certain vague sense of misgiving that psychedelic LSD investigators tended to communicate 'an implicit or explicit attitude . . . that these drugs may be of value or benefit to individuals who do not ordinarily consider themselves to be psychiatrically ill.'" It is probably safe to assume the Unger spoke the feelings and experiences of many of his more reticent colleagues.

In effect, LSD created a subgroup within the psychiatric profession, which had had a rather special experience that set them apart from their colleagues and moved them closer to their patients. They were enthusiastic about their experience, but in public tempered their enthusiasm, striving to maintain the image of sober scientific investigators.

The reaction to LSD within the profession was much like that of the reaction within the profession to psychoanalysis 40 years before. Psychoanalysts had insisted on the special experience of being analyzed before treating patients. This special experience departs from the realm of rational, objective impersonal operations, the grounding of a truly scientific psychiatry, a psychiatry that separates the sick from the well and the patient from the doctor. In moving too close, the boundaries blur, one has to fight the attempt to "go native."

Another element of the problem with boundaries is the image of the therapist invoked by the use of LSD. With his/her special experience, the therapist emerges as a healer—an actual taker of potions, the master of a ritual. This harks back to the prescientific era and could only seem dangerously atavistic to the majority in a profession struggling for recognition as a science.

Although many would allow that psychiatry is more art than science, few would admit its kinship to that bugbear of the Enlightenment, religion. Yet, patients and therapists were often brought back to the domain of the religious by their experiences, another blurring of the boundaries. Rebirth, union, transcendence, conversion and unity are all words used by patients and therapists to describe the LSD experience, and they are in the domain of religious and not scientific discourse. Some outside of the psychiatric profession, such as Timothy Leary, did indeed see LSD as the basis for a new religion, and it was against "the religious cultist" that psychiatrists directed their strongest invective (Freedman 1968; Ungerleider 1968).

The problem of the boundaries lingered on through the entire period of LSD's residence with psychiatry. Like the scientific problem, it was handled with a conspicuous lack of creativity, in the presence of fear and rigidity, and was never solved. The integration of persuasion, suggestion and ritual, the use of aesthetic devices, such as music, and the penetration by religious discourse were all successfully resisted by psychiatry.

The final problem is labeled the political problem. The susceptibility of the LSD researchers, indeed the entire profession, to political pressures was quite evident. Part of it may be ascribed to the atmosphere of a nation at war and being faced with a fractious internal protest movement. Perhaps if times were more peaceful, the federal government's handling of LSD might have been more gentle. However, having come to symbolize rebellion and obstruction of its policy, the substance was doomed to extinction.

It may be that the relationship between organized psychiatry and the federal government was particularly close during this time, for millions of dollars were being poured into community mental health centers that were being run by psychiatrists. This move, initiated by the Mental Health Act of 1963 (the culmination of years of lobbying), put psychiatry on the map, so to speak, with thousands of community mental health centers. Perhaps the most accurate thing to say is that psychiatry's closeness to the federal government and researchers' susceptibility to political pressures were much greater than was commonly thought.

LSD raised problems for psychiatry, among them the scientific, boundary and political problems that have been described. Yet, one must say that LSD was given a good chance to prove itself within the profession, and that many leaders—perhaps not the most vocal—were all continuing study despite controversy. Perhaps if controversy had been kept within the bounds of the profession, a different resolution would have been reached in a scientific manner. Perhaps it would have taken longer, on the order of decades, for LSD research and its conclusions to gain legitimacy. It could be argued that the acceptance of psychoanalytic thinking by the profession took 20 to 30 years. Instead, the use of LSD as a drug of more than medical significance occurred. It occurred at the most inopportune time for the profession, which could be accused of bringing LSD into the world. For now, that same profession was to be charged by the state with controlling its use and with eradicating its effect as a public health problem. Psychiatry was somewhat in the position of the tobacco industry when it was called on to do research on the effects of smoking.

It has been suggested recently that LSD should again be studied. Psychedelic drug therapy still goes on unofficially. People would not still continue to practice it under difficult conditions unless they believed that they were accomplishing something. Many regard it as an experience worth having, some as a first step toward change, and a few as a turning point in their lives (Grinspoon & Bakalar 1981). Indeed the battle against the LSD culture is long over. That psychiatry has much to learn both clinically and in basic research from the psychedelics seems likely. Whether or not psychedelic research will be revived from where it fell by the wayside almost two decades ago remains to be seen.

REFERENCES

Abramson, H.A. (Ed.). 1960. *The Use of LSD in Psychotherapy*. New York: Josiah Macy, Jr., Foundation.

Cohen, M.M. & Marmillo, M.J. 1967. Chromosomal damage and human leukocytes induced by lysergic acid diethylamide. *Science* Vol. 155(3768): 1417-1419.

Crockett, R.; Sandison, R.A. & Walk, A. (Eds.). 1963. *Hallucinogenic Drugs and Their Psychotherapeutic Use*. London: H.K. Lewis.

Dahlberg, C.C.; Mechanek, R. & Feldstein, S. 1968. LSD research: The impact of lay publicity. *American Journal of Psychiatry* Vol. 125(11): 685-689.

Dishotsky, N.I.; Loughman, W.D.; Mogar, R.E. & Lipscomb, W.R. 1971. LSD and genetic damage. *Science* Vol. 172(3982): 431-440.

Freedman, D.X. 1969. In: Meyer, R.E. (Ed.). *Adverse Reactions to Hallucinogenic Drugs*. Washington, D.C.: U.S. GPO.

Freedman, D.X. 1968. On the use and abuse of LSD. *Archives of General Psychiatry* Vol. 18(3): 330-347.

Grinspoon, L. & Bakalar, J.B. 1981. The psychedelic therapies. *Current Psychiatric Therapies* Vol. 21: 275-283.

Grinspoon, L. & Bakalar, J.B. 1979. *Psychedelic Drugs Reconsidered*. New York: Basic Books.

Hicks, R.E. & Fink, P.J. (Eds.). 1969. *Psychedelic Drugs*. New York: Grune & Stratton.

Hofmann, A. 1959. Psychotomimetic drugs, chemical and pharmacological aspects. *Acta Physiologica Pharmacologica Neerlandica* Vol. 8: 240-258.

Hollister, L.E. 1968. *Chemical Psychoses*. Springfield, Illinois: Charles C Thomas.

Kafka, J. & Garder, K.R. 1964. Some effects of the therapist's LSD experience in his therapeutic work. *American Journal of Psychotherapy* Vol. 18(2): 236-243.

Katzenelbogen, S. & Fran, A.D. 1953. Narcosynthesis effects of sodium amytal, methedrine and LSD-25. *Diseases of the Nervous System* Vol. 14(3): 85-90.

Kurland, A.A. 1967. The therapeutic potential of LSD in medicine. In: DeBold, R.C. & Leaf, R.C. (Eds.). *LSD, Man, and Society*. Middletown, Connecticut: Wesleyan University Press.

Kurland, A.A.; Savage, C.; Pahnke, W.; Grof, S. & Olsson, J. 1971. LSD in the treatment of alcoholics. *Pharmakopsychiatrie Neuropsychopharmakologie* Vol. 4: 83-94.

Marks, J. 1979. *The Search for the Manchurian Candidate*. New York: Times Books.

Meyer, R.E. (Ed.). 1969. *Adverse Reactions to Hallucinogenic Drugs*. Washington, D.C.: U.S. GPO.

Osmond, H. 1957. A review of the clinical effects of psychotomimetic agents. *Annals of the New York Academy of Sciences* Vol. 66(3): 418-434.

Roth, M. 1963. In: Crockett, R.; Sandison, R.A. & Walk, A. (Eds.). *Hallucinogenic Drugs and Their Psychotherapeutic Use*. London: H.K. Lewis.

Sandison, R.A. 1963. Certainty and uncertainty in the LSD treatment of psychoneurosis. In: Crockett, R.; Sandison, R.A. & Walk, A. (Eds.). *Hallucinogenic Drugs and Their Psychotherapeutic Use*. London: H.K. Lewis.

Savage, C. & McCabe, O.L. 1973. Residential psychedelic (LSD) therapy for the narcotic addict: A controlled study. *Archives of General Psychiatry* Vol. 28(6): 808-814.

Savage, C.; McCabe, O.L.; Kurland, A.A. & Hanlon, T. 1973. LSD-assisted psychotherapy in the treatment of severe chronic neurosis. *Journal of Altered States of Consciousness* Vol. 1(1): 31-47.

Stoll, W.A. 1947. Lysergsäure-diäthylamid, ein phantastikum aus der mutterkorngruppe. *Schweizer Archiv für Neurologie und Psychiatrie* Vol. 60: 279-323.

Unger, S. 1969a. Panel discussion. In: Hicks, R.E. & Fink, P.J. (Eds.). *Psychedelic Drugs*. New York: Grune & Stratton.

Unger, S. 1969b. The psychedelic use of LSD: Reflections and observations. In: Hicks, R.E. & Fink, P.J. (Eds.). *Psychedelic Drugs*. New York: Grune & Stratton.

Ungerleider, J.T. (Ed.). 1968. *The Problems and Prospects of LSD*. Springfield, Illinois: Charles C Thomas.

Ungerleider, J.T. 1967. Radiomimetic properties of LSD. *New England Journal of Medicine* Vol. 277(20): 1090-1091.

Ungerleider, J.T. 1966. A remarkable mind drug suddenly spells danger: LSD. *Life* Vol. 25(3).