

Before LSD was Acid

William L. White

Like many drugs described in this text, LSD and other hallucinogens stayed in the background for a long time before they would break into cultural visibility as mind-altering drugs. In this chapter we will explore the history of LSD before it became well known.

The Discovery of LSD

The story of LSD begins with ergot, a parasitic fungus that grows on rye and other grains. Since the 16th century, ergot compounds had been used in small doses to relieve pain, to stop bleeding, and to start uterine contractions. Periodic outbreaks of ergot poisoning, accompanied by hallucinations and extreme disorientation, had been reported in the general population since the 14th century. These outbreaks usually followed the consumption of ergot-contaminated bread. In the early 1930s, the common ingredient of the many ergot alkaloids was identified as lysergic acid by W.A. Jacobs and L.C. Craig of the Rockefeller Institute of New York (Restak, 1994; Hofmann, 1983).

In 1938, two chemists at Sandoz Laboratories in Basel, Switzerland (Dr. Albert Hofmann and Dr. Arthur Stoll) created a series of ergot compounds in an effort to synthesize a pain remedy for migraine headaches. Working with lysergic acid isolated from the ergot, Hofmann added a diethylamine molecule. This 25th compound in the series was d-lysergic acid diethylamide tartrate, or "LSD 25." Research on LSD 25 and its chemical cousins was set aside in 1938 because there appeared to be no use for the substances. Five years later, on April 16, 1943, Dr. Hofmann again synthesized LSD 25 and accidentally ingested a tiny amount of the drug, probably absorbed into his skin. The drug's stunning effects forced him to leave work early. As Hoffman himself would describe the experience in the *Archives of Neurology*, "Fantastic visions of extraordinary vividness accompanied by a kaleidoscopic-like play of intense coloration continually swirled around my head."

A few days later, Hofmann decided to confirm the drug's effects by swallowing a small quantity of the drug. His plan was to start with an extremely small dose, then take more of the drug in small increments until he had the anticipated effect. Knowing nothing of the potency of LSD-25, he began with what he thought would be the lowest possible active dose, .25 milligrams (250 micrograms--five times LSD's active dose). Within 40 minutes, he began to experience a radical change in consciousness. The first words written about the first clinical trial of LSD were recorded at 5 p.m. on April 19, 1943: "slight dizziness, unrest, difficulty in concentration, visual

disturbances, marked desire to laugh..." (Ray & Ksir, 1990, p. 15).

Hofmann's chosen dose is understandable in light of the fact that, by weight, LSD was thousands of times more powerful than all other known psychoactive drugs. Nothing in his training would have prepared him for a substance so strong that swallowing 1/1,000th of a gram would produce such a profound effect. During the hours that followed, Hofmann experienced the worst (terrors, fears of insanity) and best ("sense of well-being and renewed life") of what the LSD experience would later present to millions. Hofmann had discovered, not just a new drug, but a totally new type of drug, whose chemical structure and psychoactive effects had never before been seen.

Having confirmed the extreme potency and hallucinogenic effects of LSD, Hofmann could see no practical use for this drug and could not imagine that such a drug would ever be used widely as an intoxicant. The first scientific application of Hofmann's discovery came in the form of a new hypothesis: severe mental disorders thought to be induced by psychic trauma might actually be biological abnormalities--distortions of thought and perception produced by the body's own neurochemistry gone haywire. After all, LSD's existence had shown that extremely small amounts of hallucinogens could create dramatic distortions in mental status. In 1947, the psychiatrist Dr. Werner Stoll (Dr. Arthur Stoll's son) obtained a supply of the drug from Sandoz and began the first controlled human experiments with the drug. Stoll was also the first psychiatrist who studied the effects of LSD through self-experimentation (Hofmann, 1970).

In a conference presentation at the Boston Psychopathic Hospital in 1949, Viennese physician Dr. Otto Kauders informed his audience of a remarkable new drug--LSD--that produced a "model psychosis" and held potential for the understanding and treatment of schizophrenia. Dr. Max Rinkel of Boston Psychopathic Hospital immediately contacted Sandoz Laboratories to obtain the quantities of LSD necessary to begin research in this direction. Rinkel conducted his first experimental tests of LSD with fellow psychiatrist Dr. Robert Hyde, who has the distinction of being the first American to experience LSD.

In 1949, the branch office of Sandoz Laboratories distributed LSD to more than 90 researchers to experiment with the drug in the treatment of psychiatric illness and alcoholism. Between 1949 and the mid-1960s, many researchers and psychotherapists used LSD in the treatment of alcoholism, childhood autism, impotence and frigidity, neuroses, character disorders, anticipatory grief (of those facing death), and prolonged grief. They found that, with careful patient selection and adequate preparation and supervision, they could keep the risk of adverse reactions at a minimum (Grinspoon & Bakalar, 1986).

Early reports of LSD's effectiveness as a tool in psychiatric treatment included claims that the drug 1) loosened repressed contents of feeling and experience, 2) gave people an opportunity to actually re-experience past events that were important to them, and 3) lowered resistance to psychotherapy (Hofmann, 1983). While early success rates fired optimism about the future of this new drug in the field of psychiatry, later controlled studies showed less dramatic results. Eventually, due to the growing controversy related to LSD's widespread use and its potential adverse effects--and to new legal controls on the drug--LSD was no longer generally available for use in psychotherapy.

The discovery of LSD galvanized interest in a whole category of psychoactive drugs that at various times have been called phantasticants, psychelytics, psychogens, psychotomimetics, and schizogens. Humphrey Osmond's preferred term, "psychedelics," prevailed in the 1960s but

was gradually replaced in professional circles by the term "hallucinogens" (Schultes, 1972, p. 4). A group that was particularly interested in the potential of these drugs was the American intelligence community. That interest that led to one of the most bizarre chapters in the history of American's relationship with psychoactive drugs.

LSD and the CIA

The use of drugs as psychochemical weapons has a long history. For example, the use of drugs to poison one's enemies dates back to the ancient Greeks, Egyptians, and Phoenicians. In more recent history, while Albert Hofmann was discovering LSD, Nazi doctors at Dachau were conducting experiments with mescaline by secretly administering the drug to concentration camp prisoners. The goal of the German experiments was to find a drug that could "eliminate the will."

The American intelligence community's interest in the possible military uses of psychoactive drugs dates back to the same period, beginning with the work of the Office of Strategic Services, commonly referred to as the OSS. During the Second World War, the OSS was involved in research designed to find a "truth drug" that could be used in the interrogation of political prisoners and suspected spies. The OSS researchers experimented with barbiturates, mescaline, scopolamine, and the drug they believed had the greatest potential in this area—marijuana. Their experimental methods included spiking the drinks and cigarettes of soldiers who were being interrogated as suspected communists.

After the war, the Central Intelligence Agency (CIA) took over the role of the OSS and continued that Office's experimental work with psychoactive drugs. CIA interest in drug research was intensified by the growing suspicion that the North Koreans and Communist Bloc countries in Europe were already using some type of drug to help brainwash prisoners into giving public confessions. The CIA was alarmed at reports of zombie-like prisoners with glazed eyes, confessing in open court to crimes of treason that they had not committed. The CIA's drug experiments intensified in a climate of paranoia fueled by the Soviet control of Eastern Europe, the rise of Communist China, the outbreak of the Korean War, and a Wisconsin senator who screamed about communist infiltration of the United States government.

It was in this emerging climate of paranoia that the CIA created the Scientific Intelligence Unit in 1949, to investigate possible methods of mind control. A primary focus of this research was the potential of drugs like LSD to brainwash or disable military and civilian populations. When this unit's approach was perceived to be too theoretical, its work was transferred to the CIA's Office of Technical Services, and the resources of that Office were expanded.

The CIA's experiments with hallucinogenic drugs continued for many years. Details of these activities slowly came to public light, through self-disclosure by survivors of the experiments and through formal investigations such as the 1975 Rockefeller Commission inquiry into CIA activities. The CIA's mind-control research was conducted by third-party organizations that ranged from the Society for the Investigation of Human Ecology to 50 prestigious academic and medical institutions. So in retrospect, it can be said that the primary source of grants funding LSD research in the 1950s was the CIA. Some of the more noteworthy, comical, bizarre, grotesque, and tragic episodes in this history include the following.

In 1950 Dr. Richard Wendt, Chairman of the Psychology Department at the University of

Rochester, received a \$300,00 contract to study the potential use of mind-control drugs. This was part of Project CHATTER, whose goal was to find a drug that could weaken or eliminate free will. Wendt participated in numerous experiments, mostly unsuccessful, in which he dosed himself, student volunteers, and human subjects provided by the CIA. His research focused on combinations of Seconal (a barbiturate), Dexedrine (an amphetamine) and THC (the primary psychoactive ingredient in marijuana). Wendt's project was typical of the CIA projects that sought out prominent psychiatrists and psychologists to assist in the Agency's exploration of behavior-control techniques. In what seemed to be a page out of *Brave New World* or *Animal Farm*, one contracted psychologist bragged that, with the support of CIA funding, he would be able to discover and share with the agency "how a man can be made to think, feel, and behave according to the wishes of other men" (Marks, 1979, p. 147).

Beginning in 1952, the CIA sent operatives on the road in search of psychoactive plants that might be used in the manufacture of psychochemical weapons. The Bureau of Narcotics, all the while fighting a war on drugs on the civilian front, regularly supplied U.S. intelligence agents with heroin, marijuana, and other drugs for their experiments. In 1953, the CIA sent two men with a black bag filled with \$240,000 in cash to Switzerland to purchase the Sandoz Laboratory's entire supply of LSD. They were prepared to purchase what they had estimated to be the entire supply of Sandoz's LSD inventory. Because it was difficult to grow the ergot needed to synthesize the drug, Sandoz had nowhere near this desired quantity of LSD. However, the company agreed to sell the CIA 100 grams of LSD per week, which they did until 1954, when the Eli Lilly company discovered a method of synthesizing LSD without ergot.

The CIA also funded experiments that tested the possibility of combining prolonged drug-induced sleep, LSD and electroshock treatments to "depattern" behavior, extract secrets, and cause amnesia. Many such experiments were conducted on unsuspecting psychiatric patients who were being treated by private psychiatrists under contract with the CIA. Concerned that someone might find out that these kinds of experiments were being conducted on U.S. citizens, the CIA retained a Canadian psychiatrist, Dr. Ewen Cameron, to conduct many of these experiments on his unsuspecting patients. In 1990, the CIA agreed to pay \$750,000, to be split among eight of Cameron's patients who had been subjected to mind control experiments involving LSD and electroshock.

The CIA and the Navy contracted with Dr. Harris Isbell of the federal narcotics hospital in Lexington, Kentucky for another study, in which a group of addict volunteers, mostly African Americans, were given ever-increasing doses of LSD for 72 days straight. Addicts cooperated with such experiments in return for being paid in a drug of their choice—usually heroin. The drug rewards were kept in a "bank," from which the addicts could request withdrawals at any time. This occurred in the primary federal institution set up to treat drug addiction. LSD experiments were also conducted on federal prisoners in Georgia and New Jersey (Marks, 1979; Lee and Shlain, 1985). When Albert Hofmann and Roger Heim isolated the active ingredient in the Mexican hallucinogenic plant, teonanactl ("God's Flesh") and christened it psilocybin, the CIA again used doctors in the federal prisons to test the drug on inmates. In the first tests, psilocybin was injected into nine inmates at the federally operated treatment center in Lexington, Kentucky. The inmates' responses to the drug, mostly unpleasant and some filled with terror, were duly reported to the CIA.

Members of the CIA's Office of Technical Services regularly used LSD, and they grew

cavalier in their experiments with the drug. They spiked one another's food and drinks and went on extended binges of LSD use in their CIA offices and in CIA safe houses. There were comic scenes (two staff members, convinced that they were Fred Astaire and Ginger Rogers, danced on a conference table throughout an afternoon) and near tragedies (a staff member running to plunge himself into the Potomac River had to be rescued by other CIA staff).

In November of 1953, CIA staff invited members of the Army's Chemical Corps for a working weekend and gave one of their unsuspecting colleagues, Dr. Frank Olson, a glass of Cointreau spiked with LSD. Olson became agitated, paranoid, and eventually psychotic under the drug's influence. In an effort to hide what had occurred, Olson was taken to a CIA contract physician who had no training in psychiatry. The physician recommended hospitalization, but before they could get to a Maryland facility that had CIA-contracted psychiatrists, Dr. Olson jumped through the window of a New York hotel room to his death. The circumstances surrounding Olson's death were withheld from his family for 22 years. They finally learned the truth when they read a Washington Post article on the Rockefeller hearings into CIA activities. In 1976, 23 years after Dr. Olson plunged to his death, the U.S. Congress passed a bill awarding the Olson family \$750,000 for his loss.

One of the more exotic of the CIA projects, dubbed Operation Midnight Climax, involved setting up unsuspecting businessmen with CIA-contracted prostitutes who surreptitiously slipped the businessmen varying doses of LSD. All of these experiments were videotaped--purely for scientific purposes, one presumes. It was also in this setting that the CIA tested whether or not LSD sprayed in the air of any gathering would send its participants on a collective trip. A group of businessmen unknowingly defeated one such test by opening the windows, inspiring the agents to run around frantically re-spraying to "freshen up the air" and "take care of those roaches." However, concerns raised in a 1963 Inspector General's investigation into activities such as Operation Midnight Climax were political rather than ethical ones. The investigators were concerned about possible public reactions if the word got out that the CIA was dosing unsuspecting U.S. citizens with dangerous drugs.

In the late 1950s, US Army units at Fort Bragg, North Carolina were given LSD and monitored as they tried to perform field exercises. By the mid-1960s, more than 1,500 soldiers had participated in the Army's LSD experiments. PCP was also included in late-1950's experiments on soldiers at Edgewood Arsenal (Lee and Shlain, 1985, p. 188)

Most of these projects were designed and conducted by psychologists, psychiatrists, and physicians who were on staff or under contract with the CIA. Only later would the medical ethics, or lack of ethics, of these activities be questioned. When they were questioned about such practices after the fact, physicians fell back on patriotism as a defense, saying simply that they did it for their country.

In their inquiries into CIA drug experiments, investigators have tried to discover whether the CIA actually went beyond the experimental stage. According to information released to John Marks in his study of the CIA's drug experiments, LSD and other psychoactive drugs were actually used on 33 people, either to discredit them by making them seem insane or to draw secret information from them. CIA documents refer to the use of "BZ"Can exceptionally powerful hallucinogen that can bring on debilitating hallucinations, disorientation, and mania for several daysCduring the Vietnam War (Lee and Shlain, 1985).

When LSD use became popular among young people in the United States in the 1960s,

its spread was often blamed on a group of intellectuals in the universities who involved graduate students in LSD experiments, who in turn introduced undergraduates to the drug, who in turn brought it to the high school population. To some extent this trickle-down theory was accurate, but the hidden story of the psychedelic drug phenomenon of the 1960s was the CIA's role in encouraging LSD research and financially rewarding the intellectuals later blamed for launching a drug epidemic. The true scope of the CIA's drug research will probably never be known: The CIA destroyed all records of this research in 1972 (Colby, 1978). Most of what we do know was revealed in the 1975 report of the Rockefeller Commission on the CIA and in a report on the U.S. Army experiments released in 1976 (Taylor & Johnson, 1976)

Setting the Stage for Psychedelics

The use of hallucinogens didn't begin with the mid-century experiments by the medical and military establishments, nor was earlier use of hallucinogens restricted to Native America. At the turn of the century, two reports on mescaline intoxication were authored by Weir Mitchell, a prominent psychiatrist and writer, and Havelock Ellis, an English psychologist who had authored many volumes on the psychology of sex. Later writings of Aldous Huxley also stirred significant interest in the hallucinogens.

Mitchell, Ellis, and Huxley

Mitchell's report of his own experiences with peyote in 1896 ended with the following prophetic statement:

I predict a perilous reign of this mescal habit when this agent becomes obtainable. The temptation to call again the enchanting magic will be too much for some persons to resist after they have set foot in this land of fairy colors. (Mitchell, 1896, p.1625)

Ellis, the better known of these authors, described in one popular (*Contemporary Review*) and one scientific (*Lancet*) journal his discovery of a "new artificial paradise." After vivid descriptions of his hallucinatory experiences under the influence of three peyote buttons, Ellis concluded his article by stating that peyote had been "an unforgettable delight" and an "educational experience" (Ellis, 1898, p. 141). However, there was little professional or public response to Ellis's reported drug experiences. Undaunted, Ellis tried to spread peyote use among several of his artistic friends by arguing that peyote could enhance their artistic achievement. Among those who believed Ellis, the breakthroughs in creative discovery were limited to one whimsical report by William Butler Yeats, in which Yeats noted that he had seen dragons breathing lines of steam with white balls balanced at the end (Stevens, 1987, p. 7). In spite of this meager response, Ellis predicted that "mescal" would one day achieve great popularity. (Ellis, 1897).

Years later, after he had read Lewin's *Phantastica*, the noted English writer Aldous Huxley began to speculate about the desirability of searching out an ideal intoxicant. He contacted the psychiatrist Humphrey Osmond in 1953, after reading one of Osmond's articles on LSD. During their first visit, Huxley expressed his desire to experience one of the hallucinogens,

and on May 4, 1953, Osmond gave Huxley some mescaline crystals dissolved in a glass of water. Huxley wrote about this experience in positive terms, but at one point in the experience Huxley had an inkling of things to come when he experienced a fleeting feeling of paranoia. Describing his perceptions during this brief moment, he observed:

If you started the wrong way, everything that happened would be proof of the conspiracy against you. It would all be self-validating. You couldn't draw a breath without knowing it was part of the plot" (Quoted in Stevens, 1987, p. 203).

Aldous Huxley's 1954 book, *The Doors of Perception*, and its 1956 follow up, *Heaven and Hell*, described his experiences with mescaline and predicted a time when hallucinogens would be used widely to stimulate religious experience. Huxley's book was panned by long-term researchers of peyote. Weston La Barre called *The Doors of Perception* an "absurd little book" and was angered by Huxley's incorrect reference to peyote as "mescal" (La Barre, 1974, p. 228.) In spite of criticism from the experts, Huxley's reports did stimulate some experimentation with hallucinogens within broader scientific and intellectual circles.

Huxley presented his interest in the role of drugs in society in two contrasting works. In *Brave New World* (1932), Huxley pictured a futuristic society in which social stability was achieved through the biological and psychological programming of social classes and through the elimination of all excess emotion by means of a universally prescribed happiness-generating narcotic called *soma*. Through their chemical vacations from reality, citizens of this new world were given daily tranquility and episodes of ecstasy. The novel underscored the potential use of psychoactive drugs as an agent of social control in an authoritarian society. Thirty years later, in *The Island* (1962), Huxley portrayed the utopian society of Pala. On that island, hallucinogens (*moksha* medicine) were used to ritualize the transition between childhood and adolescence, adults used hallucinogens to become liberated from their own egos, and the dying used hallucinogens to ease the transition from one plane of consciousness to the next.

After Huxley's publicized experiments with mescaline came a number of discoveries and technical reports on hallucinogens. In 1954, Richard Schultes published an account of the use of hallucinogenic snuffs in the Amazon. In 1956 Steven Szara, a Czech chemist, synthesized DMT--a powerful, short-acting hallucinogen. Both technical and popular reports were published focusing on the use of LSD as an aid to psychotherapy. A 1959 *Look* magazine article on the "new Cary Grant" attributed Grant's newfound happiness to his encounter with LSD in psychotherapy. All of these events marked an increased professional and popular interest in the hallucinogens. But in terms of their impact on the culture of the 1960s, these events pale next to Gordon Wasson's 1957 discovery of the "sacred Mushroom" in Oaxaca, Mexico.

The Mushroom Man

Gordon Wasson was a New York banker who became a lover of mushrooms under the influence of his Russian wife, Valentina. In his 30 years of tracking down countless varieties of mushrooms, Wasson encountered tales of a rare Mexican mushroom that natives called "God's flesh." This mushroom was said to have spiritual effects. While Wasson's early expeditions in search of this mushroom ended in failure, a 1955 expedition to Oaxaca proved successful.

There, Wasson found a guide who showed him where to find the divine mushroom. Then the guide took him to Maria Sabina, a *curandera* (healer) from Huautla de Jimenez, who showed him how the drug was used. Wasson participated, along with 20 Indians, in the mushroom-eating ritual. Wasson, who would eventually identify more than 20 species of hallucinogenic mushrooms, wrote of his adventurous search for "the flesh of the gods" and its hallucinogenic effects in a 17-page spread that appeared in the July, 1957 issue of *Life* magazine.

Wasson often spoke of the magic mushroom with deep respect and awe. In describing the mushroom, his language was more poetic than scientific:

Many emotions are shared by men with the animal kingdom, but the awe and reverence of God are peculiar to men. When we bear in mind the beatific sense of awe and ecstasy and caritas engendered by the divine mushrooms, one is emboldened to the point of asking whether they may not have planted in primitive man the very idea of God (Wasson, 1957).

The article spurred great interest in hallucinogens and inspired a strange assortment of Americans to head to Mexico in search of *curanderos* who could help them find "magic mushrooms."

In 1958 Albert Hofmann, the doctor who had discovered LSD, identified the active ingredient in the mushroom samples that Wasson had given him. Hofmann named the active ingredient psilocybin and chemically reproduced it. One more hallucinogen had been synthesized. Two years later, Hofmann identified certain species of morning glory seeds as the hallucinogen that the Aztecs had referred to as *ololouhqui*. Word of this discovery triggered a run on the "Heavenly Blue," "Pearly Gates," and "Wedding Bells" varieties of morning glory seeds (Hoffer & Osmond, 1967). Manufacturers responded by treating the seeds with a noxious chemical.

Something was kindling within the American culture that was just waiting for the right spark to ignite it. That spark came from the most unlikely person. One of the people intrigued by Wasson's *Life* Magazine account of the sacred mushrooms was a young West Point graduate, psychologist, and Harvard Professor by the name of Timothy Leary. Vacationing in Mexico in 1960, Leary took psilocybin and had a profound religious experience. The psychedelic revolution had begun.

References

- Colby, W. (1978). *Honorable men: My life in the CIA*. NY: Simon and Schuster.
- Ellis, H. (1897). A note on the phenomena of mescal intoxication, *Lancet* 1: 1540.
- Ellis, H. (1898). Mescal: a new artificial paradise, *Contemporary Rev.*, 73: 130-141.
- Grinspoon, L. & Bakalar, J. Can drugs be used to enhance the psychotherapeutic process? *American Journal of Psychotherapy*, 40 (July, 1986), 393.
- Hoffer, A. (1967). A program for the treatment of alcoholism: LSD, malaria and nicotinic acid. In Abramson, H. Ed., *The use of LSD in psychotherapy and alcoholism*. NY: Bobbs-Merrill Company, Inc.
- Hoffer, A. & Osmond, H. (1967). *The hallucinogens*. NY: Academic Press.

- Hoffer, A. & Osmond, H. (1968). *New hope for alcoholics*. New Hyde Park, NY: University Books.
- Hoffmann, A. (1970). The discovery of LSD and subsequent investigations on naturally occurring hallucinogens In: Ayd, F. Ed. *Discoveries in biological psychiatry*. Philadelphia: J.B. Lippincott Company, pp. 91-106..
- Hofmann, A. (1983). *LSD: My problem child*. Los Angeles: Tarcher. (Also a 1980 edition available from McGraw-Hill Book Co.).
- Huxley, A. (1932). *Brave new world*. NY: Harper & Row.
- Huxley, A. (1962). *Island*. NY: Harper & Row.
- Huxley, A. (1977). *Moksha: Writings on psychedelics and the visionary experience*, Horowitz, M. & Palmer, C. (Eds). Los Angeles: Tarcher.
- LaBarre, W. (1974). *The peyote cult* (fourth edition). NY: Schocken Books.
- Lee, M. & Shlain, B. (1985). *Acid dreams: The CIA, LSD, and the sixties rebellion*. NY: Grove Press, Inc.
- Marks, J. (1979). *The Search for the "Manchurian Candidate": The CIA and mind control*. NY: Times Books.
- Marks, J. (1986). Drugs in the Cold War: In Search of chemical intelligence--mushrooms to counterculture. In *Culture and politics of drugs*, Peter P. and W. Matveychuk (eds.). Dubuque, Iowa: Kendall/Hunt Publishing Company.
- Mitchell, W. (1896). The effects of anhalonium lewinii (the Mescal Button). *British Medical Journal*, II, 1625.
- Ray, O. & Ksir, C. (1990). *Drugs, society, and human behavior* St. Louis: Times Mirror/Mosby.
- Restak, R. (1994). *Receptors* NY: Bantam Books.
- Schultes, R. (1972). An overview of hallucinogens in the western hemisphere. in Furst, P. *Flesh of the gods: The ritual use of hallucinogens*. NY: Praeger.
- Schultes, R. (1963) Botanical sources of New World narcotics, *Psychedelic Review*, 2, 161.
- Schultes, R. (1969). Hallucinogens of plant origin, *Science*, 163, January 17.
- Taylor, J. & Johnson, W. (1976). Use of Volunteers in Chemical Agent Research, Inspector General Report No DAIGIN 21-75, Washington, D.C. March 10, U.S. Department of Army.
- Wasson, R. & Wasson, V. (1957) *Mushrooms, Russian and history*. New York: Pantheon Books.
- Wasson, G. (1963) The hallucinogenic fungi of Mexico. *Psychedelic Review*, 1, 27-42.
- Wasson, R.G. (1971). *Soma: Divine mushroom of immortality*. NY: Harcourt Brace Jovanovich.