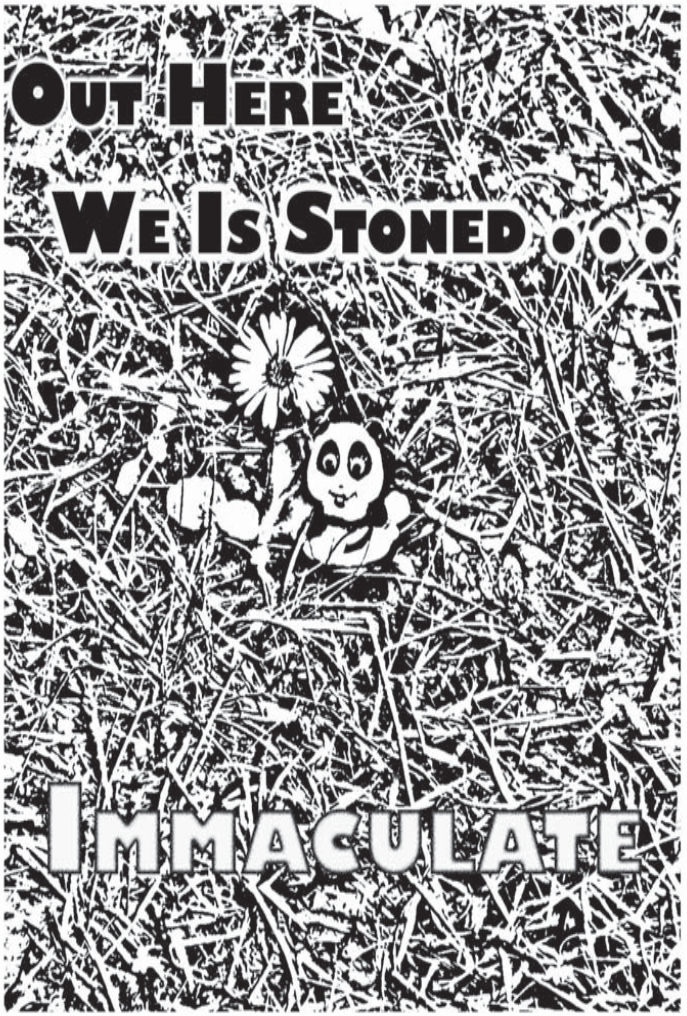
Out Here We Is Stoned . . .



A Tenth Anthology of Writings About Psychedelics

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Edited by Raymond Soulard, Jr. & Kassandra Soulard

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Out Here We Is Stoned . . . Immaculate: A Tenth Anthology of Writings About Psychedelics

edited by Raymond Soulard, Jr.
& Kassandra Soulard

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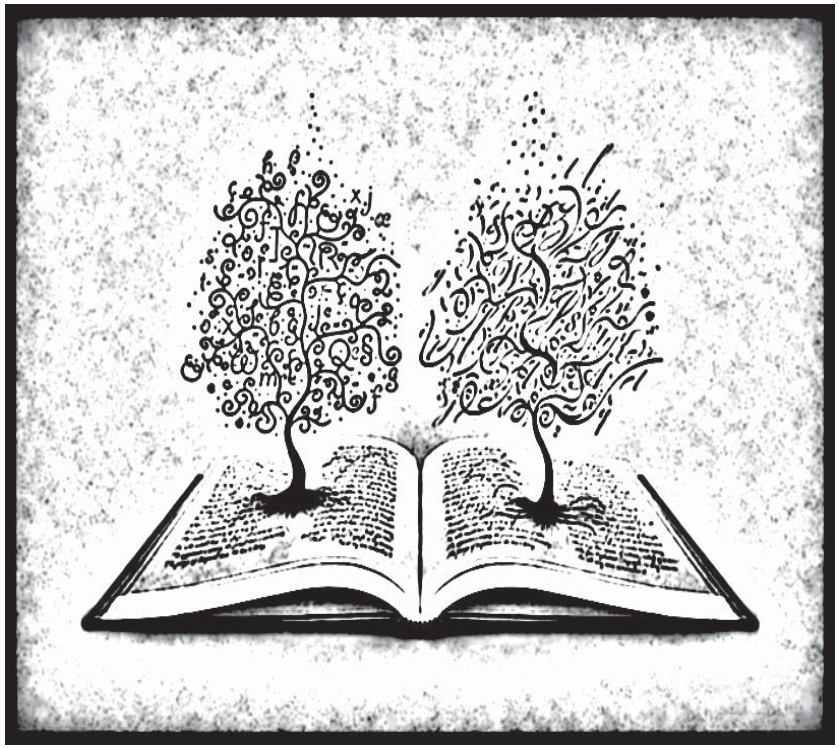
For Dr. Albert Hofmann
(January 11, 1906-April 29, 2008)

Thank you for your work and your vision,
and safe travels among the stars, Doctor...

"Out here on the perimeter there are no stars
Out here we is stoned . . . immaculate."

—The Doors,
"Texas Radio & the Big Beat," 1971.



James Fadiman

Opening the Doors of Perception

Published online by the Psychedelic Library
http://www.psychedelic-library.org/FadimanOpening.htm

The date is early in 1966. Four of us are seated around a table, called out from the session room for a moment to respond to the contents of a special delivery letter. Back in the room, four men are lying on couches and cushions, eyeshades blocking out the daylight, hearing a Beethoven string quartet on stereo headphones. Each man, a senior scientist, had taken 25 micrograms of LSD-25—a very low dose—about two hours earlier. Two of these men are working on different projects for Stanford Research Institute, another for Hewlett Packard, the last is an architect. They are highly qualified, highly respected, and highly motivated to solve technical problems. Each one brought to this session several problems that he had been working on for at least the past three months and had been unable to solve. None had any prior experience with psychedelics. In another two hours, we plan to lift their eyeshades, take off their headphones, turn off the music, and offer them finger food, which they will probably not touch. We will help them focus on the problems they came in to solve. They are the fifth or sixth group we have run. The federal government has approved of this study. It is an experimental use of a "new drug," a drug still under review and not available commercially.

In 1966 there were about 60 projects around the country actively investigating LSD-25. Some were therapeutic studies: one at UCLA showed remarkable success in getting autistic children to communicate again; others were working with animals from monkeys to rats to fish, even with insects. Spiders, it turned out, make radically different web designs when given different psychedelics. A year or two earlier there had been a disastrous experiment when psychiatrist Jolly West gave an elephant enough LSD, it is fair to say, to kill an elephant. It did. The dose was several hundred thousand times what any human had taken or would ever take. While it made a brief media splash, the disaster did

not seem to stop the research going on worldwide. Sandoz Pharmaceuticals in Basel, Switzerland, the developer of LSD-25, had recently made available summaries of the first 1000 human studies. LSD-25 was the most studied psychoactive drug in the world. It was remarkable in two ways. One, it was effective in micrograms (millionth of a gram doses). This made it one of the most potent substances ever discovered. Two, it seemed to have the effect of radically changing perception, awareness, and cognition but not in any predictable way. These results seemed to be dependent not only on the drug effects, but equally so on the situation of the subject—what they'd been told about what they were going to experience under the drug and, even more interesting to science, the mind-set of the researcher, whether or not he or she had communicated a point of view to the subjects in any given study.

In short, here was a substance whose effects depended in part on the mental expectations of both subject and researcher. Often people in the studies had experiences that appeared to be deeply therapeutic, blissful and life changing, religious in content or mystical, but they also might have experiences that were profoundly disturbing, confusing, or terrifying. The after-effects of the experience looked more like learning than simply the passage of a chemical through the brain and body. LSD was the genie in the bottle and there were bottles of it all over the country and a growing number outside laboratories and research institutions as well.

When that special delivery letter came from the Food and Drug Administration, none of us yet knew that many of the early conferences of LSD researchers had been sponsored by foundations that were covertly funded by the CIA, or that the United States Army had been giving psychoactive substances to unsuspecting members of the military, prisoners, even some of their own staff. Nor did we know that every project in the country, except those run by the military or intelligence agencies, had received a similar letter on the same day. Sitting in Menlo Park, in the offices of the International Foundation for Advanced Study, we four plus a small support staff were running the only study designed to test the hypothesis that this material could improve the functioning of the rational and the analytical parts of the mind. We were trying to find out if, instead of being diverted into the amazing inner landscape

of colors and forms or into the adventures of mystical exploration or psychopathological terror, LSD-25 might be used to enhance personal creativity in ways that could be measured.

There had been a string of very successful studies in Canada showing that LSD administered in a safe and supportive setting led to a high rate of curbing long-term alcoholics' drinking. Other studies conducted in Southern California by Oscar Janniger showed that artists' work changed radically during an LSD session and often was changed thereafter. However, it was an argument in the art world, and in the science world, if that art was "better." Our team wanted to see if another aspect of the creative—technical problem solving—could be helped by the use of these agents.

The answer thus far in our study was a resounding "yes." We were amazed, as were our participants, at how many novel and effective solutions came out of our sessions. Client companies and research institutions were satisfied with the results (if not fully informed of how they occurred). Other members of research groups, ones whose members had worked with us, were asking to be included in the study. It was a deeply satisfying time.

The letter from the FDA was brief. It advised us that as of the receipt of this letter, our permission to use these materials, our research protocol, and our capacity to work with these materials in any way, shape, or form was terminated.

I was by far the youngest member of the research team, a graduate student at Stanford in a psychology department that I'd not informed about this research. Two of the others were full professors of engineering at Stanford in two different departments, and the fourth was the founder and director of the foundation, a scientist in his own right who'd retired early and set up a nonprofit institute to better understand the interplay between consciousness, deep personal and spiritual experiences, and these substances.

Very soon we would need to go back into that room where the four men lay, their minds literally expanding. I said, "I think we need to agree that we got this letter tomorrow." We went to our subjects, now the last group of people who would be allowed the privilege of working with these materials on problems of their choosing with legal government support and supervision for at least the next 40 years.

One example of the kinds of results we were seeing did come out of that last session. The architect had brought in a project to build a small shopping center. The client had not liked his earlier designs and he was stuck. In the session, he saw the project, completed, and in his mind was able not merely to envision it but to walk around inside it, to see the size and shapes of bolts, to count the number of parking spaces, etc. The design he came up with was approved by his client and he spent the next few weeks doing the drawings that corresponded to the project he had already seen in its finished state.

How did I come to be in that room at the International Foundation for Advanced Study when only a few years before I'd been a writer, living in Paris in a sixth floor walk-up, living on as little as possible, sleeping in train stations and hostels when I traveled and staying with whoever would put me up and feed me? As was said of many of our lives then, it was a long, strange trip.

What sent me from Paris to Stanford and headlong into psychedelic research was not just a visit from my favorite college professor, Richard Alpert (later known as Ram Dass) and his friend, Timothy Leary, but also a cordial note from my draft board asking about my whereabouts. I realized that there was an M-1 waiting for me to cradle it across my elbows while crawling through mud and dank vegetation in Vietnam while overhead shots were being fired in both directions, giving me the chance of dying by enemy or friendly fire. In my mind, neither of those choices made sense, so I returned to the United States to the draft deferment haven of graduate school.

For the good of the military and for the nation, I was sure then and am now that keeping me out was the better alternative. When you have a long history in junior high and high school of being picked last for team sports, you don't assume that you will thrive in the infantry, let alone rise to the higher level of competence needed in actual combat. I saw my government fellowship to study psychology as the government saying that it was better to keep me out than to deal with any potential hazards to others and myself it risked by inducting me.

Why I plunged into psychedelic research, however, did begin with that visit from Alpert and the first night we spent together.

Paris, 1961. I'm sitting at night in a cafe on the Boulevard St. Michael, watching all the people who in turn are watching me. I'm twenty-one and have just taken psilocybin for the first time, and I've no idea what it is or does, but I know that the man sitting next to me is my favorite professor, Dr. Richard Alpert, who has given it to me as a gift. The colors are getting brighter, peoples' eyes are flashing light when they look at me, the noise is playing inside me like a multi-channel broadcast. I say, as evenly as my quavering voice allows, "It's a little too much for me." Richard Alpert grins at me from across the tiny round glass table. "Me too, and I've not taken anything."

We return to my walk-up a few blocks away. The hotel has a plaque to the side of the front door that says that Freud stayed there. I am writing a novel and sometimes imagine that in the future, they will add a second plaque. But not tonight.

I lie down on my bed, Alpert takes the chair. (That about uses up the space in the room.) I watch my mind discovering new aspects of itself. Alpert keeps letting me know that whatever my mind is doing is safe and all right. Part of me is not sure what he is even talking about, another part knows how deeply right he is, another part of me hopes he is.

One week later, I left Paris and followed Alpert and Leary to Amsterdam, where they joined Aldous Huxley to jointly present a paper to an international congress. Leary and Alpert were working together teaching psychology at Harvard and were already in the midst of controversy over giving psychedelics to graduate students and other members of the academic community. Six weeks after their conference, I was flying to California to begin graduate work in psychology.

While at Stanford, I led three lives. In life one, I wore a sport coat and tie, and made sure I showed up every day in the psychology department, visibly a student doing what he could to learn from the lips of the masters. In my second life, two days a week, I was a research assistant at the off-campus International Foundation for Advanced Study. There I sat in on daylong, high-dose (and legal) LSD therapy sessions. Each client had at least two people supporting their experience during the day. A man and a woman stayed with every client (male and female energy seemed helpful), plus there was a physician who checked into the session now and then, and was there if needed. I can't recall when we ever had any simple medical needs but it added to the feeling of total

support and reassurance that made the LSD sessions more beneficial. In addition, a Freudian psychoanalyst had met with each client when he or she first volunteered for our program to determine if each person selected was likely to benefit and unlikely to run into problems beyond their ability to cope. Given the government's skittish stance at the time, the analyst told us we needed to have close to a 100% cure rate, something not demanded nor achieved by any other therapy. My third life was spent with the people who revolved around Ken Kesey. They used psychedelics of all sorts, as well as uppers, downers, marijuana, even alcohol and cigarettes. One member worked for a pharmaceutical chain and arrived at any event with his pockets stuffed with samples.

It was a group of outlaws, but not lawbreakers—more like paradigm breakers. LSD and many of the other drugs were not illegal in the early 1960s, but their use, especially outside any research or medical setting, was not socially acceptable. These explorers of inner space were doing field research, exploring what it was like to have free access to these drugs outside of any control or restraint except self-preservation. During these times, when these drugs were opening doors all over one's mind, the Kesey group used psychedelics while playing, singing, drawing, watching TV, cooking, eating, making love, watching the stars spin and dance, and asking aloud the sorts of questions their experiences brought up:

- Who are we, really?
- Is the soul mortal or immortal?
- What did Blake or Van Gogh or Plato really experience?
- Is my identity inside my body or does it interpenetrate my body and yours?
- What is common between my mind and the nearest redwood tree?
- Were time and space subjective?
- What was fixed? What moved?
- What stayed constant from session to session (that is, what was remembered)?
- What happened in a group where all the minds were opened, loosely linked, and apparently in telepathic communication with one another? When someone in such a group becomes terrified, do the rest get sucked into the down draft? Or can the combined weight of the other minds right the one who has fallen away?

These questions and more were at the heart of the Kesey group's experience. Not outlaws, but outliers. Better to think of them not as the cultural icons they eventually became but as people who had outgrown the limitations of the laws and were furiously developing a bigger set of laws to bring order to their own larger sphere of behavior and experience. It sounds philosophical and it was, but it also had all the raw immediacy of putting your arm across the throat of a drowning swimmer so he or she doesn't panic, drag you underwater, and kill you both.

For me, a critical moment happened one morning at the edge of the Pescadero town dump. Pescadero is a tiny town two miles from the California coast about 15 miles from Stanford. The dump is a hillside, the bottom of which was littered but the top and sides were covered with vines sporting small patches of wildflowers. One dawn I went there with Ken Kesey and his girlfriend at the time, Dorothy, a woman who would later become my wife (after 40 years of marriage, we think it will probably last). The night before, she'd taken some LSD ("dropped acid," to say it the way it was) and was in a state of delighted wonder at the personal discoveries she was making about her own consciousness and how it shaped and reshaped her world. Ken had taken us to Pescadero because it was a wonderful place to meet the dawn. It is correct to say he took Dorothy there, but because I had been guiding her through parts of the night, she wanted me along.

I was not in the inner circle of the Kesey world. I was too straight and too unwilling to take drugs with everyone. None of the women in the group were interested in me, and I had not much in common with any of the men. However, as I worked with LSD by day and legally, I was welcome as an odd ornament, as might one want to have someone around who trained tigers or who could chew broken glass.

Dorothy recalled that the defining moment of that dawn came when she was about to step on a small flower. Instead, she lay down on the path and stared at it. I suggested she let the flower do the communicating. What she saw—not thought or contemplated but saw, such was LSD's curious power—was the flower fully open up, go through

its cycle and wither, but also she watched the flower reverse this same flow, recovering from its dried state, re-flowering and returning to being a bud. She could see it go in both directions, forward and backward in time, dancing its own birth and its own death. When she said what she was seeing, I confirmed that her experience was one others had shared. Relieved, she returned to her plant contemplation.

She looked up at Ken—handsome, rugged, talented, a natural leader, possessed of enormous energy and power. Also married. Ken had two kids; he was fully committed to the marriage and also to having it open to other partners as well. Dorothy looked at me. I was engaged, but my fiancée was 6000 miles away in Scotland. What she did see was that I seemed very knowledgeable, even comfortable, about her newly discovered inner world. From the moment of the encounter with the flower, her gyroscope began to spin away from Ken and turn toward me. Our courtship and marriage is outside this moment in time but as one can trace a river back to a small spring coming from a cleft in a rock on a mountainside, our three lives shifted that day through the lessons that arose from Dorothy's encounter with a single flower.

What about my legal research? What was it like to do legal drug research? Since the Sixties, on most college campuses, it is no trick to find a psychedelic drug, take it, have a wild ride, and to wonder about it all. To give it to people in a setting so supportive that 80% of our subjects reported that it was the single most important event of their lives—ah, that was a different time. For more than two years while the experiments were going on, I'd slip away from Stanford classes when I could and sit with people who were having their introduction to psychedelics and, through psychedelics, to other levels of consciousness, and perhaps to other levels of reality.

Since I was usually introduced as "a graduate student who will be with us today," I was not primarily responsible for conducting the session. I was truly a sitter and could watch, sometimes help, and sometimes record what people reported as they went through the events of the day. Sometimes I would only appear in the late afternoon, and take a person home for the evening. We found that while the effects of the LSD would have worn off after 8 hours, a person's newly found capacity to move in and out of different realities diminished, but did not stop until the client was too tired to stay awake. I often had the treat

of being with people as they puzzled out the major events or insights of the day. I also helped them deal with their families, who were usually baffled by the combination of tales of bizarre inner experiences and the sense of being with someone, a husband or wife, who was so totally open and loving and caring that it often brought the spouse to joyful tears.

By day, in my graduate studies, I was being taught a psychology that seemed to me to cover only a small fragment of the mind. I felt as if I were studying physics with teachers who had no idea that electricity, atomic power, and television existed. I would listen, take notes, ask appropriate questions, and would try to appear as if I were not dumbfounded by the tiny little nibbles my instructors seemed to assume was the whole of the apple of knowledge. By night, having completed my school assignments, I would read books that helped me to piece together the larger world I'd been opened to: *The Book of the Dead*, the *I Ching*, the works of William Blake, Christian mystics, and Buddhist teachings, especially those of the Zen masters whose cutting-through-it-all clarity was wonderfully refreshing. I also struggled with Tibetan texts that were hard to comprehend, but clearly had been written by people who knew about what I was discovering. I would sit and read those books wrapped in plain covers the way one had wrapped dirty comics in *Look* magazine in high school to hide pictures of women with amazingly large breasts from one's teachers.

When I could no longer follow the texts I would sit, cross-legged, on the bare linoleum floor of my graduate student "office," which was in a trailer turned temporary classroom. The space was even smaller than my bedroom in Paris. I'd look through the sliding glass door at a small pine tree planted to deny the fact that we were in a temporary trailer in a large parking lot. I would breathe and stare, breathe and stare until the tree began to breathe with me. It would not move nor sway, but would begin to shine with an invisible illumination, the fact of it extremely alive. It would grow and shrink before my eye, a very tiny movement, but reminiscent of the flower at the Pescadero dump. I'd attune to that tree until I felt balanced again and then go home to bed.

A few months after we ended our research program, California passed a law declaring the possession or distribution of LSD to be a crime. Federal policy concerning LSD was later consolidated with the enactment of the Comprehensive Drug Abuse Prevention and Control Act of 1970.

Why did our drug research frighten the establishment so profoundly? Why does it still frighten them? Perhaps, because we were able to step off (or were tossed off) the treadmill of daily stuff and saw the whole system of life-death-life. We said that we had discovered that love is the fundamental energy of the universe and we wouldn't shut up about it.

Christianity, for example, says come to the Father through Me, and be forgiven sins (even those you had not committed) and be loved without reservation. FREE. FREE. FREE (as if that alone wouldn't make you look underneath to see where the price tag has been hidden).

Once you have declared yourself to be a Christian, however, you find church authorities saying that the actual price of being forgiven includes admitting that you are not only unworthy, but you are very, very unworthy and there is no way you will ever get to worthy on your own hook.

What we found out was that the love is there, the forgiveness is there, and the understanding and compassion are there. But like water to a fish or air to a bird, it is there all around and without any effort on our part. No need for the Father, the Son, the Buddha, the Saints, the Torah, the books, the bells, the candles, the priests, the rituals, or even the wisdom. Just there—so pervasive and so unending that it is impossible to see as long as you are in the smaller world of people separated from one another. No wonder Enlightenment is always a crime.

Terence McKenna

LSD and the Psychedelic Sixties

Excerpt from *Food of the Goods: The Search for the Original Tree of Knowledge: A Radical History of Plants, Drugs, and Human Evolution,* 1993.

To understand the role of psychedelics in the 1960s, we must recall the lessons of prehistory and the importance to early human beings of the dissolution of boundaries in group ritual based on ingestion of hallucinogenic plants. The effect of these compounds is largely psychological and is only partially culturally conditioned; in fact, the compounds act to dissolve cultural conditioning of any sort. They force the corrosive process of reform of community values. Such compounds should be recognized as deconditioning agents; by revealing the relativity of conventional values, they become powerful forces in the political struggle to control the evolution of social images.

The sudden introduction of a powerful deconditioning agent such as LSD had the effect of creating a mass defection from community values, especially values based on a dominator hierarchy accustomed to suppressing consciousness and awareness.

LSD is unique among drugs in the power of its dose range. LSD is detectable in human beings at a dose of 50 micrograms, or 5/100,000 of a gram. Compounds that can elicit effects from amounts smaller than this are unheard of. This means that ten thousand doses of 100 micrograms each could in theory be obtained from one pure gram. More than any other aspect, this staggering ratio of physical mass to market value explains the meteoric rise of LSD use and its subsequent suppression. LSD is odorless and colorless, and it can be mixed in liquids; hundreds of doses could be concealed under a postage stamp. Prison walls were no barrier to LSD, nor were national borders. It could be manufactured in any location with the necessary technology and immediately transported anywhere. Millions of doses of LSD could be and were manufactured by a very few people. Pyramidal markets formed around these sources of supply; criminal syndicalism, a precondition to fascism, quickly followed.

But LSD is more than a commodity—it is a commodity that dissolves the social machinery through which it moves. This effect has bedeviled all the factions that have sought to use LSD to advance a political agenda.

A psychological deconditioning agent is inherently counter-agenda. Once the various parties attempting to gain control of the situation recognized this, they were able to agree on one thing— that LSD be stopped. How and by whom this was done is a lively story that has been well told, most notably by Jay Stevens in *Storming Heaven* and Martin Lee and Bruce Shlain in *Acid Dreams*. These authors make clear that when the methods that worked for colonial empires peddling opium in the nineteenth century were applied by the CIA to the internal management of the American state of mind during the Vietnam War they damn near blew up the whole psycho-social shithouse.

Lee and Shlain write:

The use of LSD among young people in the US reached a peak in the late 1960s, shortly after the CIA initiated a series of covert operations designed to disrupt, discredit, and neutralize the New Left. Was this merely a historical coincidence, or did the Agency actually take steps to promote the illicit acid trade? Not surprisingly, CIA spokesmen dismiss such a notion out of hand. "We do not target American citizens," former CIA director Richard Helms told the American Society of Newspaper Editors in 1971. "The nation must to a degree take it on faith that we who lead the CIA are honorable men, devoted to the nation's service."

Helms' reassurances are hardly comforting in light of his own role as the prime instigator of Operation MK-ULTRA, which utilized unwitting Americans as guinea pigs for testing LSD and other mind-altering substances.

As it turns out, nearly every drug that appeared on the black market during the 1960s—marijuana, cocaine, heroin, PCP, amyl nitrate, mushrooms, DMT, barbiturates, laughing gas, speed, and many others—had previously been scrutinized, tested, and in some cases refined by CIA and army scientists. But of all the techniques explored by the Agency in its multimillion-dollar twenty-five-year quest to conquer the human mind, none received as much attention or was embraced with such enthusiasm as LSD-25. For a time CIA personnel were completely infatuated with the hallucinogen. Those who first tested LSD in the early 1950s were convinced that it would revolutionize the cloak and dagger trade. During Helms' tenure as CIA director, the Agency conducted a massive illegal domestic campaign against the antiwar movement and other dissident elements in the U.S.

As a result of Helms' successful campaign, the New Left was in a shambles when Helms retired from the CIA in 1973. Most of the official records pertaining to the CIA's drug and mind control projects were summarily destroyed on orders from Helms shortly before his departure. The files were shredded, according to Dr. Sidney Gottlieb, chief of the CIA's Technical Services Staff, because of "a burgeoning paper problem." Lost in the process were numerous documents concerning the operational employment of hallucinogenic drugs, including all existing copies of a classified CIA manual titled "LSD: Some Un-Psychedelic Implications."

The times were extraordinary, made only more so by the fantasies of those who sought to control them. The 1960s can almost be seen as a time when two pharmacological mind-sets clashed in an atmosphere close to that of war. On the one hand, international heroin syndicates sought to narcotize America's black ghettos, while hoodwinking the middle class into supporting military adventurism. On the other, self-organized criminal syndicates manufactured and distributed tens of millions of doses of LSD while waging a highly visible underground campaign for their own brand of psychedelic cryptoanarchy.

The result of this encounter can be seen as something of a standoff. The war in Southeast Asia was a catastrophic defeat for the American Establishment, yet paradoxically barely a shred of psychedelic utopianism survived the encounter. All psychedelic drugs, even such unknowns as ibogaine and bufotinin, were made illegal. A relentless restructuring of values was begun in the West; throughout the seventies and eighties the need to deny the impact of the sixties took on something of the flavor of a mass obsession. As the seventies progressed, the new management agenda became clear; while heroin had lost some of its glamour, now there was to be television for the poor and cocaine for the rich.

By the end of the 1960s psychedelic research had been hounded out of existence—not only in the United States, but around the world. And this happened despite the enormous excitement these discoveries had created among psychologists and students of human behavior, an excitement analogous to the feelings that swept the physics community at the news of the splitting of the atom. But whereas the power of the atom, convertible into weapons of mass destruction, was fascinating to the dominator Establishment, the psychedelic experience loomed ultimately as an abyss.

The new era of repression came despite the fact that a number of researchers were using LSD to cure conditions previously considered untreatable. Canadian psychiatrists Abram Hoffer and Humphrey Osmond tabulated the results of eleven separate studies of alcoholism and concluded that 45 percent of the patients treated with LSD improved. Promising results were obtained in attempts to treat schizophrenics, autistic children, and the severely depressed. Many of these findings were attacked after LSD became illegal, but better experiments were never designed and the work could not be repeated because of its illegality. Psychiatry's promising new uses of LSD to treat pain, addiction, alcoholism, and depression during terminal illness were put on indefinite hold.

D. M. Turner

Psychedelic Reality: CydelikSpace

Excerpt from *The Essential Psychedelic Guide*, 1994.

There exists a state, which I will call "CydelikSpace," that I have visited numerous times through the use of psychedelics. CydelikSpace has correlations to the digital world of "cyberspace" described in William Gibson's novels. However, CydelikSpace is not a fictional dimension. It is accessible now, and even appears to be the underlying reality behind all existence. It is of this state that one becomes aware, to a greater or lesser degree, during deep psychedelic experiences, and any other mystical or spiritual experience.

CydelikSpace is vast. It appears to contain all matter and energy in all of its manifestations since the beginning of time. This state also contains thought. In fact, it may be *thought* that gives birth to matter, since experience of CydelikSpace supports the notion that the manifest universe is a construct of consciousness, and not the other way around.

While in this state I have experienced in lucid detail what seems to be every thought that has been formulated in my mind throughout my entire lifetime, as well as each perspective through which I've viewed life, and each experience I have had. I have seen my entire life laid out in suspension before me, and I could wander through my previous perspectives as a detached observer. I could view my life through four dimensions, easily recalling in full detail perspectives and perceptions back through early childhood. I could see the development throughout my life of ideas, identity, beliefs, coincidences, relations, and limitations.

These were seen with the precision of someone analyzing graph charts displaying data, yet with full emotional connection. It is said that when one is about to die, their entire life flashes before their eyes. While under the influence of psychedelics, this flash has lasted for hours, and allowed for reflection, devoid of panic, anxiety, attachment, or fear.

Not only is CydelikSpace a complete depository of my own life's perceptions, it similarly contains all thoughts and experiences of every human, animal, plant, and molecular life form that has existed in

the universe since time began, including the life experience of individual cells and galactic star systems. Other lives can be experienced with almost as much detail as one's own, down to a child's wonder upon first feeling dew on the morning grass, the trace of lipstick left on your lips after kissing a lover whom you've never before met, or a child's first impression of a pattern on clothing, seen while playing at nursery school, in a building too modern to have existed during your own childhood. These vivid impressions can be much more extraordinary: being in an extraterrestrial body while making love and enjoying the sensations perceived through a much finer tactile sense than exists in humans, or the experience of a planet's soul over millions of years as different groups of plants evolve, flourish, and give way to their successors upon its surface.

When in CydelikSpace it is clear that you and I are not two. CydelikSpace exists, and the detailed dreams of our separate lives are entirely contained within it. But this entire storehouse of universal experience is but a fraction of CydelikSpace's magnitude. It also contains all thoughts which did not occur but could have, and each variation of experience that did not take place. The thoughts that have passed through one's mind, the actions taken, and the experiences one has had are but one series of occurrences. The possible thoughts, actions, and experiences that did not manifest in one's life are infinite, and branch out endlessly. An artist's marks upon a canvas are but one rendering of the multitude of visions held inside the head, and CydelikSpace additionally contains innumerable visions that the artist never dreamed in the wildest fits of imagination.

Occasionally I've experienced events while in CydelikSpace that later manifested in consensus reality. One can also experience events that happened in a time and place where they were not present, and find that these events actually occurred. This is not to say that all experiences in CydelikSpace have parallels in consensus reality. Only a very small percent do. This can be compared to dreams. Almost everyone has had a few dreams that were precognitive, or somehow paranormal, but it is only one in a great number. The same generally holds true for paranormal psychedelic experiences. However, it has been stated that many shamans in the Amazonian regions have effectively mastered this ability to enter the psychedelic universe, and view future or past events from the lives of those in their community.

In *The Holotropic Mind* Stan Grof suggests: "As individual human beings we are not isolated and insignificant Newtonian entities; rather, as integral fields of the holomovement [CydelikSpace] each of us is also a microcosm that reflects the macrocosm. If this is true, then we each hold the potential for having direct and immediate experiential access to virtually every aspect of the universe, extending our capacities well beyond the reach of our senses."

Through his observation of thousands of psychedelic sessions, as well as sessions involving other means of entering into "nonordinary states of consciousness," Grof has put together a very thorough collection of information to confirm that events and experiences of the type I describe here are common occurrences for the majority of psychedelic users. He argues that the indisputable validity of these experiences calls for a new model and understanding of ourselves, our minds, and the manifest universe. In summarizing his observations Grof says, "I am now convinced that our individual consciousnesses connect us not only with our immediate environment and with various periods of our own past, but also with events that are far beyond the reach of our physical senses, extending into other historical times, into nature, and into the cosmos . . . We can re-experience episodes that took place when we were fetuses in our mothers' wombs . . . On occasion we can reach far back in time and witness sequences from the lives of our human and animal ancestors . . . We can transcend time and space, cross boundaries separating us from various animal species, experience processes in the botanical kingdom and in the inorganic world, and even explore mythological and other realities that we previously did not know existed."

In my experiences I've found that CydelikSpace not only contains all possible thought, vision, and experience—it may also contain all manifestations of physical matter. My perception while in CydelikSpace is that all matter, all energy, all movement, is still contained in a dimensionless point. The "Big Bang" and the unfolding of the universe has not yet occurred. CydelikSpace is a seething mass of unlimited possibilities contained within a nucleus. While in CydelikSpace the manifest universe that I appear to wake up to each morning is no more real or solid than countless other universes.

In a 1989 *High Times* article, Ramses Sputz describes his Ketamine experience: "I become a floating diffuse cloud of disembodied

thought, surfing the warps and waves of Einstein's non-linear, non-Euclidean space-time continuum. I'm on a guided tour through the subatomic factory which continuously generates the universe, witnessing the mathematical equations which govern the emergence of matter from the field of quantum probabilities, the vacuum matrix from which all particles arise and into which they dissolve. But the factory doesn't manufacture this universe alone. Countless other universes are rolling off the assembly line, and I can see their images peeping around the corners of space-time."

As a physicist can explain, what feels like a piece of solid steel is not actually solid at all. It is composed of 99.9999 . . . % empty space, with some minute subatomic particles swirling about at incredible velocities. So in CydelikSpace the existence of self and the universe is experienced as switching on and off and through a myriad manifestations each fraction of a millisecond.

Most any psychedelic can, on auspicious occasions, bring one deeply into CydelikSpace. The LSD experience I had in Death Valley shows one possible experience of CydelikSpace. In my mind's eye I beheld all of the changes that the landscape around me had passed through over millions of years. I experienced the lives and witnessed the perspectives of each life form that had lived on these grounds.

The experience of Enlightenment, Satori, or Samadhi, as it is called in various Eastern religions, is another variation of Cydelikspace. I have had this experience of Samadhi. The extinguishing of self-awareness and the dawning of omniscient awareness was simultaneous. It was as though someone had switched on all the interior lights of my mind, and this light passed through me like a bolt of lightning. Everything was understood and made clear. It seemed quite obvious that the entire manifest universe, along with my identity and experience of life, was all a creation of Consciousness.

The experience sought by many practicing Eastern religions closely resembles CydelikSpace. However, those who have apparently attained this "Enlightenment" have expressed only a partial understanding of CydelikSpace. They seldom describe vast and detailed perceptions, such as the infinite variety of life forms that have existed throughout time and space, and in the non-manifest realms. Although the states of mind these people experience may be vast, they do not

seem to be without limitations. Rarely are "Enlightened" persons even aware of the thoughts in others' minds.

I'll even hazard to suggest that complete cognizance of CydelikSpace is not possible for any individual or entity. There appears to be a paradox in that to comprehend CydelikSpace in full one must shrink to a point of zero, at which stage there would be no experience or perception. To function as a human, and comprehend all of CydelikSpace, is not possible. This is not to say that one can't have some extremely grandiose experiences in this arena. But I don't believe one can ever reach a final stage of Enlightenment, attainment of a state from which they have nothing further to learn, nowhere further to go.

Many mystical religions preach pursuit of this Satori experience at the expense of not valuing one's personal identity or ego. These philosophies tend to degrade the development of personality, character, abilities, relations, even evolution itself. While the ego or identity certainly needs to be transcended to enter CydelikSpace, it is only by continually rebuilding our identity that our lives continue. My philosophy has been to use the psychedelic, spiritual, ego-loss experience to break down my limitations and definitions of myself, to keep my identity from stagnating, then to rebuild and develop in the manner I choose, a wiser, healthier, happier ego.

Indeed it is this loss of ego, identity, or self-awareness which admits one into CydelikSpace. And since any psychedelic can dissolve the identity to a degree, any psychedelic can admit one into CydelikSpace. However, with most psychedelic experiences the tendency is for the ego to begin to reinstate itself immediately after it has dissolved. While the experience of CydelikSpace seems timeless while in it, if timed on a clock the deep portion of the experience usually lasts but a few seconds.

My LSD experience in Death Valley is a case in point. At first my self-identity was dissolving slowly. The pace increased until the ego was in a rapidly deteriorating state. The "peak" during which "I became the One Mind onto which all the experiences of time have been etched," lasted for but a brief moment by our earthly clocks. The descent back to self-awareness was equally sharp, as I saw layers of identity forming in front of my perception. If viewed across a graph chart, the ego-loss/reinstatement process would start as a slowly rising curve, changing to a nearly vertical, quickly-rising line as the ego dissolves to near nothingness.

The reinstatement of the ego usually closely mirrors its dissolution.

In 1953, after ingesting mescaline for his first psychedelic experience, the famous author-philosopher Aldous Huxley wrote *The Doors of Perception.* Here Huxley discusses ideas of his own, and of other philosophers, relating to this theme. "The function of the brain, nervous system, and sense organs is in the main *eliminative* and not productive. Each person is at any moment capable of remembering all that has ever happened to him and of perceiving everything that is happening everywhere in the universe. The function of the brain and nervous system is to protect us from being overwhelmed and confused by this mass of largely useless and irrelevant knowledge, by shutting out most of what we should otherwise perceive or remember at any moment, and leaving only that very small and special selection which is likely to be practically useful.

"According to such a theory, each one of us is potentially Mind at Large. But in so far as we are animals, our business is at all costs to survive. To make biological survival possible, Mind at Large has to be funneled through the reducing valve of the brain and nervous system. What comes out at the other end is a measly trickle of the kind of consciousness which will help us stay alive on the surface of this particular planet.

"The various 'other worlds' with which human beings erratically make contact are so many elements in the totality of the awareness belonging to Mind at Large. Most people, most of the time, know only what comes through the reducing valve and is consecrated as genuinely real by the local language. Certain persons, however, seem to be born with a kind of by-pass that circumvents the reducing valve. In others temporary by-passes may be acquired either spontaneously, or as the result of deliberate 'spiritual exercises', or through hypnosis, or by means of drugs. Through these by-passes there flows, not indeed the perception 'of everything that is happening everywhere in the universe' (for the by-pass does not abolish the reducing valve, which still excludes the total content of Mind at Large) but something more than, and above all something different from, the carefully selected utilitarian material which our narrowed, individual minds regard as a complete, or at least a sufficient, picture of reality."

Dr. Albert Hofmann

How LSD Originated

Excerpt from *LSD: My Problem Child*, 1980.

In the realm of scientific observation, luck is granted only to those who are prepared. —Louis Pasteur

Time and again I hear or read that LSD was discovered by accident. This is only partly true. LSD came into being within a systematic research program, and the "accident" did not occur until much later: when LSD was already five years old, I happened to experience its unforeseeable effects in my own body—or rather, in my own mind.

Looking back over my professional career to trace the influential events and decisions that eventually steered my work toward the synthesis of LSD, I realize that the most decisive step was my choice of employment upon completion of my chemistry studies. If that decision had been different, then this substance, which has become known the world over, might never have been created. In order to tell the story of the origin of LSD, then, I must also touch briefly on my career as a chemist, since the two developments are inextricably interrelated.

In the spring of 1929, on concluding my chemistry studies at the University of Zurich, I joined the Sandoz Company's pharmaceutical-chemical research laboratory in Basel, as a co-worker with Professor Arthur Stoll, founder and director of the pharmaceutical department. I chose this position because it afforded me the opportunity to work on natural products, whereas two other job offers from chemical firms in Basel had involved work in the field of synthetic chemistry.

First Chemical Explorations

My doctoral work at Zurich under Professor Paul Karrer had already given me one chance to pursue my interest in plant and animal chemistry. Making use of the gastrointestinal juice of the vineyard snail,

I accomplished the enzymatic degradation of chitin, the structural material of which the shells, wings, and claws of insects, crustaceans, and other lower animals are composed. I was able to derive the chemical structure of chitin from the cleavage product, a nitrogen-containing sugar, obtained by this degradation. Chitin turned out to be an analogue of cellulose, the structural material of plants. This important result, obtained after only three months of research, led to a doctoral thesis rated "with distinction."

When I joined the Sandoz firm, the staff of the pharmaceutical-chemical department was still rather modest in number. Four chemists with doctoral degrees worked in research, three in production.

In Stoll's laboratory I found employment that completely agreed with me as a research chemist. The objective that Professor Stoll had set for his pharmaceutical-chemical research laboratories was to isolate the active principles (*i.e.*, the effective constituents) of known medicinal plants to produce pure specimens of these substances. This is particularly important in the case of medicinal plants whose active principles are unstable, or whose potency is subject to great variation, which makes an exact dosage difficult. But if the active principle is available in pure form, it becomes possible to manufacture a stable pharmaceutical preparation, exactly quantifiable by weight. With this in mind, Professor Stoll had elected to study plant substances of recognized value such as the substances from foxglove *(Digitalis),* Mediterranean squill *(Scilla maritima)*, and ergot of rye (*Claviceps purpurea* or *Secale cornutum*), which, owing to their instability and uncertain dosage, nevertheless, had been little used in medicine.

My first years in the Sandoz laboratories were devoted almost exclusively to studying the active principles of Mediterranean squill. Dr. Walter Kreis, one of Professor Stoll's earliest associates, launched me in this field of research. The most important constituents of Mediterranean squill already existed in pure form. Their active agents, as well as those of woolly foxglove (*Digitalis lanata*), had been isolated and purified, chiefly by Dr. Kreis, with extraordinary skill.

The active principles of Mediterranean squill belong to the group of cardioactive glycosides (glycoside = sugar-containing substance) and serve, as do those of foxglove, in the treatment of cardiac insufficiency. The cardiac glycosides are extremely active substances. Because the therapeutic and the toxic doses differ so little, it becomes especially important here to have an exact dosage, based on pure compounds.

At the beginning of my investigations, a pharmaceutical preparation with *Scilla* glycosides had already been introduced into therapeutics by Sandoz; however, the chemical structure of these active compounds, with the exception of the sugar portion, remained largely unknown.

My main contribution to the *Scilla* research, in which I participated with enthusiasm, was to elucidate the chemical structure of the common nucleus of *Scilla* glycosides, showing on the one hand their differences from the *Digitalis* glycosides, and on the other hand their close structural relationship with the toxic principles isolated from skin glands of toads. In 1935, these studies were temporarily concluded.

Looking for a new field of research, I asked Professor Stoll to let me continue the investigations on the alkaloids of ergot, which he had begun in 1917, and which had led directly to the isolation of ergotamine in 1918. Ergotamine, discovered by Stoll, was the first ergot alkaloid obtained in pure chemical form. Although ergotamine quickly took a significant place in therapeutics (under the trade name Gynergen) as a hemostatic remedy in obstetrics, and as a medicament in the treatment of migraine, chemical research on ergot in the Sandoz laboratories was abandoned after the isolation of ergotamine and the determination of its empirical formula. Meanwhile, at the beginning of the thirties, English and American laboratories had begun to determine the chemical structure of ergot alkaloids. They had also discovered a new, water-soluble ergot alkaloid, which could likewise be isolated from the mother liquor of ergotamine production. So I thought it was high time that Sandoz resumed chemical research on ergot alkaloids, unless we wanted to risk losing our leading role in a field of medicinal research, which was already becoming so important.

Professor Stoll granted my request, with some misgivings: "I must warn you of the difficulties you face in working with ergot alkaloids. These are exceedingly sensitive, easily decomposed substances, less stable than any of the compounds you have investigated in the cardiac glycoside field. But you are welcome to try."

And so the switches were thrown, and I found myself engaged in a field of study that would become the main theme of my professional

career. I have never forgotten the creative joy, the eager anticipation I felt in embarking on the study of ergot alkaloids, at that time a relatively uncharted field of research.

Ergot

It may be helpful here to give some background information about ergot itself. [For further information on ergot, readers should refer to the monographs of G. Berger, *Ergot and Ergotism* (Gurney and Jackson, London, 1931) and A. Hofmann, *Die Mutterkorn Alkaloide* (F. Enke Verlag, Stuttgart, 1964). The former is a classical presentation of the history of the drug, while the latter emphasizes the chemical aspects.] It is produced by a lower fungus (*Claviceps purpurea*) that grows parasitically on rye and, to a lesser extent, on other species of grain and on wild grasses. Kernels infested with this fungus develop into light-brown to violet-brown curved pegs (sclerotia) that push forth from the husk in place of normal grains. Ergot is described botanically as a sclerotium, the form that the ergot fungus takes in winter. Ergot of rye (*Secale cornutum*) is the variety used medicinally.

Ergot, more than any other drug, has a fascinating history, in the course of which its role and meaning have been reversed: once dreaded as a poison, in the course of time it has changed to a rich storehouse of valuable remedies. Ergot first appeared on the stage of history in the early Middle Ages, as the cause of outbreaks of mass poisonings affecting thousands of persons at a time. The illness, whose connection with ergot was for a long time obscure, appeared in two characteristic forms, one gangrenous (*ergotismus gangraenosus*) and the other convulsive (*ergotismus convulsivus*). Popular names for ergotism—such as "mal des ardents," "ignis sacer," "heiliges Feuer," or "St. Anthony's fire"—refer to the gangrenous form of the disease. The patron saint of ergotism victims was St. Anthony, and it was primarily the Order of St. Anthony that treated these patients.

Until recent times, epidemic-like outbreaks of ergot poisoning have been recorded in most European countries including certain areas of Russia. With progress in agriculture, and since the realization, in the seventeenth century, that ergot-containing bread was the cause, the frequency and extent of ergotism epidemics diminished considerably.

The last great epidemic occurred in certain areas of southern Russia in the years 1926-27. [The mass poisoning in the southern French city of Pont-St. Esprit in the year 1951, which many writers have attributed to ergot-containing bread, actually had nothing to do with ergotism. It rather involved poisoning by an organic mercury compound that was utilized for disinfecting seed.]

The first mention of a medicinal use of ergot, namely as an ecbolic (a medicament to precipitate childbirth), is found in the herbal of the Frankfurt city physician Adam Lonitzer (Lonicerus) in the year 1582. Although ergot, as Lonitzer stated, had been used since olden times by midwives, it was not until 1808 that this drug gained entry into academic medicine, on the strength of a work by the American physician John Stearns entitled *Account of the Putvis Parturiens, a Remedy for Quickening Childbirth.*

The use of ergot as an ecbolic did not, however, endure. Practitioners became aware quite early of the great danger to the child, owing primarily to the uncertainty of dosage, which when too high led to uterine spasms. From then on, the use of ergot in obstetrics was confined to stopping postpartum hemorrhage (bleeding after childbirth).

It was not until ergot's recognition in various pharmacopoeias during the first half of the nineteenth century that the first steps were taken toward isolating the active principles of the drug. However, of all the researchers who assayed this problem during the first hundred years, not one succeeded in identifying the actual substances responsible for the therapeutic activity. In 1907, the Englishmen G. Barger and F. H. Carr were the first to isolate an active alkaloidal preparation, which they named ergotoxine because it produced more of the toxic than therapeutic properties of ergot. (This preparation was not homogeneous, but rather a mixture of several alkaloids, as I was able to show thirty-five years later.) Nevertheless, the pharmacologist H. H. Dale discovered that ergotoxine, besides the uterotonic effect, also had an antagonistic activity on adrenaline in the autonomic nervous system that could lead to the therapeutic use of ergot alkaloids. Only with the isolation of ergotamine by A. Stoll (as mentioned previously) did an ergot alkaloid find entry and widespread use in therapeutics.

The early 1930s brought a new era in ergot research, beginning with the determination of the chemical structure of ergot alkaloids, as

mentioned, in English and American laboratories. By chemical cleavage, W. A. Jacobs and L. C. Craig of the Rockefeller Institute of New York succeeded in isolating and characterizing the nucleus common to all ergot alkaloids. They named it lysergic acid. Then came a major development, both for chemistry and for medicine: the isolation of the specifically uterotonic, hemostatic principle of ergot, which was published simultaneously and quite independently by four institutions, including the Sandoz laboratories. The substance, an alkaloid of comparatively simple structure, was named ergobasine (syn. ergometrine, ergonovine) by A. Stoll and E. Burckhardt. By the chemical degradation of ergobasine, W. A. Jacobs and L. C. Craig obtained lysergic acid and the amino alcohol propanolamine as cleavage products.

I set as my first goal the problem of preparing this alkaloid synthetically, through chemical linking of the two components of ergobasine, lysergic acid and propanolamine.

The lysergic acid necessary for these studies had to be obtained by chemical cleavage of some other ergot alkaloid. Since only ergotamine was available as a pure alkaloid, and was already being produced in kilogram quantities in the pharmaceutical production department, I chose this alkaloid as the starting material for my work. I set about obtaining 0.5 gm of ergotamine from the ergot production people. When I sent the internal requisition form to Professor Stoll for his countersignature, he appeared in my laboratory and reproved me: "If you want to work with ergot alkaloids, you will have to familiarize yourself with the techniques of microchemistry. I can't have you consuming such a large amount of my expensive ergotamine for your experiments."

The ergot production department, besides using ergot of Swiss origin to obtain ergotamine, also dealt with Portuguese ergot, which yielded an amorphous alkaloidal preparation that corresponded to the aforementioned ergotoxine first produced by Barger and Carr. I decided to use this less expensive material for the preparation of lysergic acid. The alkaloid obtained from the production department had to be purified further, before it would be suitable for cleavage to lysergic acid. Observations made during the purification process led me to think that ergotoxine could be a mixture of several alkaloids, rather than one homogeneous alkaloid. I will speak later of the far-reaching sequelae of these observations.

Here I must digress briefly to describe the working conditions and techniques that prevailed in those days. These remarks may be of interest to the present generation of research chemists in industry, who are accustomed to far better conditions.

We were very frugal. Individual laboratories were considered a rare extravagance. During the first six years of my employment with Sandoz, I shared a laboratory with two colleagues. We three chemists, plus an assistant each, worked in the same room on three different fields: Dr. Kreiss on cardiac glycosides; Dr. Wiedemann, who joined Sandoz around the same time as I, on the leaf pigment chlorophyll; and I ultimately on ergot alkaloids. The laboratory was equipped with two fume hoods (compartments supplied with outlets), providing less than effective ventilation by gas flames. When we requested that these hoods be equipped with ventilators, our chief refused on the ground that ventilation by gas flame had sufficed in Willstatter's laboratory.

During the last years of World War I, Professor Stoll had been an assistant in Berlin and Munich to the world-famous chemist and Nobel laureate Professor Richard Willstatter, and with him had conducted the fundamental investigations on chlorophyll and the assimilation of carbon dioxide. There was scarcely a scientific discussion with Professor Stoll in which he did not mention his revered teacher Professor Willstatter and his work in Willstatter's laboratory.

The working techniques available to chemists in the field of organic chemistry at that time (the beginning of the thirties) were essentially the same as those employed by Justus von Liebig a hundred years earlier. The most important development achieved since then was the introduction of microanalysis by B. Pregl, which made it possible to ascertain the elemental composition of a compound with only a few milligrams of specimen, whereas earlier a few centigrams were needed. Of the other physical-chemical techniques at the disposal of the chemist today—techniques which have changed his way of working, making it faster and more effective, and created entirely new possibilities, above all for the elucidation of structure—none yet existed in those days.

For the investigations of *Scilla* glycosides and the first studies in the ergot field, I still used the old separation and purification techniques from Liebig's day: fractional extraction, fractional precipitation, fractional

crystallization, and the like. The introduction of column chromatography, the first important step in modern laboratory technique, was of great value to me only in later investigations. For structure determination, which today can be conducted rapidly and elegantly with the help of spectroscopic methods (UV, IR, NMR) and X-ray crystallography, we had to rely, in the first fundamental ergot studies, entirely on the old laborious methods of chemical degradation and derivatization.

Lysergic Acid and Its Derivatives

Lysergic acid proved to be a rather unstable substance, and its rebonding with basic radicals posed difficulties. In the technique known as Curtius' Synthesis, I ultimately found a process that proved useful for combining lysergic acid with amines. With this method I produced a great number of lysergic acid compounds. By combining lysergic acid with the amino alcohol propanolamine, I obtained a compound that was identical to the natural ergot alkaloid ergobasine. With that, the first synthesis—that is, artificial production—of an ergot alkaloid was accomplished. This was not only of scientific interest, as confirmation of the chemical structure of ergobasine, but also of practical significance, because ergobasine, the specifically uterotonic, hemostatic principle, is present in ergot only in very trifling quantities. With this synthesis, the other alkaloids existing abundantly in ergot could now be converted to ergobasine, which was valuable in obstetrics.

After this first success in the ergot field, my investigations went forward on two fronts. First, I attempted to improve the pharmacological properties of ergobasine by variations of its amino alcohol radical. My colleague Dr. J. Peyer and I developed a process for the economical production of propanolamine and other amino alcohols. Indeed, by substitution of the propanolamine contained in ergobasine with the amino alcohol butanolamine, an active principle was obtained that even surpassed the natural alkaloid in its therapeutic properties. This improved ergobasine has found worldwide application as a dependable uterotonic, hemostatic remedy under the trade name Methergine, and is today the leading medicament for this indication in obstetrics.

I further employed my synthetic procedure to produce new lysergic acid compounds for which uterotonic activity was not prominent, but from which, on the basis of their chemical structure, other types of interesting pharmacological properties could be expected. In 1938, I produced the twenty-fifth substance in this series of lysergic acid derivatives: lysergic acid diethylamide, abbreviated LSD-25 (Lysergic acid diethylamide) for laboratory usage.

I had planned the synthesis of this compound with the intention of obtaining a circulatory and respiratory stimulant (an analeptic). Such stimulating properties could be expected for lysergic acid diethylamide, because it shows similarity in chemical structure to the analeptic already known at that time, namely nicotinic acid diethylamide (Coramine). During the testing of LSD-25 in the pharmacological department of Sandoz, whose director at the time was Professor Ernst Rothlin, a strong effect on the uterus was established. It amounted to some 70 percent of the activity of ergobasine. The research report also noted, in passing, that the experimental animals became restless during the narcosis. The new substance, however, aroused no special interest in our pharmacologists and physicians; testing was therefore discontinued.

For the next five years, nothing more was heard of the substance LSD-25. Meanwhile, my work in the ergot field advanced further in other areas. Through the purification of ergotoxine, the starting material for lysergic acid, I obtained, as already mentioned, the impression that this alkaloidal preparation was not homogeneous, but was rather a mixture of different substances. This doubt as to the homogeneity of ergotoxine was reinforced when in its hydrogenation two distinctly different hydrogenation products were obtained, whereas the homogeneous alkaloid ergotamine under the same condition yielded only a single hydrogenation product (hydrogenation = introduction of hydrogen). Extended, systematic analytical investigations of the supposed ergotoxine mixture led ultimately to the separation of this alkaloidal preparation into three homogeneous components. One of the three chemically homogeneous ergotoxine alkaloids proved to be identical with an alkaloid isolated shortly before in the production department, which A. Stoll and E. Burckhardt had named ergocristine. The other two alkaloids were both new. The first I named ergocornine; and for the second, the last to be isolated, which had long remained hidden in the mother liquor, I chose the name ergokryptine (kryptos = hidden). Later

it was found that ergokryptine occurs in two isomeric forms, which were differentiated as alpha- and beta-ergokryptine.

The solution of the ergotoxine problem was not merely scientifically interesting, but also had great practical significance. A valuable remedy arose from it. The three hydrogenated ergotoxine alkaloids that I produced in the course of these investigations, dihydroergocristine, dihydroergokryptine, and dihydroergocornine, displayed medicinally useful properties during testing by Professor Rothlin in the pharmacological department. From these three substances, the pharmaceutical preparation Hydergine was developed, a medicament for improvement of peripheral circulation and cerebral function in the control of geriatric disorders. Hydergine has proven to be an effective remedy in geriatrics for these indications. Today it is Sandoz's most important pharmaceutical product.

Dihydroergotamine, which I likewise produced in the course of these investigations, has also found application in therapeutics as a circulation- and blood-pressure-stabilizing medicament, under the trade name Dihydergot.

While today research on important projects is almost exclusively carried out as teamwork, the investigations on ergot alkaloids described above were conducted by myself alone. Even the further chemical steps in the evolution of commercial preparations remained in my hands—that is, the preparation of larger specimens for the clinical trials, and finally the perfection of the first procedures for mass production of Methergine, Hydergine, and Dihydergot. This even included the analytical controls for the development of the first galenical forms of these three preparations: the ampoules, liquid solutions, and tablets. My aides at that time included a laboratory assistant, a laboratory helper, and later in addition a second laboratory assistant and a chemical technician.

Discovery of the Psychic Effects of LSD

The solution of the ergotoxine problem had led to fruitful results, described here only briefly, and had opened up further avenues of research. And yet I could not forget the relatively uninteresting LSD-25. A peculiar presentiment—the feeling that this substance could possess

properties other than those established in the first investigations—induced me, five years after the first synthesis, to produce LSD-25 once again so that a sample could be given to the pharmacological department for further tests. This was quite unusual; experimental substances, as a rule, were definitely stricken from the research program if once found to be lacking in pharmacological interest.

Nevertheless, in the spring of 1943, I repeated the synthesis of LSD-25. As in the first synthesis, this involved the production of only a few centigrams of the compound.

In the final step of the synthesis, during the purification and crystallization of lysergic acid diethylamide in the form of a tartrate (tartaric acid salt), I was interrupted in my work by unusual sensations. The following description of this incident comes from the report that I sent at the time to Professor Stoll:

> *Last Friday, April 16,1943, I was forced to interrupt my work in the laboratory in the middle of the afternoon and proceed home, being affected by a remarkable restlessness, combined with a slight dizziness. At home I lay down and sank into a not unpleasant intoxicated-like condition, characterized by an extremely stimulated imagination. In a dreamlike state, with eyes closed (I found the daylight to be unpleasantly glaring), I perceived an uninterrupted stream of fantastic pictures, extraordinary shapes with intense, kaleidoscopic play of colors. After some two hours this condition faded away.*

This was, altogether, a remarkable experience—both in its sudden onset and its extraordinary course. It seemed to have resulted from some external toxic influence; I surmised a connection with the substance I had been working with at the time, lysergic acid diethylamide tartrate. But this led to another question: how had I managed to absorb this material? Because of the known toxicity of ergot substances, I always maintained meticulously neat work habits. Possibly a bit of the LSD solution had contacted my fingertips during crystallization, and a trace of the substance was absorbed through the skin. If LSD-25 had indeed been the cause of this bizarre experience, then it must be a substance of extraordinary potency. There seemed to be only one way of getting to

the bottom of this. I decided on a self-experiment.

Exercising extreme caution, I began the planned series of experiments with the smallest quantity that could be expected to produce some effect, considering the activity of the ergot alkaloids known at the time: namely, 0.25 mg (mg = milligram = one thousandth of a gram) of lysergic acid diethylamide tartrate. Quoted below is the entry for this experiment in my laboratory journal of April 19, 1943.

Self-Experiments

> *4/19/43 16:20: 0.5 cc of 1/2 promil aqueous solution of diethylamide tartrate orally = 0.25 mg tartrate. Taken diluted with about 10 cc water. Tasteless.*
> *Supplement of 4/21: Home by bicycle. From 18:00- ca.20:00 most severe crisis. (See special report.)*

Here the notes in my laboratory journal cease. I was able to write the last words only with great effort. By now it was already clear to me that LSD had been the cause of the remarkable experience of the previous Friday, for the altered perceptions were of the same type as before, only much more intense. I had to struggle to speak intelligibly. I asked my laboratory assistant, who was informed of the self-experiment, to escort me home. We went by bicycle, no automobile being available because of wartime restrictions on their use. On the way home, my condition began to assume threatening forms. Everything in my field of vision wavered and was distorted as if seen in a curved mirror. I also had the sensation of being unable to move from the spot. Nevertheless, my assistant later told me that we had traveled very rapidly. Finally, we arrived at home safe and sound, and I was just barely capable of asking my companion to summon our family doctor and request milk from the neighbors.

In spite of my delirious, bewildered condition, I had brief periods of clear and effective thinking—and chose milk as a nonspecific antidote for poisoning.

The dizziness and sensation of fainting became so strong at times that I could no longer hold myself erect, and had to lie down on a sofa.

My surroundings had now transformed themselves in more terrifying ways. Everything in the room spun around, and the familiar objects and pieces of furniture assumed grotesque, threatening forms. They were in continuous motion, animated, as if driven by an inner restlessness. The lady next door, whom I scarcely recognized, brought me milk—in the course of the evening I drank more than two liters. She was no longer Mrs. R., but rather a malevolent, insidious witch with a colored mask.

Even worse than these demonic transformations of the outer world, were the alterations that I perceived in myself, in my inner being. Every exertion of my will, every attempt to put an end to the disintegration of the outer world and the dissolution of my ego, seemed to be wasted effort. A demon had invaded me, had taken possession of my body, mind, and soul. I jumped up and screamed, trying to free myself from him, but then sank down again and lay helpless on the sofa. The substance, with which I had wanted to experiment, had vanquished me. It was the demon that scornfully triumphed over my will. I was seized by the dreadful fear of going insane. I was taken to another world, another place, another time. My body seemed to be without sensation, lifeless, strange. Was I dying? Was this the transition? At times I believed myself to be outside my body, and then perceived clearly, as an outside observer, the complete tragedy of my situation. I had not even taken leave of my family (my wife, with our three children had traveled that day to visit her parents, in Lucerne). Would they ever understand that I had not experimented thoughtlessly, irresponsibly, but rather with the utmost caution, and that such a result was in no way foreseeable? My fear and despair intensified, not only because a young family should lose its father, but also because I dreaded leaving my chemical research work, which meant so much to me, unfinished in the midst of fruitful, promising development. Another reflection took shape, an idea full of bitter irony: if I was now forced to leave this world prematurely, it was because of this lysergic acid diethylamide that I myself had brought forth into the world.

By the time the doctor arrived, the climax of my despondent condition had already passed. My laboratory assistant informed him about my self-experiment, as I myself was not yet able to formulate a coherent sentence. He shook his head in perplexity, after my attempts

to describe the mortal danger that threatened my body. He could detect no abnormal symptoms other than extremely dilated pupils. Pulse, blood pressure, breathing were all normal. He saw no reason to prescribe any medication. Instead he conveyed me to my bed and stood watch over me. Slowly I came back from a weird, unfamiliar world to reassuring everyday reality. The horror softened and gave way to a feeling of good fortune and gratitude, the more normal perceptions and thoughts returned, and I became more confident that the danger of insanity was conclusively past.

Now, little by little I could begin to enjoy the unprecedented colors and plays of shapes that persisted behind my closed eyes. Kaleidoscopic, fantastic images surged in on me, alternating, variegated, opening and then closing themselves in circles and spirals, exploding in colored fountains, rearranging and hybridizing themselves in constant flux. It was particularly remarkable how every acoustic perception, such as the sound of a door handle or a passing automobile, became transformed into optical perceptions. Every sound generated a vividly changing image, with its own consistent form and color.

Late in the evening my wife returned from Lucerne. Someone had informed her by telephone that I was suffering a mysterious breakdown. She had returned home at once, leaving the children behind with her parents. By now, I had recovered myself sufficiently to tell her what had happened.

Exhausted, I then slept, to awake next morning refreshed, with a clear head, though still somewhat tired physically. A sensation of well-being and renewed life flowed through me. Breakfast tasted delicious and gave me extraordinary pleasure. When I later walked out into the garden, in which the sun shone now after a spring rain, everything glistened and sparkled in a fresh light. The world was as if newly created. All my senses vibrated in a condition of highest sensitivity, which persisted for the entire day.

This self-experiment showed that LSD-25 behaved as a psychoactive substance with extraordinary properties and potency. There was to my knowledge no other known substance that evoked such profound psychic effects in such extremely low doses, that caused such dramatic changes in human consciousness and our experience of the inner and outer world.

What seemed even more significant was that I could remember the experience of LSD inebriation in every detail. This could only mean that the conscious recording function was not interrupted, even in the climax of the LSD experience, despite the profound breakdown of the normal world view. For the entire duration of the experiment, I had even been aware of participating in an experiment, but despite this recognition of my condition, I could not, with every exertion of my will, shake off the LSD world. Everything was experienced as completely real, as alarming reality; alarming, because the picture of the other, familiar everyday reality was still fully preserved in the memory for comparison.

Another surprising aspect of LSD was its ability to produce such a far-reaching, powerful state of inebriation without leaving a hangover. Quite the contrary, on the day after the LSD experiment I felt myself to be, as already described, in excellent physical and mental condition.

I was aware that LSD, a new active compound with such properties, would have to be of use in pharmacology, in neurology, and especially in psychiatry, and that it would attract the interest of concerned specialists. But at that time I had no inkling that the new substance would also come to be used beyond medical science, as an inebriant in the drug scene. Since my self-experiment had revealed LSD in its terrifying, demonic aspect, the last thing I could have expected was that this substance could ever find application as anything approaching a pleasure drug. I failed, moreover, to recognize the meaningful connection between LSD inebriation and spontaneous visionary experience until much later, after further experiments, which were carried out with far lower doses and under different conditions.

The next day I wrote to Professor Stoll the above-mentioned report about my extraordinary experience with LSD-25 and sent a copy to the director of the pharmacological department, Professor Rothlin.

As expected, the first reaction was incredulous astonishment. Instantly a telephone call came from the management; Professor Stoll asked: “Are you certain you made no mistake in the weighing? Is the stated dose really correct?” Professor Rothlin also called, asking the same question. I was certain of this point, for I had executed the weighing and dosage with my own hands. Yet their doubts were justified to some extent, for until then no known substance had displayed even the slightest

psychic effect in fraction-of-a-milligram doses. An active compound of such potency seemed almost unbelievable.

Professor Rothlin himself and two of his colleagues were the first to repeat my experiment, with only one-third of the dose I had utilized. But even at that level, the effects were still extremely impressive, and quite fantastic. All doubts about the statements in my report were eliminated.

Craig S. Smith

Albert Hofmann, the Father of LSD, Dies at 102

Published April 30, 2008 by the *New York Times*

Paris—Albert Hofmann, the mystical Swiss chemist who gave the world LSD, the most powerful psychotropic substance known, died Tuesday at his hilltop home near Basel, Switzerland. He was 102.

The cause was a heart attack, said Rick Doblin, founder and president of the Multidisciplinary Association for Psychedelic Studies, a California-based group that in 2005 republished Dr. Hofmann's 1980 book *LSD: My Problem Child*.

Dr. Hofmann first synthesized the compound lysergic acid diethylamide in 1938 but did not discover its psychopharmacological effects until five years later, when he accidentally ingested the substance that became known to the 1960s counterculture as acid.

He then took LSD hundreds of times, but regarded it as a powerful and potentially dangerous psychotropic drug that demanded respect. More important to him than the pleasures of the psychedelic experience was the drug's value as a revelatory aid for contemplating and understanding what he saw as humanity's oneness with nature. That perception, of union, which came to Dr. Hofmann as almost a religious epiphany while still a child, directed much of his personal and professional life.

Dr. Hofmann was born in Baden, a spa town in northern Switzerland, on Jan. 11, 1906, the eldest of four children. His father, who had no higher education, was a toolmaker in a local factory, and the family lived in a rented apartment. But Dr. Hofmann spent much of his childhood outdoors.

He would wander the hills above the town and play around the ruins of a Hapsburg castle, the Stein. "It was a real paradise up there," he said in an interview in 2006. "We had no money, but I had a wonderful childhood."

It was during one of his ambles that he had his epiphany.

"It happened on a May morning—I have forgotten the year—

but I can still point to the exact spot where it occurred, on a forest path on Martinsberg above Baden," he wrote in *LSD: My Problem Child*. "As I strolled through the freshly greened woods filled with bird song and lit up by the morning sun, all at once everything appeared in an uncommonly clear light.

"It shone with the most beautiful radiance, speaking to the heart, as though it wanted to encompass me in its majesty. I was filled with an indescribable sensation of joy, oneness and blissful security."

Though Dr. Hofmann's father was a Roman Catholic and his mother a Protestant, Dr. Hofmann, from an early age, felt that organized religion missed the point. When he was 7 or 8, he recalled, he spoke to a friend about whether Jesus was divine. "I said that I didn't believe, but that there must be a God because there is the world and someone made the world," he said. "I had this very deep connection with nature."

Dr. Hofmann went on to study chemistry at Zurich University because, he said, he wanted to explore the natural world at the level where energy and elements combine to create life. He earned his Ph.D. there in 1929, when he was just 23. He then took a job with Sandoz Laboratories in Basel, attracted by a program there that sought to synthesize pharmacological compounds from medicinally important plants.

It was during his work on the ergot fungus, which grows in rye kernels, that he stumbled on LSD, accidentally ingesting a trace of the compound one Friday afternoon in April 1943. Soon he experienced an altered state of consciousness similar to the one he had experienced as a child.

On the following Monday, he deliberately swallowed a dose of LSD and rode his bicycle home as the effects of the drug overwhelmed him. That day, April 19, later became memorialized by LSD enthusiasts as "bicycle day."

Dr. Hofmann's work produced other important drugs, including Methergine, used to treat postpartum hemorrhaging, the leading cause of death from childbirth. But it was LSD that shaped both his career and his spiritual quest.

"Through my LSD experience and my new picture of reality, I became aware of the wonder of creation, the magnificence of nature and of the animal and plant kingdom," Dr. Hofmann told the psychiatrist Stanislav Grof during an interview in 1984. "I became very sensitive to what will happen to all this and all of us."

Dr. Hofmann became an impassioned advocate for the environment and argued that LSD, besides being a valuable tool for psychiatry, could be used to awaken a deeper awareness of mankind's place in nature and help curb society's ultimately self-destructive degradation of the natural world.

But he was also disturbed by the cavalier use of LSD as a drug for entertainment, arguing that it should be treated in the way that primitive societies treat psychoactive sacred plants, which are ingested with care and spiritual intent.

After his discovery of LSD's properties, Dr. Hofmann spent years researching sacred plants. With his friend R. Gordon Wasson, he participated in psychedelic rituals with Mazatec shamans in southern Mexico. He succeeded in synthesizing the active compounds in the *Psilocybe mexicana* mushroom, which he named psilocybin and psilocin. He also isolated the active compound in morning glory seeds, which the Mazatec also used as an intoxicant, and found that its chemical structure was close to that of LSD.

During the psychedelic era, Dr. Hofmann struck up friendships with such outsize personalities as Timothy Leary, Allen Ginsberg, and Aldous Huxley, who, nearing death in 1963, asked his wife for an injection of LSD to help him through the final painful throes of throat cancer.

Yet despite his involvement with psychoactive compounds, Dr. Hofmann remained moored in his Swiss chemist identity. He stayed with Sandoz as head of the research department for natural medicines until his retirement in 1971. He wrote more than 100 scientific articles and was the author or co-author of a number of books

He and his wife, Anita, who died recently, reared four children in Basel. A son died of alcoholism at 53. Survivors include several grandchildren and great-grandchildren.

Though Dr. Hofmann called LSD "medicine for the soul," by 2006 his hallucinogenic days were long behind him, he said in the interview that year.

"I know LSD; I don't need to take it anymore," he said, adding: "Maybe when I die, like Aldous Huxley."

But he said LSD had not affected his understanding of death. In death, he said, "I go back to where I came from, to where I was before I was born, that's all."

Peter Bebergal

Will Harvard Drop Acid Again?

Published June 9, 2008 by the *Boston Phoenix*

In a moment of delightful whimsy in the annals of drug history, Albert Hofmann, after purposely ingesting LSD for the first time, rode his bicycle home and experienced all manner of beatific and hellish visions. Hofmann, a chemist with Sandoz Laboratories in Switzerland, had recently synthesized the compound lysergic acid diethylamide (a.k.a. LSD, or "acid") from ergot fungus. A few days earlier, on April 16, 1943, Hofmann had accidentally absorbed LSD through his fingertips and began experiencing "an uninterrupted stream of fantastic pictures, extraordinary shapes with intense, kaleidoscopic play of colors." Curious about the rabbit hole into which he had tripped, Hofmann dissolved some of the compound into water and deliberately swallowed a dose before taking his bicycle journey home—and elsewhere.

This experience set the stage for what was to become one of the most profound cultural forces in America, the use—and abuse—of psychedelic drugs. LSD, as well as other hallucinogens, would go on to help shape our ideas of consciousness, religion, and law for decades to come. From Timothy Leary's proclamation to "Tune in, turn on, drop out," to the spiritual underpinnings of the New Age movement, psychedelics would prove to be a restless burden for both the drugs' users and the government that tried to suppress their use.

Hofmann, who died this past April at the age of 102, watched it all play out, horrified by the behavior of both drug users and opponents. He winced as the hippies took LSD with wild abandon, and wrung his hands as the government, here and abroad, criminalized LSD and other psychedelic compounds. But Hofmann also lived long enough to see it all come full circle. By the time he died, legitimate above-ground psychedelic research was alive and well at places like Johns Hopkins and, even more telling, at Harvard University, the latter under the guidance of Dr. John Halpern. Sitting a little to the left and outside of Halpern is Rick Doblin, founder of the Multidisciplinary Association

for Psychedelic Studies (MAPS), a nonprofit research group that, through the support of members and donors, helps fund scientists to do bona fide work with psychedelics in the hopes of legitimizing their therapeutic use. Together, the two men form a kind of psychedelic odd couple: Halpern is young but traditional and cautious, a scientist first and foremost. Doblin is a veteran in this world, a little rougher around the edges, and speaks openly about his own psychedelic adventures and his vision for less drug prohibition.

Nearly 50 years ago, Leary and his colleague Richard Alpert created the Harvard Psilocybin Project, only to be fired by the university a few years later under scandalous circumstances. Harvard had not taken up this kind of drug research since that time. But after years of fundraising and petitioning for Food and Drug Administration (FDA) approval, this past February, under the auspices of Harvard, Halpern began administering MDMA (better known to the Glo-Stick crowd as Ecstasy) to dying cancer patients, to see how they psychologically benefit from the drug. And now Halpern is also hoping to get approval from Harvard for a project that will evaluate the effects of LSD and psilocybin (the psychedelic compound found in hallucinogenic mushrooms) on patients suffering from the debilitating condition known as cluster headaches.

I meet Dr. Halpern—considered the most important above-ground scientist in America willing to investigate hallucinogenic drugs—at McLean Hospital, a teaching hospital for Harvard Medical School, where he is assistant professor of psychiatry. Halpern, 39, has been at McLean since 1998 and made a name for himself in 2005 with a groundbreaking research project studying peyote use within the Native American Church. Prior to that, Halpern worked on projects related to drug addiction, and the use of hallucinogens to treat it.

Before we head into his office at McLean, Halpern wants to take a walk in the woods that surround the hospital's Belmont grounds. It is a crisp spring morning, and I half expect Halpern to pick and ingest some lichen, or start scraping some bark off a tree that he would brew into a psychedelic tea. Eventually we find our way to his office, where I imagined would be cushions on the floor, or maybe a giant statue of Shiva or Vishnu. What I see instead is the office of a typical Harvard professor: wall-to-ceiling papers, books, and journals. And while the screen-saver on his computer monitor is decidedly psychedelic, there is nothing here to suggest I am in the den of a mad Harvard scientist, hell-bent on dosing the collective American consciousness with LSD. In fact, when I mention the ghost of Leary and his legacy, Halpern smiles and says, "Well, we have seen how not to do it, haven't we?"

Leery of Leary

In 1959, Leary had just begun a lecturer position in psychology at Harvard. After an acquaintance told him about the religious history of psychedelic mushrooms, Leary decided to try it for himself. He wrote later that it completely transformed his understanding of consciousness, and sent him on a path from which, except for a few stints in prison, he would never stray. Along with his colleague at Harvard, and fellow psychology professor Alpert (today known as Baba Ram Dass), Leary was able to begin a legitimate study of psilocybin and other drugs, sanctioned by the university with the promise by Leary and Alpert that they would keep it aboveboard.

Eventually it was discovered by university officials that Leary and Alpert were indeed giving LSD and psilocybin to undergraduates, as well as to other professors. By then the rumor mill was at full tilt; 1963 saw an explosion of talk on campus about all-night drug parties at Leary's house.

A few days before Leary and Alpert were officially expelled in May of 1963, the *New York Times* reported that the decision to oust the duo had already come down from the college president, Nathan Pusey. The paper described a growing fear among officials at Harvard and other colleges of students holding "private psilocybin parties."

Leary and Alpert acquired a huge and shambling mansion in Milbrook, New York, where they continued their experiments. They were regularly visited by artists, musicians, and freaks of every kind. LSD became illegal in 1966 (psilocybin in 1971) and many of the original researchers, including Hofmann, were unhappy with where Leary had taken the public's understanding of the drug. Leary, they complained, took them out of the purview of science and put them into the hands of, well, dirty hippies everywhere.

But the criminalization of such hallucinogens as LSD and mushrooms didn't just affect the Haight-Ashbury crowd. Eventually,

authorities targeted other hallucinogens and made them illegal as well. Mescaline, the psychedelic compound found in the peyote cactus, was also listed as a Schedule 1 drug (meaning it was understood to have no accepted medical use, a high potential for dependence or harm, and no parameters for safe administration). Nevertheless, Native Americans had long used this plant as an important part of their religious rituals. Halpern, who spent years working with Native Americans for his research, witnessed firsthand how dear peyote is to them and their culture. "This is their heart," says Halpern. "The leaders say, 'You have taken our land, tried to take our way of life, our language, now all we have left is this peyote.'" Eventually, in 1996, under very strict regulations, members of the Native American Church (NAC) were given permission to use peyote in their ceremonies, but this did little to change the national anxiety over psychedelic drugs.

Halpern's research revealed that members of the NAC suffer no ill effects from the ingestion of peyote, and in fact have lower rates of alcoholism and drug addiction than the general population. I was curious whether Halpern participated in any of the ceremonies and, if so, if he had lost any objectivity as a scientist. "I had been invited by the leadership of NAC to 'pray with them,' which means to take peyote," says Halpern. "I would not be able to do the work if I had not." As a scientist, his job was to report harms if he found them. But he didn't find any.

'It's about legitimate science'

When it comes to drug research, even professionals tend to be skeptical. Halpern says that some of his peers accused him of not doing legitimate work, but he defends it by noting that he wasn't doing it alone in a bong-filled vacuum: "What about all my collaborators? What about the senior professors who are supervising my work, or the biostatisticians who evaluate the entire data set, or the research assistants independent of me, who are entering in the data? Are all those people biased too? It almost takes on a level of paranoia that something wrong is happening."

So how did researching peyote lead Halpern to study MDMA and LSD, which have no accepted sacramental use? Halpern explains that the question of their status as psychedelic drugs with a controversial history is secondary to the possibility that they have real medical use, and immediately points to the example of Thalidomide, which caused terrible birth defects in children born in the late '50s/early '60s. Nevertheless, he notes, the drug did prove to have tremendous usefulness for alleviating pain in certain forms of cancer and very painful skin inflammation, and, under very controlled situations, is still prescribed.

"When Schedule 1 drugs are shown that they are effective, they become Schedule 2," says Halpern. "And if they are abused, they can be prosecuted as Schedule 1. Some [similar] arrangement could be made for some of these [hallucinogenic] compounds, as well."

It's true Halpern is giving MDMA to dying cancer patients who are suffering from related anxiety, but he explains that these are not take-home medicines. The same would be true of LSD if his study of that drug is approved, which he hopes will happen sometime this year. First he must deliver protocols to McLean's Institutional Review Board. If these are accepted, he can go to the FDA to get its approval to use LSD in a clinical trial.

The idea for the LSD study came from an unexpected place. Because of his reputation as one of the few above-ground researchers dealing with hallucinogens, Halpern was contacted by a young man who suffered from cluster headaches, who also found a great deal of long-term relief when he used psilocybin and LSD.

According to Halpern, cluster headaches are one of the most painful conditions known in medicine—a gruesome illness. Sufferers have described it as an ice pick slowly and insidiously boring through one's eye and into one's skull. The afflicted have been known to bang their heads against a wall and pull their hair out. "People anthropomorphize it," says Halpern. "They call it the devil."

Through Internet research, Halpern found a large community of cluster-headache sufferers who had learned, on their own, that hallucinogens could interrupt their attacks. The individuals, mostly members of cluster-headache support groups, had independently discovered that they all used LSD and psilocybin to self-medicate.

They had tried to get the attention and backing of neurologists, in an effort to lend credibility to their claims. But, because of what Halpern called the rigmarole of doing research with these drugs—given all the federal hoops through which one has to jump—their efforts and

pleas were ignored. They eventually found Halpern, and he and a number of other researchers managed to interview 53 cluster-headache sufferers who had taken hallucinogens. In a paper published in 2006 in the journal *Neurology*, Halpern noted that no other medication was known to stop cluster headaches. And yet a little acid or some magic mushrooms seemed to do the trick.

Now their hope is to get approval from the FDA, and for McLean Hospital to actually administer LSD to cluster-headache sufferers. One of the principal researchers in the preliminary cluster-headache project, Dr. Andrew Sewell, thinks that this study is unlike any other.

"You can find 50 people on the Internet who will claim anything," says Sewell, "but to get a control group like this showed that a clinical trial is viable."

I suggest to Halpern that, for a researcher looking to conduct LSD experiments, it is mighty serendipitous that the cluster-headache group would come along. There is a paisley-speckled chicken-and-egg question: is Halpern trying to do research with hallucinogens or is he trying to help people with cluster headaches? "It's about legitimate science," he says. "Patients that are enrolled in a research study deserve no less, and it's the only way we can get to the bottom of some of the questions that still remain about these drugs." But does he hope a study like this will change thinking about how LSD could have benefits beyond its controlled medicinal value? "I am interested in this research," he says, "if it further legitimates them as medicines. If they are not, then [they are] out of my field." From an outsider's perspective, he admits, research with these drugs may sound controversial. But, he insists, these questions and his research are scientifically sound.

"Harvard and McLean have very high standards and I have fierce loyalty to them," explains Halpern, obviously couching his words carefully. "If I am going to ask the institution to do something that is potentially stressful in the public eye, it better darn well be for the right reasons."

Dr. James Fadiman, for one, thinks the cluster-headache work is a novel piece of research. "But this kind of work doesn't say much about psychedelics," says Fadiman, who is a psychologist with long ties to the psychedelic community (including experiments with Leary) and who is co-founder of the Institute of Transpersonal Psychology in Palo Alto, California, which trains clinicians to focus on states of higher consciousness and the spiritual dimensions of human experience. What Fadiman wants to know is not how well LSD works on headaches, but the mechanism that makes it work. "For example," he asks, "do the headache sufferers experience an out-of-body awareness?" The medical community accepted acupuncture only when it was proven that it heightened endorphins. Without some existing model to measure it by, the medical community won't accept LSD as medicine, no matter the patients' claims that their headaches have stopped.

The three-headed beast

Imagine you are standing before the gate of Hades, which is guarded by the three-headed dog Cerberus. But instead of ripping you to shreds, he offers you some choice acid and a detailed map of the underworld. The world of psychedelic drug use is not unlike this friendly, electric-Kool-Aid-doling version of the ultimate hellhound. The first head is that of the drug-adoring hippies who grow their own mushrooms and continue to nurture conspiracy theories about the drugs while they search for a mystical experience from them. The second belongs to the scientists: people like Halpern; Roland Griffiths, who led a study in psilocybin and mysticism at Johns Hopkins; and Rick Strassman, whose 1990 then-radical research into DMT—the powerful drug found in the psychedelic drink ayahuasca favored by South American shamans—opened the door for legitimate psychedelic research, research done under very controlled and rigorous conditions. And the third head is a weird conglomeration of the other two, typical of such folks as Daniel Pinchbeck, who lauds the spiritual benefits of DMT and uses a kind of pseudo-science to, er, chart the date of the apocalypse, all the while having serious and sober proclamations to issue about the environment and technology. But many times—particularly when tripping on some fine blotter acid—these heads merge into a single face.

At the World Psychedelic Forum in Basel, Switzerland, this past March, those in attendance included Pinchbeck, the psychedelic artist Alex Grey, and a number of ethnobotanists, shamans, psychics, psychiatrists, and chemists—including Hofmann—to name a few. That all these individuals could unite under the umbrella of their interest in

psychedelic drugs points to an underlying shared concern: is there a future for psychedelics outside of Phish concerts? And can this be achieved when, alongside those doing serious research, there are those who believe themselves to be reincarnations of Quetzalcoatl?

Doblin thinks he has the solution. I meet with the founder and president of MAPS at his house in a quiet neighborhood in Belmont. Again, as was the case with Halpern, there is little to suggest that this is the home of a leading anti-prohibitionist and one of the most important figures in the story of psychedelic-drug research. The house shows more signs of kids and dogs and a happy family life than Doblin's work. I wonder if the neighbors know the guy next door mowing his lawn has probably taken more trips than a host of Logan-centric frequent flyers.

Doblin's psychedelic story began in 1971, when he was 18 and wanted to become a psychedelic psychotherapist in the tradition of Stanislav Grof, who was the first to work with LSD as a therapeutic agent. But, to Doblin, there was a problem: "I was waking up as everything was being shut down." So he dropped out of college and worked as a carpenter—and at becoming a seasoned LSD traveler. Ten years later he went back to school, recognizing that, if he was going to do anything involving psychedelic drugs that would be taken seriously, it would have to be above ground.

In 1984, Doblin's work in psychedelic research was suddenly given a purpose. While use of MDMA was legal (it had not yet made its impact in the underground), the federal Drug Enforcement Agency (DEA) suggested it was going to start the process of criminalization. Doblin gathered together a group of above-ground researchers under the name the Earth Metabolic Design Lab (EMDL) and they decided to sue the DEA. The board of advisers included practically everybody in the field of psychedelic research at the time, including Dr. Andrew Weil and Laura Huxley (widow of the late Aldous).

By 1985, Doblin and his colleagues were making in-roads. Until, that is, Doblin was a guest on *The Phil Donahue Show*. As the spokesperson for the EMDL, he explained that MDMA should be a Schedule 3 drug: only illegal without a prescription. Donahue asked him what he thought about other uses. "I said I thought prohibition was a disaster and 'recreational use' is a pejorative term," recalls Doblin. "It caused a big problem, and I was labeled the Tim Leary of the '80s."

Some of the people in Doblin's group were government funded and many threatened to resign from the EMDL if he kept speaking out publicly against drug prohibition. "So I decided I would resign," says Doblin.

Without Doblin's leadership, the group dissipated. By 1986, Doblin was even more convinced that his work needed to move from the counterculture to the mainstream, and so he founded MAPS. MAPS has helped support a number of projects, including FDA-approved marijuana studies and an LSD study in Switzerland. But Doblin still wanted to pursue his teenage dream of becoming a psychedelic therapist—helping people to move through trauma and other neuroses with the guided use of hallucinogens. If he is anything like Leary, he's Leary sans egotism and self-importance.

Doblin applied to a number of Ph.D. programs, but no one wanted to support a grad student who was looking to use psychedelics in psychotherapy. In what Doblin describes as a stoned insight, he realized that, since politics kept getting in the way of the work he wanted to do, maybe he should study the politics. His application to Harvard's Kennedy School of Government was accepted, and in 2001 he received his Ph.D. But despite his Harvard affiliation, Doblin's reputation and MAPS's ties to the underground often remain a heavy burden.

In 2002, Doblin wanted to do an MDMA study with Halpern, but he needed to demonstrate to McLean that MAPS is not a cheerleader for the drug and is genuinely interested in risks as well as benefits.

"The methodological rigor of MAPS's research should all overwhelm the fact that I happen to believe that prohibition is a bad idea," says Doblin.

Early MDMA tests focused on neurocognitive effects that deal with behavior and memory related to brain function. But Doblin believes these studies were flawed because most users of MDMA do other drugs, making it impossible to know if any cognitive deficits were a result of MDMA use alone. And as serendipitous as the cluster-headache email was for Halpern, Doblin received information from a MAPS member about a group of people who have done MDMA exclusively, with almost no history of prior drug or alcohol use: young fallen Mormons in Utah.

Doblin went to Halpern and Halpern's boss, Harrison "Skip" Pope, and proclaimed his objectivity. He says, "I told them 'I'm fine

with risk. I don't have to be defensive about this drug. Let's do the best study we can do.'" MAPS gave McLean $15,000 for a pilot study with the Mormons. Eventually, the National Institute on Drug Abuse gave McLean $1.8 Million for further MDMA research. The next project that Doblin and Halpern wanted to launch was the MDMA cancer study.

MAPS was getting money for Halpern's salary and other preliminary steps to get the psychedelic research off the ground, and then finally got permission from the FDA in 2004. In January 2006, however, McLean installed a new president, Dr. Jack Gorman, who had worked in the federal drug czar's office. Gorman looked at what McLean was about to sign off on—the first psychedelic study at Harvard since 1966—and stopped the project in its tracks.

"I knew this was important research," Doblin tells me. "People are dying in pain and fear." But there was no way Gorman was going to green light a study involving Doblin, a known drug user and an anti-prohibitionist with a penchant for suing the government.

"So MAPS withdrew," explains Doblin, and instructed one of its major funders to donate directly to McLean.

Still, Doblin didn't go that quietly. He was able to get permission to cross-reference whatever data comes out of the study, which he hopes to use for MAPS's own mission to get MDMA (and hopefully other psychedelics) made legal for therapeutic purposes. (Gorman resigned his post in May 2006.)

Brave new world

Long before Leary, a number of prominent thinkers and scientists were dropping acid, eating mushrooms, and changing some long-held notions about mind and consciousness. Ironically, the first instance of psychedelic research in America also began at Harvard, this one in the late 19th century. Philosopher and psychologist William James, in an attempt to understand mystical states of consciousness, experimented with nitrous oxide, which he believed "simulates the mystical consciousness in an extraordinary degree." In 1882 and 1889, James published a number of articles, both anonymously (in *The Atlantic Monthly*) and under his own name.

But psychedelics weren't going to embed themselves into the psychic landscape on their own. The first real American psychedelic milestone occurred in 1953, when Aldous Huxley was given mescaline by Humphrey Osmond, a scientist with an interest in LSD and consciousness. Huxley wrote about his experience in the now classic work *The Doors of Perception*, which he titled after a quote from the visionary poet William Blake. Few could have foreseen that this slight little tome about an intellectual's illumination and personal psychedelic journey would have shot such a powerful solar flare out into the cultural atmosphere.

Not long after Huxley's publication, other scholars and writers started taking psilocybin, writing papers, and performing many other experiments. The late '50s and early '60s saw an explosion of above-ground psychedelic research. For the most part, even those affiliated with such places as Harvard were not afraid to discuss their own experiences with these drugs.

Leary's Harvard stint and the criminalization of psychedelics profoundly affected serious researchers' and others' ability to talk candidly. Nevertheless, this candor helped get funding for research at places like Harvard. Halpern is intensely private, which in his case helps both the science and the institutions.

On the other hand, Doblin's work has been shaped by his experiences, and while MAPS as an organization wants the same thing Halpern does, which is to assess the medicinal value of these drugs, Doblin's own vision is further reaching. He envisions a day when there are psychedelic clinics and, after someone participates in a workshop, or better yet, passes a "test" that demonstrates they can safely drive these drugs around the highways and side streets of their consciousness, as Doblin says, "They can get a license that will allow them to use psychedelics privately."

More than 40 years ago, some psychedelic investigators imagined LSD playgrounds, Disneyworlds of drugs where people could drop acid and frolic in a land of cellophane flowers and newspaper taxis. Doblin's vision is more realistic, but the idea that psychedelics could one day become a regular part of our culture is not so different. Neither Halpern nor Doblin wants to try to levitate the Pentagon, but I imagine that, of the two of them, Doblin wouldn't mind trying.

Halpern seems content to work in his lab, although beyond his field work with Native Americans in his peyote study, he has spent time on the firing line. Between 2002 and 2005, Halpern was a ranger at Burning Man for something called Sanctuary, a kind of official safe house that provided psychotherapy and support for people who were having a rough time with a drug trip.

For Doblin and MAPS's mission, Halpern's work is central to their hope that MDMA, LSD, and other hallucinogens will be legally administrable. He would also like to see the public's fear of these drugs dissipate as we come to understand them as real medicines. And for Doblin, there is nothing better than having this happen at Harvard. "Harvard is where Timothy Leary blew it," he says. "Bringing this research back to Harvard is a symbol of cultural healing."

Halpern, meanwhile, wants to continue researching the legitimacy of these drugs, despite what people think about the company he might have to keep. "We'll continue to have friends from all kinds of places," he admits, "and sometimes people will even identify themselves as opponents." It's possible those opponents might even come from the underground. Making psychedelic drugs legitimate could put the regulation of them into the hands of people who don't understand what many believe is the drugs' spiritual value. Sometimes all you need is a trip to the woods and a handful of mushrooms, not a million-dollar research study. "Freedom of religion should include the right to explore one's own consciousness," says Fadiman, "and these drugs should be made available with full information and training."

Hofmann's famous book on the subject is *LSD, My Problem Child*, and he hoped it would be accepted as his wonder child. But there is a perception that anyone trying to work with these substances is, by default, in the radical—some would say irresponsible—tradition of Leary, not the sober, scientific one of Hofmann. "There are no hidden agendas," says Halpern about his own work. "But medicine is about taking risks—and sometimes looking in unusual places."

Useful Cyberspatial Links for Further Research into Worlds of Psychedelia

http://www.lycaeum.org—The Lycaeum—Entheogenic Database & Community
http://www.druglibrary.org/schaffer/lsd/lsdmenu.htm —The Psychedelic Library
http://www.island.org—Island Web—Aldous Huxley site
http://www.burningman.com—Burning Man 2008 in Black Rock City, Nevada
http://www.welcomehome.org—Rainbow Family of Living Light
http://www.maps.org—The Multidisciplinary Association for Psychedelic Studies
http://www.dancesafe.org—DanceSafe—Promoting Health and Safety within the Rave and Nightclub Community
http://www.hightimes.com—*High Times* Magazine
http://www.erowid.org—The Vaults of Erowid
http://www.yahooka.com—YaHooka: The Guide to Marijuana on the Internet
http://www.hyperreal.org—Hyperreal—Music, Chemistry, & Rave Culture
http://www.shroomery.com—The Shroomery
http://www.psymon.com/psychedelia—Bibliographia Studiorum Psychedelicorum: Explorations in the Psychedelic Experience
http://www.deoxy.org—The Deoxyribonucleic Hyperdimension
http://www.hippy.com—Hippyland!
http://www.bluehoney.org—Blue Honey—The Infinite Mushroom
http://www.spiritplants.org—SpiritPlants Online Community
http://www.lila.info—Lila: Transpersonal Database
http://www.cannabinoid.com—Marihemp: The Marijuana & Hemp Network
http://www.fusionanomaly.net—fUSION Anomaly
http://www.norml.org—NORML: The National Organization for the Reform of Marijuana Laws
http://www.drugpolicy.org—Drug Policy Alliance
http://freespace.virgin.net/sarah.peter.nelson/lazyman/lazyman.html#contents — *The Lazy Man's Guide to Enlightenment* by Thaddeus Golas
http://www.zauberpilz.com/golden/g01-10.htm#contents—*Hallucinogenic Plants* by Richard Evans Shultes; Illustrated by Elmer W. Smith
http://www.prismagems.com/castaneda—Carlos Castaneda's Don Juan's Teachings
http://www.cognitiveliberty.org—The Center for Cognitive Liberty & Ethics
http://r6xx.com—R6XX R6volutionary Xchange