Chapter 1
Who Is Keeping Tabs? LSD Lessons from the Past for the Future

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Abstract Psychedelics fell from medical grace nearly half a century ago, but recent activity suggests that some researchers are optimistic about their return. Are they at risk, however, of facing the same historic challenges with a new generation of psychedelic enthusiasts, or have the circumstances changed sufficiently to allow for a new path forward? The twenty-first-century incarnation of psychedelic research resurrects some anticipated hypotheses and explores some of the same applications that clinicians experimented with 50 years ago. On the surface then, the psychedelic renaissance might be dismissed for retreading familiar ground. A deeper look at the context that gave rise to these questions, though, suggests that while some of the questions are common, the culture of neuroscience and the business of drug regulation have changed sufficiently to warrant a retrial. A close look at the history of psychedelics encourages us to think carefully about the roles of regulators, the enthusiasm of researchers, and our cultural fascination and/or repulsion with mind-altering molecules.

In February 2014, *Scientific American* shocked readers with an editorial that called for an end to the ban on psychedelic drug research (End the Ban, 2014). The article criticized the mental health treatment industry for failing to advance therapies beyond the golden era of the 1950s and lambasted drug regulators for prohibiting psychedelic drugs, including LSD, ecstasy (MDMA), and psilocybin, drugs that had historically held clinical promise but were "designated as drugs of abuse" (End the Ban, p. 1). As the editors pointed out, the situation has created a paradox: "these drugs are banned because they have no accepted medical use, but researchers cannot explore their therapeutic potential because they are banned…The decades-long research hiatus has taken its toll" (End the Ban, 2014, pp. 1–2). Lest there be any confusion as to where the editors stood on the issue, they continued with explicit instructions: "This is a shame. The US government should move these drugs to the

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B. C. Labate, C. Cavnar (eds.), *Plant Medicines, Healing and Psychedelic Science*,
https://doi.org/10.1007/978-3-319-76720-8_1

less strict Schedule II classification. . .it would make it much easier for clinical researchers to study their effects" (End the Ban, 2014, p. 2). The article brought public and scientific attention to a growing contention among researchers and even some regulators that the clinical potential among psychedelic drugs had been dismissed in the past due to a moral panic about drug abuse.

But this article was just the tip of the proverbial iceberg. In the past decade, psychedelics have returned to the clinical arena with renewed optimism for their positive role in therapeutics, across a range of areas. Hundreds of published papers have looked back and criticized regulators, researchers, and consumers for distorting the truth about psychedelics. Several contemporary scientists have joined the chorus of support for renewed investigations into the therapeutic potential for psychedelics. Their criticisms of the current state of prohibition point to historical misconceptions about the dangers, as well as the benefits, of applying psychedelics in a healing context. The renewed interest, however, also reinforces some older trends in psychedelic science. In particular, the so-called renaissance criticizes the previous generation for applying sloppy scientific controls. Others blamed overzealous regulators for establishing demanding protocols that were considered unsuitable for the contours of psychedelic research. Journalists have also been the subjects of scorn, for fueling the moral panic about drug abuse, risky behavior, and even more conspiratorial claims about cultural changes inspired through psychedelic experiences. Nearly 70 years later, have we entered in a new social contract that allows us to mitigate these external challenges leveled at psychedelic science, or has the science advanced sufficiently to fend off these cultural and political challenges?

Historians are poorly equipped to make predictions about the future, but we are well trained to look back and situate events within a broader context. To do so requires sifting through elements of cause and effect and critically analyzing memories of events against evidence describing such events in real time. These skills are essential for altering the narrative or cultural assumptions about the past that, in turn, affects our reception of new ideas for the future. Historians do not simply tell stories about the past; we interpret the past, creating narratives that form part of our cultural memory. Those memories or legacies help to anchor our collective consciousness and allow us to gauge our future progress. In the case of a psychedelic renaissance, historical interpretations may be significant for carefully analyzing some of the long-held assumptions about why psychedelic science failed in the first place. This chapter examines the historical uses of LSD, as well as some of the shortcuts that may have hampered its more widespread reception or acceptance as a clinical tool. It reflects on the current reawakening by drawing contextual lessons from the past.

Tune In, Turn On, Step Back

Plant medicines have been used for thousands of years; Western scientific fascination has generated different ways of thinking about these substances. Regardless of the chemical structure of the substance used, the concepts that come to define the

experiences also reveal different approaches to use. The category of entheogens describes plant teachers that generate the divine within, while hallucinogens are simply substances that cause hallucinations, regardless of any deeper subjective meaning; and psychedelics, the mind-manifesting molecules, have a comparatively shorter history and are associated with psychotherapy and clinical therapy. German psychiatrists, beginning in the 1920s, seized upon peyote for its healing capacity, not in the form of indigenous ritualized healing but instead as a distinctive chemical response to the isolated molecule, mescaline (Rouhier, 1927). Peyote had been used for hundreds of years in indigenous ceremonies to communicate with a spiritual world, as a healing agent and as a sacrament. Its first uses occurred in Mexico, and since at least the fifteenth century, it spread northward into the United States and southward through Mesoamerica (Maroukis, 2010). Peyote, the cactus, and peyotism, the practice of worship with the cactus, have attracted scholars, politicians, chemists, biologists, and indigenous and non-indigenous people who are captivated, and at times repulsed, by the connection between peyote and colonialism, settler-colonial relations, and science and religion (Labate and Cavnar, 2016).

In the twentieth century, as the peyote religion came under threat from colonial authorities eager to prohibit indigenous practices of religion and healing that were deemed backward or unmodern, Western scientists maintained their fascination with the peyote ritual and the potential science behind its culturally mysterious chemistry. Keen to distinguish the chemical reaction from the ritualistic context, early pharmacologists isolated mescaline, purifying the substance and opening the proverbial doors to a new era of scientific exploration with these substances that had long been revered in a different context for their capacity to inspire new insights or to generate spiritual encounters of a divine nature. While these elements were not altogether erased from the clinical encounters, the role of tradition, ritual, and spirituality were further muted, as deference to the molecule was pushed aside in exchange for deference to the researcher and scientific objectivity.

Mescaline attracted attention, but by the 1950s, its story was quickly overshadowed by LSD. D-lysergic acid diethylamide (LSD), on the surface, represented a triumph in modern science. This molecule originated in the laboratory setting, created and designed by the accouterments of modern science. It did not initially carry the trappings of a cultural discourse. Although it shared some experiential features with mescaline, it did not owe its history or future to a religious or cultural context and could readily appeal to Western scientists as a secular technology: a product of dedicated science. But, the history of LSD suggests that the molecule was not a typical pharmaceutical product but rather belonged, at least chemically and experientially, to a family of plant medicines that held both cultural and scientific fascination.

Albert Hofmann, the discoverer of LSD, famously reflected on the drug his book *LSD: My Problem Child*. His book captured the frustrating mixture of his excitement and joy with the new discovery and his hopes and dreams for the potential held within this tiny molecule. Hoffman was a Swiss biochemist working at Sandoz pharmaceutical laboratories when he began working with synthetic substances of the ergot family. In 1938, he first synthesized lysergic acid diethylamide-25, an internal

name applied to the 25th compound in the lysergic acid series, which remained undisturbed for 5 years until he experienced its powerful effects in 1943 (Hofmann, 2013).

On Friday, April 16, 1943, Hofmann had his first LSD experience, though he had not realized that he had come into contact with the chemical, and the response took him by surprise. While disoriented, he "perceived an uninterrupted stream of fantastic pictures, extraordinary shapes and an intense, kaleidoscopic play of colors" (Hofmann, 2013, p. 18). His now infamous voyage into a gripping hallucination captured attention at the time and has since been a part of the psychedelic lore. His depiction expressed wonderment at the fantastical effects of a drug that disoriented his senses and disrupted his sense of reality. In the 2013 edition of his book, Amanda Fielding, editor, philanthropist, and LSD enthusiast, described Hofmann as "scientist who, through his most famous discovery, crossed the bridge from the world of science into the spiritual realm, transforming social and political culture in his wake. He was both rationalist and mystic, chemist and visionary…" (Hofmann, 2013, p. v). LSD had captured the attention of clinical, biomedical, spiritual, and political thinkers across the disciplinary spectrum; its unconventional status meant that it quickly became both revered and reviled.

Sandoz Pharmaceuticals began experiments with LSD first in animal models and eventually within the field of psychiatry. The drug's powerful psychological effects attracted people working in fields of psychiatry, psychotherapy, and psychoanalysis, in particular, due to its rather consistent capacity to affect cognition and to induce a period of reflection among users (Hofmann, 2013). By the early 1960s, over a thousand scientific articles had appeared with investigators using LSD in a wide variety of settings, applying diverse methods and instruments and drawing a number of different conclusions. The research community did not reach a consensus on a specific direction for LSD studies, but several promising avenues emerged throughout the 1950s. Chief among these was the use of LSD for treating alcoholism, but it was also tested in clinical settings on a range of behaviors, including homosexuality, depression, couples' therapy, aggression, and as a model psychosis (Abramson, 1960).

While researchers subscribed to different methods for testing LSD, its appeal widened to include non-clinical investigations, and it soon gained attention for being a catalyst for spiritual and creative thinking (Ellwood, 1994; Miller, 1991; Fuller, 2000). Some people tried to harness these reactions and put them to productive use in clinical settings, but others recognized the power of this substance to move beyond the confines of medicine and perhaps to better serve us by enriching human thinking along evolutionary terms. Yet others recognized a longer tradition of hallucinogens that connected with traditional healing practices among Aboriginal people or linked with non-Christian religions (Hoffer & Osmond, 1967). For instance, North American investigators looked to the use of peyote among members of the Native American Church, a religious organization that was first established in Oklahoma. Comparing religious interactions with hallucinogenic substances encouraged scientists to consider a longer tradition of combining spiritual healing into psychological treatments (Dyck & Bradford, 2012). Others looked to ololiuqui use among the

Aztecs who similarly derived meaning from drug-induced visions or hallucinations (Hoffer & Osmond, 1967).

In 1957, psychiatrist Humphry Osmond, then working in a mental hospital in western Canada, coined the term "psychedelic" to tap into its mind-manifesting properties and to describe how the drug brought psychological material to light (Osmond, 1957, p. 429). His introduction of the term came through his correspondence with British writer and philosopher, Aldous Huxley, and was a testament to the fundamentally interdisciplinary nature of the concept. After sharing a mescaline experience in Aldous Huxley's home in Hollywood, California, in 1953, these two men engaged in a decade-long relationship that produced over 700 pages of letters, countless visits, and kinship ties. Together they established a growing network of people committed to generating what Huxley would come to call "outsight": not simply the opposite of insight but a deep state of reflection that embraced both internal thoughts and the context in which we live in modern civilization. Humphry Osmond and Aldous Huxley attempted to create an organization dedicated to this cause. Outsight, in their words, would: "advance human consciousness and draw attention to a chemically induced way of accessing some higher dimension" (Symons, 2015, p. 136). Or, put more simply, they wanted to establish a psychedelic think tank: a group of expansive thinkers, intellectual elites even, who would come together under the influence of mescaline or LSD to tackle big problems.

Osmond and Huxley were uniquely positioned to create new language to describe the mescalinized responses, not because they were necessarily scientifically connected but because they drew from a rich and diverse set of experiences, ways of knowing, or ontologies, in their attempts to capture the concept of psychedelic science. Osmond was a British-trained psychiatrist with a side interest in being a playwright. Huxley was already a well-known literary figure from a famous family of writers and evolutionary biologists. By the time they met in 1953, Huxley was already a famous author and had a growing reputation for his personal interests in "fringe science" (Bisbee et al., 2018).

In their discussions leading up to developing the concept "psychedelic," they drew from diverse ideas—indigenous peyote rituals, biochemistry, evolutionary biology, musical performances, ancient Greek poetry, philosophy, history, neuroscience—with a heavy dose of Jungian psychology and spirituality. Not only were their discussions a veritable treasure trove of ideas about the power of the human mind to perceive or the capacity for chemicals to induce empathy, but they developed the language of psychedelics using concepts and approaches that were infused with an expansive set of possibilities that drew deeply from the past in an effort to imagine a different set of futures.

These psychedelic pioneers were interested in the clinical applications of psychedelics but were also deeply curious about the cultural uses of plant medicines and the ritualistic elements of ceremonial chemistry that was often ignored by Western science. Osmond, along with his colleagues in Saskatchewan, believed that LSD, along with other psychedelic drugs, including peyote (mescaline), ololiuqui, ibogaine, and others, provided Western medicine with a critical tool for linking biomedical approaches with spiritual and psychological healing: a feature that

Osmond believed had been leached away by modern biomedical interventions that tended to favor body over spirit.

The use of LSD in treating alcoholism gathered significant attention and showed tremendous promise throughout the 1950s, even within more conventional treatment modalities (Mangini, 1998). The concept behind its therapeutic approach involved single, albeit megadoses, of LSD. Patients were required to sit with a counselor, psychologist, psychiatrist, nurse, or social worker, throughout the experience, which usually lasted an entire day. Patients were encouraged to talk about themselves, often prompted by looking at family photographs or while listening to classical music or by looking at artwork. Results of follow-up studies indicated a long-term sobriety following these sessions. Individuals claimed that they had generated a new level of self-awareness and psychological fortitude to end their problem drinking (Krebs and Johansen, 2012). The results stymied contemporary addiction researchers, some of whom were less comfortable with a drug trial that did not conform to the emerging standards of randomized controlled testing, and debates over the value of psychedelics in therapy continued to engage mental health professionals (Dyck, 2006).

By the beginning of the 1960s, LSD had become a well-known substance within clinical research circles, but it had yet to reach mainstream society in any significant way. Ken Kesey was then a creative writing student at Stanford University who had volunteered to take LSD as part of a clinical trial before he burst onto the psychedelic scene as an apostle of LSD-induced mind freedom (Dodgson, 2013). Timothy Leary had explored a variety of drugs—both professionally and personally—before landing in trouble with Harvard University for his "unscientific" use of psilocybin mushrooms and drug experiments with prisoners (Greenfield, 2006).

These two figures became firmly associated with a different side of LSD's character by the mid-1960s. During that colorful decade, LSD's reputation changed dramatically. Leary had catapulted from Harvard University to Millbrook, an elite upstate New York getaway for acid gatherings, where he set himself up as an acid guru and an evangelical purveyor of a burgeoning psychedelic movement. Ken Kesey, meanwhile, had published his expose of American mental hospitals in *One Flew Over the Cuckoo's Nest* and quickly became associated with a rising tide of countercultural antics that included a rather flamboyant consumption of drugs (Kesey, 1962). Throughout North America, psychedelics coursed through the 1960s culture, inciting new genres of music, literature, hedonism, and anti-authority attitudes. While many of these connections were overblown, the presumed connection between LSD and immorality overwhelmed a more logical or clinical assessment of the situation (Dyck, 2012).

In the media, LSD became implicated with murder, suicide, and a slough of health problems, alongside a more generalized set of antipathies toward the American state (Osmond, 1967). Young people high on acid and caught in terrifying hallucinations were allegedly driven to madness and violence. Charles Manson's serial murders were in part attributed to LSD; elsewhere, a former medical student reportedly murdered his mother; LSD-soaked youths contracted venereal diseases at concerts; others went blind after taking LSD and believing they could stare at the sun (Dyck, 2008).

While sociologists have since pointed out that these claims were hyperbolic, medical researchers found themselves caught in a moral panic over the value of LSD. Sandoz Pharmaceuticals, undoubtedly worried about its reputation, temporarily suspended production of its LSD supplies in 1963. It became clear, however, that other substances had leaked into the black market and masqueraded as LSD, when in fact they bore no chemical similarities (Osmond, 1967). The rise of drug use in general, and psychedelics in particular, created challenges for medical researchers who were faced with the growing reputation that these substances were merely agents of abuse. By the same token, medical staff had difficulty treating patients who claimed to have taken LSD when the drugs in circulation were often not bona fide LSD and were often consumed in combination with other substances that further stymied medical staff in their ability to fully comprehend the LSD reaction or its management.

As public concerns heightened over the dangers associated with LSD use, drug regulators at first worked closely with scientists to chart a course of development for how best to regulate this drug. In the early 1960s, clinical optimism had tipped the scales in favor of a regulatory scheme that allowed for continued investigations along rather liberal lines (Oram, 2018). Some researchers maintained that LSD was on the cusp of making significant breakthroughs in addiction treatments and that further sustained study was necessary to see through the haze of misinformation surrounding the recreational abuse of the drug.

Meanwhile, acid on the streets wreaked havoc and induced psychotic breakdowns in otherwise sane people, according to news, police, and health reports. Bellevue Hospital in New York City claimed that it had never before received so many patients into its psychiatric division and had admitted 65 people in 1965 alone with LSD-induced psychoses. Fully nine of those cases involved "uncontrolled violent urges including homicide attempts by 2 individuals. Four others were found running or sitting nude in the streets" (Jonnes, 1996, p. 232).

The states of New York and California convened senate hearings in 1966 to outlaw LSD. The Canadian government had responded 4 years earlier with a more tepid response, placing LSD alongside thalidomide on a special new drug schedule reserved for drugs that were still under medical investigation, but which were not otherwise controlled through the criminal system. Iconic leaders of the psychedelic movement, including former psychologist Timothy Leary, writer Ken Kesey, poet Allen Ginsberg, and others, had become the new face of the drug and spoke publicly about the conservatism of the state attempting to stamp out a form of cultural consciousness. These self-appointed champions of psychedelia forged a strong popular connection between LSD and counterculture hedonism that may have galvanized supporters but also cleaved them off from mainstream society. The resulting cultural division cut deeply across conventional authority figures, including psychedelic researchers, who risked being labeled as bad scientists or bad citizens by association.

Spilling outside the confines of laboratory studies, LSD on the street posed a number of problems and inspired a more outspoken reaction to a drug that appeared to be spiraling out of control. In 1968, pressure came from all directions to regulate

LSD out of legal territory altogether. The scientific community could not come to an agreement on whether LSD's potential could truly be realized. While some researchers balked at its inability to perform consistently in controlled trials, others chided the spiritual dimension that had been attached to its healing potential. Either way, it had not found its way into a specific disease category or marketable psychopharmaceutical niche to warrant further sustained evaluation in this context. Furthermore, volunteers for trials increasingly came from a less desirable segment of society: those seeking thrills over legitimate, or even objective, test subjects. The capacity, therefore, of researchers to establish quantifiable and verifiable results became ever more difficult (Dyck, 2011). Despite these problems, some researchers remained dedicated to finding a credible scientific pathway through the cultural malaise, to demonstrate with clear evidence the efficacy of these molecules in psychotherapy (Oram, 2018). In spite of these efforts, it became increasingly difficult to justify continued studies of LSD while the substance appeared to produce violent and sustained health problems, primarily within psychiatric categories. Results, whether in clinical trials or on the streets, seemed to generate incredibly unpredictable and highly dangerous outcomes, compelling politicians and regulators to step in and restore public confidence in their ability to decrease public health risks (Oram, 2016).

By the 1970s, the psychedelic scene was dramatically different. Funded, legitimate scientific research directly using LSD ground almost entirely to a halt, while committed enthusiasts continued to manufacture the drug illegally and fuel an underground network of research. Spring Grove Hospital and its director Charles Savage were an exception (Oram, 2014, p. 241). Recreationally, LSD continued to be a force and was now readily joined by a host of other narcotics: psychedelics from peyote and mushrooms and others and from the comparably benign marijuana to a range of contraband amphetamines, to injectable heroin. The drug cornucopia, which had always been present but highly regulated, exploded onto the street with renewed enthusiasm as it comingled with ideas about consciousness-raising philosophies, anti-authoritarian attitudes, and risk-averse liberties (Elcock, 2015; Schneider, 2008; Henderson, 2011). Not without some irony, this was also the burgeoning era of psychopharmacology, when more pharmaceuticals moved into circulation than ever before. One of the key differences in their fates lay in the regulations that determined their classification as substances of medicine or those of abuse.

The tone of psychedelic research shifted from studies within the realm of pharmaceutical trials to ones exploring spiritual, philosophical, and cultural dimensions of the relationship of reality and consciousness. These kinds of questions moved beyond the comfort zone of modern Western medicine and developed small enclaves outside of university campuses (Aaronson & Osmond, 1970). Serious psychedelic research largely moved underground, while its more social persona took on a life of its own, seeping into cultural products, music, literature, and the visual arts as it became woven into the fabric of the 1960s, making public appearances only in times of desperation, whether in emergency rooms or in jail cells (Stevens, 1987). By the 1980s, it did not seem likely for LSD to resurface in legitimate scientific arenas.

The Psychedelic Renaissance: Lessons from the Past

Almost exactly 50 years after California banned the use of LSD, psychedelic researchers gathered for the largest meeting on psychedelic science yet. In April 2017, the Multidisciplinary Association for Psychedelic Studies, together with the Beckley Foundation, hosted over 3000 participants in Oakland, California, for a meeting to discuss the future of psychedelics. This time, they boldly married psychedelics of the past with the science of the future. The meeting featured several key figures in this community who have been collecting laboratory data, neuroscience imaging, and pharmacological information aimed at revising the historical record. This revision is based on assumptions that earlier attempts at accruing data were misled or unsophisticated. And, while it is true that researchers in the 1950s did not use the same techniques as the ones working in the 2010s, much of the research conducted in the past operated on the highest standards of research at the time. Unless our methods today fail to evolve, it is possible that the same fate will befall today's research teams.

The California gathering also included social scientists, filmmakers, and speakers whose experiences came directly from plant medicines. This acknowledgment of interdisciplinarity and cultural inclusion was an important gesture and could be a significant bridge between the past and future, as well as the science and culture of psychedelics. Psychedelics, past and present, straddle philosophical divides: mind and body, rational and irrational, and spiritualist and materialist. Collectively, we have not developed logic or methods for peaceful coexistence that have reached mainstream consensus. Indeed, these differences in how we interpret experience have penetrated deeply into our academic disciplines and are reinforced in our cultural attitudes about who qualifies as a legitimate psychedelic expert. These tensions remained on display at the 2017 meeting. *The New York Times* reported on the meeting, citing an attendee who accused Gabor Maté, a Canadian-based medical doctor who works with shamans and plant healers, of cultural appropriation and insensitivity toward this issue (Schwartz, 2017). The contests over indigenous rites and biomedical appropriation of plant medicines continue to incite controversy, which has yet to be resolved by past or present investigators. While figures such as Maté have attempted to bridge that divide by crossing from Western to non-Western approaches and by developing relationships with non-Western healers, the historical legacy of uneven power between colonizer and colonized deeply affects this relationship and continues to create unease within the context of psychedelics (Maté, 2009).

Race and indigeneity are not the only categories of identity that invoke tensions within the psychedelic community: men continue to dominate the discussions of psychedelic science, while women remain the handmaidens in this research enterprise. In both historical and current studies, women have been intrinsically involved in carrying out the research, particularly as therapeutic guides and empathic

observers but rarely as principal investigators.[1] Historically, women played a vital role, most frequently as nurses and therapeutic guides, but they are rarely described in publications as central to the experiment or experience. Subjects, however, more readily refer to the empathetic women who guided them through their experiences or helped to ensure a safe environment for the experiment.

The new phase of psychedelic science seems to mirror this gender dimension rather than fostering a more inclusive atmosphere, either in terms of equity or in terms of prioritizing the empathic elements of qualitative and emotionally sensitive responses. This is not to say that women are exclusively capable of empathy, but they remain more on the sidelines in this rather male-dominated research arena, which may produce the combined effect that these empathic features are "less scientific" or less valued in the overall encounter. Scientists and policy makers alike have pointed to the systemic gender biases that exist within highly competitive research arenas and have begun pointing to its effects on innovation, collaboration, and scientific impact (Zippel, 2017; Kingston, 2017). *Nature* reported on gender discrimination in scientific research, indicating that less than 15% of full professors are women, which has a dramatic impact on who is setting scientific research agendas and policy (Loder, 1999). While most of these reports underscore the gender disparities, examining the history of psychedelic research provides a compelling case for why gender matters.

The new face of psychedelic enthusiasm is in fact not all together new. The male-dominated field today sounds unreflectively similar in some cases to the bravado of the last generation of researchers who felt that they were on the cusp of transforming our ideas about human consciousness and healing contexts. The kind of enthusiasm and stereotypically macho-style confidence that *this time* we have it right because we (a) have published more papers, (b) have better technology, and (c) understand regulations better is not the science of self-reflection. This is not exclusively a gender issue, but the process of gender inclusion would be a good starting point for developing strategies for scientific diplomacy, consensus building, and meaningful integration of qualitative and quantitative methods. This is not to suggest that including more women would dampen the enthusiasm, but the debates would be enriched by their presence and experiences and their allegedly increased capacity for self-reflection. Indeed, it is these qualities that appear to hold women back from succeeding in scientific careers; but what if those qualities were admired in a field that sought to bring rigor and self-reflection into harmony?

[1]One exception is Neilofar family, Director of Clinical Research at Eleusis. See also Mary Cosimano's role as guide at Johns Hopkins University.

Labyrinths of Regulation

In the twenty-first century, both researchers and consumers collectively have more experience with psychopharmaceuticals than ever before. Indeed, in the 1950s, the marketplace was only beginning to embrace psychopharmacology with real intensity. As Nikolas Rose suggests, this period also witnessed the dawn of the "psyences": a term that he uses to describe the pervasiveness of psychiatry, psychology, and social work in the everyday lives of citizens (Rose, 2003, p. 46). The return of psychedelics is, perhaps for the modern generation of consumers, neither off-putting nor obscene but rather a response to the culmination of a cultural shift toward chemically altering our consciousness as a natural response to modern living.

Yet, the issue of control or authority looms large. If we were to fast-forward to a time and place where LSD circulates on palliative care wards, where soldiers suffering from PTSD can apply for a psychedelic session, where addicts can qualify for an intense single-session consciousness-changing treatment, or where we might review an REB for a well-funded lab where neuroscientists unproblematically ask where spirituality activates the brain, who will keep tabs? Who will take responsibility for reevaluating safety or for establishing criteria for distribution, regulation, and prohibition? While there is compelling evidence for a place in medicine for psychedelics, we have yet to reconcile the question of control. If—and this is a big if—we overhaul the state drug regulators and impose an evidence-based policy approach, is the medical community prepared to take ownership of the psychedelic dilemmas? Investigators in the 1950s believed they could. They also produced libertarians like Timothy Leary, who believed that everyone should take LSD, and conservatives, like Abram Hoffer, who instead suggested that LSD should only be used in tightly controlled clinical settings. Others straddled these perspectives and handed it out to their friends, under the guise of research, to generate elite networks of psychedelic voyeurs who explored the expansive boundaries of consciousness but preferred to keep those experiences for themselves to probe the inner workings of their minds rather than to develop therapeutic options.

Psychedelic investigators in the so-called golden era had not yet articulated a coherent plan for regulating these substances in a manner that balanced the appetite for non-clinical use with the desire to retain psychedelics within the clinic. Famously, ex-Harvard University psychologist Timothy Leary proselytized the use of LSD, exclaiming that everyone should take it, and in fact he is rumored to have recommended its use even more indiscriminately—by putting it in water supplies—but no specific thought was given to how much or whether such a move should only be done on public holidays, whether they should use microdoses or combine it with "car-free" days. Others were more elitist, suggesting that understanding psychedelics required experimentation but that experimentation should involve intellectuals, physicians, theologians, neuroscientists, etc., a particular strand of highly educated individuals who might then harness the powers of psychedelics to improve society. These discussions over how to best regulate and control the use of psychedelics fell moot by the end of the 1960s, as black market

versions circulated freely and the political climate of the Cold War gave rise to the damaging association between psychedelics and subversive behavior.

Historically, scientists were keen to separate the drugs from their cultural, spiritual, and healing contexts, even when they later compensated for this isolation by designing careful guidelines for establishing set and setting. Our accumulated knowledge about psychedelics has demonstrated that the experiences readily invoke reactions that are not necessarily reducible to scientific categorization. Perhaps it is time for psychedelic science to emphasize the *psychedelic* elements of this approach and to embrace a more holistic framework of understanding, interpreting, measuring, and ultimately treating modern human experiences.

Neuroscience was in its infancy in the 1950s, when LSD researchers first postulated that neuroreceptors were involved in regulating psychotic symptoms, among other things. Reactions to LSD seemed to suggest that brain areas could be turned on and off or that different levels of consciousness could be activated through the use of chemicals. These hypotheses were rather crude by today's standards but pointed scientists in the general direction. Today, neuroscience has exploded into a megadiscipline, with thousands of brain studies, more sophisticated instruments, expensive laboratories, and a pace of knowledge building that would be unrecognizable to the brain researchers of a generation ago.

Psychedelics have penetrated neuroscience in remarkable ways. Nicolas Langlitz has published a stunning ethnographic encounter of psychedelics in the brain lab and shows compelling evidence suggesting that the context of research has changed. He goes inside the lab of University of California, San Diego, neuroscientist Mark Geyer, who established one of the most prolific labs for investigating the effects of hallucinogens on animal behavior. The famous local escapades of Ken Kesey, Haight-Ashbury's reputation for fusing psychedelics with alternative living, music festivals, and countercultural activities, continue to loom large in the psychedelic folklore that still pulses through the California scene. Consequently, Geyer explained the historical reputation shaped his research approaches and meant that his work has focused exclusively on animal models to satisfy regulators and ethicists. Geyer's research program is therefore less motivated by these classical questions of mysticism or philosophy and instead more focused on the detailed, incremental accrual of data that can be gleaned from behavioral neuroscience (Langlitz, 2013).

Taking time to ponder the intersections of spirituality, consciousness, and brain science seems to be beyond the grasp of even the most successful researchers, whose time is increasingly devoted to securing grants, filling out ethics forms, and logging hours in the lab accumulating data. In other words, the context of modern science has refocused attention on data accrual and away from larger questions of ontology or impact. This shift away from the ideological connotations of psychedelic research might help to shield it from certain criticisms, but it might also restrict it from asking meaningful questions. Geyer's experiences are instructive; today's biomedical science necessitates large, financially secure labs and occupies principal investigators in grant writing and team management. The data production is impressive, but it may

come at the cost of diminishing the political power of researchers to ask big questions.

The bureaucracy of drug regulation has grown exponentially over the past half century and has recently come under criticism for making political rather than evidence-based decisions. In 2007, British pharmacologist David Nutt published a harm scale in *The Lancet*, where he argued that psychedelic drugs were much less harmful than the regulated substances of nicotine and alcohol (Nutt, King, Saulsbury, & Blakemore, 2007). He was since fired from his position on the Advisory Council on the Misuse of Drugs, which catapulted him into the debates over renewing medical research on psychedelics. He subsequently pointed to the gulf that has grown between clinical drug trials and government regulations, lamenting the "daunting bureaucratic labyrinth" that dissuades "even the most committed investigator" (End the Ban, 2014, p. 2). Liberal regulation may contribute to hyperbolic scientific claims and overzealous research agendas, but tight regulatory controls may quash potential therapies or the development of basic scientific information. Regulation has come to represent a degree of safety or reduced liability that facilitates getting a drug to market, rather than setting the research parameters for a novel substance or a novel application (Marks, 1997; Healy, 2004; DeGrandpre, 2006). The critical attention being paid to the mega-industrial pharmaceutical complex and its regulation may help to better equip clinical researchers to wrest authority back from a regulatory bureaucracy, if an evidence-based agenda prevails.

Digital Humanities and Future Collaborations

The reawakening of interest in psychedelics has created a methodological conundrum: the bulk of the most rigorous studies from the past are 50–70 years old, while the new studies have small cohorts producing limited clinical data for analysis. The historic trials were conducted at the very early stages of the pharmacological revolution that ushered in new methods for evaluating efficacy and safety, culminating in the randomized controlled trial. Prior to standardizing that approach, however, most pharmacological experiments relied on case reports and data accumulation that did not necessarily involve blinded or comparative techniques. The thousands of experiences conducted in laboratory or clinical contexts captured qualitative and quantitative information about doses, experiences, reactions, and insights: valuable information for understanding the nature of the experience, but not necessarily conducive to current experimental protocols. This information was also generated using handwritten documents, not computer-generated datasets, nor readily comparable outcomes using databases, nor even simple statistical analyses.

Scientific methods have evolved, but so too have historical ones. Historians have embraced digital humanities and developed methods for evaluating large datasets that were produced before computers allowed for systematized, comparative analysis. Using these new ways of collecting and interpreting, historians can revisit the old clinical data to draw out more meaningful and comprehensive data from the case

files created in the 1950s and 1960s. These methods allow us to move beyond anecdotal or case-based reports, to combine qualitative and quantitative methods to better appreciate how people experienced psychedelics in a systematic way with thousands of cases to draw from. Such studies are underway now and provide opportunities to bridge disciplines, methods, and, perhaps most importantly, clinical results with psychedelics that may help to illustrate the core features of the experiences.

Conclusion: Death and the Future

In 1963, Aldous Huxley received LSD on his deathbed: he died hours before John F. Kennedy was assassinated, and both deaths signaled losses for America. Huxley suggested that the effects of the drug bathed him in a vision of warmth and spiritual belonging, such that he could face death without fear. Palliative care has been an area identified for its potential use of psychedelics, for precisely this reason: not as a treatment but as a psychological therapy that helps people face the anxiety of dying or the experience of trauma (Mithoefer et al. 2011; Ross, 2012; Wolfson, 2011). Huxley also had direct experience as a caregiver a few years earlier; he had nursed his wife Maria through her final days as she succumbed to cancer. His care for her was aided in part by their mescaline experiences. He spoke candidly and compassionately about how their shared experiences in the Mojave desert had produced "genuine mystical experiences"; he suggested that it was "an abiding sense of divine immanence, of Reality totally present, moment by moment of every object, person and event... For her [Maria], it was not merely a geographical region; it was also a state of mind, a metaphysical reality, an unequivocal manifestation of God" (Bisbee et al. 2018).

He later wrote to his close friend and colleague, Humphry Osmond, explaining that psychedelics might have real potential in the art of dying care: to bring science and spirituality together in the act of caring. He was personally committed to this idea based on his own experiences. His intellectual articulation of psychedelic dying care is indicative of some of the tensions that existed in the context of Cold War science and its hyper-rational and secularized approaches to therapeutics and clinical care. Some observers at the time questioned whether Western methods confined to scientific environments necessarily provided a better or more efficient format to understand the value or benefits of psychedelics, while others, Huxley and Osmond included, were more wary of the consequences of isolation; they worried that the accompanying rituals imbued a kind of deference for psychedelics by treating them as sacred objects to be revered. Although that attitude did not necessarily fit in a 1950s laboratory, the notion of reverence they felt should be respected regardless of the context.

As new research units continue to explore the relationship between palliative care and psychedelics, these historical encounters may offer poignant reminders of how to remarry the science and humanities in a caring context. Will the growing demand

for palliation change the context sufficiently to warrant a second look at LSD in the clinic? It would be the ultimate historical irony if the baby boomers, who have been at least superficially blamed for abusing drugs and giving rise to a moral panic about LSD, are the very same actors whose collective agitation for end-of-life care reinvents acid as a humanitarian, medically sanctioned palliative intervention. In doing so, they might also force us to reconcile bigger questions about how we consume drugs, what pain we are willing to endure, and the meaning of life.

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