

Flashback: The Return of Psychedelic Medicine

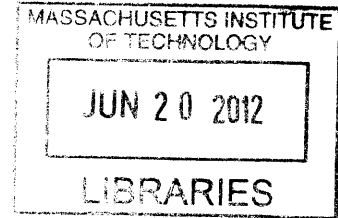
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**ARCHIVES**



Submitted to the Program in Writing and Humanistic Studies in Partial Fulfillment of the Requirements for the Degree of

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ABSTRACT

In the 1960's, psychedelic drugs were a part of not only popular culture, but also cutting-edge psychology research. Scientists were studying these drugs in the hope of understanding and treating various psychological and societal ills; but as psychedelics got caught up in the counter-culture, they fell out of favor with the public, and practically vanished from the research world as quickly as they'd appeared.

Now, decades after they all but disappeared, psychedelics are making a comeback. Focusing primarily on research with psychedelics to treat post-traumatic stress disorder as well as anxiety and depression associated with terminal illness, this thesis examines the researchers who've brought psychedelic medicine back from the brink and the work they're doing to explore the potential within these complex and controversial drugs.

Thesis Supervisor: Philip Hilts

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### Acknowledgments

First and foremost, I have to recognize the central role my parents have played during this latest misadventure of mine. If they were confused when they realized their progeny had grown up to be a science nerd, I imagine they were doubly confounded when that science nerd told them, "I want to become a writer." Without their constant faith, support, and good humor, nothing I've done would have been possible.

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And finally, I have to take a moment to express my immense appreciation for the rest of the Class of 2012. Through terrifying cold-calls, looming deadlines, mad-dash writing sessions, and late-night editing marathons, you have upheld me, encouraged me, challenged me, and strengthened me; the adventure wouldn't have been half as good without having you to share it with me. You're each an inspiration to me, and I look forward to seeing where our incredible journeys will lead us in the future. I couldn't have done it without you. But more importantly, I wouldn't have wanted to. Thank you all.

There was a time, not so long ago, when scientists were exploring the affordances of a small group of compounds that, it was rumored, could cure everything from alcoholism to obsessive-compulsive disorder; they could teach psychologists to see the world through a schizophrenic's eyes, helping them better understand how to treat their patients; and, to some, they held the promise of enlightenment, bringing the experience of ineffable oneness to the masses and thus ushering in a new era of universal brotherhood.

They have been called psychomimetics, hallucinogens, and entheogens; but today most people know them as psychedelics.

In the world of scientific research, the wheel of time can seem to turn unbearably slowly. It may take years to build a telescope powerful enough to prove a theory that began as one astronomer's thought experiment. A biologist may come up with a promising new cancer treatment, only to see a decade or two roll by as the rigorous medical testing process slogs on.

In both of those cases, the science continues forward, albeit more slowly than the researchers would like. But what happens when your research—more, your entire field—is frozen in its tracks for half a century?

You might ask Bill Richards that question. He began down the path of psychedelic research almost fifty years ago. His field of endeavor, with all the promise it carried, rose ever-upward toward the impossible heights of human imagination; but then as the work he and his colleagues had been doing was carried away in the swell of a much larger shift in the cultural tide, that meteoric rise rapidly became a precipitous free-fall. The doors of public perception swung shut; the work stopped; Richards—like every researcher in his field—was left...waiting.

But, slowly, the work is beginning anew. Psychedelics, once the maligned manifestation of the counter-culture, are beginning to resurface in medical research around the world. Scientists are plumbing the long history of indigenous cultures' use of these unique compounds, to better understand their healing possibilities.

As someone who worked hand-in-hand with the original psychedelic pioneers, and who is central to the work going on now, Richards has a perspective on the long arc of psychedelic history that few others share. When asked how *he* first got involved, he laughs and says, "That's kind of a long story—but I *do* enjoy telling it..."<sup>1</sup>

At 23 years old, Richards was in grad school in Germany studying theology, but he'd heard about some interesting research that was going on in the psychiatry department's clinic, right behind his dormitory: Two friends of his had volunteered to be subjects in research with a relatively unknown substance called psilocybin. One reported having a vision of his father, who'd died in the war; the other said he saw images of SS officers marching down the street. Richards was intrigued: He'd been studying his own dreams and otherwise exploring avenues for personal growth; so he thought an experience with

psilocybin might provide insight into his life—or maybe he'd have a hallucination. Having never experienced one, he says he thought, "that sounded kinda neat."

So Richards volunteered. The screening process, if it could be called that, consisted of being asked whether he "got drunk very often." While later psychedelic researchers would consistently appeal to the paramount importance of "set and setting"—that is, the mindset of the person undergoing the experience and the setting in which it takes place—at that time there was no such thing. So Richards was taken down to the basement, strapped to a gurney, given an injection, and left alone with his thoughts. "I drew on the Methodist piety of my childhood," he said, and did his best to trust whatever came next.

In the kind of setup Richards was put in, psilocybin experiences can go terribly wrong: It's easy for people to panic, or become paranoid; and under the influence of a bad psychedelic experience, people in uncontrolled environments have even occasionally gotten themselves killed.

So Richards' experience is a little surprising in that it went so *well*.

"To my great amazement," he says, "[I] found myself entering into this very beautiful, transcendental state of consciousness that I didn't even know was possible."

"Transcendence" is a word that often comes up when describing psychedelic experiences; those who've used these substances often talk about losing their sense of individual selfhood, or feeling themselves to be an integral part of something larger than themselves—some even describe it as encountering God.

At one point a research assistant came in, wearing a white lab coat and a stethoscope, and instructed Richards to sit on the edge of the bed so he could test his reflexes. The researcher tapped at his knees, and Richards says he remembers feeling in that moment "a great compassion for the infancy of science." It was suddenly clear to him that these learned university researchers had absolutely no idea what they were doing. When it was all over, Richards says he had two questions for the researchers: "What was that drug you gave me, and how do you spell that?"

He was changed by his first encounter with psilocybin. "I became known as that interesting American student who had the mystical experience," he says. He changed his academic focus: Having gotten tired of 7am classes spent arguing over the precise meaning of obscure Hebrew words, he switched focus to the psychology of religion—that is, the study of the psychological mechanisms behind religious experiences, beliefs, and behavior. During the '63-'64 school year he worked at the clinic guiding the sessions of English-speaking volunteers who'd come to try psilocybin themselves. And meanwhile, he says, he vaguely knew of work being done at Harvard by somebody by the name of Leary.

Richards finished his Master's of Divinity at Yale, focusing on teaching and research in religion, got a second master's in the psychology of religion at Andover Newton, and

eventually earned a doctorate in clinical psychology ("I still can't wait to see what I'll be when I grow up," he says cheerfully).

And while working toward his doctorate, Richards did something else. In the late 60's and early 70's he worked alongside psychedelic legends Stanislav Grof and Walter Pahnke at the Maryland Psychiatric Research Center. What began as a one-off attempt to use psychedelic therapy to help a coworker cope with illness grew into research on using LSD to treat anxiety and depression in terminally ill patients. That work—the last real psychedelic research Richards would do for decades—would ultimately become the inspiration for some of the first work with psychedelics that's been done since it ran afoul of public opinion in the previous century.

Today, Richards presents the figure of a bespectacled man with receding gray hair, and large round glasses. When he speaks in front of an audience, once can imagine him drawing from his divinity training—he rolls into a natural, easy-going cadence one might expect to hear on a Sunday morning sermon. In private, he's the teacher and counselor, philosopher and theologian. As he sits in his office chair surrounded by books new and old on science, spirituality, and all points in between, he speaks in a slow and deliberate meter, pausing between ideas in thoughtful silence.

Richards has been involved in psychedelics research longer than most in the field, giving him a perspective few others can appreciate. But it must also have dealt him frustrations that few others can comprehend: After his initial experience in Germany he took to the research with gusto; but when the tide of public opinion turned against psychedelics, he ended up the last U.S. researcher still working in the field. After publishing one final paper on psychedelics in 1980, it would be twenty years before he'd be able to get back into the fray.

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In April of 1943, Swiss scientist Albert Hoffman synthesized a small sample of a compound called lysergic acid diethylamide, or LSD for short. When he'd originally stumbled upon it inadvertently, he'd dismissed it as having no obvious use—it wasn't clear that it *did* anything. But in what he would later describe as a moment of intuition, one day he felt instinctively that he ought to submit the compound to more thorough testing, in case it had some useful properties he'd initially overlooked.

On that Friday in spring, Hoffman was forced to leave work early when he began feeling restless and dizzy; and when he got home, he sank into a stupor he described as similar to being drunk. Finding daylight unpleasant at the time, he closed his eyes and drifted into a dreamlike state in which he experienced a play of shapes, colors, and images that ran through his mind uninterrupted for about two hours.

Unable to come up with any other explanation for his bizarre experience, he decided that, in spite of his usually meticulous laboratory manner, he must have inadvertently

gotten a trace amount of the mystery compound on his skin. Wanting to know if it was indeed this strange new chemical that had caused his Friday afternoon to take such an unusual turn, he decided to take a risk: When he returned to work on Monday, he deliberately ingested LSD.

At 4:20 that afternoon he mixed what he thought was a small sample of LSD in water (about a quarter of a milligram), and drank it. At 5pm, he wrote in his journal:

*Beginning dizziness, feeling of anxiety, visual distortions, symptoms of paralysis, desire to laugh.<sup>2</sup>*

Those were the last words he could write that day, and even that was only through an immense effort of will. His perceptions of reality were drastically altered, and he struggled to speak, able only with great difficulty to communicate to his lab assistant that he needed to go home.

At this point, the drug's effect on him had become severe enough to be frightening. Objects in his surroundings took on grotesque shapes and seemed imbued with malevolent life. His sense of his self—both his bodily awareness and his concept of will—were disturbed as well. At times he thought he'd been possessed by a demon; later, he wondered if he was dying, or perhaps had died already. He lamented the thought of leaving behind a wife and three young children, and despaired at the dark irony that his work should be cut short by the very substance he'd discovered.

When he awoke the next morning, he felt no unpleasant after-effects, apart from still feeling a bit tired. He wrote, "A sensation of well-being and renewed life flowed through me. Breakfast tasted delicious and gave me extraordinary pleasure. When I later walked out into the garden, in which the sun shone now after a spring rain, everything glistened and sparkled in a fresh light. The world was as if newly created."

Never had he encountered any compound that could have such remarkable effects on one's perception of the outer world and experience of the inner, and at a dose so low as to be completely unprecedented. Hoffman knew then that this compound could be immensely important to pharmacology, neuroscience, and especially psychiatry; but looking back on the trajectory of what he would later call his "problem child," he admitted that he had never imagined it would flourish beyond the confines of scientific inquiry as a street drug. After his own experience with LSD had been so terrifying, he couldn't believe anyone would want to ingest it on purpose.

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In 1957, *Life* magazine published the story chronicling the experiences of a banker and his wife as they tracked down rumored "sacred mushrooms" in Mexico used by locals that reportedly granted mystical visions to those who ingested them—a ritual believed to be at least two thousand years old.

The magazine article signaled the first time that America in general became aware of what would be commonly called "magic mushrooms" someday. But it also got Hoffman's attention, who was curious whether the active ingredient in these hallucinogenic mushrooms would turn out to be similar to his own LSD, or the mescaline derived from the peyote cactus—the only other compounds he knew of that produced such hallucinations. By 1958, Hoffman had isolated the chemical that provided the "magic" in the magic mushrooms, and it became known as psilocybin.

Around the same time, a friendly competition began between psychiatrist Humphrey Osmond and his friend Aldous Huxley (whom Osmond had given mescaline a few years earlier) to try to find a word to describe the hallucinogenic experience. Several different words were proposed, but it was Osmond who coined the term "psychedelic" from Greek, meaning "mind-manifesting." It was, of course, this word that stuck.

Researchers all over the globe were anxious to get their hands on these compounds, and Sandoz Laboratories—Hoffman's workplace—was happy to oblige. At first, no one was quite sure what these drugs might be *for*. One concept that got kicked around for a while was the notion that these compounds functioned as "psychomimetics"—as drugs that made mentally healthy people psychotic for relatively short periods of time (that is, a day or so, rather than for life). It was hypothesized that, by using drugs that turned healthy people crazy-for-a-day, clinicians could study disorders like schizophrenia in a more controlled way. These drugs also were investigated for possible use in treating addictions, particularly alcoholism—notably by the aforementioned Osmond, getting such work enthusiastically endorsed by one of the founders of Alcoholics Anonymous. Scientists were willing to try them out on everything and anything. In 1951, over one hundred articles had been published in medical journals just on LSD. But by 1961, it was over a thousand; and by the mid-60's, it was already over two thousand. Psychedelic research was catching like wildfire.

Ultimately, it was the notion that these compounds could open up previously obscured regions of the mind for exploration that perhaps most inspired the collective imagination of psychedelic researchers. But the re-imagining of these drugs as tools for self-exploration and spiritual experience, though truer to their use in indigenous cultures, ultimately was their undoing.

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In the summer of 1960, three years after the magazine article on psilocybin had brought hallucinogens firmly into public awareness, Timothy Leary was enjoying a vacation in Mexico after his first year of being on the faculty at Harvard. He'd heard rumors before of mystical Mexican mushrooms that granted visions, and recently a friend had shared with him stories of his own experiences with these fantastical fungi. Apparently thinking that sounded like just the thing to liven up his vacation, he made some inquiries, and eventually was rewarded with enough mushrooms for him and a handful of friends to experience their mystical powers firsthand.



Leary's first experience with psilocybin had a profound and permanent effect on him. He felt he'd learned more about the mind from one dose of psilocybin mushrooms than he had in all his years of schooling and he believed, if nothing else, that this drug would revolutionize the way psychology was done. As soon as he got back to Cambridge, he started work on what would eventually be called the Harvard Psychedelic Project. By the spring of 1961 Leary had given psychedelic drugs to at least 200 people—and he was just getting started.

In 1962, Leary's doctoral student Walter Pahnke ran what would become one of the most famous psychedelic studies in history, today usually called the Good Friday Experiment. Pahnke, who was already a medical doctor and a minister, was curious whether psilocybin could produce religious experiences, given the right people in the right place.

And so, as the Reverend Howard Thurmond gave his Good Friday sermon, twenty students and faculty from Harvard and Andover Newton Theological Seminary (where Bill Richards got his degree in psychology of religion) were herded down into the basement of Marsh Chapel and each handed a pill—half of them destined to take psilocybin.

While the students who'd received a placebo were more or less quiet and orderly for the length of the service, which was piped down to them via speakers, those who'd been dosed with psilocybin were lying across the pews and on the floor, or wandering around the room talking amongst themselves—or just *to* themselves—in awed whispers.

For many of those present who were given psilocybin, the experiment *did* provide the profound and spiritual experience Pahnke had intended. And, though Pahnke himself wouldn't live to see it happen, dying in a scuba-diving accident only a few years later, his experiment would one day play a vital role in resurrecting psychedelic research after decades of dormancy.

But While the Good Friday study would rise to the forefront of psychedelic history, Leary was beginning to unravel. He was criticized for abandoning the strictly controlled protocol that scientific inquiry demanded. Moreover, he'd gotten less and less careful about who was getting drugs from him—including undergraduate students, against his promises to the contrary to Harvard administrators. By 1963, all it took was an exposé in the *Harvard Crimson*, and Timothy Leary was booted out of Harvard.

But his ouster from Harvard only seemed to enflame him further; he'd already been certain that the powers-that-be were not prepared for the psychedelic revolution he envisioned—more, that they were actively fighting against it. Fed up and out of patience with the research community and the establishment they represented, he took his message of "turn on, tune in, drop out" to the youth and the counter-culture—the people he saw as standing on the front lines of the coming cultural revolution.

Instead of giving his wonder-drugs to academics to study, he meted them out to artists, writers, and musicians: It was Leary who introduced the Beatles to LSD; without him, there would have been no "Lucy in the Sky with Diamonds." In 1969 John Lennon penned the song "Come Together" to be the anthem in Leary's bid for governor of California against incumbent Ronald Reagan. Leary's gubernatorial bid was interrupted, however, when in 1970 he was handed a twenty-year prison sentence for various drug charges. In September of that same year Leary broke out of prison (with the help of some friends) and fled the country. While Leary's time in the spotlight was far from over, he had become too inflammatory for all but the most radical elements of the counter-culture.

In many ways it was Leary's fierce devotion to psychedelics that ultimately destroyed their legitimacy. By the late 60's, psychedelics had become associated with agitators and rabble-rousers—Leary chief among them. In a time of massive cultural upheaval, psychedelic drugs were easy scapegoats to posit as the cause of the unrest in counter-culture youth. Stories about psychedelics in the media painted them as dangerous: News stories frequently gave airtime to the rumor that LSD caused chromosomal damage, (Bill Richards mentions that he was part of a study conducted at the time that empirically proved the rumor to be false, but it was completely ignored by the press), and an article in the *Journal of the American Medical Association* warned that repeated psychedelic use could cause "personality deterioration."

The thread continued to unwind. President Nixon labelled Leary "the most dangerous man in America," and Leary wore it as a badge of honor, only further entrenching himself and anyone and anything associated with him as rabidly anti-establishment. Sandoz got increasingly shy about sending their synthesized drugs to researchers. LSD and psilocybin had become illegal to possess in 1968, and after the passage of the Controlled Substance Act in 1970 they were listed as Schedule I drugs, meaning they were deemed to be unsafe and to have a high potential for abuse with no accepted medical use. In other words, no one could have them or use them, for any reason. Within a decade, psychedelic researchers went from publishing hundreds of studies a year to being unable to conduct even one.

Bill Richards was one of the last to stop doing psychedelic research. He continued the work he'd done with Grof and Pahnke, using LSD to help the dying work through their anxiety and depression as the funding and the manpower for the research disappeared all around him. Once the funds dried up completely, it would be decades before he'd be involved in another psychedelic study.

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So, what happened? After all the "classic hallucinogens" (i.e., LSD, psilocybin, and mescaline) were classified as Schedule I drugs, and both public opinion and research funding turned completely away from psychedelics, how did they make a comeback? Brad

Burge, one of the younger faces in the field today, says it's a complicated mix of several components that came together at the right time.

Of course, he says, there's the simple matter of time: The so-called "acid panic" of the 60's has eased out of the older generation's memory over the years, and the younger generations don't know the first thing about it. That passage of time has lessened the public's fear of hallucinogenic drugs, giving researchers an opportunity to proverbially clear their names.

But, Burge adds, in a sense psychedelics never *really* went away. They never stopped being street drugs, of course, but that's not what he means: When the scientific community was publishing studies by the thousands on these compounds, making them illegal wasn't going to be enough to stop people from being interested. Even though it became, as Burge puts it, "professionally difficult,"<sup>3</sup> psychedelic researchers continued their work by taking it underground: When scientists could no longer conduct studies, they published based on new analyses of the old data from before the purge (as Richards did, keeping him putting out psychedelic studies for more than a decade after it became impossible to acquire the drugs for research); they kept on writing, and (more importantly) they kept talking—to each other, and to those factions of the public who would listen. That kept the embers burning through the years. Then, an organizational shift at the Food and Drug Administration (FDA) in 1992 led to a change in the review process for these studies: Research proposals were being analyzed based on their scientific rigor and merit, rather than on the basis of which compound they were proposing to use. As Burge puts it, they "commit[ed] to science instead of politics."

This provided an opening, and researchers took it: By 1996, researcher Rick Strassman published a study conducted at the University of New Mexico on the use of DMT (dimethyltryptamine, the active ingredient in the complex hallucinogenic brew *ayahuasca* that's used ceremonially by several indigenous cultures in South America, and also a chemical produced in trace amounts in the body). It was the first psychedelic research study using human subjects to be published in years. The doors were finally open again, and little by little proposals began to trickle in from researchers interested in picking up the thread of psychedelic studies.

Burge is part of the new generation taken an interest in the possibilities of psychedelic medicine, himself not old enough to have been born until well after the first era of psychedelic research already had ended; and when he talks, it's with a warmth and hopefulness that are tempered with care and reason. He speaks like someone who chooses his words with care; it's obvious he's enthusiastic about his work, but that he also recognizes the patience it will take to see psychedelic medicine advance.

He's the Director of Communications for the Multidisciplinary Association for Psychedelic Studies (MAPS), a non-profit organization that was founded in 1986 in response to the criminalization of MDMA (3,4-methylenedioxy-*N*-methylamphetamine, the active ingredient in the street drug commonly known as "ecstasy"). While the folks

from the psychedelic studies group have their hands in a number of research projects going on both in the U.S. and around the world, their main focus is a ten-year, ten-billion-dollar plan to see MDMA become an approved drug for use in the treatment of post-traumatic stress disorder (PTSD). MAPS is hoping to use MDMA as a "wedge" to open the door to public acceptance of psychedelics for medical use, paving the way for other drugs and other treatments to follow.

Burge says there are a few reasons why they're focusing on MDMA. For starters, having appeared somewhat more recently on the public stage, it doesn't carry with it all the baggage from the 60's and 70's that the classic hallucinogens have to deal with—as he says, it's just an "obscure acronym" to most. And of course, PTSD is a hot-button topic in our culture now: the U.S. is becoming inundated with vets who suffer from stress disorder and don't seem to respond to the already-available treatments. As Burge puts it, there's a market here—preexisting therapies, including pharmaceutical interventions, haven't entirely solved the problem, so they're "developing a treatment for a market that already exists"—and MDMA could be a welcome addition in the fight against this debilitating psychological condition.

But why *this* drug for *this* illness, in particular? Burge explains that ecstasy is sometimes referred to as "the love drug": When researchers were first exploring its possible uses, it was being utilized in couples' therapy. The drug helps users to "open up," boosting their trust and confidence in themselves and others. This makes it easier for patients to develop a rapport with their therapist, and also helps PTSD sufferers confront those traumatic memories that are the cause of their distress, rather than actively avoiding them. The result, Burge says, is that you essentially get "years of therapy in a day."

MDMA acts on several areas of the brain to produce its effects. It decreases activity in the amygdala, an area associated with fear and conditioned responses, while increasing activity in the frontal cortex—associated with learning, memory, attention, and emotional connections to people and events. But MDMA also stimulates the release of oxytocin, a hormone that's gotten a lot of press lately due to its association with things like falling in love, giving birth, and experiencing orgasm. Basically, it's an all-around feel-good chemical.

And it appears to work. According to their research, 83% of their subjects—people whose PTSD had failed to respond to other attempts at treatment—no longer qualified for a PTSD diagnosis after going through MDMA-assisted therapy. Further research has shown those effects maintained for three and a half years.

People are starting to take notice. Burge says they might be looking at government funding even before any major foundational support rolls in: Folks from high up the chain of command have expressed interest in MAPS's work, and if they play the veterans angle well enough they might even see some money come in from the Department of Defense, though Burge says it's more likely they may see some funding from the National Institutes of Health, or the National Institute of Mental Health.

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Roland Griffiths is a tall, thin man with gray-white hair and glasses. He's friendly and soft-spoken, but speaks with a tone that conveys the easy authority of a man who has long been an expert in his field. A respected full professor at Johns Hopkins with decades of research under his belt on drugs and addiction, he's perhaps the world's leading expert on caffeine. Many of his former students have gone on to hold important positions in the drug research world, including as decision-makers at the National Institute on Drug Abuse (NIDA). So when he first applied to the FDA for approval to do research with psilocybin after the field had spent decades in stagnation, it probably didn't hurt that he had essentially unimpeachable credentials. But why would an established and respected pharmacologist at one of the premier research universities in the world risk straying from the straight and narrow?

It started when Griffiths took up practicing meditation. He'd given it a try once years earlier in grad school, but found it frustrating and abandoned it. But then about seventeen years ago he tried it again in earnest, and his experiences in meditation got him interested in spirituality and alternate states of consciousness—topics that, before, had seemed unimportant to him. But his experiences on the cushion made him rethink that. He shared his thoughts with friends and colleagues; and eventually, it was via friend-of-a-friend introduction that Griffiths and Richards finally crossed paths.

Both had been living and doing research in the Baltimore area for decades, but it was Griffiths' newfound interest in alternate states of consciousness that led them into each other's circles. And the rest, as they say, is history.

Griffiths brought the expertise in experimental design and his decades spent establishing himself in the Hopkins community, and Richards added his years of experience with psychedelics as both a researcher and a clinician, having run hundreds of psychedelic sessions. Their respective knowledge and insights complemented each other well, and so they formed the core of what would soon become a dream team of researchers from assorted backgrounds, eager and able to take on the challenge of researching one of the world's most infamous drugs.

Psilocybin and LSD have a closely entwined pharmacology and history, and it was LSD that Richards had used in his final studies before the collapse of psychedelic research; but the Hopkins team chose to go with psilocybin for a number of reasons. First of all, psilocybin in its naturally-occurring form has been used by indigenous cultures probably for at least 2000 years. In addition, the effects of psilocybin wear off faster than they do for LSD—psilocybin's influence at the doses they use typically lasts about 6 hours (8 or 9 at most), whereas the effects of LSD can persist for more than 12. Also, psilocybin escaped the haze of the Leary era with less social stigma than its synthetic cousin: Richards likes to say that most people can't even spell "psilocybin," let alone know much about it. And finally, there is the issue that LSD may indeed carry more risks than

psilocybin—a question currently still unclear. With the public perception hurdles the researchers would have to overcome either way, Griffiths says, "We didn't need any additional socially-perceived risk."<sup>4</sup>

Psilocybin was still a hard sell. But, to the team's surprise, it wasn't convincing the U.S. government that was difficult—the FDA approval process went relatively smoothly, all things considered; and they even received some funding from NIDA. But it took a great deal of convincing before the university approved their research.

But that's not really surprising: Johns Hopkins is a top-tier university, renowned for the caliber of its research, especially in the medical field; and perhaps, if a spotless reputation is the most easily tarnished, then the university's administration had every reason to be wary of becoming known as the school that resurrected the psychedelic ghosts of yore.

The process of getting approval from the various ethics and funding committees at the university was gruelingly thorough. It took two separate institutional review boards, and *then* the Hopkins legal team wanted to take a crack at the protocol. Still, Griffiths doesn't hesitate to say that he's proud of the folks at Hopkins who carefully scrutinized their proposed research—both for being extremely cautious and careful in considering the information they were given, and in ultimately deciding that the benefits of the research outweighed any possible risks. By 2000, the pharmacy at the school was producing psilocybin, and Griffiths and his team could start recruiting volunteers for a pilot study.

They had to be incredibly careful in screening their participants: Any study involving human subjects is bound to be deeply scrutinized, and that goes double when researchers are working with a compound that's got a bad reputation working against it. So the team wanted only healthy volunteers with no previous experience with psilocybin—or any other hallucinogen, for that matter.

Taking prescription medications that might interact with psilocybin automatically ruled a person out, as did certain psychological disorders—even a person who presented no mental illness herself, but who had a history in her family, could be disqualified. This close to bringing psychedelic research back from the dead, the last thing the Hopkins crew needed was a research participant suffering a psychotic break and having a meltdown in their lab.

The Johns Hopkins team also took to heart the lesson learned by their predecessors on the importance of "set and setting." Before the first generation of psychedelic studies was shut down, researchers had learned that a person's mindset going into a psychedelic experience and their environment—where they were and who was there with them—had a huge effect on how that experience went. No more strapping unwary grad students to a gurney and abandoning them in a basement; participants in the Hopkins studies were thoroughly briefed on what they might experience under the influence of psilocybin, given plenty of time to get to know the two guides who would talk them through the experience, and when the time came they spent the day in a comfy room with couches,

books, and soothing music to listen to, their guides ready and waiting if they needed anything, even if it was just a reassuring hand on the shoulder.

Taking their inspiration from Pahnke's Good Friday Experiment, the Hopkins team wanted to explore whether psilocybin could be used to to elicit meaningful, mystical-type experiences. While they specifically sought out volunteers who had active spiritual lives, they defined the term very broadly: While Richards recalls at least two clergy who took part in the study, being seriously dedicated to a hatha yoga practice could be enough to get the check in the block.

It took them six years to get 36 subjects through the study; but in the end, the results were worth it. Participants did, indeed, have mystical experiences that they deemed profoundly meaningful: Two months after the fact, more than half the participants queried said it was among the top five most meaningful experiences of their lives—on par with their wedding day, or the birth of a child. A follow-up study more than a year later found that more than half of the participants still considered their psilocybin encounter one of the most personally *and spiritually* meaningful experiences of their lives; furthermore, measures that had been taken shortly after the study—affect, quality of life, and spirituality—that showed elevation after the psilocybin experience remained elevated more than a year after the fact. An additional follow-up study showed that many participants showed increases in a personality measure called Openness to Experience. Part of the "Big Five," one of the most commonly used personality measures in psychology, Openness concerns things like imagination, favorable response to variety, and intellectual curiosity. That finding was particularly important, as it contradicted a large body of evidence in psychology research suggesting that personality traits in adults are essentially fixed. Not only did the Hopkins group find that psilocybin could occasion a change in personality, but that the change was persistent—maybe even permanent.

The results of their research were heartening, as was the public response: Far from the fear-mongering and hysteria of the first psychedelic era, the media reported their work in mostly calm and straightforward terms, avoiding the sensationalism the Hopkins team knew was possible.

For their next project they took their inspiration from Richards' work at the tail-end of the earlier psychedelic research, and sought to continue the studies with cancer patients where they had left off decades before. And at that point the idea had caught on with other researchers as well: Researcher Charles Grob at UCLA did a small pilot study with 10 participants that was published in 2010, and researchers at NYU are also currently running a study with cancer patients that closely mirrors the work being done at Hopkins.

And while that's going on, the Hopkins group is branching out: They're currently studying how psilocybin might assist people pursuing a spiritual practice (meditation, in this case), as well as looking into using psilocybin to help people quit smoking—again, an offshoot of the addiction research that was being done decades ago.

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When it comes to research yet to be done, Griffiths says, "We just haven't scratched the surface."<sup>5</sup> He rattles off a dozen different directions he says the research could—and should—take: The actual neurophysiology of psilocybin needs to be studied much more fully; individual differences between people in their susceptibility to psilocybin in general, and psilocybin-induced mystical experiences specifically, should be examined; the importance of "set and setting" should be rigorously studied in a controlled way; and so on. And, of course, the possible therapeutic applications of psilocybin—its use in treating anxiety and depression, addiction, obsessive-compulsive disorder, and cluster headaches all are being researched at the moment—still need to be studied further.

Already, psilocybin research has gotten easier. Anthony Bossis, one of the researchers on the NYU team, says that their own studies were green-lighted through the approval process unbelievable quickly and easily, taking less than a year—and he believes that's largely thanks to the Hopkins team's having set a precedent for safe, scientifically rigorous research.

Griffiths says he's encountered some skepticism in the professional community, but maybe not for the reasons one would think. There are definitely some who question whether using psychedelics is worth the risk: They urge caution both because the risk of psychosis, though minimized in the Hopkins research, is still very real, and because the last thing the world needs is a repeat of the psychedelics mess of the 60's. But it's more the spiritual element of the research that's getting mixed reviews.

Although the psychology of religion is a well-established field of study, to those unfamiliar with it Griffiths says he can imagine it must sound flaky to start talking about volunteers' experiences of "the interconnectedness of all things." And there are, of course, limitations when studying people's subjective experiences. But, he counters, the effects they're seeing in the research are "dose-dependent, predictable, [and] replicable." There's definitely something going on here, and it's worth studying.

On the other hand, Griffiths says, you also get some who are offended by the research on spiritual grounds: As people did in the 60's, some object to the notion of "God in a pill" (a phrase Griffiths stresses he would never use), deeming the psychedelic experience to be false or misleading. Among those who value mystic experiences, there are some who seem to feel that triggering them in a laboratory setting in some way demeans the experience. Or, they view this research as a "systematic dissection" (Griffiths' words) of religious experience, and believe this is a case of materialism encroaching on religion. And then, of course, Griffiths says a little derisively that you encounter the One-True-Religion types who say that a religious experience had through Christian centering prayer, for example, is valid, but those had by any other means are not.



As for what should happen to psychedelics in the future, opinions are a little mixed—though all seem to agree that a cultural sea-change is necessary if psychedelics are to gain a legitimate role in our society. At the very least, there seems to be agreement that psilocybin has no business being a Schedule I controlled substance; despite the risks associated with it (and the researchers readily concede that psilocybin *can* be dangerous), they would like to see its potential for important medical use recognized, as well as the fact that it is non-addictive (a point NIDA already concedes).

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The folks at MAPS are maintaining their focus on MDMA right now, and Burge believes that alone will keep them busy for the next twenty years. There has never been a drug taken off the Schedule I list and reclassified as safe for medical use; if MAPS succeeds, it will be a first. But Burge stresses that, at heart, they're getting at a much larger issue concerning our culture's relationship to pharmaceutical drugs.

The dominant paradigm at the moment is that psychological disorders are treated with a drug that a person takes basically for the rest of his life. As Burge puts it, the current pharmaceutical-centered school of thought says "There's a hole in your brain that we have to fill with this drug."<sup>6</sup> But treatment like the kind MAPS is exploring using MDMA uses very few doses of a drug—sometimes just a single use—and the emphasis is on using the drug as a catalyst to allow patients to work their way through their own healing. If this new paradigm is adopted, Burge says, it will "radically change the entire medical field." Richards makes a similar point, frequently describing psychedelics as the "catalyst" that allows transformation and healing to occur—a term many other psychedelic researchers like to use as well. As Burge frames it, rather than using psychedelics as a sort of cure for our psychological ills, they provide an altered worldview that helps us to "accomplish that healing ourselves."

As for the Hopkins work, Griffiths says he's not particularly married to psilocybin, per se: What matters to him is that the experiences psilocybin induces have an apparently meaningful, healing effect. So, to him, the drugs are a means to an end. But because there are plenty of examples of people having these mystical experiences *without* drugs—instead using methods like meditation—he's very open to the possibility of exploring other tools for getting people into that state. If it's even safer than psilocybin and similarly reliable, he's all for it.

Indeed, in some cases that seems to be the best way to go forward: When a group of researchers at Harvard looked at cases of people self-medicating with psilocybin or LSD to treat cluster headaches—sometimes called "suicide headaches" because they are extraordinarily painful and long-lasting—they found that these drugs worked amazingly well. So one of the researchers, John Halpern, went on to found a company that's now experimenting with treating cluster headaches using a compound that's chemically similar to LSD, but without any hallucinogenic effects.

Perhaps because of his unique experiences with the ups-and-downs of the field, Richards is both cautious and optimistic. Like Burge, he recognizes that, in using psychedelics to treat psychological illness, a larger cultural issue is at stake: Whereas a depressed person can be put on Prozac for the rest of her natural life (and that's considered socially acceptable), psilocybin treatment might use one, maybe two doses in a lifetime—not a good business model for the drug companies. So he has difficulty imagining too much enthusiasm for psychedelics coming from that area (although Burge doesn't think that matters quite so much; he feels that there's an economic niche that's been left empty thus far, and psychedelics could fill it).

We also have an entrenched "tradition"<sup>7</sup> (as Richards calls it) in our culture of proscribing tranquilizers and anti-depressants to people diagnosed with a serious illness just as a matter of course—and those drugs don't play well with psilocybin. So there is the issue that what's socially acceptable at the moment also happens to be what makes pharmaceutical companies a lot of money, and Richards recognizes the difficulty inherent in trying to change that.

Still, he has high hopes. Richards would like to see psilocybin become, for lack of a better word, a sacrament. Like peyote and ayahuasca, he sees a role for this classic psychedelic in initiating people into mystical, transcendent experiences—something he believes we need much more of in our society. In particular, he says it's a "personal dream" of his to see psilocybin used in seminaries as an optional (but encouraged) rite of passage, of sorts, to give burgeoning spiritual leaders a Moses-on-the-Mountaintop moment that they can then carry with them as they go into ministry, a mystic wellspring that they can draw from in their lives as spiritual mentors.

But the niche that Richards envisions psilocybin filling in the distant future gets at what he sees as a much larger cultural blind-spot.

The Hopkins team had some difficulty finding volunteers when they began their psilocybin studies—not something really surprising, Griffiths points out; after all, they *were* asking people if they'd like to spend a day in a laboratory taking hallucinogens in the name of science. How many sane, healthy people *would* raise their hands for something like that? Then, when they started the cancer study, volunteer numbers took an even deeper and completely unexpected nose-dive. The question was, why?

The researchers from the various psilocybin groups offer a number of possible explanations. Oncologists often get to see their patients for only a few minutes at a time as it is; so how much of that precious time can they be expected to spend trying to explain the nuances of some research study looking for new recruits? In a similar vein, so many cancer patients have been in and out of countless laboratories promising the latest and greatest treatment option; and so the last thing they want to hear is that a herd of lab-coat-wearing, clipboard-toting scientists wants them to sign up to be guinea pigs in yet another study. And of course, there's also the issue that participants are being asked to spend time in a research study that is *not* offering any chance of a cure; instead, it's at

best offering them what must sound terribly morbid and hopelessly hollow: as Bossis from NYU puts it, "a good death."<sup>8</sup>

All the researchers seem to agree that this touches on a much larger issue than psilocybin: We as a society have an unhealthy relationship with our own mortality. Pondering the issue, Griffiths says, "We have a very disordered relationship in our culture toward death and dying, don't we?"<sup>9</sup> By and large, he points out, we respond to death with fear and denial—and the medical establishment hasn't helped much. He concedes that it has gotten better in recent years, but palliative care has a long way to go. And so, while Griffiths certainly doesn't foresee (or want) psilocybin to show up at the corner pharmacy someday, he would like to see it approved for use in a therapeutic setting, especially for end-of-life care. But whether a larger cultural shift would need to take place beforehand, he finds it hard to say.

Bossis, who was an undergrad just as the first era of psychedelic research was shutting down, nonetheless was immediately intrigued by what he was reading. Unable to pursue psychedelic research after he finished college, he went into grad school for clinical psychology, ultimately earning his doctorate. He's a specialist in psychosomatic illness, the psychology of pain, and palliative care, and is also interested in consciousness, comparative spirituality, and mysticism. In other words, the current resurgence of psilocybin research is right up his alley. He agrees that our culture's denial of "end of life [as] a part of life" is a huge problem, and one that will go hand-in-hand with the future acceptance of psilocybin as a tool for treating what he calls "psycho-spiritual health."<sup>10</sup>

This sort of thing is precisely the reason Burge thinks MAPS's work with MDMA is easier to sell to the public than the sort of work the Hopkins folks are doing. PTSD is a known entity in our culture: The public has a fairly concrete grasp on what it is, and understands the need to find effective treatments. Similarly, the effects of MDMA are fairly easy to describe in a way that a person with no experience with the drug can understand: It makes you feel happy and calm, makes it easier to be open with others; MDMA users describe it as feeling more like themselves than usual. That's something a person can wrap their heads around.

But with psilocybin or LSD, people talk in terms of "self-transcendence," or "cosmic oneness"—words that would smell like patchouli and sandalwood if they had an aroma, and that to most people scream "New Age hippie B.S." Which makes the task of gaining public approval a bit more difficult.

Still, even the most circumspect of the researchers working with psilocybin sound like true believers when they talk about their work. Even if it is difficult to put into words exactly *how* these mystical experiences help people, they're quite certain that they do—and the people who've participated in the studies say so themselves, which seems to back the researchers up.

Richards calls it "profoundly meaningful work"<sup>11</sup>—both in the past and the present. He says it's a uniquely meaningful experience working with the dying, particularly since we live in a culture inundated with the denial of death. He says the terminally ill often find themselves surrounded by doctors, family, and friends who all insist that everything's going to get better, and he says for patients faced with that scenario, "the world starts to feel bizarre."

He tells the story of a woman who'd been in the LSD study back in the 70's: One day while she was being treated in the hospital, she was in the bathroom when she heard her surgeon talking to residents outside—and that was how she found out that she had terminal cancer. Afterward, Richards says, she wondered whether she should tell her doctor that she knew; she worried whether *he* could handle it.

"I've learned that most people are much more resilient than we give them credit for," Richards says. In the LSD study, and so far in the current research at Hopkins, he's found that psychedelic experiences often have a profoundly positive impact on patients—and, more importantly, on the people around them.

When the dying come to terms with death, they become more open and willing to talk about what really matters to them, what they want out of the life they have left. That can be enormously important to their families—"and beautiful things happen," says Richards. He's also seen patients become more involved in their treatment after their psychedelic experiences, taking more responsibility for deciding what they want—even telling their surgeons off when they need to.

Many patients, Richards says, were labelled as bedridden; but they were confined to bed not by their physical illness, as it turned out, but by depression. One such patient, Richards said, after undergoing psychedelic-assisted therapy, "literally...got out of bed and danced at her daughter's wedding."

Terminally ill patients who underwent this kind of therapy reported decreased anxiety and depression, less fixation on pain, and greater intimacy in their interactions with other people.

"It really helps people *live* the time that's left," Richards says. Psychedelics can't cure cancer, but that's not the point: Richards says there is "so much unresolved grief" in our culture because we live in denial of our own mortality; the aim of psychedelic-assisted therapy is to give people a mental space in which they can work through the fear and anxiety associated with death, so they can more fully enjoy the life they still have ahead of them.

"The human organism is capable of coming to terms with death in a meaningful way," he says. "We don't have to protect people from it."

Writing about the work they did together during the first wave of psychedelic research, Stanislav Grof wrote:

*One aspect of this work will necessarily elude even the most sophisticated methodology in all similar studies conducted in the future. It is the depth of the personal experience of those who are privileged to share the situation of dying with another human being and see the psychological crisis so frequently accompanying the encounter with death alleviated or even completely reversed as a result of a psychedelic experience. Repeated participation in this special event is more convincing than numerical data, and leaves no doubt in the mind of the psychedelic therapist that this work with the dying is worth pursuing.<sup>12</sup>*

For now, the psilocybin researchers are forced to be patient. The Hopkins cancer study, running since 2007, so far has run half the number of subjects they're aiming for; and the NYU team, which started running subjects in 2009, has reached a little over a third of their own goal. So things are progressing, albeit slowly. As they continue to remove themselves further and further from the specter of Timothy Leary and the "acid panic" he induced, they know that any great cultural revolution will be a long time coming. For now, Richards says with a sagely smile, "All we can do is what we can do *today*."<sup>13</sup> But really, that they're doing *anything* is itself an impressive feat.

Richards' office is at the back of his home, nestled in a hilly, wooded suburb outside Baltimore. His office windows overlook an expansive and meticulously manicured backyard reminiscent of a Japanese garden, with carefully cared-for greenery, gently curving walkways, and a well-stocked bird-feeder. The space matches the personality of its quiet, contemplative owner, who smiles easily, speaks softly, and laughs often.

"As you can imagine, for me especially," he says, "it's a real joy to be part of the rebirth of [this research], after the years of dormancy where I wondered if I would ever see it again in my lifetime."

## Endnotes

- 1) Bill Richards, phone interview, Oct. 20, 2011
- 2) Hoffman; *LSD: My Problem Child*, Chapter 1
- 3) Brad Burge, phone interview, March 16, 2012
- 4) Roland Griffiths, phone interview, Jan. 18, 2012
- 5) *ibid.*
- 6) Brad Burge, *op. cit.*
- 7) Bill Richards, *op. cit.*
- 8) Anthony Bossis, phone interview, March 7, 2012
- 9) Roland Griffiths, *op. cit.*
- 10) Anthony Bossis, *op. cit.*
- 11) Bill Richards, *op. cit.*
- 12) Stanislav Grof & Joan Halifax, *The Human Encounter With Death*, Chapter 3
- 13) Bill Richards, *op. cit.*

### Interviews

- Anthony Bossis (NYU), phone interview, March 7, 2012  
*ibid.*, March 14, 2012
- Brad Burge (MAPS), phone interview, March 16, 2012
- Mary Cosimano (Johns Hopkins), phone interview, Feb. 13, 2011
- Roland Griffiths (Johns Hopkins), phone interview, Jan. 18, 2012
- Charles Grob (UCLA), phone interview, Oct. 27, 2012
- Matthew Johnson (Johns Hopkins), phone interview, March 1, 2012
- Katherine MacLean (Johns Hopkins), phone interview, Nov. 10, 2011
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