

# Neuropsychedelica

The Revival of Hallucinogen Research  
since the Decade of the Brain

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## Introduction

# Neuropsychopharmacology as Spiritual Technology

*Neuropsychodelia* is about the revival of psychedelic research since the “Decade of the Brain.” When US president George H.W. Bush (1990) dedicated the 1990s to neuroscience, he paid tribute to the unprecedented public valorization of this prospering branch of medicine and the life sciences. By contrast, the investigation of hallucinogenic drugs had enjoyed less government support in the preceding two decades. Most academic and corporate research projects had been closed down or run out of funding after the clash between the “counterculture” and the “Establishment” in the 1960s. Only in the underground had experimentation with this class of substances continued to flourish. But, as the twentieth century was coming to an end, some of those who had been young during the so-called psychedelic era and who had subsequently chosen not to “turn on, tune in, and drop out,” but to pursue careers in medicine or science, were running their own research groups and sensed that the time was ripe for a second attempt to introduce hallucinogenic drugs into the academy and the Western pharmacopoeia. The growing public esteem of brain science helped them to relegitimize their research interest in psychedelics, not as symbols of social dissent or as magic drugs, but as tools to study different neurotransmitter systems, the neural correlates of consciousness, or the biological substrates of schizophrenia.

The two neuropsychopharmacological laboratories at the center of this anthropological inquiry have played key roles in the revival. Franz

X. Vollenweider's lab in Zurich has arguably been the most important research facility studying the effects of hallucinogens on human subjects, while Mark A. Geyer's animal lab in San Diego developed an important and widely used experimental paradigm taking hallucinogen-intoxicated rodents as a model of schizophrenia to screen for new antipsychotic drugs. Even though the current renaissance of psychedelic research has emerged from many countries simultaneously, this study's focus on Switzerland and the United States also sheds light on the central transnational axis of this process connecting American psychedelic culture with the home country of LSD. The ethnographic investigation of the two laboratories, mostly conducted during nine months of fieldwork in 2005 and 2006, followed by many visits, interviews, telephone conversations, and e-mails, sheds light on the scientific practices and the ethos informing the scientists' work. This close-up perspective reveals that the current resurgence of psychedelic science is not just another story of disenchantment (from magic mushrooms to 5-HT<sub>2A</sub> receptor agonists) but has produced a form of laboratory life that continues to be suffused with the peculiar kind of mysticism that emerged from the psychedelic culture of the 1950s and 1960s. Rather than presenting one more case study of the biologicistic reduction of the human to "bare life," *Neuropsychodelia* explores the assemblage of a precarious figure of *anthropos* as a being situated between animals and gods, between the bestial and the divine. From the thick of anthropological fieldwork, it generates a meditation on spiritual venues open to those living under conditions of late-modern materialism.

#### LISTENING TO MOKSHA IN THE AGE OF SOMA

As the Decade of the Brain and of the Human Genome Project, the 1990s saw countless media reports about just discovered genes for this and brain centers for that human trait or state. The sociologist Nikolas Rose (2007: 188–192) identified this period as the turning point when a neurochemical understanding of human mental life became hegemonic, flattening out the deep psychological space that had dominated Euro-American conceptions of the mind since the days of Freud. What distinguishes these rearticulations of naturalism and materialism from their nineteenth- and early twentieth-century predecessors is that biology is no longer accepted as fate but has been made into an object of biotechnological and psychopharmacological intervention. A prominent event in this transition was the introduction of the selective serotonin

reuptake inhibitor Prozac, which was soon reported to not only restore the premorbid self of patients suffering from depression but to make healthy people feel even "better than well." Some claimed that the drug had allowed them to finally become their "true selves" (although they had never experienced anything comparable before). By "listening" to the drug, the American psychiatrist Peter Kramer (1993: xi, xv) and his patients came to rethink what was essential and what was contingent about people's personalities, "what in them was biologically determined and what merely . . . experiential." Kramer's account of so-called cosmetic psychopharmacology set the terms for the ensuing discussion of the use of drugs for nonmedical purposes such as the enhancement of mood and cognition.

Consequently, in contrast to the 1960s, not hallucinogens, but antidepressants and stimulants dominated the popular problematization of psychopharmacology at the time of the revival of psychedelic research. As Prozac prescriptions skyrocketed, the drug was first hyped and then demonized for increasing the risk of suicide and murder and for robbing its consumers of authenticity. The physician and philosopher Carl Elliott (2004) read the case histories surrounding Prozac as indicating a sense of spiritual emptiness and existential alienation, which psychiatrists treated as if they were purely internal neurochemical matters, whereas they actually pointed to a mismatch between the ways people were living their lives and the structures of meaning that told them how to do so. But not only were they disoriented, they also did not know what could possibly provide an ethical orientation. In the conventional accounts of modernity, such nihilism is associated with the grand narrative of the disenchantment of the world. The psychopharmacological response to this conundrum, Elliott (2004: 129) argued, made the situation even worse by overlooking the fact that "alienated people are alienated from something—their families, their cultures, their jobs, or their Gods."

During the presidency of George W. Bush Jr., this cultural critique was shared by the President's Council on Bioethics, which the physician and public intellectual Leon Kass chaired from 2002 to 2005. Kass (2002, 2008b) and another prominent member of the council, the political economist Francis Fukuyama (2002), emphasized the analogies between this historical diagnosis and the dystopian future envisaged in Huxley's *Brave New World* (1932).<sup>1</sup> The novel describes a totalitarian social order preventing political unrest, among other things, by controlling its subjects' brain chemistry. Citizens are urged to use the

fictive drug soma, which makes them content and docile. It lulls them into a false sense of happiness and imprisons their minds in a gilded cage. "Religion, Karl Marx declared, is the opium of the people. In the Brave New World this situation was reversed," Huxley (1959: 100) commented. "Opium, or rather soma, was the people's religion. Like religion, the drug had power to console and compensate, it called visions of another, better world, it offered hope, strengthened faith and promoted charity."

In Kass's and Fukuyama's readings of Huxley, two peculiarities were striking. First of all, both ignored the fact that *Brave New World* describes a totalitarian system. They presented the novel as a mirror of bioethical developments in liberal democracies. Unlike Huxley, they did not warn against the emergence of a particularly perfidious regime of mind control by the state but against the temptations of new technologies (Fukuyama 2002: 5–6; Kass 2002: 9; Morgan et al. 2005). The citizens of Kass's and Fukuyama's Brave New World were present-day Americans seduced by the most recent advances of biotechnology—from genetic engineering to brain implants and from cloning to neuropsychopharmacology. In Kass's (2002: 13) view, secularization and pluralism had corrupted the liberal principles at the heart of America's political identity. In this world of mere appearances, cognitive performance was improved by Ritalin, but the results were not the subject's own achievements. Prozac made people feel "better than well," but their happiness was false and shallow, and so on.

Following the philosopher Michael Sandel (2002), yet another member of the President's Council on Bioethics, Kass (2003, 2008a), a practicing Jew, advocated the development of a "religious sensibility" resonating "beyond religion" and acknowledging the giftedness of life. "Respect for a being created in God's image means respecting everything about him, not just his freedom or his reason but also his blood," Kass (2002: 21) wrote. Any attempt to overcome the limits and burdens imposed on the individual by God or nature was supposed to entail a loss of humanity and human dignity. Human nature was to be protected against its biotechnological transgression and deformation. Consequently, nonmedical interventions into body and mind would lead us onto a slippery slope, to Huxley's Brave New World, as understood by these neoconservative thinkers. To forestall this development, Kass called for "a new bioethics and a new biology: a richer ethic of *bios* tied to a richer *logos* of *bios*, an ethical account of human flourishing based

on a biological account of human life as lived, not just physically, but psychically, socially and spiritually. In the absence of such an account we shall not be able to meet the dehumanizing challenges of the brave new biology" (21).

The second peculiarity in Kass's and Fukuyama's frequent references to Huxley's work was their omission of the fact that Huxley had written not only a dystopian but also a utopian novel in which drug use figures equally large. In contrast to *Brave New World*, *Island* presents a spatialized, not a temporalized, utopia (Koselleck 2002). It conjures up a contemporary alternative rather than a foreshadowing of sociotechnical developments to come, located on a faraway island instead of a distant future. Thereby Huxley suggested that, in principle, the idyllic society of Pala was already possible without any science-fiction technologies. The islanders' use of the drug moksha (named after the Hindu term for liberation from the cycle of death and reincarnation) for spiritual purposes was modeled on Huxley's (2009/1954) own experiences with the hallucinogens mescaline and LSD, as described in his essays *The Doors of Perception* and *Heaven and Hell*. Unlike soma, moksha neither serves escapism nor does it rob its users' lives of authenticity, quite the contrary. In an initiation ceremony, the drug is administered to young people with the goal of "ceasing to be what you ignorantly think you are and becoming what you are in fact," as one inhabitant of Pala puts it (Huxley 1962: 173). The insights gained under the influence of the drug help them obtain true happiness. Whereas the superficial cheerfulness induced by soma is the outcome of a "holiday from the facts" (Huxley 1932: 280), a purely subjective sense of happiness ignoring the subject's actual situation of repression and alienation, the happiness and insight provided by moksha are presented as genuine. Their truthfulness consists in a correspondence with both the paradisiacal social life described in *Island* as well as with a spiritual reality transcending individual psychology. A Palanese explains to the European protagonist of the novel that his people do not dismiss their drug experiences as mere hallucinations because they presuppose a different neurology:

You're assuming that the brain produces consciousness. I'm assuming that it transmits consciousness. . . . You say that the moksha-medicine does something to the silent areas of the brain which causes them to produce a set of subjective events to which people have given the name "mystical experience." I say that the moksha-medicine does something to the silent areas of the

brain which opens some kind of neurological sluice and so allows a larger volume of Mind with a large “M” to flow into your mind with a small “m.” (Huxley 1962: 140–141)

Thus, moksha does not provide quick fixes. Instead the drug initiates a lasting spiritual transformation. It is a “drug for life,” but not for everyday life (see Dumit 2002). To be effective it does not have to be taken continuously like soma. The Palanese use moksha once or twice a year. But the resulting mystical experiences of unity with the cosmic mind and of boundless compassion pervade their whole worldview and way of living.

*Island* responded to a diagnosis of the state of society similar to, but not identical with, that of Kass and Fukuyama. Since the discovery of a multitude of new mind drugs in the 1950s, the consumption of performance-enhancing and euphoriant amphetamines, as well as tranquilizers alleviating anxiety, had spread rapidly in the American population. The anxiolytic Miltown, for example, first helped businessmen cope with job-related stress and then soothed exhausted housewives (Pieters and Snelders 2007; Rasmussen 2008; Tone 2008; Herzberg 2009). The nontherapeutic employments of psychopharmaceuticals by the white middle class could be described as cognitive enhancement and cosmetic psychopharmacology *avant la lettre*. When Huxley (1959) saw the societal consequences of this so-called psychopharmacological revolution, he believed that *Brave New World* had become a reality much sooner than he had expected. Looking for a way out, he found inspiration in cultural anthropology. Analogous to Margaret Mead’s (1928) ethnographic account of Samoa as a society of noble savages, Huxley dreamt up another halcyon island where psychedelic drugs were used in the service of an enlightened primitivism. “Pala,” noted literary scholar Jerome Meckier (1978: 78), “is the utopia one might build if evils were merely the product of imperfect social conditions, as Mead maintained.” By contrast, Fukuyama and Kass did not blame social conditions but the emergence of new biotechnologies that required stricter regulations. Distrusting the utopian potential of primitivism, Meckier pointed out that *Island*, even though forward-looking, was “an exercise in nostalgia for an ideal whose day is already over before Huxley gets it right” (80).

In *Island*, Huxley gave literary form to a reconceptualization of hallucinogenic drugs, which he himself had helped to initiate. Since the 1920s, these substances had been used to model schizophrenia in healthy human subjects. In this context, the drugs were called psychotogens or

psychotomimetics: drugs producing or mimicking psychoses. One of the key figures in this research was the psychiatrist Humphry Osmond. It was through him that Huxley got the chance to try mescaline in 1953. Since the publication of *Brave New World* two decades earlier, Huxley had undergone a conversion from cynical British intellectual to committed Californian mystic. In light of his new worldview, he described his first encounter with mescaline as a mystical experience and felt that pathologizing terms such as *hallucinogen* or *psychotomimetic* did not do justice to the effects of the drug (Huxley 2009/1954). In dialogue with Osmond (1957: 429), Huxley (1980: 107) invented a new name for this class of pharmaceuticals: *psychedelics*, that is, mind-manifesting drugs. As the passage from *Island* quoted above indicates, the mind that was supposed to manifest itself in these experiences was not that of the person taking the drugs (as in contemporaneous psychoanalytic or “psycholytic” applications) but a cosmic mind, which the more confined individual psyche was then able to commune with. Instead of deluding the subject, psychedelics were meant to open up the brain to dimensions of reality usually hidden from human perception for lack of immediate survival value but beneficial to spiritual life. Hence, the term implied a neurology and an anthropology very different from those underlying model psychosis research. Here, human beings did not appear as caught up in phantasmal representations of both world and beyond but as spiritual animals endowed with a brain that, under the influence of psychedelic drugs, could connect to a metaphysical truth concealed by everyday neurochemistry.<sup>2</sup>

In his reverent self-experimentation with hallucinogens, Huxley believed to have found what, in his *Perennial Philosophy* (2004/1944), he had previously described as the transhistorical and transcultural core of all religions, the ultimate reason for human existence: firsthand knowledge of the one divine Reality underlying the phenomenal multiplicity of the world, traditionally achieved by way of strenuous and at times physically harmful spiritual exercises (from prolonged fasting to violent self-flagellation). Now this knowledge was readily and safely available to everybody through modern pharmaceuticals. In Huxley’s eyes, this religious interpretation of hallucinogen action was not at odds with scientific investigation. In fact, the claims to universality of the *philosophia perennis* matched the universalism of brain science. Mystics reported the same experiences across history because “we have fairly good reasons for supposing that there have been no considerable changes in the size and conformation of human brains

for a good many thousands of years" (Huxley 2004/1944: 16–17). The fictive society described in *Island* even established a scientific discipline to study the relationship between physiology and spirituality, for which Huxley invented the word *neurotheology* (Huxley 1962: 94, 144; Horgan 2003: 74)—half a century after philosopher and psychologist William James used nitrous oxide to introspectively explore religious ecstasies and three decades before *neurotheology* came to designate the quest for the neural correlates of a universal spiritual experience by way of neuroimaging studies of meditating Buddhist monks and praying Carmelite nuns (Newberg et al. 2001; Beauregard and Paquette 2006).

As more and more people came to try out hallucinogens from the late 1950s onward, Huxley's writings provided a vocabulary and interpretive framework shaping the drug experiences of his numerous readers in the decades to come. Understood against the background of this worldview, further elaborated by Timothy Leary and his coworkers, the subjective effects of psychedelic drugs were conceptualized as "the psychedelic experience" and soon came to inform a whole subculture known as psychedelia. In the course of the 1960s, Huxley's *Island* became one of the most influential books in the so-called counterculture rebelling against the Protestant ethic and the spirit of capitalism (Weber 1992/1920): a utopian blueprint for a psychedelically enlightened society (Stevens 1987: 184). Among the hippies, *Island* inspired experiments in living set up in opposition to the lifestyle of the "plastic people" staffing the "Establishment," including their use of drugs to improve professional efficiency and to stabilize bourgeois family life (Miller 1991: 23–50).

Ironically, central elements of the hippies' social critique also entered into the discourse of conservative bioethicists such as Leon Kass. Both Kass and the hippies rejected an alleged dehumanization pervading technological society in general and expressed contempt for middle-class drug use for the purpose of self-optimization. Like the youthful rebels of the sixties, the self-identified "old-fashioned humanist" defended the notion of an authentic human existence (Miller 1991: 30; Kass 2002: 3–4, 15–17). In *The Making of a Counter Culture*, the historian Theodore Roszak described the movement named after his book primarily as an opposition to "technocratic society" that called into question the validity of the "conventional scientific world view."<sup>3</sup> As a sympathetic observer, Roszak (1968: xiii) adopted this antimodern concern and predicted, "If the resistance of the counter culture fails, I think there will be

nothing in store for us but what anti-utopians like Huxley and Orwell have forecast." Likewise, Kass (2002: 29–53) identified technology as the greatest problem of modern society and warned against its dehumanizing powers, which, especially when used to intervene in the human body and mind, would make Huxley's dystopian vision come true.

But, despite their convergent diagnoses, Kass and the flower children could not have differed more profoundly on how to prevent their debauched American society from sliding down the slippery slope toward the realization of *Brave New World*. While Kass (2002: 277–297) saw the solution in a restrictive biopolitics guarding the natural limits of humanness against their biotechnological transgression, many hippies put their hopes on overcoming the confines of the human mind with the help of consciousness-expanding drugs. If the spiritual is the universal part of every human being, Kass sought to protect it against external intervention, whereas the hippies had hoped to advance it through neuropsychopharmacology as spiritual technology (see Rabinow 1999: 11, 179). Unlike Kass, they did not conceive of human nature as an unchanging moral landmark but as a vast realm of unexplored potential. Even though they were against pharmacological self-optimization for the sake of the "growling machinery" of capitalism, they did not object to facilitating human flourishing with the help of drugs, as a realization of novel and more fulfilling forms of life (Miller 1991: 34–50).<sup>4</sup>

Just like the "straight" majority of white middle-class Americans, the hippies were children of the psychopharmacological revolution, which had produced not only Miltown but also LSD. They, too, believed in the power of drugs. Like their prim and proper fellow citizens, they distinguished between good drugs and bad drugs—except that they largely reversed the psychopharmacological order of things. Alcohol, legally available stimulants, and sleeping pills were conceived of as detrimental. Propagating contemplative mind expansion, the so-called heads also disapproved of heroin and stimulants (the former being popular among veterans of the fiercely rejected Vietnam War; the latter among the so-called freaks, that is, hippies more interested in hedonistic kicks than in spiritual insights). Although illegal, these despised substances allegedly only enabled their consumers to bear "cheap, neon, plastic, ugly Amerika [*sic*—the German spelling emphasized the fascist character attributed to the United States]" (Miller 1991: 46). The good drugs collectively referred to as "dope" comprised marijuana and psychedelics. They were meant to give rise to authenticity, human warmth,

and a spiritual life. This put them at the center of a counterculture modeled on *Island* rather than *Brave New World* (Davis and Munoz 1968; Miller 1991).

This social conflict, as well as growing concerns over drug safety in general, eventually led to the prohibition of hallucinogens in the late 1960s. Legal impediments in combination with more subtle mechanisms, such as restrictions of funding or the curtailment of career advancement, created major obstacles to the scientific investigation of psychedelic drugs. By the 1970s, all hopes that research in this area would allow scientists to push “human consciousness beyond its present limitations and on towards capacities not yet realized and perhaps undreamed of” (Masters and Houston 1966: 316) were shattered. At the same time, the use of hallucinogens for model psychosis research received a second, purely scientific blow as the newly introduced dopamine hypothesis of schizophrenia discredited the modeling of psychoses with a class of drugs primarily affecting the serotonergic and the glutamatergic neurotransmitter systems. Consequently, from 1970 to 1990, academic hallucinogen research broke down.

In the last decade of the twentieth century, however, a new generation of scientists reanimated the field in the United States, Switzerland, Germany, Great Britain, Spain, and Russia. They reinscribed their endeavors into the inherited conceptual matrix opening up between experimental psychosis and experimental mysticism. Both paradigms gained traction again as more complex neurochemical conceptions of schizophrenia emerged in the 1980s and novel neuroimaging technologies made the search for the cerebral “God spot” front-page news in popular magazines. Even though a closer historical and ethnographic look will reveal the conceptions of model psychosis research and neurotheology not to be mutually exclusive, the tension between them continued to polarize the field. It is striking, however, that all major players renounced the countercultural struggle against the Establishment. Instead they sought to integrate hallucinogenic drugs into mainstream science and society. Thereby, they constructed an intellectual and political framework for nonmedical drug use beyond both the gloomy vision of *Brave New World* and the conviction that a better world was only possible on a remote *Island*. Did these efforts help to fulfill the unrealized potential of the first episode of psychedelic science in the age of Prozac and Ritalin? Could contemporary neuropsychopharmacology refashion psychedelics into spiritual technologies fostering the good life?

## PAST PROBLEMS, PAST ANTHROPOLOGIES

Uses of hallucinogens, not in the laboratory, but in religious settings, have been studied by anthropologists since the late nineteenth century (Mooney 1896; Lumholtz 1902; Slotkin 1955; Perrine 2001; Zieger 2008). Until the 1950s, the literature focused on the diffusion of peyotism among Native American tribes (LaBarre 1960). The social and political problem to which this body of scholarship responded was the role of the peyote cult in the formation of a so-called pan-Indian religion. Penned up with other tribes in reservations, groups that previously had not used any hallucinogens began to concoct a syncretic assemblage of their own time-honored ideas and ceremonies, peyote rituals as traditionally practiced by other indigenous groups, and Christian elements adopted from white missionaries. The emergence of these composite forms of religiosity, which would soon be institutionalized by the Native American Church, was either interpreted as an attempt at cultural adaptation and assimilation (e.g., Petruccio 1934; Barber 1941) or as resistance to acculturation and white domination (e.g., Jones 1953; Kluckhohn and Leighton 1946; Thompson 1948). In the conflicts between Native Americans and the US government, prominent anthropologists publicly and successfully pleaded for the indigenous population’s right to continue using the otherwise prohibited plant drug peyote for religious purposes: an exclusive right based on race and cultural identity (Boas et al. 1937; LaBarre et al. 1951; Boller 2005: 71).

In the late 1960s and early 1970s, hallucinogens continued to attract scholarly attention against a new sociopolitical background. This time anthropologists responded to the spreading use of hallucinogenic drugs among white and educated members of the middle class who felt alienated from their own Euro-American societies. As this group had previously not been associated with deviant drug consumption—and deviant the consumption of psychedelics had become after their prohibition in the late 1960s—this social problem raised public concern and, thus, funding opportunities for social scientists. As the population most affected by the problematic happened to be the group from which the majority of academics were recruited, some of those entranced by their own drug experiences found a way to give their preoccupation with these substances a socially acceptable form by making them the subject matter of scientific inquiry. Before “going native” and becoming a shaman himself, anthropologist Michael Harner claimed that his



discipline had long underestimated the importance of hallucinogens in shamanism and religious experience, because few of his older colleagues had experienced the mind-altering effects of these substances themselves (Harner 1973: vii). However, considering that James Mooney (1896) and Carl Lumholtz (1902) had already taken part in peyote rituals in the late nineteenth century, it rather seems that Harner's generation of anthropologists just immersed themselves in exotic drug rituals for different reasons: sharing a widespread discontent with their own culture, they not only wanted to understand other ethnic groups but were looking to them for better ways of life.<sup>5</sup> The most famous example of this kind of anthropology as cultural critique is Carlos Castaneda's (1968) supposedly ethnographic, but largely fictive, master's thesis on his apprenticeship with the Yaqui shaman Don Juan, which became a major source of inspiration for the counterculture.

Other anthropologists studying the use of hallucinogens in so-called traditional societies reported that the drugs' embedment in ritual settings and cosmological worldviews prevented the disruptive effects they had on American and European youth. Elsewhere, it seemed, psychedelics even served to stabilize the social order. In a Huichol initiation ceremony, for example, the ingestion of peyote turned the adolescent into a full member of his tribe. The drug experience allowed the young person to get to know for himself the supernatural spirit realm that provided the group with a normative structure and ethical orientation. In these settings, "doing drugs" validated the moral and religious order according to which the tribe lived (Furst 1972; Myerhoff 1975, 1976; Dobkin de Rios and Smith 1977). Against this background, anthropological studies of drug use in other cultures appeared to be a promising and timely way of counteracting the aggravating drug problem Western governments were facing. In nonmodern societies, ritual rather than legal means sufficed to control the consumption of mind-altering substances (Dobkin de Rios 1984: 205–214). Instead of prohibiting their use altogether, such ritual guided it toward specific cultural goals. Thus, somewhere far from home, anthropologists might learn from other peoples how to integrate hallucinogens into their own societies, rendering the recently declared and ultimately futile "War on Drugs" superfluous.

Furthermore, broadly based cross-cultural comparisons were meant to reveal an almost universal use of intoxicants by different ethnic groups all over the world and in all periods of human history. By demonstrating that, from a global perspective, Western opposition to ecstatic

states was the exception rather than the rule, anthropology helped to legitimate the pharmacological quest for altered states of consciousness and corroborated the assumption of a perennial philosophy (Weil 1972; Bourguignon 1973; Furst 1976; Dobkin de Rios 1984). The cultural historian Andy Letcher (2006: 25–48) argues that these claims to the universality of hallucinogen use might tell us more about the utopian sentiments accompanying the psychedelic revolution of the 1960s than about other cultures or the human condition.

#### HALLUCINOGENS TODAY: FROM WONDER AND SHAME TO INQUIRY

Irrespective of these scholarly endeavors, both hallucinogen hype and scare eventually took care of themselves. The drugs did not bring about the cultural revolution announced by Timothy Leary and other proselytizers. Alongside the high hopes of the countercultural sixties, the widespread enthusiasm for these odd substances simply waned. By now, despite the revival of psychedelic research, hallucinogens are no cause for major public concern anymore. Their consumption has been reported to have stagnated or declined since the mid-1970s. Even in the neopsychedelic techno and rave scene emerging in the 1980s, the drugs of choice were amphetamines and especially MDMA (ecstasy), while psychedelics proper remained marginal (Reynolds 1999). The German authorities noticed a decline of LSD seizures (Amendt 2008: 103–104). Although concerned about their marketing on the Internet and by so-called smartshops, an EU report from 2006 stated: "The proportion of current users among those who have ever used is lower for the use of hallucinogenic mushrooms than it is for cannabis and ecstasy. It has been reported that the effects of hallucinogenic mushrooms limit the appeal of regular use" (Hillebrand et al. 2006: 9).<sup>6</sup> In the same year, the US Drug Enforcement Administration (2006) announced that "LSD trafficking and abuse have decreased sharply since 2000, and a resurgence does not appear likely in the near term." The resumption of a moral panic would sound different.<sup>7</sup>

Today, hallucinogens are located in a problem space very different from those of the early ethnographies of peyotism or the anthropological cultural critiques of the 1960s and 1970s. This inquiry departs from a less timely problematic and follows a very different anthropological trajectory. It grew out of an existential rather than political concern. When I took LSD for the first time in 1993, shortly after my eighteenth birthday, I temporarily suffered from a loss of self. But I did not become

one with the universe. It is a sociological commonplace that peer leaders are members of a group that others identify with. Under the influence of LSD, however, I *literally* mistook myself for the classmate whom I was emulating by taking the drug. As I resurfaced from the depths of this deeply delusional experience, I was filled with joy about being me rather than the other person. I felt reconciled with myself and the world. Everything is as it should be, I thought. "This sense of happiness," I wrote into my adolescent diary, even though I was taking pride in my materialism and abhorred all things ecclesiastical, "must have something to do with God." As a fervent rationalist, I was dumbstruck by this experience of cosmic comfort. In its wake, I prayed for the first time since my childhood (for my mother and her partner who were about to separate). In the diary entry, I was quick to counteract this awkward piety with a set of slightly precocious and naïve scientific questions: "How about the activity of the *locus coeruleus* in children? Is it stronger than in adults? Do children experience the world like adults under LSD?" These questions merged Huxley's (2009/1954: 25) claim that a drug-induced breakdown of what he called the "cerebral reducing valve" enabled the eye to recover some of the perceptual innocence of childhood with what Solomon Snyder's popular science book *Drugs and the Brain* (1986) had taught me about the neuroanatomical substrates of the LSD experience. After all, it was the Decade of the Brain. The neurosciences were on the rise and I wanted to become a brain researcher myself. When talking to my friends about my drug experiment, which I took to be one of the most important experiences in my young life, I felt perfectly confident speaking about the neurochemistry underlying its breathtaking aesthetic dimension. But I felt too ashamed to mention either my self-loss or that, even long after the drug effects had worn off, I continued to think of my first trip as a profound, if ill-defined, spiritual experience.

Shame is an affect marking the return of social consciousness after having lost oneself in one way or another (Fisher 2002: 65–70). My secular orientation made it difficult for me to acknowledge any kind of religious sentiment. Max Weber (1958/1919: 155) articulated the contempt of the moderns—and modern I deemed myself in every respect—for those unable to endure the disenchantment of the world: "To the person who cannot bear the fate of the times like a man, one must say: may he rather return silently, without the usual publicity build-up of renegades, but simply and plainly. The arms of the old churches are opened widely and compassionately for him. After all, they do not

make it hard for him. One way or another, he has to bring his 'intellectual sacrifice'—that is inevitable. If he can really do it, we shall not rebuke him." These condescending sentences were spoken in 1917 to university students who, in Weber's eyes, were all too prone to give up science for the sake of religious enthusiasm. Today, Weber's pathos sounds antiquated. I never felt that my chemically mediated glimpses into a spiritually transfigured world compromised my philosophical or scientific work. Even though I had also got to know the psychotic dimension of hallucinogenic experiences, I did not feel the need to reduce them in their entirety to the delusions of an intoxicated brain, either. Nevertheless, nothing could have been more alien to me than seeking refuge in the arms of a church. The space of possibilities generated by the nineteenth-century *Kulturkampf* between pious conservatives and scientifically minded progressives could no longer provide the orientation I sought.

And yet Weber's challenge cannot be casually brushed aside: How can a spiritual experience be meaningful if it is caused by a drug? What kind of referent should it have other than the psychoactive compound by which it was induced? Was the supernatural not really a fancy of us human beings? During my fieldwork, one of the psychopharmacologists I worked with spoke of "double-entry bookkeeping" to designate the intellectually dishonorable practice—which he knew firsthand—of holding a belief in a spiritual reality while being unable to justify it in naturalist or materialist terms. Thus, both the shame and the wonder I felt in response to my psychedelic experience was as much about feeling as about knowing. They were not just psychological quirks but reflected a distinctly modern order of nature, shared by my contemporaries, that had no more space for the super- and preternatural but restricted its ontology to nature and culture. The deep sense of wonder I felt over the drug-induced violation of my materialist sensibilities, over the incursion of the sacred into a world that I had previously experienced as completely profane, had no place in the modern rationality I was committed to. Since the Enlightenment, wonder had become a disreputable "cognitive passion" in science (Daston and Park 1998). Consequently, I kept this embarrassing experience to myself for many years. In retrospect, however, it marked the beginning of the following empirical philosophical inquiry. The starting point of reflection, the anthropological problem, *tout court*, lies indeed in the unavoidable fact that *anthropos* is that being who suffers from—and, I may add, feels ashamed about—too many *logoi* (Rabinow 2003: 6).

Before anthropologists began to include Western societies in their investigations, anthropology was exercised as the study of premodern by modern people. Religious and other supernatural interpretations of hallucinogenic experiences prevalent in these “traditional societies” have been at the heart of the classical ethnological literature. Already the seventeenth-century Christian missionaries (preceding anthropological researchers in the zone of culture contact) thought of the Native Americans’ peyote-induced visions as “fantasies and hallucinations” lacking any truth value. In contrast to latter-day anthropologists, however, the Spanish Inquisition attributed these misbeliefs neither to the nature of the ingested drugs nor to indigenous culture but to “the suggestion and intervention of the Devil, the real author of this vice” (quoted in Leonard 1942: 326). When, in the late nineteenth century, the first Euro-Americans tried peyote in the laboratory (Prentiss and Morgan 1895) or during anthropological fieldwork (Mooney 1896), it became clear to them that the plant itself was psychoactive. But anthropologists like James Mooney also noted that white subjects reported very different experiences than Native Americans who ingested peyote in the context of religious rituals rather than scientific experiments. From the start, these differences were attributed to culture. Western test persons experienced “horrible visions and gloomy depression” because they were afraid of the drug in the first place, whereas “the Indian” had acquired a sense of “pleasant anticipation” from earliest childhood (11). Mooney also pointed to the “difference between the Indian life, with its comparatively regular routine and freedom from worries, and the civilized life with all its stress of thought and irregularities of habit” (11). Subsequently, the assumption that hallucinogen-induced experiences were fundamentally shaped by historically and culturally contingent expectations and situations came to dominate the anthropological discourse on hallucinogen use throughout the twentieth century (e.g., Shonle 1925; Petrullo 1934; Wallace 1959; Dobkin de Rios 1984).

This perspective stands in stark contrast to the perennial philosophy informing psychedelia. Contingency as “modern society’s defining attribute” (Luhmann 1998: 44–62) appears to be at odds with a reduction of the multitude to mystical oneness. Although marked by a pervasive countermodern longing and resentment, this body of anthropological scholarship remained decidedly modern in attributing religious interpretations of drug experiences to culture. They were taken to be the product of suggestion facilitated by drugs that function as active placebos. Hence, all claims that psychedelics could establish a

connection to the supernatural had to be relegated to the realm of meaning making. From a modern point of view, giving religious value to drug experiences is no longer condemned as inspired by the Devil, but it continues to appear as a form of idolatry: a worshipping of culturally constructed divinities.

At the time of my fieldwork, anthropology had long since given up confining itself to studying premodern ethnic groups. The moderns had themselves become an object of anthropological inquiry. According to one prominent if dated definition, modernity is constituted by a unidirectional transition from religion to science. At first glance, such a process of secularization seems to inform the current psychedelic revival as well. After the failure of Leary and other psychedelic evangelists to defend the consumption of hallucinogens in the name of religious freedom, it is no coincidence that the attempts to relegitimate their uses in the West discussed in this book have taken the route of science, not religion. Hence, it would make sense for an anthropology of modernity to study the disenchantment of hallucinogenic drugs in the psychopharmacological laboratory. By shedding light on cases of secular scientific uses in Europe and the United States, this book could then be taken to complement the kind of cross-cultural comparison of hallucinogen use that Richard Blum (1969) and Marlene Dobkin de Rios (1984) initiated but limited to supposedly traditional societies.

However, as the following ethnographic account will show, the neuroscientific revitalization of psychedelia has not purged the investigated drugs from their mystical connotations. Theological questions and spiritual experiences continue to serve as a moral motor of the ongoing revival of scientific studies of hallucinogenic compounds. Thus *Neuropsychodelia* is about a formation that is not modern. Provisionally, I will call it *contemporary* in Paul Rabinow’s (2003, 2008) sense (a bit like we have come to distinguish between contemporary and modern art). At the end of this book, however, I will argue that *perennial* might be a more suitable term for what I have in mind. But I am getting ahead of myself. For the time being, what matters is that this book does not proclaim an epochal break with the past (the hallmark of all grand narratives of modernity) but describes the emergence of a not yet stabilized and possibly ephemeral assemblage of heterogeneous temporalities. Past, present, and future intermingle, for example, when more or less time-honored religious conceptions meet cutting-edge neuropsychopharmacology to generate a moral economy of hope. This configuration is examined as a response to the long-standing problematization of the relationship between science and

spirituality. Where the classical anthropological literature studied non-Western religious and shamanistic perspectives on hallucinogens, this book explores how naturalist and supernaturalist *logoi* of *anthropos* are disaggregated and reaggregated in contemporary Western science, eventually giving rise to a new form that I will call *mystic materialism*.

In this respect, *Neuropsychedelica* can indeed be read as a contribution to the ethnographic archive documenting human unity and diversity. The French anthropologist Philippe Descola (2005, 2006) has mapped and analyzed the distribution of four ontological predispositions—animism, totemism, analogism, and naturalism—across cultures, or what naturalist anthropologists take to be “cultures.” For the ordering of the world in terms of nature and culture is no more ontologically neutral than an animistic worldview that regards plants as persons to be communicated with through hallucinogenic drugs or, as in totemism, groups particular human beings with particular nonhuman animals instead of other humans belonging to a different ethnic group. Just like the other three ontologies, naturalism, as Descola defines it and as I will continue to use the term throughout this book, is a dualist scheme of metaphysics. It is characterized by the assumption of continuity in the exterior realm (a biological nature shared not just by all humans but by humans and animals alike) and discontinuity in the interior realm (each *ethnos* is distinguished by its own *Volksgeist* or culture; animal minds are fundamentally different from the human mind because they lack an immortal soul, consciousness, reason, language, etc.).<sup>8</sup> Descola demonstrates that this cosmology has become and continues to be hegemonic among modern Euro-Americans while being ethnologically and historically contingent. For example, Margaret Lock’s (2002) cross-cultural study of the reconceptualization of death as brain death shows how the idea of a living body, in which the person is no longer present, was adopted quite willingly in Europe and North America while meeting fierce resistance in Japan. Descola, however, also argues that, more recently, the bipartite ontology of naturalism thus understood has become unstable and is about to give rise to and will possibly be replaced by a different scheme. This emergent ontology not only promises to leave behind the timeworn modern dichotomies of nature and culture or mind and body but will break with the more fundamental underlying dualism, which, according to Descola, has structured all previous ontologies: a genuine anthropological revolution, it would seem. As an ethnographic case study, this book examines this ongoing transformation of dualist naturalism into monist materialism. It focuses on a mystical variety of

the latter, eventually looked at in a perennialist framework that emphasizes recurrence over radical novelty (thereby diverging from Descola’s ontological trajectory and analytic approach).

Since the 1980s, many Anglo-American sociocultural anthropologists (most prominently Asad 1986) have come to question the value of such ethnographic archives in light of doubts about cross-cultural translatability of supposedly universal anthropological categories. Yet this study, although contrasting the United States and Switzerland (and sometimes Germany), does not presuppose or reveal any kind of incommensurable cultural difference. It would be put to good use if readers decided to compare it with other, especially non-Western ethnographic cases—and I will briefly gesture at animistic hallucinogen use in Amazonia when examining an animal experiment with a synthetic ayahuasca concoction in chapter 5.

However, the overall project of *Neuropsychedelica* does not in itself aim at such ethnology. Instead it aspires to a peculiar kind of philosophical anthropology. It refunctions ethnography as a form of “fieldwork in philosophy” (Austin 1970; Rabinow 1989, 2003; Bourdieu 1990) that has not grown out of an encounter with cultural otherness (the point of departure of so many ethnographic narratives) but with a different sort of alterity: a pharmacologically altered state of human consciousness. It presents a working through of this experience not in psychological but in cultural and biological terms. Historical epistemology and ontology add temporal depth to the project’s ethnographic breadth (Daston 1994; Hacking 2002; Rheinberger 2010b). Ultimately, however, the goal is not to show how a new scientific fact has made us into a different kind of human being (which has been the rationale of numerous anthropological studies of medicine and science in the past two decades) but to find a way out of the stale standoff between science and spirituality.

For this purpose, the inquiry will not look to supposedly premodern cultures for solutions to a modern conundrum. Even though the author is neither Swiss nor American, but German, *Neuropsychedelica* falls into the genre of “anthropology at home” (see Peirano 1998), in that the ethnographer has not only been shaped by philosophy seminars but also graduated from medical school shortly before setting out for fieldwork in two psychopharmacology laboratories investigating hallucinogenic drugs in Zurich and San Diego. Considering that my disciplinary identity is multiple, my approach to this field is not confined to ethnographic observations and historical narration but will occasionally extend into the realms of philosophy and psychopharmacology itself. This shunning

of the intellectual asceticism marking strictly disciplinary perspectives is the methodological correlate of my personal engagement with the problem at the heart of this inquiry. The book will show that fresh ways of responding to a problematic situation do not necessarily have to be sought in far-flung idylls but can often be found by attending to marginalized and therefore only partially realized possibilities in one's own domains (Dreyfus and Rabinow 1982: 262–263; Dreyfus 1991: 329–331).

When I set out on this research project, the use of hallucinogens promised to have the liberating potential of such marginal practices. Where Prozac had come to be seen as a quick fix for a profound spiritual vacuity, psychedelics were taken as “entheogens,” as drugs revealing the “God within” (Wasson et al. 1978). Prozac was criticized for making subjects temperamentally more alike, a psychopharmacological makeup robbing people of their individuality. The ease it gave seemed to lure consumers into social conformity. Hallucinogens, on the other hand, continued to be identified with authenticity and nonconformism. Prozac was said to adjust people to the competitive spirit of capitalism while hallucinogen-inspired drug mysticism appeared to undermine the underlying Protestant ethic. And while mescaline had been described as a vessel taking us on a journey into the terra incognita of the “mind's antipodes” (Huxley 2009/1954: 86), Prozac was accused of producing complacent subjects who had given up looking for anything other than their medically prescribed happiness (Kass 2008b).<sup>9</sup>

Despite this stark contrast between the discursive constructions of Prozac and the psychedelics, hallucinogenic drugs have been part and parcel of the emergence of late-modern materialism and its identification of mind and brain as a space of psychopharmacological intervention. In fact, the recent popularization of neurochemical self-conceptions had been anticipated by Timothy Leary's writings from the 1960s that teemed with brain metaphors and *neuro-* prefixes. The immediate and mind-blowing effects of hallucinogenic drugs were even better suited than Prozac to convince their consumers of Leary's (1965: 123) message that consciousness was a biochemical process—and that consequently chemicals were the keys to its expansion. As the following ethnographic account will show, early twenty-first-century hallucinogen researchers continue to “listen” to all sorts of psychopharmaceuticals, which have taught them, just like Peter Kramer's patients, to conceive of the human mind in neurochemical terms. But, mediated by Huxley's perennial philosophy, this materialism has taken a mystical form.

## IN A NUTSHELL

The book is organized in six chapters and a conclusion. As it is about the revival of academic hallucinogen research since the Decade of the Brain, the first two chapters provide a historical explanation of what happened to make such a revival necessary in the first place. Jointly framed by an ethnographic account of the 2006 LSD Symposium in Basel, Switzerland, chapter 1 lays out the rise, fall, and resurgence of psychedelic science in the United States, while chapter 2 examines the prominent role of Switzerland in the transnational dynamics of this process. The American part of the narrative reveals that, due to broader developments in drug regulation, hallucinogen research was already on the wane before this class of substances came to be associated with the counterculture's resistance to the Protestant work ethic. It outlines the “political neurotheology” underlying the subsequent clash between psychedelia and the Establishment, which eventually led to the prohibition of hallucinogens and the breakdown of most research. Based on interviews with several key actors of the current revival, the first chapter also shows how this new generation of scientists and activists employed both disenchantment and spiritualization of psychedelic drugs as political strategies to overcome the ruinous antagonisms surrounding this class of drugs.

Chapter 2 turns to Switzerland, where the historical continuities were as important as the caesura of “1968.” Oral-history accounts of the government administrator in charge of research with controlled substances and his closest scientific ally track the emergence of the regulatory framework of contemporary psychedelic science at the time of Swiss drug policy reform in the 1990s. Largely untroubled by the aggressive ideological rifts that had divided American society, the Swiss government not only permitted but actively supported hallucinogen research. Exploiting such transnational differences between regulatory regimes, psychedelic entrepreneurs and philanthropists from the United States funded human experiments in Switzerland: an engagement producing both synergies and tensions. Thus, the investigation of hallucinogen action, which chapters 3 and 5 will reveal as molded by local context, is simultaneously a global phenomenon.

The remaining chapters zoom in for ethnographic close-ups of laboratory life in Zurich and San Diego. Based on observations of Franz Vollenweider's group and this anthropologist's own participation in one of their experiments, chapter 3 examines the relationship between

subjectivity and objectivity in psychopharmacological research, including the correlation of psychometric and neurophysiological measurements and pilot studies in which the scientists provisionally served as test subjects themselves. Gradually, the chapter moves from second-order observations of these activities to an ontological argument: shaped by “set” (the subject’s personality, mood, and expectations) and “setting” (her social, cultural, and physical environment), hallucinogenic drug action is maintained to be a hybrid phenomenon of nature and culture and both a natural and a human kind. This account calls into question randomized placebo-controlled trials as the methodological gold standard of neuropsychopharmacology. A positivist proposal from the days when anthropology was still a holistic discipline is unearthed and reconsidered in the context of current attempts to move beyond the nature/culture divide: should placebo controls be supplemented by culture controls? Eventually, however, it turns out that the wild and overly complex neurochemistry of psychedelic drugs escapes both cultural and pharmacological attempts at controlling their effects and thereby threatens the global assemblage of contemporary hallucinogen research.

While the experiments at the center of chapter 3 mostly fall into the category of experimental mysticism, chapter 4 contrasts this rationale with experimental psychosis research. As the downfall and reanimation of the hallucinogen model of psychosis had reasons internal to psychopharmacology not covered by the preceding social and political analysis of the 1960s, the chapter adds this historical strand to the narrative. Ethnographically, it looks at model psychosis research through the eyes of a test subject, a theater director, drawing an analogy between the performative character of the experiment in which he participated and the break with representation in modernist aesthetics. In response to the exceeding complexity of the mind-brain, the revived psychotomimetic rationale constitutes an “enactive model” of psychosis that does not aim at a naturalistic depiction of schizophrenia but at a comparative investigation of drug intoxication and mental disorder as two distinct states situated on the same ontological level. They are used to shed light onto each other without one serving as a transparent representation of the other. Thereby, the question of whether supposedly mystical hallucinogen experiences are really psychotic (or the other way round) receives an unexpected answer: in a pragmatist frame of noncontradiction, the hallucinogenic experience appears multifaceted but not plural. It is not simply psychotic or mystical but takes different, practically mediated

forms that are partially connected and coordinated through a shared historical matrix.

A discrepancy between experimental psychosis research in humans and animals then takes the reader from Switzerland to California. Chapter 5 relates how one enactive model of schizophrenia, based on the hallucinogen-induced modulation of the startle reflex, grew out of Huxleyan drug mysticism and a fairy tale by Hermann Hesse that was popular in the sixties. The chapter examines the ethics and epistemology of neuropsychopharmacological animal research, especially how scientists deal with the problems of set and setting and nonhuman forms of subjectivity. Difficulties in the translation between human and animal studies uncover a crisis of animal models in psychiatry. At the same time, they point to a molecularization of the *differentia specifica* of philosophical anthropology and the emergence of a recombinant anthropological form that joins the natural and the divine.

How this mystic materialism was lived and reflected upon by contemporary psychedelic researchers is described in the last chapter. The scientists’ incessant joking in the face of a supposedly unprecedented neuroscientific revolution of our image of humankind reveals the persistence of a dualist anthropology. At the same time, however, some of the actors transvalued monism into biomysticism. In contrast to the neurotheological interest in the biology of mystical experiences discussed in chapter 3, this mysticism of the biological reverses life itself. It is associated with different practices, such as a philosophical quest for “experiential invariants” pursued through systematic self-experimentation, artistic work employing photography to reflect the unity of materiality and spirituality, and the conduct of science not as a vocation but as cosmic play. Through the lives of many of the characters populating this book, the last chapter takes stock of the revival of psychedelic science so far.

The conclusion disambiguates this anthropologist’s cognitive dissonance regarding my materialist persuasions and the spiritual drug experience I had as a young man. Revisiting many insights from the substantive chapters, it moves from ethnography to anthropology and reflects on how the fieldwork in perennial philosophy previously laid out from a third-person perspective responds to first-person philosophical concerns. For this purpose, this last part of the book reconfigures the chronotope of the contemporary into the perennial. It advocates an anthropological reorientation toward a new or, rather, contemporary form of universality.

other European countries provide legal frameworks for applications that are neither medical nor religious but spiritual in a secular sense. The provision of LSD in state-controlled meditation centers, as envisioned by Albert Hofmann, is not on the horizon. And another backlash is always possible. But we are not living in a *Brave New World* and hope cannot be found on a remote *Island*, either. Neuropsychodelia has moved beyond these Huxleyan frameworks, in both their countercultural and humanistic renderings. And its story is far from over.

## Notes

### INTRODUCTION: NEUROPSYCHOPHARMACOLOGY AS SPIRITUAL TECHNOLOGY

1. A diagnosis seconded from the left by Ian Hacking (2009).
2. All terms used to designate “hallucinogenic drugs,” or however else one prefers to refer to this class of substances, are charged with conflicting world-views. I follow anthropological tradition, usually employing the terms most frequently used by the people I worked with, *hallucinogens* and *psychedelics*, without necessarily subscribing to the beliefs and attitudes accompanying the use of these terms. Although the categorization of these compounds as hallucinogens has become vastly unpopular within the contemporary psychedelic drug scene, the terms *hallucinogens* and *psychedelics* continue to be the ones used in the academic literature. In December 2011, both terms scored above 20,000 hits in the PubMed database, whereas alternative designations such as *entheogens* or *ecodelics* were found less than 10 times.
3. For a genealogy of one such technocratic society, namely, in France, see Rabinow (1989).
4. The distinction between technical optimization (as a maximization of existing capacities for the purpose of personal or instrumental gains) and flourishing (as a pursuit of the good life that does not presuppose that human capacities are already known in advance) has been borrowed from Paul Rabinow (2009).
5. Another example of early anthropological self-experimentation with hallucinogens was an experimental reenactment of a Native American religious ceremony with drums, rattles, and peyote songs. A group of anthropologists, sociologists, and psychologists at the University of Pennsylvania (including the young Howard Becker) ingested peyote buttons under these conditions to better understand, among other things, how peyotists came to claim that it was not them but God who was shaking the rattle (Fernerberger 1932).



6. For a discussion of the problem of drug safety regarding not well-understood illicit, especially psychedelic, substances marketed on the Internet, see Langlitz (2009).

7. As Hamilton Morris has pointed out to me, the situation might actually be more complicated than these quotes from the DEA and the EU suggest. While the use of classical hallucinogens has indeed gone down (especially after the American authorities busted William Leonard Pickard's LSD laboratory in 2000—see chapter 2), there are some indications that, subsequently, the sales of so-called research chemicals went up. Many of these synthetic psychedelics are not yet controlled and can be purchased through the Internet (see Langlitz 2009). As these compounds are usually distributed by weight of pure powder rather than in prepackaged doses, they initially posed new challenges to counternarcotics bookkeeping, even when they did not slip under the regulatory radar. "When substances were seized," Morris explained in an e-mail, "officials were faced with new questions like, 'How many doses are there in a gram of 2C-T-21?'" So far, however, the surge of research chemicals in a small and relatively scientifically literate experimental drug scene has not provoked much public concern.

8. This understanding of naturalism is more restrictive than and possibly diverges from its more common definition as a metaphysics that assumes that the fundamental makeup of reality is exhausted by nature and contains nothing supernatural. I decided to adopt Descola's peculiar usage of the term because the worldviews of many (often self-identified) naturalists featured in this book—from Weber's cosmology of disenchantment to contemporary cultural and cognitive anthropology of religion and the animal researchers' rejection of anthropomorphism—presuppose a discontinuously structured interior realm (marked by unbridgeable differences between moral values, mental and cultural representations, or species-relative cognition) that is not made of supernatural stuff but organized dissimilarly from the exterior dimension of reality where differences are thought to be gradual. By contrast, I will reserve the term *materialism* for monist ontologies that also assume that there can be no entities violating the laws of nature but that do not share this twofold structure.

9. I highlight accounts that make psychedelics and antidepressants appear antagonistic, as I take them to reflect the most common conceptions of these substances. However, this should not obliterate the fact that they have also been likened. In her *Prozac Diary*, Lauren Slater (1999: 93) describes the spiritual transformation she underwent under the influence of the antidepressant: "What does it mean . . . that my burgeoning contemplative bent does not come directly from God but from Prozac? Might this mean that Prozac is equal to God? This is an awful, awful thought. So turn it around. Primitive cultures often use drugs as a means of accessing their gods. That's better. Maybe Prozac is to the modern world what peyote is to the Indians."

## CHAPTER 1 PSYCHEDELIC REVIVAL

1. On the importance of the "principle of measured sloppiness" for experimental systems, see Rheinberger (1997: 78). Following Rheinberger's histori-

cal epistemology, Jeannie Moser (2007) analyzed the figuration of LSD as an "epistemic thing" in Hofmann's research.

2. A Google Scholar search for this period, conducted on 13 March 2011, found 768 publications with *LSD* in the title. As this search engine does not index all mid-twentieth-century journals that published studies on hallucinogenic drugs, the actual number is presumably higher. Dyck (2008: 15) reports more than 1,000 articles. See also Passie (1997).

3. Smaller religious associations using psychedelic drugs (for example, the Temple of the True Inner Light or the Peyote Way Church of God) have managed to subsist without legal sanction or prosecution since the 1970s, even though they never received permission. I thank Hamilton Morris for this piece of information.

4. I have excluded discussion of the research chemicals scene and its use of the website [www.erowid.org](http://www.erowid.org) presented in my article "Pharmacovigilance and Post-Black Market Surveillance" (2009) from this book, as *Neuropsychodelia* focuses on the revival of *academic* hallucinogen research. Another step toward a scholarly treatment of psychedelic amateur science can be found in Doyle (2011). But a detailed historical and ethnographic account has yet to be written.

5. Of course, not everybody in the psychedelic community agreed with the mainstreaming strategy adopted by MAPS and the Heffter Research Institute. At the LSD Symposium in 2006, for example, there were many echoes of the 1960s counterculture. In one of the conference halls, Bruce Eisner gave a seminar on Aldous Huxley's *Island*. With a few friends, Eisner had worked to keep the psychedelic movement alive during three decades of cultural repression. In 1990, they established the nonprofit educational organization Island Foundation. Inspired by Huxley's utopian novel, they were hoping to find some remote place in the world to build a sanctuary where an experimental community could use hallucinogens in a way similar to the fictional use of the psychedelic moksha on the equally fictional island of Pala (Eisner 2006). But neither this nor any other neocountercultural endeavor had any significant impact on the revival of academic hallucinogen research.

6. Hagner (2009) coined the term *neuroscientific Biedermeier* to describe the transformation of the concept of the unconscious in brain research. Whereas, in the nineteenth century, the unconscious emerged as a motor of artistic production always working on the brink of madness, contemporary neuroscience has turned unconscious neural processes into mechanisms that ease the burden of consciousness. The unconscious used to be seen as conflictive and potentially subversive to the social order but is now regarded as harmless and even psychophysiological functional.

7. Fetzer Institute, [www.fetzer.org](http://www.fetzer.org) (retrieved 15 June 2012).

## CHAPTER 2 SWISS PSILOCYBIN AND US DOLLARS

1. See McCann and Ricaurte (2000) and Vollenweider et al. (2001).

2. For a third case, a grassroots security apparatus monitoring the designer drug market, see Langlitz (2009).