



How to Change Your Mind

What the New Science of Psychedelics Teaches Us About Consciousness, Dying, Addiction, Depression, and Transcendence

Michael Pollan

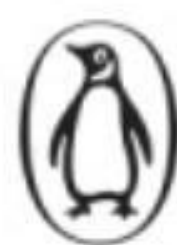
Author of *The Omnivore's Dilemma*

#1 NEW YORK TIMES BESTSELLER



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NOTE: This book relates the author’s investigative reporting on, and related self-experimentation with, psilocybin mushrooms, the drug lysergic acid diethylamide (or, as it is more commonly known, LSD), and the drug 5-methoxy-N,N-dimethyltryptamine (more commonly known as 5-MeO-DMT or The Toad). It is a criminal offense in the United States and in many other countries, punishable by imprisonment and/or fines, to manufacture, possess, or supply LSD, psilocybin mushrooms, and/or the drug 5-MeO-DMT, except in connection with government-sanctioned research. You should therefore understand that this book is intended to convey the author’s experiences and to provide an understanding of the background and current state of research into these substances. It is not intended to encourage you to break the law and no attempt should be made to use these substances for any purpose except in a legally sanctioned clinical trial. The author and the publisher expressly disclaim any liability, loss, or risk, personal or otherwise, that is incurred as a consequence, directly or indirectly, of the contents of this book.

Certain names and locations have been changed in order to protect the author and others.

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PROLOGUE

A New Door

MIDWAY THROUGH the twentieth century, two unusual new molecules, organic compounds with a striking family resemblance, exploded upon the West. In time, they would change the course of social, political, and cultural history, as well as the personal histories of the millions of people who would eventually introduce them to their brains. As it happened, the arrival of these disruptive chemistries coincided with another world historical explosion—that of the atomic bomb. There were people who compared the two events and made much of the cosmic synchronicity. Extraordinary new energies had been loosed upon the world; things would never be quite the same.

The first of these molecules was an accidental invention of science. Lysergic acid diethylamide, commonly known as LSD, was first synthesized by Albert Hofmann in 1938, shortly before physicists split an atom of uranium for the first time. Hofmann, who worked for the Swiss pharmaceutical firm Sandoz, had been looking

for a drug to stimulate circulation, not a psychoactive compound. It wasn't until five years later when he accidentally ingested a minuscule quantity of the new chemical that he realized he had created something powerful, at once terrifying and wondrous.

The second molecule had been around for thousands of years, though no one in the developed world was aware of it. Produced not by a chemist but by an inconspicuous little brown mushroom, this molecule, which would come to be known as psilocybin, had been used by the indigenous peoples of Mexico and Central America for hundreds of years as a sacrament. Called *teonanácatl* by the Aztecs, or “flesh of the gods,” the mushroom was brutally suppressed by the Roman Catholic Church after the Spanish conquest and driven underground. In 1955, twelve years after Albert Hofmann's discovery of LSD, a Manhattan banker and amateur mycologist named R. Gordon Wasson sampled the magic mushroom in the town of Huautla de Jiménez in the southern Mexican state of Oaxaca. Two years later, he published a fifteen-page account of the “mushrooms that cause strange visions” in *Life* magazine, marking the moment when news of a new form of consciousness first reached the general public. (In 1957, knowledge of LSD was mostly confined to the community of researchers and mental health professionals.) People would not realize the magnitude of what had happened for several more years, but history in the West had shifted.

The impact of these two molecules is hard to overestimate. The advent of LSD can be linked to the revolution in brain science that begins in the 1950s, when scientists discovered the role of neurotransmitters in the brain. That quantities of LSD measured in micrograms could produce symptoms resembling psychosis inspired brain scientists to search for the neurochemical basis of mental disorders previously believed to be psychological in origin. At the same time, psychedelics found their way into psychotherapy, where they

were used to treat a variety of disorders, including alcoholism, anxiety, and depression. For most of the 1950s and early 1960s, many in the psychiatric establishment regarded LSD and psilocybin as miracle drugs.

The arrival of these two compounds is also linked to the rise of the counterculture during the 1960s and, perhaps especially, to its particular tone and style. For the first time in history, the young had a rite of passage all their own: the “acid trip.” Instead of folding the young into the adult world, as rites of passage have always done, this one landed them in a country of the mind few adults had any idea even existed. The effect on society was, to put it mildly, disruptive.

Yet by the end of the 1960s, the social and political shock waves unleashed by these molecules seemed to dissipate. The dark side of psychedelics began to receive tremendous amounts of publicity—bad trips, psychotic breaks, flashbacks, suicides—and beginning in 1965 the exuberance surrounding these new drugs gave way to moral panic. As quickly as the culture and the scientific establishment had embraced psychedelics, they now turned sharply against them. By the end of the decade, psychedelic drugs—which had been legal in most places—were outlawed and forced underground. At least one of the twentieth century’s two bombs appeared to have been defused.

Then something unexpected and telling happened. Beginning in the 1990s, well out of view of most of us, a small group of scientists, psychotherapists, and so-called psychonauts, believing that something precious had been lost from both science and culture, resolved to recover it.

Today, after several decades of suppression and neglect, psychedelics are having a renaissance. A new generation of scientists, many of them inspired by their own personal experience of the compounds, are testing their potential to heal mental illnesses such as depression, anxiety, trauma, and addiction. Other scientists are using

psychedelics in conjunction with new brain-imaging tools to explore the links between brain and mind, hoping to unravel some of the mysteries of consciousness.

One good way to understand a complex system is to disturb it and then see what happens. By smashing atoms, a particle accelerator forces them to yield their secrets. By administering psychedelics in carefully calibrated doses, neuroscientists can profoundly disturb the normal waking consciousness of volunteers, dissolving the structures of the self and occasioning what can be described as a mystical experience. While this is happening, imaging tools can observe the changes in the brain's activity and patterns of connection. Already this work is yielding surprising insights into the “neural correlates” of the sense of self and spiritual experience. The hoary 1960s platitude that psychedelics offered a key to understanding—and “expanding”—consciousness no longer looks quite so preposterous.

How to Change Your Mind is the story of this renaissance. Although it didn't start out that way, it is a very personal as well as public history. Perhaps this was inevitable. Everything I was learning about the third-person history of psychedelic research made me want to explore this novel landscape of the mind in the first person too—to see how the changes in consciousness these molecules wrought actually feel and what, if anything, they had to teach me about *my* mind and might contribute to my life.

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THIS WAS, FOR ME, a completely unexpected turn of events. The history of psychedelics I've summarized here is not a history I lived. I was born in 1955, halfway through the decade that psychedelics first burst onto the American scene, but it wasn't until the prospect of turning sixty had drifted into view that I seriously considered try-

ing LSD for the first time. Coming from a baby boomer, that might sound improbable, a dereliction of generational duty. But I was only twelve years old in 1967, too young to have been more than dimly aware of the Summer of Love or the San Francisco Acid Tests. At fourteen, the only way I was going to get to Woodstock was if my parents drove me. Much of the 1960s I experienced through the pages of *Time* magazine. By the time the idea of trying or not trying LSD swam into my conscious awareness, it had already completed its speedy media arc from psychiatric wonder drug to counterculture sacrament to destroyer of young minds.

I must have been in junior high school when a scientist reported (mistakenly, as it turned out) that LSD scrambled your chromosomes; the entire media, as well as my health-ed teacher, made sure we heard all about it. A couple of years later, the television personality Art Linkletter began campaigning against LSD, which he blamed for the fact his daughter had jumped out of an apartment window, killing herself. LSD supposedly had something to do with the Manson murders too. By the early 1970s, when I went to college, everything you heard about LSD seemed calculated to terrify. It worked on me: I'm less a child of the psychedelic 1960s than of the moral panic that psychedelics provoked.

I also had my own personal reason for steering clear of psychedelics: a painfully anxious adolescence that left me (and at least one psychiatrist) doubting my grip on sanity. By the time I got to college, I was feeling sturdier, but the idea of rolling the mental dice with a psychedelic drug still seemed like a bad idea.

Years later, in my late twenties and feeling more settled, I did try magic mushrooms two or three times. A friend had given me a Mason jar full of dried, gnarly *Psilocybes*, and on a couple of memorable occasions my partner (now wife), Judith, and I choked down two

or three of them, endured a brief wave of nausea, and then sailed off on four or five interesting hours in the company of each other and what felt like a wonderfully italicized version of the familiar reality.

Psychedelic aficionados would probably categorize what we had as a low-dose “aesthetic experience,” rather than a full-blown ego-disintegrating trip. We certainly didn’t take leave of the known universe or have what anyone would call a mystical experience. But it was *really* interesting. What I particularly remember was the preternatural vividness of the greens in the woods, and in particular the velvety chartreuse softness of the ferns. I was gripped by a powerful compulsion to be outdoors, undressed, and as far from anything made of metal or plastic as it was possible to get. Because we were alone in the country, this was all doable. I don’t recall much about a follow-up trip on a Saturday in Riverside Park in Manhattan except that it was considerably less enjoyable and unselfconscious, with too much time spent wondering if other people could tell that we were high.

I didn’t know it at the time, but the difference between these two experiences of the same drug demonstrated something important, and special, about psychedelics: the critical influence of “set” and “setting.” Set is the mind-set or expectation one brings to the experience, and setting is the environment in which it takes place. Compared with other drugs, psychedelics seldom affect people the same way twice, because they tend to magnify whatever’s already going on both inside and outside one’s head.

After those two brief trips, the mushroom jar lived in the back of our pantry for years, untouched. The thought of giving over a whole day to a psychedelic experience had come to seem inconceivable. We were working long hours at new careers, and those vast swaths of unallocated time that college (or unemployment) affords had become a memory. Now another, very different kind of drug was available,

one that was considerably easier to weave into the fabric of a Manhattan career: cocaine. The snowy-white powder made the wrinkled brown mushrooms seem dowdy, unpredictable, and overly demanding. Cleaning out the kitchen cabinets one weekend, we stumbled upon the forgotten jar and tossed it in the trash, along with the exhausted spices and expired packages of food.

Fast-forward three decades, and I really wish I hadn't done that. I'd give a lot to have a whole jar of magic mushrooms now. I've begun to wonder if perhaps these remarkable molecules might be wasted on the young, that they may have more to offer us later in life, after the cement of our mental habits and everyday behaviors has set. Carl Jung once wrote that it is not the young but people in middle age who need to have an "experience of the numinous" to help them negotiate the second half of their lives.

By the time I arrived safely in my fifties, life seemed to be running along a few deep but comfortable grooves: a long and happy marriage alongside an equally long and gratifying career. As we do, I had developed a set of fairly dependable mental algorithms for navigating whatever life threw at me, whether at home or at work. What was missing from my life? Nothing I could think of—until, that is, word of the new research into psychedelics began to find its way to me, making me wonder if perhaps I had failed to recognize the potential of these molecules as a tool for both understanding the mind and, potentially, changing it.

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HERE ARE THE THREE DATA POINTS that persuaded me this was the case.

In the spring of 2010, a front-page story appeared in the *New York Times* headlined "Hallucinogens Have Doctors Tuning In Again." It reported that researchers had been giving large doses of psilocybin—

the active compound in magic mushrooms—to terminal cancer patients as a way to help them deal with their “existential distress” at the approach of death.

These experiments, which were taking place simultaneously at Johns Hopkins, UCLA, and New York University, seemed not just improbable but crazy. Faced with a terminal diagnosis, the very *last* thing I would want to do is take a psychedelic drug—that is, surrender control of my mind and then in that psychologically vulnerable state stare straight into the abyss. But many of the volunteers reported that over the course of a single guided psychedelic “journey” they reconceived how they viewed their cancer and the prospect of dying. Several of them said they had lost their fear of death completely. The reasons offered for this transformation were intriguing but also somewhat elusive. “Individuals transcend their primary identification with their bodies and experience ego-free states,” one of the researchers was quoted as saying. They “return with a new perspective and profound acceptance.”

I filed that story away, until a year or two later, when Judith and I found ourselves at a dinner party at a big house in the Berkeley Hills, seated at a long table with a dozen or so people, when a woman at the far end of the table began talking about her acid trips. She looked to be about my age and, I learned, was a prominent psychologist. I was engrossed in a different conversation at the time, but as soon as the phonemes *L-S-D* drifted down to my end of the table, I couldn’t help but cup my ear (literally) and try to tune in.

At first, I assumed she was dredging up some well-polished anecdote from her college days. Not the case. It soon became clear that the acid trip in question had taken place only days or weeks before, and in fact was one of her first. The assembled eyebrows rose. She and her husband, a retired software engineer, had found the occasional use of LSD both intellectually stimulating and of value to

their work. Specifically, the psychologist felt that LSD gave her insight into how young children perceive the world. Kids' perceptions are not mediated by expectations and conventions in the been-there, done-that way that adult perception is; as adults, she explained, our minds don't simply take in the world as it is so much as they make educated guesses about it. Relying on these guesses, which are based on past experience, saves the mind time and energy, as when, say, it's trying to figure out what that fractal pattern of green dots in its visual field might be. (The leaves on a tree, probably.) LSD appears to disable such conventionalized, shorthand modes of perception and, by doing so, restores a childlike immediacy, and sense of wonder, to our experience of reality, as if we were seeing everything for the first time. (*Leaves!*)

I piped up to ask if she had any plans to write about these ideas, which riveted everyone at the table. She laughed and gave me a look that I took to say, *How naive can you be?* LSD is a schedule I substance, meaning the government regards it as a drug of abuse with no accepted medical use. Surely it would be foolhardy for someone in her position to suggest, in print, that psychedelics might have anything to contribute to philosophy or psychology—that they might actually be a valuable tool for exploring the mysteries of human consciousness. Serious research into psychedelics had been more or less purged from the university fifty years ago, soon after Timothy Leary's Harvard Psilocybin Project crashed and burned in 1963. Not even Berkeley, it seemed, was ready to go there again, at least not yet.

Third data point: The dinner table conversation jogged a vague memory that a few years before somebody had e-mailed me a scientific paper about psilocybin research. Busy with other things at the time, I hadn't even opened it, but a quick search of the term "psilocybin" instantly fished the paper out of the virtual pile of discarded e-mail on my computer. The paper had been sent to me by one of its

co-authors, a man I didn't know by the name of Bob Jesse; perhaps he had read something I'd written about psychoactive plants and thought I might be interested. The article, which was written by the same team at Hopkins that was giving psilocybin to cancer patients, had just been published in the journal *Psychopharmacology*. For a peer-reviewed scientific paper, it had a most unusual title: "Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance."

Never mind the word "psilocybin"; it was the words "mystical" and "spiritual" and "meaning" that leaped out from the pages of a pharmacology journal. The title hinted at an intriguing frontier of research, one that seemed to straddle two worlds we've grown accustomed to think are irreconcilable: science and spirituality.

Now I fell on the Hopkins paper, fascinated. Thirty volunteers who had never before used psychedelics had been given a pill containing either a synthetic version of psilocybin or an "active placebo"—methylphenidate, or Ritalin—to fool them into thinking they had received the psychedelic. They then lay down on a couch wearing eyeshades and listening to music through headphones, attended the whole time by two therapists. (The eyeshades and headphones encourage a more inward-focused journey.) After about thirty minutes, extraordinary things began to happen in the minds of the people who had gotten the psilocybin pill.

The study demonstrated that a high dose of psilocybin could be used to safely and reliably "occasion" a mystical experience—typically described as the dissolution of one's ego followed by a sense of merging with nature or the universe. This might not come as news to people who take psychedelic drugs or to the researchers who first studied them back in the 1950s and 1960s. But it wasn't at all obvious to modern science, or to me, in 2006, when the paper was published.

What was most remarkable about the results reported in the arti-

cle is that participants ranked their psilocybin experience as one of the most meaningful in their lives, comparable “to the birth of a first child or death of a parent.” Two-thirds of the participants rated the session among the top five “most spiritually significant experiences” of their lives; one-third ranked it *the* most significant such experience in their lives. Fourteen months later, these ratings had slipped only slightly. The volunteers reported significant improvements in their “personal well-being, life satisfaction and positive behavior change,” changes that were confirmed by their family members and friends.

Though no one knew it at the time, the renaissance of psychedelic research now under way began in earnest with the publication of that paper. It led directly to a series of trials—at Hopkins and several other universities—using psilocybin to treat a variety of indications, including anxiety and depression in cancer patients, addiction to nicotine and alcohol, obsessive-compulsive disorder, depression, and eating disorders. What is striking about this whole line of clinical research is the premise that it is not the pharmacological effect of the drug itself but the kind of mental experience it occasions—involving the temporary dissolution of one’s ego—that may be the key to changing one’s mind.

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AS SOMEONE not at all sure he has ever had a single “spiritually significant” experience, much less enough of them to make a ranking, I found that the 2006 paper piqued my curiosity but also my skepticism. Many of the volunteers described being given access to an alternative reality, a “beyond” where the usual physical laws don’t apply and various manifestations of cosmic consciousness or divinity present themselves as unmistakably real.

All this I found both a little hard to take (couldn’t this be just a drug-induced hallucination?) and yet at the same time intriguing;

part of me wanted it to be true, whatever exactly “it” was. This surprised me, because I have never thought of myself as a particularly spiritual, much less mystical, person. This is partly a function of worldview, I suppose, and partly of neglect: I’ve never devoted much time to exploring spiritual paths and did not have a religious upbringing. My default perspective is that of the philosophical materialist, who believes that matter is the fundamental substance of the world and the physical laws it obeys should be able to explain everything that happens. I start from the assumption that nature is all that there is and gravitate toward scientific explanations of phenomena. That said, I’m also sensitive to the limitations of the scientific-materialist perspective and believe that nature (including the human mind) still holds deep mysteries toward which science can sometimes seem arrogant and unjustifiably dismissive.

Was it possible that a single psychedelic experience—something that turned on nothing more than the ingestion of a pill or square of blotter paper—could put a big dent in such a worldview? Shift how one thought about mortality? Actually change one’s mind in enduring ways?

The idea took hold of me. It was a little like being shown a door in a familiar room—the room of your own mind—that you had somehow never noticed before and being told by people you trusted (scientists!) that a whole other way of thinking—of being!—lay waiting on the other side. All you had to do was turn the knob and enter. Who *wouldn’t* be curious? I might not have been looking to change my life, but the idea of learning something new about it, and of shining a fresh light on this old world, began to occupy my thoughts. Maybe there *was* something missing from my life, something I just hadn’t named.

Now, I already knew something about such doors, having written about psychoactive plants earlier in my career. In *The Botany of De-*

sire, I explored at some length what I had been surprised to discover is a universal human desire to change consciousness. There is not a culture on earth (well, one*) that doesn't make use of certain plants to change the contents of the mind, whether as a matter of healing, habit, or spiritual practice. That such a curious and seemingly maladaptive desire should exist alongside our desires for nourishment and beauty and sex—all of which make much more obvious evolutionary sense—cried out for an explanation. The simplest was that these substances help relieve pain and boredom. Yet the powerful feelings and elaborate taboos and rituals that surround many of these psychoactive species suggest there must be something more to it.

For our species, I learned, plants and fungi with the power to radically alter consciousness have long and widely been used as tools for healing the mind, for facilitating rites of passage, and for serving as a medium for communicating with supernatural realms, or spirit worlds. These uses were ancient and venerable in a great many cultures, but I ventured one other application: to enrich the collective imagination—the culture—with the novel ideas and visions that a select few people bring back from wherever it is they go.

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NOW THAT I HAD DEVELOPED an intellectual appreciation for the potential value of these psychoactive substances, you might think I would have been more eager to try them. I'm not sure what I was waiting for: courage, maybe, or the right opportunity, which a busy life lived mainly on the right side of the law never quite seemed to afford. But when I began to weigh the potential benefits I was hearing about against the risks, I was surprised to learn that psychedelics

* The Inuit appear to be the exception that proves the rule, but only because nothing psychoactive grows where they live. (At least not yet.)

are far more frightening to people than they are dangerous. Many of the most notorious perils are either exaggerated or mythical. It is virtually impossible to die from an overdose of LSD or psilocybin, for example, and neither drug is addictive. After trying them once, animals will not seek a second dose, and repeated use by people robs the drugs of their effect.* It is true that the terrifying experiences some people have on psychedelics can risk flipping those at risk into psychosis, so no one with a family history or predisposition to mental illness should ever take them. But emergency room admissions involving psychedelics are exceedingly rare, and many of the cases doctors diagnose as psychotic breaks turn out to be merely short-lived panic attacks.

It is also the case that people on psychedelics are liable to do stupid and dangerous things: walk out into traffic, fall from high places, and, on rare occasions, kill themselves. “Bad trips” are very real and can be one of “the most challenging experiences of [a] lifetime,” according to a large survey of psychedelic users asked about their experiences.† But it’s important to distinguish what can happen when these drugs are used in uncontrolled situations, without attention to set and setting, from what happens under clinical conditions, after careful screening and under supervision. Since the revival of sanctioned psychedelic research beginning in the 1990s, nearly a thou-

* David J. Nutt, *Drugs Without the Hot Air: Minimising the Harms of Legal and Illegal Drugs* (Cambridge, U.K.: UIT, 2012). This is why people “microdosing” on psychedelics never take them on consecutive days.

† Theresa M. Carbonaro et al., “Survey Study of Challenging Experiences After Ingesting Psilocybin Mushrooms: Acute and Enduring Positive and Negative Consequences,” *Journal of Psychopharmacology* (2016): 1268–78. The survey found that 7.6 percent of respondents sought treatment for “one or more psychological symptoms they attributed to their challenging psilocybin experience.”

sand volunteers have been dosed, and not a single serious adverse event has been reported.

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IT WAS AT THIS POINT that the idea of “shaking the snow globe,” as one neuroscientist described the psychedelic experience, came to seem more attractive to me than frightening, though it was still that too.

After more than half a century of its more or less constant companionship, one’s self—this ever-present voice in the head, this ceaselessly commenting, interpreting, labeling, defending I—becomes perhaps a little *too* familiar. I’m not talking about anything as deep as self-knowledge here. No, just about how, over time, we tend to optimize and conventionalize our responses to whatever life brings. Each of us develops our shorthand ways of slotting and processing everyday experiences and solving problems, and while this is no doubt adaptive—it helps us get the job done with a minimum of fuss—eventually it becomes rote. It dulls us. The muscles of attention atrophy.

Habits are undeniably useful tools, relieving us of the need to run a complex mental operation every time we’re confronted with a new task or situation. Yet they also relieve us of the need to stay awake to the world: to attend, feel, think, and then act in a deliberate manner. (That is, from freedom rather than compulsion.) If you need to be reminded how completely mental habit blinds us to experience, just take a trip to an unfamiliar country. Suddenly you wake up! And the algorithms of everyday life all but start over, as if from scratch. This is why the various travel metaphors for the psychedelic experience are so apt.

The efficiencies of the adult mind, useful as they are, blind us to

the present moment. We're constantly jumping ahead to the next thing. We approach experience much as an artificial intelligence (AI) program does, with our brains continually translating the data of the present into the terms of the past, reaching back in time for the relevant experience, and then using that to make its best guess as to how to predict and navigate the future.

One of the things that commends travel, art, nature, work, and certain drugs to us is the way these experiences, at their best, block every mental path forward and back, immersing us in the flow of a present that is literally wonderful—wonder being the by-product of precisely the kind of unencumbered first sight, or virginal noticing, to which the adult brain has closed itself. (It's so inefficient!) Alas, most of the time I inhabit a near-future tense, my psychic thermostat set to a low simmer of anticipation and, too often, worry. The good thing is I'm seldom surprised. The bad thing is I'm seldom surprised.

What I am struggling to describe here is what I think of as my default mode of consciousness. It works well enough, certainly gets the job done, but what if it isn't the only, or necessarily the best, way to go through life? The premise of psychedelic research is that this special group of molecules can give us access to other modes of consciousness that might offer us specific benefits, whether therapeutic, spiritual, or creative. Psychedelics are certainly not the only door to these other forms of consciousness—and I explore some non-pharmacological alternatives in these pages—but they do seem to be one of the easier knobs to take hold of and turn.

The whole idea of expanding our repertoire of conscious states is not an entirely new idea: Hinduism and Buddhism are steeped in it, and there are intriguing precedents even in Western science. William James, the pioneering American psychologist and author of *The Varieties of Religious Experience*, ventured into these realms more than

a century ago. He returned with the conviction that our everyday waking consciousness “is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different.”

James is speaking, I realized, of the unopened door in our minds. For him, the “touch” that could throw open the door and disclose these realms on the other side was nitrous oxide. (Mescaline, the psychedelic compound derived from the peyote cactus, was available to researchers at the time, but James was apparently too fearful to try it.)

“No account of the universe in its totality can be final which leaves these other forms of consciousness quite disregarded.

“At any rate,” James concluded, these other states, the existence of which he believed was as real as the ink on this page, “forbid a premature closing of our accounts with reality.”

The first time I read that sentence, I realized James had my number: as a staunch materialist, and as an adult of a certain age, I had pretty much closed my accounts with reality. Perhaps this had been premature.

Well, here was an invitation to reopen them.

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IF EVERYDAY WAKING CONSCIOUSNESS is but one of several possible ways to construct a world, then perhaps there is value in cultivating a greater amount of what I’ve come to think of as neural diversity. With that in mind, *How to Change Your Mind* approaches its subject from several different perspectives, employing several different narrative modes: social and scientific history; natural history; memoir; science journalism; and case studies of volunteers and patients. In the middle of the journey, I also offer an account of my

own firsthand research (or perhaps I should say search) in the form of a kind of mental travelogue.

In telling the story of psychedelic research, past and present, I do not attempt to be comprehensive. The subject of psychedelics, as a matter of both science and social history, is too vast to squeeze between the covers of a single book. Rather than try to introduce readers to the entire cast of characters responsible for the psychedelic renaissance, my narrative follows a small number of pioneers who constitute a particular scientific lineage, with the inevitable result that the contributions of many others have received short shrift. Also in the interest of narrative coherence, I've focused on certain drugs to the exclusion of others. There is, for example, little here about MDMA (also known as Ecstasy), which is showing great promise in the treatment of post-traumatic stress disorder. Some researchers count MDMA among the psychedelics, but most do not, and I follow their lead. MDMA operates through a different set of pathways in the brain and has a substantially different social history from that of the so-called classic psychedelics. Of these, I focus primarily on the ones that are receiving the most attention from scientists—psilocybin and LSD—which means that other psychedelics that are equally interesting and powerful but more difficult to bring into the laboratory—such as ayahuasca—receive less attention.

A final word on nomenclature. The class of molecules to which psilocybin and LSD (and mescaline, DMT, and a handful of others) belong has been called by many names in the decades since they have come to our attention. Initially, they were called hallucinogens. But they do so many other things (and in fact full-blown hallucinations are fairly uncommon) that researchers soon went looking for more precise and comprehensive terms, a quest chronicled in chapter three. The term “psychedelics,” which I will mainly use here, does have its downside. Embraced in the 1960s, the term carries a lot of

countercultural baggage. Hoping to escape those associations and underscore the spiritual dimensions of these drugs, some researchers have proposed they instead be called “entheogens”—from the Greek for “the divine within.” This strikes me as too emphatic. Despite the 1960s trappings, the term “psychedelic,” coined in 1956, is etymologically accurate. Drawn from the Greek, it means simply “mind manifesting,” which is precisely what these extraordinary molecules hold the power to do.

CHAPTER ONE

A Renaissance

IF THE START of the modern renaissance of psychedelic research can be dated with any precision, one good place to do it would be the year 2006. Not that this was obvious to many people at the time. There was no law passed or regulation lifted or discovery announced to mark the historical shift. But as three unrelated events unfolded during the course of that year—the first in Basel, Switzerland, the second in Washington, D.C., and the third in Baltimore, Maryland—sensitive ears could make out the sound of ice beginning to crack.

The first event, which looked back but also forward like a kind of historical hinge, was the centennial of the birth of Albert Hofmann, the Swiss chemist who, in 1943, accidentally found that he had discovered (five years earlier) the psychoactive molecule that came to be known as LSD. This was an unusual centennial in that the man being feted was very much in attendance. Entering his second century, Hofmann appeared in remarkably good shape, physically spry and mentally sharp, and he was able to take an active part in the

festivities, which included a birthday ceremony followed by a three-day symposium. The symposium's opening ceremony was on January 13, two days after Hofmann's 100th birthday (he would live to be 102). Two thousand people packed the hall at the Basel Congress Center, rising to applaud as a stooped stick of a man in a dark suit and a necktie, barely five feet tall, slowly crossed the stage and took his seat.

Two hundred journalists from around the world were in attendance, along with more than a thousand healers, seekers, mystics, psychiatrists, pharmacologists, consciousness researchers, and neuroscientists, most of them people whose lives had been profoundly altered by the remarkable molecule that this man had derived from a fungus half a century before. They had come to celebrate him and what his friend the Swiss poet and physician Walter Vogt called "the only joyous invention of the twentieth century." Among the people in the hall, this did not qualify as hyperbole. According to one of the American scientists in attendance, many had come "to worship" Albert Hofmann, and indeed the event bore many of the hallmarks of a religious observance.

Although virtually every person in that hall knew the story of LSD's discovery by heart, Hofmann was asked to recite the creation myth one more time. (He tells the story, memorably, in his 1979 memoir, *LSD, My Problem Child*.) As a young chemist working in a unit of Sandoz Laboratories charged with isolating the compounds in medicinal plants to find new drugs, Hofmann had been tasked with synthesizing, one by one, the molecules in the alkaloids produced by ergot. Ergot is a fungus that can infect grain, often rye, occasionally causing those who consume bread made from it to appear mad or possessed. (One theory of the Salem witch trials blames ergot poisoning for the behavior of the women accused.) But midwives had long used ergot to induce labor and stanch bleeding postpartum, so

Sandoz was hoping to isolate a marketable drug from the fungus's alkaloids. In the fall of 1938, Hofmann made the twenty-fifth molecule in this series, naming it lysergic acid diethylamide, or LSD-25 for short. Preliminary testing of the compound on animals did not show much promise (they became restless, but that was about it), so the formula for LSD-25 was put on the shelf.

And there it remained for five years, until one April day in 1943, in the middle of the war, when Hofmann had "a peculiar presentiment" that LSD-25 deserved a second look. Here his account takes a slightly mystical turn. Normally, when a compound showing no promise was discarded, he explained, it was discarded for good. But Hofmann "liked the chemical structure of the LSD molecule," and something about it told him that "this substance could possess properties other than those established in the first investigations." Another mysterious anomaly occurred when he synthesized LSD-25 for the second time. Despite the meticulous precautions he always took when working with a substance as toxic as ergot, Hofmann must somehow have absorbed a bit of the chemical through his skin, because he "was interrupted in my work by unusual sensations."

Hofmann went home, lay down on a couch, and "in a dreamlike state, with eyes closed . . . I perceived an uninterrupted stream of fantastic pictures, extraordinary shapes with intense, kaleidoscopic play of colors." Thus unfolds the world's first LSD trip, in neutral Switzerland during the darkest days of World War II. It is also the only LSD trip ever taken that was entirely innocent of expectation.

Intrigued, Hofmann decided a few days later to conduct an experiment on himself—not an uncommon practice at the time. Proceeding with what he thought was extreme caution, he ingested 0.25 milligrams—a milligram is one-thousandth of a gram—of LSD dissolved in a glass of water. This would represent a minuscule dose of any other drug, but LSD, it turns out, is one of the most potent

psychoactive compounds ever discovered, active at doses measured in micrograms—that is, one thousandth of a milligram. This surprising fact would soon inspire scientists to look for, and eventually find, the brain receptors and the endogenous chemical—serotonin—that activates them like a key in a lock, as a way to explain how such a small number of molecules could have such a profound effect on the mind. In this and other ways, Hofmann’s discovery helped to launch modern brain science in the 1950s.

Now unfolds the world’s first *bad* acid trip as Hofmann is plunged into what he is certain is irretrievable madness. He tells his lab assistant he needs to get home, and with the use of automobiles restricted during wartime, he somehow manages to pedal home by bicycle and lie down while his assistant summons the doctor. (Today LSD devotees celebrate “Bicycle Day” each year on April 19.) Hofmann describes how “familiar objects and pieces of furniture assumed grotesque, threatening forms. They were in continuous motion, animated as if driven by an inner restlessness.” He experienced the disintegration of the outer world and the dissolution of his own ego. “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.” Hofmann became convinced he was going to be rendered permanently insane or might actually be dying. “My ego was suspended somewhere in space and I saw my body lying dead on the sofa.” When the doctor arrived and examined him, however, he found that all of Hofmann’s vital signs—heartbeat, blood pressure, breathing—were perfectly normal. The only indication something was amiss were his pupils, which were dilated in the extreme.

Once the acute effects wore off, Hofmann felt the “afterglow” that frequently follows a psychedelic experience, the exact opposite of a hangover. When he walked out into his garden after a spring

rain, “everything glistened and sparkled in a fresh light. The world was as if newly created.” We’ve since learned that the experience of psychedelics is powerfully influenced by one’s expectation; no other class of drugs are more suggestible in their effects. Because Hofmann’s experiences with LSD are the only ones we have that are uncontaminated by previous accounts, it’s interesting to note they exhibit neither the Eastern nor the Christian flavorings that would soon become conventions of the genre. However, his experience of familiar objects coming to life and the world “as if newly created”—the same rapturous Adamic moment that Aldous Huxley would describe so vividly a decade later in *The Doors of Perception*—would become commonplaces of the psychedelic experience.

Hofmann came back from his trip convinced, first, that LSD had somehow found him rather than the other way around and, second, that LSD would someday be of great value to medicine and especially psychiatry, possibly by offering researchers a model of schizophrenia. It never occurred to him that his “problem child,” as he eventually would regard LSD, would also become a “pleasure drug” and a drug of abuse.

Yet Hofmann also came to regard the youth culture’s adoption of LSD in the 1960s as an understandable response to the emptiness of what he described as a materialist, industrialized, and spiritually impoverished society that had lost its connection to nature. This master of chemistry—perhaps the most materialist of all disciplines—emerged from his experience with LSD-25 convinced the molecule offered civilization not only a potential therapeutic but also a spiritual balm—by opening a crack “in the edifice of materialist rationality.” (In the words of his friend and translator, Jonathan Ott.)

Like so many who followed after him, the brilliant chemist became something of a mystic, preaching a gospel of spiritual renewal and reconnection with nature. Presented with a bouquet of roses

that 2006 day in Basel, the scientist told the assembled that “the feeling of co-creatureliness with all things alive should enter our consciousness more fully and counterbalance the materialistic and nonsensical technological developments in order to enable us to return to the roses, to the flowers, to nature, where we belong.” The audience erupted in applause.

A skeptical witness to the event would not be entirely wrong to regard the little man on the stage as the founder of a new religion and the audience as his congregation. But if this is a religion, it’s one with a significant difference. Typically, only the founder of a religion and perhaps a few early acolytes can lay claim to the kind of authority that flows from a direct experience of the sacred. For everyone coming after, there is the comparatively thin gruel of the stories, the symbolism of the sacrament, and faith. History attenuates the original power of it all, which now must be mediated by the priests. But the extraordinary promise on offer in the Church of Psychedelics is that anyone at any time may gain access to the primary religious experience by means of the sacrament, which happens to be a psychoactive molecule. Faith is rendered superfluous.

Running alongside the celebration’s spiritual undercurrent, however, there also, perhaps somewhat incongruously, came science. During the weekend symposium following the observation of Hofmann’s birthday, researchers from a variety of disciplines—including neuroscience, psychiatry, pharmacology, and consciousness studies, as well as the arts—explored the impact of Hofmann’s invention on society and culture and its potential for expanding our understanding of consciousness and treating several intractable mental disorders. A handful of research projects, studying the effects of psychedelics on humans, had been approved or were under way in Switzerland and the United States, and scientists at the symposium voiced their hope that the long hiatus in psychedelic research

might finally be coming to an end. Irrational exuberance seems to be an occupational hazard among people working in this area, but in 2006 there was good reason to think the weather might actually be turning.



THE SECOND WATERSHED EVENT of 2006 came only five weeks later when the U.S. Supreme Court, in a unanimous decision written by the new chief justice, John G. Roberts Jr., ruled that the UDV, a tiny religious sect that uses a hallucinogenic tea called ayahuasca as its sacrament, could import the drink to the United States, even though it contains the schedule I substance dimethyltryptamine, or DMT. The ruling was based on the Religious Freedom Restoration Act of 1993, which had sought to reinstitute the right (under the First Amendment's religious freedom clause) of Native Americans to use peyote in their ceremonies, as they have done for generations. The 1993 law says that only if the government has a "compelling interest" can it interfere with one's practice of religion. In the UDV case, the Bush administration had argued that only Native Americans, because of their "unique relationship" to the government, had the right to use psychedelics as part of their worship, and even in their case this right could be abridged by the state.

The Court soundly rejected the government's argument, interpreting the 1993 law to mean that, absent a compelling state interest, the federal government cannot prohibit a recognized religious group from using psychedelic substances in their observances. Evidently, this includes relatively new and tiny religious groups specifically organized around a psychedelic sacrament, or "plant medicine," as the *ayahuasqueros* call their tea. The UDV is a Christian spiritist sect founded in 1961 in Brazil by José Gabriel da Costa, a rubber tapper inspired by revelations he experienced after receiving ayahuasca

from an Amazonian shaman two years before. The church claims 17,000 members in six countries, but at the time of the ruling there were only 130 American members of the UDV. (The initials stand for União do Vegetal, or Union of the Plants, because ayahuasca is made by brewing together two Amazonian plant species, *Banisteriopsis caapi* and *Psychotria viridis*.)

The Court's decision inspired something of a religious awakening around ayahuasca in America. Today there are close to 525 American members of the church, with communities in nine locations. To supply them, the UDV has begun growing the plants needed to make the tea in Hawaii and shipping it to groups on the mainland without federal interference. But the number of Americans participating in ayahuasca ceremonies outside the UDV has also mushroomed in the years since, and any given night there are probably dozens if not hundreds of ceremonies taking place somewhere in America (with concentrations in the San Francisco Bay Area and Brooklyn). Federal prosecutions for possession or importation of ayahuasca appear to have stopped, at least for the time being.

With its 2006 decision, the Supreme Court seems to have opened up a religious path—narrow, perhaps, but based on the Bill of Rights—to the federal recognition of psychedelic drugs, at least when they're being used as a sacrament by a group deemed a religion by the government. It remains to be seen how wide or well trod that path will become, but it does make you wonder what the government, and the Court, will do when an American José Gabriel da Costa steps forward and attempts to turn his or her own psychedelic revelations into a new religion intent on using a psychoactive chemical as its sacrament. The jurisprudence of “cognitive liberty,” as some in the psychedelic community call it, is still scant and limited (to religion), but now it had been affirmed, opening a new crack in the edifice of the drug war.



OF THE THREE 2006 EVENTS that helped bring psychedelics out of their decades-long slumber, by far the most far-reaching in its impact was the publication that summer of the paper in *Psychopharmacology* described in the prologue—the one Bob Jesse e-mailed me at the time but that I didn't bother to open. This event, too, had a distinctly spiritual cast, even though the experiment it reported was the work of a rigorous and highly regarded scientist: Roland Griffiths. It just so happens that Griffiths, a most unlikely psychedelic researcher, was inspired to investigate the power of psilocybin to occasion a “mystical-type” experience by a mystical experience of his own.

Griffiths's landmark paper, “Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance,” was the first rigorously designed, double-blind, placebo-controlled clinical study in more than four decades—if not ever—to examine the psychological effects of a psychedelic. It received a small torrent of press coverage, most of it so enthusiastic as to make you wonder if the moral panic around psychedelics that took hold in the late 1960s might finally have run its course. No doubt the positive tenor of the coverage owed much to the fact that, at Griffiths's urging, the journal had invited several of the world's most prominent drug researchers—some of them decorated soldiers in the drug war—to comment on the study, giving the journalists covering the study plenty of ideological cover.

All of the commentators treated the publication as a major event. Herbert D. Kleber, a former deputy to William Bennett, George H. W. Bush's drug czar, and later director of the Division on Substance Abuse at Columbia University, applauded the paper for its methodological rigor and acknowledged there might be “major therapeutic

possibilities” in psychedelic research “merit[ing] NIH support.” Charles “Bob” Schuster, who had served two Republican presidents as director of the National Institute on Drug Abuse (NIDA), noted that the term “psychedelic” implies a mind-expanding experience and expressed his “hope that this landmark paper will also be ‘field expanding.’” He suggested that this “fascinating” class of drugs, and the spiritual experience they occasion, might prove useful in treating addiction.

Griffiths’s paper and its reception served to reinforce an important distinction between the so-called classic psychedelics—psilocybin, LSD, DMT, and mescaline—and the more common drugs of abuse, with their demonstrated toxicity and potential for addiction. The American drug research establishment, such as it is, had signaled in the pages of one of its leading journals that these psychedelic drugs deserved to be treated very differently and had demonstrated, in the words of one commentator, “that, when used appropriately, these compounds can produce remarkable, possibly beneficial, effects that certainly deserve further study.”

The story of how this paper came to be sheds an interesting light on the fraught relationship between science and that other realm of human inquiry that science has historically disdained and generally wants nothing to do with: spirituality. For in designing this, the first modern study of psilocybin, Griffiths had decided to focus not on a potential therapeutic application of the drug—the path taken by other researchers hoping to rehabilitate other banned substances, like MDMA—but rather on the spiritual effects of the experience on so-called healthy normals. What good was *that*?

In an editorial accompanying Griffiths’s paper, the University of Chicago psychiatrist and drug abuse expert Harriet de Wit tried to address this tension, pointing out that the quest for experiences that “free oneself of the bounds of everyday perception and thought in a

Somewhere along the way, Griffiths had what he modestly describes as “a funny kind of awakening”—a mystical experience. I was surprised when Griffiths mentioned this during our first meeting in his office, so I hadn’t followed up, but even after I had gotten to know him a little better, Griffiths was still reluctant to say much more about exactly what happened and, as someone who had never had such an experience, I had trouble gaining any traction with the idea whatsoever. All he would tell me is that the experience, which took place in his meditation practice, acquainted him with “something way, way beyond a material worldview that I can’t really talk to my colleagues about, because it involves metaphors or assumptions that I’m really uncomfortable with as a scientist.”

In time, what he was learning about “the mystery of consciousness and existence” in his meditation practice came to seem more compelling to him than his science. He began to feel somewhat alienated: “None of the people I was close to had any interest in entertaining those questions, which fell into the general category of the spiritual, and religious people I just didn’t get.

“Here I am, a full professor, publishing like crazy, running off to important meetings, and thinking I was a fraud.” He began to lose interest in the research that had organized his whole adult life. “I could study a new sedative hypnotic, learn something new about brain receptors, be on another FDA [Food and Drug Administration] panel, go to another conference, but so what? I was more emotionally and intellectually curious about where this other path might lead. My drug research began to seem vacuous. I was going through the motions at work, much more interested in going home in the evening to meditate.” The only way he could motivate himself to continue writing grants was to think of it as a “service project” for his graduate students and postdocs.

In the case of his caffeine research, Griffiths had been able to take

his curiosity about a dimension of his own experience—why did he feel compelled to drink coffee every day?—and turn it into a productive line of scientific inquiry. But he could see no way to do that with his deepening curiosity about the dimensions of consciousness that meditation had opened up to him. “It never occurred to me there was any way to study it scientifically.” Stymied and bored, Griffiths began to entertain thoughts of quitting science and going off to an ashram in India.

It was around this time that Bob Schuster, an old friend and colleague who had recently retired as head of the National Institute on Drug Abuse, phoned Griffiths to suggest he talk to a young man he had recently met at Esalen named Bob Jesse. Jesse had organized a small gathering of researchers, therapists, and religious scholars at the legendary Big Sur retreat center to discuss the spiritual and therapeutic potential of psychedelic drugs and how they might be rehabilitated. Jesse himself was neither a medical professional nor a scientist; he was a computer engineer, a vice president of business development at Oracle, who had made it his mission to revive the science of psychedelics—but as a tool not so much of medicine as of spiritual development.

Griffiths had told Schuster a little about his spiritual practice and confided in him his growing discontent with conventional drug research.

“You should talk to this guy,” Schuster told him. “They have some interesting ideas about working with entheogens,” he said. “You might have something in common.”



WHEN THE HISTORY of second-wave psychedelic research is written, Bob Jesse will be seen as one of a pair of scientific outsiders in America—amateurs, really, and brilliant eccentrics—who worked

tirelessly, often behind the scenes, to get it off the ground. Both found their vocation in the wake of transformative psychedelic experiences that convinced them these substances had the potential to heal not only individuals but humankind as a whole and that the best path to their rehabilitation was by way of credible scientific research. In many cases, these untrained researchers dreamed up the experiments first and then found (and funded) the scientists to conduct them. Often you will find their names on the papers, usually in the last position.

Of the two, Rick Doblin has been at it longer and is by far the more well known. Doblin founded the Multidisciplinary Association for Psychedelic Studies (MAPS) all the way back in the dark days of 1986—the year after MDMA was made illegal and a time when most wiser heads were convinced that restarting research into psychedelics was a cause beyond hopeless.

Doblin, born in 1953, is a great shaggy dog with a bone; he has been lobbying to change the government's mind about psychedelics since shortly after graduating from New College, in Florida, in 1987. After experimenting with LSD as an undergraduate, and later with MDMA, Doblin decided his calling in life was to become a psychedelic therapist. But after the banning of MDMA in 1985, that dream became unachievable without a change in federal laws and regulations, so he decided he'd better first get a doctorate in public policy at Harvard's Kennedy School. There, he mastered the intricacies of the FDA's drug approval process, and in his dissertation plotted the laborious path to official acceptance that psilocybin and MDMA are now following.

Doblin is disarmingly, perhaps helplessly, candid, happy to talk openly to a reporter about his formative psychedelic experiences as well as political strategy and tactics. Like Timothy Leary, Doblin is the happiest of warriors, never not smiling and exhibiting a degree of

enthusiasm for the work you wouldn't expect from a man who has been knocking his head against the same wall for his entire adult life. Doblin works out of a somewhat Dickensian office tucked into the attic of his rambling colonial in Belmont, Massachusetts, at a desk stacked to the ceiling with precarious piles of manuscripts, journal articles, photographs, and memorabilia reaching back more than forty years. Some of the memorabilia commemorates the time early in his career when Doblin decided the best way to end sectarian strife would be to mail a group of the world's spiritual leaders tablets of MDMA, a drug famous for its ability to break down barriers between people and kindle empathy. Around the same time, he arranged to have a thousand doses of MDMA sent to people in the Soviet military who were working on arms control negotiations with President Reagan.

For Doblin, winning FDA approval for the medical use of psychedelics—which he believes is now in view, for both MDMA and psilocybin—is a means to a more ambitious and still more controversial end: the incorporation of psychedelics into American society and culture, not just medicine. This of course is the same winning strategy followed by the campaign to decriminalize marijuana, in which promoting the medical uses of cannabis changed the drug's image, leading to a more general public acceptance.

Not surprisingly, this sort of talk rankles more cautious heads in the community (Bob Jesse among them), but Rick Doblin is not one to soft-pedal his agenda or to even *think* about taking an interview off the record. This gets him a lot of press; how much it helps the cause is debatable. But there is no question that especially in the last several years Doblin has succeeded in getting important research approved and funded, especially in the case of MDMA, which has long been MAPS's main focus. MAPS has sponsored several small clinical trials that have demonstrated MDMA's value in treating post-

traumatic stress disorder, or PTSD. (Doblin defines psychedelics generously, so as to include MDMA and even cannabis, even though their mechanisms of action in the brain are very different from that of the classic psychedelics.) But beyond helping those suffering with PTSD and other indications—MAPS is sponsoring a clinical study at Harbor-UCLA Medical Center that involves treating social anxiety in autistic adults with MDMA-assisted psychotherapy—Doblin believes fervently in the power of psychedelics to improve humankind by disclosing a spiritual dimension of consciousness we all share, regardless of our religious beliefs or lack thereof. “Mysticism,” he likes to say, “is the antidote to fundamentalism.”



COMPARED WITH RICK DOBLIN, Bob Jesse is a monk. There is nothing shaggy or uncared for about him. Taut, press shy, and disposed to choose his words with a pair of tweezers, Jesse, now in his fifties, prefers to do his work out of public view, and preferably from the one-room cabin where he lives by himself in the rugged hills north of San Francisco, off the grid except for a fast Internet connection.

“Bob Jesse is like the puppeteer,” Katherine MacLean told me. MacLean is a psychologist who worked in Roland Griffiths’s lab from 2009 until 2013. “He’s the visionary guy working behind the scenes.”

Following Jesse’s meticulous directions, I drove north from the Bay Area, eventually winding up at the end of a narrow dirt road in a county he asked me not to name. I parked at a trailhead and made my way past the “No Trespassing” signs, following a path up a hill that brought me to his picturesque mountaintop camp. I felt as if I were going to visit the wizard. The shipshape little cabin is tight for two, so Jesse has set out among the fir trees and boulders some comfortable sofas, chairs, and tables. He’s also built an outdoor kitchen and, on a shelf of rock commanding a spectacular view of the

“I was lying on my back underneath a ficus tree,” he recalls. “I knew it was going to be a strong experience. And the point came where the little I still was just started slipping away. I lost all awareness of being on the floor in an apartment in Baltimore; I couldn’t tell if my eyes were opened or closed. What opened up before me was, for lack of a better word, a space, but not our ordinary concept of space, just the pure awareness of a realm without form and void of content. And into that realm came a celestial entity, which was the emergence of the physical world. It was like the big bang, but without the boom or the blinding light. It was the birth of the physical universe. In one sense it was dramatic—maybe the most important thing that ever occurred in the history of the world—yet it just sort of happened.”

I asked him where he was in all this.

“I was a diffusely located observer. I was coextensive with this emergence.” Here I let him know he was losing me. Long pause. “I’m hesitating because the words are an awkward fit; words seem too constraining.” Ineffability is of course a hallmark of the mystical experience. “The awareness transcends any particular sensory modality,” he explained, unhelpfully. Was it scary? “There was no terror, only fascination and awe.” Pause. “Um, maybe a little fear.”

From here on, Jesse watched (or whatever you call it) the birth of . . . everything, in the unfolding of an epic sequence beginning with the appearance of cosmic dust leading to the creation of the stars and then the solar systems, followed by the emergence of life and from there the arrival of “what we call humans,” then the acquisition of language and the unfolding of awareness, “all the way up to one’s self, here in this room, surrounded by my friends. I had come all the way back to right where I was. How much clock time had elapsed? I had no idea.

“What stands out most for me is the quality of the awareness I

experienced, something entirely distinct from what I've come to regard as Bob. How does this expanded awareness fit into the scope of things? To the extent I regard the experience as veridical—and about that I'm still not sure—it tells me that consciousness is primary to the physical universe. In fact, it precedes it." Did he now believe consciousness exists outside the brain? He's not certain. "But to go from being very sure that the opposite is true"—that consciousness is the product of our gray matter—"to be unsure is an immense shift." I asked him if he agreed with something I'd read the Dalai Lama had said, that the idea that brains create consciousness—an idea accepted without question by most scientists—"is a metaphysical assumption, not a scientific fact."

"Bingo," Jesse said. "And for someone with my orientation"—agnostic, enamored of science—"that changes everything."

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HERE'S WHAT I DON'T GET about an experience like Bob Jesse's: Why in the world would you ever credit it at all? I didn't understand why you wouldn't simply file it under "interesting dream" or "drug-induced fantasy." But along with the feeling of ineffability, the conviction that some profound objective truth has been disclosed to you is a hallmark of the mystical experience, regardless of whether it has been occasioned by a drug, meditation, fasting, flagellation, or sensory deprivation. William James gave a name to this conviction: the noetic quality. People feel they have been let in on a deep secret of the universe, and they cannot be shaken from that conviction. As James wrote, "Dreams cannot stand this test." No doubt this is why some of the people who have such an experience go on to found religions, changing the course of history or, in a great many more cases, the course of their own lives. "No doubt" is the key.

I can think of a couple of ways to account for such a phenomenon,

neither entirely satisfying. The most straightforward and yet hardest to accept explanation is that it's simply true: the altered state of consciousness has opened the person up to a truth that the rest of us, imprisoned in ordinary waking consciousness, simply cannot see. Science has trouble with this interpretation, however, because, whatever the perception is, it can't be verified by its customary tools. It's an anecdotal report, in effect, and so has no value. Science has little interest in, and tolerance for, the testimony of the individual; in this it is, curiously, much like an organized religion, which has a big problem crediting direct revelation too. But it's worth pointing out that there are cases where science has no choice but to rely on individual testimony—as in the study of subjective consciousness, which is inaccessible to our scientific tools and so can only be described by the person experiencing it. Here phenomenology is the all-important data. However, this is not the case when ascertaining truths about the world *outside* our heads.

The problem with crediting mystical experiences is precisely that they often seem to erase the distinction between inside and outside, in the way that Bob Jesse's "diffuse awareness" seemed to be his but also to exist outside him. This points to the second possible explanation for the noetic sense: when our sense of a subjective "I" disintegrates, as it often does in a high-dose psychedelic experience (as well as in meditation by experienced meditators), it becomes impossible to distinguish between what is subjectively and objectively true. What's left to do the doubting if not your I?



IN THE YEARS following that first powerful psychedelic journey, Bob Jesse had a series of other experiences that shifted the course of his life. Living in San Francisco in the early 1990s, he got involved in the rave scene and discovered that the "collective effervescence" of

the best all-night dance parties, with or without psychedelic “materials,” could also dissolve the “subject-object duality” and open up new spiritual vistas. He began to explore various spiritual traditions, from Buddhism to Quakerism to meditation, and found his priorities in life gradually shifting. “It began to occur to me that spending time in this area might actually be far more important and far more fulfilling than what I had been doing” as a computer engineer.

While on a sabbatical from Oracle (he would leave for good in 1995), Jesse set up a nonprofit called the Council on Spiritual Practices (CSP), with the aim of “making direct experience of the sacred more available to more people.” The website downplays the organization’s interest in promoting entheogens—Bob Jesse’s preferred term for psychedelics—but does describe its mission in suggestive terms: “to identify and develop approaches to primary religious experience that can be used safely and effectively.” The website (csp.org) offers an excellent bibliography of psychedelic research and regular updates on the work under way at Johns Hopkins. CSP would also play a role in supporting the UDV lawsuit that resulted in the 2006 Supreme Court decision.

The Council on Spiritual Practices grew out of Jesse’s systematic exploration of the psychedelic literature and the psychedelic community in the Bay Area soon after he moved to San Francisco. In his highly deliberate, slightly obsessive, and scrupulously polite way, Jesse contacted the region’s numerous “psychedelic elders”—the rich cast of characters who had been deeply involved in research and therapy in the years before most of the drugs were banned in 1970, with the passing of the Controlled Substances Act, and the classification of LSD and psilocybin as schedule I substances with a high potential for abuse and no recognized medical use. There was James Fadiman, the Stanford-trained psychologist who had done pioneering research on psychedelics and problem solving at the International Foundation

for Advanced Study in Menlo Park, until the FDA halted the group's work in 1966. (In the early 1960s, there was at least as much psychedelic research going on around Stanford as there was at Harvard; it just didn't have a character of the wattage of a Timothy Leary out talking about it.) Then there was Fadiman's colleague at the institute Myron Stolaroff, a prominent Silicon Valley electrical engineer who worked as a senior executive at Ampex, the magnetic recording equipment maker, until an LSD trip inspired him to give up engineering (much like Bob Jesse) for a career as a psychedelic researcher and therapist. Jesse also found his way into the inner circle of Sasha and Ann Shulgin, legendary Bay Area figures who held weekly dinners for a community of therapists, scientists, and others interested in psychedelics. (Sasha Shulgin, who died in 2014, was a brilliant chemist who held a DEA license allowing him to synthesize novel psychedelic compounds, which he did in prodigious numbers. He also was the first to synthesize MDMA since it had been patented by Merck in 1912 and forgotten. Recognizing its psychoactive properties, he introduced the so-called empathogen to the Bay Area's psychotherapy community. Only later, did it become the club drug known as Ecstasy.) Jesse also befriended Huston Smith, the scholar of comparative religion, whose mind had been opened to the spiritual potential of psychedelics when, as an instructor/lecturer at MIT in 1962, he served as a volunteer in the Good Friday Experiment, from which he came away convinced that a mystical experience occasioned by a drug was no different from any other kind.

By way of these "elders" and his own reading, Jesse began unearthing the rich body of first-wave psychedelic research, much of which had been lost to science. He learned that there had been more than a thousand scientific papers on psychedelic drug therapy before 1965, involving more than forty thousand research subjects. Beginning in the 1950s and continuing into the early 1970s, psychedelic

monastery where the world of classical thought was saved from oblivion, a place where the guttering flame of psychedelic knowledge was assiduously fanned during its own dark age, that place would have to be Esalen, the legendary retreat center in Big Sur, California.

Perched on a cliff overlooking the Pacific as if barely clinging to the continent, the Esalen Institute was founded in 1962 and ever since has been a center of gravity for the so-called human potential movement in America, serving as the unofficial capital of the New Age. A great many therapeutic and spiritual modalities were developed and taught here over the years, including the therapeutic and spiritual potential of psychedelics. Beginning in 1973, Stanislav Grof, the Czech émigré psychiatrist who is one of the pioneers of LSD-assisted psychotherapy, served as scholar in residence at Esalen, but he had conducted workshops there for years before. Grof, who has guided thousands of LSD sessions, once predicted that psychedelics “would be for psychiatry what the microscope is for biology or the telescope is for astronomy. These tools make it possible to study important processes that under normal circumstances are not available for direct observation.” Hundreds came to Esalen to peer through that microscope, often in workshops Grof led for psychotherapists who wanted to incorporate psychedelics in their practices. Many if not most of the therapists and guides now doing this work underground learned their craft at the feet of Stan Grof in the Big House at Esalen.

Whether such work continued at Esalen after LSD was made illegal is uncertain, but it wouldn't be surprising: the place is perched so far out over the edge of the continent as to feel beyond the reach of federal law enforcement. But at least officially, such workshops ended when LSD became illegal. Grof began teaching instead something called Holotropic Breathwork, a technique for inducing a psychedelic state of consciousness without drugs, by means of deep, rapid, and

rhythmic breathing, usually accompanied by loud drumming. Yet Esalen's role in the history of psychedelics did not end with their prohibition. It became the place where people hoping to bring these molecules back into the culture, whether as an adjunct to therapy or a means of spiritual development, met to plot their campaigns.

In January 1994, Bob Jesse managed to get himself invited to one such meeting at Esalen. While helping out with the dishes after a Friday night dinner at the Shulgins', Jesse learned that a group of therapists and scientists would be gathering in Big Sur to discuss the prospects for reviving psychedelic research. There were signs that the door Washington, D.C., had slammed shut on research in the late 1960s might be opening, if only a crack: Curtis Wright, a new administrator at the FDA (and, as it happens, a former student of Roland Griffiths's at Hopkins), had signaled that research protocols for psychedelics would be treated like any other—judged on their merits. Testing this new receptivity, a psychiatrist at the University of New Mexico named Rick Strassman had sought and received approval to study the physiological effects of DMT, a powerful psychedelic compound found in many plants. This small trial marked the first federally sanctioned experiment with a psychedelic compound since the 1970s—in retrospect, a watershed event.

Around the same time, Rick Doblin and Charles Grob, a psychiatrist at UCLA, had succeeded in persuading the government to approve the first human trial of MDMA. (Grob is one of the first psychiatrists to advocate for the return of psychedelics to psychotherapy; he later conducted the first modern trial of psilocybin for cancer patients.) The year before the Esalen gathering (which Grob and Doblin both attended), David Nichols, a Purdue University chemist and pharmacologist, launched the Heffter Research Institute (named for the German chemist who first identified the mescaline compound in 1897) with the then improbable ambition of funding

serious psychedelic science. (Heffter has since helped fund many of the modern trials of psilocybin.) So there were scattered hopeful signs in the early 1990s that conditions were ripening for a revival of psychedelic research. The tiny community that had sustained such a dream through the dark ages began, tentatively, quietly, to organize.

Even though Jesse was new to this community, and neither a scientist nor a therapist, he asked if he could attend the Esalen meeting and offered to make himself useful, refilling water glasses if that's what it took. Most of the gathering was taken up with discussions of the potential medical applications of psychedelics, as well as the need for basic research on the neuroscience. Jesse was struck by the fact that so little attention was paid to the spiritual potential of these compounds. He left the meeting convinced that "okay, there is room to maneuver here. I was hoping one of these people would pick up the ball and run with it, but they were busy with the other ball. So I made a decision to seek a leave of absence from Oracle." Within a year, Jesse would launch the Council on Spiritual Practices, and within two the council would convene its own meeting at Esalen, in January 1996, with the aim of opening a second front in the campaign to resurrect psychedelics.

Fittingly, the gathering took place in the Maslow Room at Esalen, named for the psychologist whose writings on the hierarchy of human needs underscored the importance of "peak experiences" in self-actualization. Most of the fifteen in attendance were "psychedelic elders," therapists and researchers like James Fadiman and Willis Harman, Mark Kleiman, then a drug-policy expert at the Kennedy School (and Rick Doblin's thesis tutor there), and religious figures like Huston Smith, Brother David Steindl-Rast, and Jeffrey Bronfman, the head of the UDV church in America (and an heir to the Seagram's liquor fortune). But Jesse wisely decided to invite an outsider as well: Charles "Bob" Schuster, who had served both Ronald Reagan

and George H. W. Bush as director of the National Institute on Drug Abuse. Jesse didn't know Schuster well at all; they had once spoken briefly at a conference. But Jesse came away from the encounter thinking Schuster just might be receptive to an invitation.

Exactly why Bob Schuster—a leading figure in the academic establishment undergirding the drug war—would be open to the idea of coming to Esalen to discuss the spiritual potential of psychedelics was a mystery, at least until I had the opportunity to speak to his widow, Chris-Ellyn Johanson. Johanson, who is also a drug researcher, painted a picture of a man of exceptionally broad interests and deep curiosity.

“Bob was open-minded to a fault,” she told me, with a laugh. “He would talk to anyone.” Like many people in the NIDA community, Schuster well understood that psychedelics fit awkwardly into the profile of a drug of abuse; animals, given the choice, will not self-administer a psychedelic more than once, and the classic psychedelics exhibit remarkably little toxicity. I asked Johanson if Schuster had ever taken a psychedelic himself; Roland Griffiths had told me he thought it was possible. (“Bob was a jazz musician,” Griffiths told me, “so I wouldn't be at all surprised.”) But Johanson said no. “He was definitely curious about them,” she told me, “but I think he was too afraid. We were martini people.” I asked if he was a spiritual man. “Not really, though I think he would have liked to have been.”

Jesse, not quite sure what Schuster would make of the meeting, arranged to have Jim Fadiman bunk with him, instructing Fadiman, a psychologist, to check him out. “Early the next morning Jim found me and said, ‘Bob, mission accomplished. You have found a gem of a human being.’”

Schuster thoroughly enjoyed his time at Esalen, according to his wife. He took part in a drumming circle Jesse had helped arrange—you don't leave Esalen without doing some such thing—and was amazed

to discover how easily he could slip into a trance. But Schuster also made some key contributions to the group's deliberations. He warned Jesse off working with MDMA, which he believed was toxic to the brain and had by then acquired an unsavory reputation as a club drug. He also suggested that psilocybin was a much better candidate for research than LSD, largely for political reasons: because so many fewer people had heard of it, psilocybin carried none of the political and cultural baggage of LSD.

By the end of the meeting, the Esalen group had settled on a short list of objectives, some of them modest—to draft a code of ethics for spiritual guides—and others more ambitious: “to get aboveboard, unimpeachable research done, at an institution with investigators beyond reproach,” and, ideally, “do this without any pretext of clinical treatment.”

“We weren't sure that was possible,” Jesse told me, but he and his colleagues believed “it would be a big mistake if medicalization is all that happens.” Why a mistake? Because Bob Jesse was ultimately less interested in people's mental problems than with their spiritual well-being—in using entheogens for the betterment of well people.

Shortly after the Esalen meeting, Schuster made what would turn out to be his most important contribution: telling Bob Jesse about his old friend Roland Griffiths, whom he described as exactly “the investigator beyond reproach” Jesse was looking for and “a scientist of the first order.”

“Everything Roland's done he's devoted himself to completely,” Jesse recalls Schuster saying, “including his meditation practice. We think it's changed him.” Griffiths had shared with Schuster his growing dissatisfaction with science and his deepening interest in the kind of “ultimate questions” coming up in his meditation practice. Schuster then made the call to Griffiths telling him about the interesting young man he'd just met at Esalen, explaining that they

intricate patterns, losing my usual identity. And all I can say is that the eternal brilliance of mystical consciousness manifested itself. My awareness was flooded with love, beauty, and peace beyond anything I ever had known or imagined to be possible. ‘Awe,’ ‘glory,’ and ‘gratitude’ were the only words that remained relevant.”

Descriptions of such experiences always sound a little thin, at least when compared with the emotional impact people are trying to convey; for a life-transforming event, the words can seem paltry. When I mentioned this to Richards, he smiled. “You have to imagine a cave-man transported into the middle of Manhattan. He sees buses, cell phones, skyscrapers, airplanes. Then zap him back to his cave. What does he say about the experience? ‘It was big, it was impressive, it was loud.’ He doesn’t have the vocabulary for ‘skyscraper,’ ‘elevator,’ ‘cell phone.’ Maybe he has an intuitive sense there was some sort of significance or order to the scene. But there are words we need that don’t yet exist. We’ve got five crayons when we need fifty thousand different shades.”

In the middle of his journey, one of the psychiatric residents stopped by the room to look in on Richards, asking him to sit up so he could test his reflexes. As the resident tapped his patellar tendon with his little rubber hammer, Richards remembers feeling “compassion for the infancy of science. The researchers had no idea what really was happening in my inner experiential world, of its unspeakable beauty or of its potential importance for all of us.” A few days after the experience, Richards returned to the lab and asked, “What was that drug you gave me? How is it spelled?”

“And the rest of my life is footnotes!”

Yet after several subsequent psilocybin sessions failed to produce another mystical experience, Richards started to wonder if perhaps he had exaggerated that first trip. Some time later, Walter Pahnke arrived at the university, fresh from his graduate work with Timothy

Leary at Harvard, and the two became friends. (It was Richards who gave Pahnke his first psychedelic trip while the two were in Germany; he had apparently never taken LSD or psilocybin at Harvard, thinking it might compromise the objectivity of the Good Friday Experiment.) Pahnke suggested Richards try one more time, but in a room with soft lighting, plants, and music and using a higher dose. Once again, Richards had “an incredibly profound experience. I realized I had not exaggerated the first trip but in fact had forgotten 80 percent of it.

“I have never doubted the validity of these experiences,” Richards told me. “This was the realm of mystical consciousness that Shankara was talking about, that Plotinus was writing about, that Saint John of the Cross and Meister Eckhart were writing about. It’s also what Abraham Maslow was talking about with his ‘peak experiences,’ though Abe could get there without the drugs.” Richards would go on to study psychology under Maslow at Brandeis University. “Abe was a natural Jewish mystic. He could just lie down in the backyard and have a mystical experience. Psychedelics are for those of us who aren’t so innately gifted.”

Richards emerged from those first psychedelic explorations in possession of three unshakable convictions. The first is that the experience of the sacred reported both by the great mystics and by people on high-dose psychedelic journeys is the same experience and is “real”—that is, not just a figment of the imagination.

“You go deep enough or far out enough in consciousness and you will bump into the sacred. It’s not something we generate; it’s something out there waiting to be discovered. And this reliably happens to nonbelievers as well as believers.” Second, that, whether occasioned by drugs or other means, these experiences of mystical consciousness are in all likelihood the primal basis of religion. (Partly for this reason Richards believes that psychedelics should be part of

a divinity student's education.) And third, that consciousness is a property of the universe, not brains. On this question, he holds with Henri Bergson, the French philosopher, who conceived of the human mind as a kind of radio receiver, able to tune in to frequencies of energy and information that exist outside it. "If you wanted to find the blonde who delivered the news last night," Richards offered by way of an analogy, "you wouldn't look for her in the TV set." The television set is, like the human brain, necessary but not sufficient.

After Richards finished with his graduate studies in the late 1960s, he found work as a research fellow at the Spring Grove State Hospital outside Baltimore, where a most improbable counterfactual history of psychedelic research was quietly unfolding, far from the noise and glare surrounding Timothy Leary. Indeed, this is a case where the force of the Leary narrative has bent the received history out of shape, such that many of us assume there was no serious psychedelic research before Leary arrived at Harvard and no serious research after he was fired. But until Bill Richards administered psilocybin to his last volunteer in 1977, Spring Grove was actively (and without much controversy) conducting an ambitious program of psychedelic research—much of it under grants from the National Institute of Mental Health—with schizophrenics, alcoholics and other addicts, cancer patients struggling with anxiety, religious and mental health professionals, and patients with severe personality disorders. Several hundred patients and volunteers received psychedelic therapy at Spring Grove between the early 1960s and the mid-1970s. In many cases, the researchers were getting very good results in well-designed studies that were being regularly published in peer-reviewed journals such as *JAMA* and the *Archives of General Psychiatry*. (Roland Griffiths is of the opinion that much of this research is "suspect," but Richards told me, "These studies weren't as bad as people like Roland might imply.") It is remarkable just how much of the work being

done today, at Hopkins and NYU and other places, was prefigured at Spring Grove; indeed, it is hard to find a contemporary experiment with psychedelics that wasn't already done in Maryland in the 1960s or 1970s.

At least at the beginning, the Spring Grove psychedelic work enjoyed lots of public support. In 1965, CBS News broadcast an admiring hour-long “special report” on the hospital’s work with alcoholics, called *LSD: The Spring Grove Experiment*. The response to the program was so positive that the Maryland state legislature established a multimillion-dollar research facility on the campus of the Spring Grove State Hospital, called the Maryland Psychiatric Research Center. Stan Grof, Walter Pahnke, and Bill Richards were hired to help run it, along with several dozen other therapists, psychiatrists, pharmacologists, and support staff. Equally hard to believe today is the fact that, as Richards told me, “whenever we hired someone, they would receive a couple of LSD sessions as part of their training to do the work. We had authorization! How else could you be sensitive to what was going on in the mind of the patient? I wish we could do that at Hopkins.”

The fact that such an ambitious research program continued at Spring Grove well into the 1970s suggests the story of the suppression of psychedelic research is a little more complicated than the conventional narrative would indicate. While it is true that some research projects—such as Jim Fadiman’s creativity trials in Palo Alto—received orders from Washington to stop, other projects on long-term grants were allowed to continue until the money ran out, as it eventually did. Rather than shut down all research, as many in the psychedelic community believe happened, the government simply made it more difficult to get approvals, and funding gradually dried up. As time went on, researchers found that on top of all the bureaucratic and financial hurdles they also had to deal with “the