

Chapter 10

Psychedelic Naturalism and Interspecies Alliance: Views from the Emerging Do-It-Yourself Mycology Movement



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Abstract Do-it-yourself (DIY) mycology is a movement that has emerged in the last decade in North America. DIY mycologists specialize in easy and accessible methods of mushroom cultivation and mycological experimentation and mobilize a discourse of alliance with the fungal kingdom. They draw primarily on home cultivation methods innovated by *Psilocybe* cultivators in the 1970s and on creative applications popularized by commercial mycologist and psychedelic enthusiast Paul Stamets in the 2000s. As a counterpoint to the newfound visibility and legitimacy of lab-synthesized psilocybin in clinical psychiatry, DIY mycology exemplifies an alternate history of this multispecies engagement. Drawing on ethnographic fieldwork in the San Francisco Bay Area and the Pacific Northwest, this chapter begins with the tacit premise of the psychedelic/entheogenic movement that the use of psychedelics fosters ecological concern. Many DIY mycologists express biocentric ethics and eco-spiritual principles, but interviews revealed a diverse and nuanced relationship to psychedelics. I argue that DIY mycology is best understood as an interspecies (or cross-kingdom) engagement that is part of an emergent ecological ethics and deep ecology worldview, one that subsumes psychedelic experiences as one manifestation of that engagement. DIY mycology exemplifies how the spread of mycological know-how, fascination, and enthusiasm has fostered an engagement with fungi that extends far beyond psychedelics. To understand this engagement, I contextualize it within wider social and cultural shifts, particularly those that reformulated our practical, ethical, and conceptual relationship with the natural world. This movement attests to the existence of multiple means to enact these ethics and to foster meaningful relationality with nonhuman life in contemporary North American society and culture.

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First Encounters

Ben was the first person I met from the Fungal Alliance of the Bay (FAB). When I asked him how he got involved in the group, he explained that he had been on a road trip around California when he stopped at a roadside cafe and found a book called *Mycelium Running* on the bookshelf. “The subtitle said ‘How Mushrooms Can Help Save the World.’ I flipped through all the pages and I was mesmerized by the pictures and all the information in it. . . . I’ve read it four or five times through.”

Ben’s first introduction to mycology (the study of fungi) was through taking psychedelic mushrooms, and then learning to grow them, when he was a student in college in Northern California. He and his friends would spend the day in the redwood forests tripping. “Depression is pretty rampant in my family, like, genetically,” he told me, “and it was the first time that I saw my mind working in different ways.”

When I asked Renée how she got into mushrooms, she told me about living in Olympia, Washington, taking classes in environmental science at Evergreen State College, where she was an undergraduate, and getting involved in Earth First!, the radical environmentalist activist organization. She, too, had discovered *Mycelium Running* and was inspired by its ideas and imagery. She began hunting mushrooms with her friends and learned some easy cultivation techniques.

As she spoke to me about mushrooms, her language became excited and expressive. “I learned about mycorrhizal fungi my freshman year of college and it blew my mind. Just seeing how everything is connected . . . how they can clean up oil spills, and how they’re part of the healing process, inner and outer, and how they can help create sustainable communities.”

Renée and Ben are not alone in the sense of gravity and magic that they ascribe to fungi¹ nor the feelings of wonder and potentiality that the organisms inspire in them. While Renée was living in Olympia, she and a couple of friends started a small organization called the Mycelial Network, whose goal was to teach people basic mycology and cultivation skills. Then, in 2011, after graduating from Evergreen, Renée moved to East Oakland and brought with her the idea of a community-driven collective devoted to applied mycology. That was how FAB got started.²

¹What is known as the “mushroom” is in fact the fruit of the fungus (plural: fungi) that lives primarily as an underground network of fine threads called mycelium. Not all fungi produce mushrooms, but all mushrooms are fungi.

²Both the Fungal Alliance of the Bay and the Mycelial Network are pseudonyms, as are the names of all of the members of these groups that I mention here.

What is DIY Mycology?

In 2014, I began fieldwork with FAB as part of my dissertation research. FAB was modeled on the Mycelial Network, founded in Olympia, a small college town in the northwest corner of Washington known as a center for radical environmentalism and punk rock. Animated by the local culture, the goal of the Mycelial Network was to teach basic mycology (identification and cultivation) to their friends and the local community. They hosted the first Mycelial Network Convergence in 2012, drawing over 200 people from around North America. Participants taught and learned from each other in self-organized classes, with topics ranging from the uses of medicinal mushrooms to the diversity of lichens. Since then, there have been three more convergences, each drawing a few hundred people. As part of my fieldwork, I also interviewed several members of the Mycelial Network, which is now a small collective scattered around the Pacific Northwest. As for FAB, as of March 2017, the group includes about 39 dues-paying active members, and over 250 listserv subscribers.

Experimentation with applied mycology is becoming more common among amateurs, hobbyists, and self-described citizen scientists, especially biohackers, permaculturalists, and others working at the intersection between ecology and technology. Groups like FAB can now be found around North America in places like Austin (Mycology Alliance), Montreal (Champignons Maison), Victoria (DIY Fungi), and Eugene (Fungi for the People). These do-it-yourself (DIY) mycology initiatives are generally loose-knit and collectively run, dedicated to public education and accessibility, and are often driven by radical ecological values, working in partnership with like-minded local groups.³

The initial inspiration for both FAB and the Mycelial Network was mycoremediation—the bioremediation of toxins with fungi.⁴ The idea was popularized in *Mycelium Running*, the book by mycologist Paul Stamets that inspired Ben, Renée, and many others (Stamets, 2005). It included other mycological applications too, like myco-forestry (forest management through mycological applications), myco-filtration (filtering water with fungi), and medicinal mushrooms. The book is also known for its epic opening chapters that offer a myco-centric history of life on earth, reflections on the “mycelial archetype” (i.e., network and spiral formations), and philosophical proposals about the significance of fungi to the human race. Stamets argues that fungi are sentient (he calls them “Gaia’s Internet”), that they

³These practices are an emergent phenomenon. DIY mycology is not quite a full-fledged movement, although it seems to be taking on the outlines of one. As such, practitioners are not united under one identifiable name. Some call themselves “radical mycologists” or “applied mycologists,” but most are unbothered by the question of what their pastime might be called by those outside their social circles. For the sake of consistency, I refer to this practice as do-it-yourself (DIY, pronounced as an acronym, D-I-Y) mycology.

⁴Bioremediation is the use of living organisms to decompose environmental toxins in soil and water. It commonly utilizes microorganisms such as bacteria, but sometimes plants (a practice that is called phytoremediation) and fungi (mycoremediation) are used.

have an ecosystem's best interests in mind, and that, if we as a species are to survive and flourish, we should ally ourselves with the fungal kingdom. The book has an evangelical quality, having the tone of a testimonial at times, but it also has references to peer-reviewed papers, some by Stamets himself, and an extensive bibliography. Overall, it's a compelling and unusual mix of mystical prose, dry scientific explanation, and practical instruction. It's a how-to book in a holistic sense, describing a new way of living with the fungal kingdom.

For FAB, mycoremediation quickly proved too complicated, and they focused their energy elsewhere. One ongoing project is in collaboration with the East Bay Regional Parks, allowing for field experiments in the forested parklands that ring the Bay Area. In one experiment, they're applying a local strain of sulfur shelf (*Laetiporus gilbertsonii*) to accelerate the decomposition of blue-gum eucalyptus (*Eucalyptus globulus*) stumps. Eucalyptus is a notoriously fast-growing and tenacious species that is both ubiquitous and invasive in California and burns long and hot in the wildfires that plague the region. As part of a statewide initiative, the park service is trying to thin its Eucalyptus populations. This myco-forestry method would ideally be an alternative to the application of synthetic pesticides to prevent the rapid resprouting of the trees. FAB has a number of other ongoing projects as well: They partner with a biohacker space in Oakland, host low-cost workshops and events, and table at mycological and science events around town.

FAB is part of a local and regional culture that has been shaped by a history of countercultural and ecological movements, as reflected in members' biographies, vocations, and lifestyles, and the culture of the group itself. Members include a permaculture landscaper, an arborist, a gourmet caterer who specializes in organic and locally produced food, an artisan cheese maker, a computer programmer, and a few teachers. Older members have retired from careers as a carpenter, a baker, and a chemist, respectively. Members share hobbies like organic gardening, beekeeping, beer brewing, making medicinal tinctures, fermenting and pickling, bird watching, and of course, mushroom hunting. Their monthly potluck meetings are packed with what Warren Belasco calls the "counter-cuisine," a mix of natural and seasonal foods made with gourmet ingredients (sometimes called "California cuisine") (Belasco, 2007; Fairfax et al., 2012). The groups' organization is horizontal and nonhierarchical; their meetings are full of joking asides and irreverent humor. The group has a casual atmosphere in this way, their projects driven by personal motivation rather than a sense of obligation and their activities ebbing and flowing along these lines.

One unspoken commonality is participation in the local food movement: that broad collection of practices that position themselves as alternatives to industrial food production. In this vein, almost all members share an interest in horticulture. Younger members in particular are involved in permaculture, the global movement of sustainable agriculture and design principles developed in the late 1970s that incorporates social, ecological, and economic philosophies into its core vision. Older members, on the other hand, voice good-natured skepticism about permaculture; as one of them puts it, "Permaculture really puts the CULT in agriculture."

Along with these ecological values, and as an extension of its DIY ethos, FAB members often describe themselves as citizen scientists and espouse open source science and technology. Their partnership with a local biohacking collective in Oakland reflects this position. Biohacking (also known as DIYBio) is a practice that has emerged in recent years, drawing on computer hacking, the contemporary maker movement, and recent advances in biotechnology. The goal of biohacking is to create spaces outside of academic and corporate settings for public engagement and participation in biology. For FAB, the partnership means access to a professional-grade flow hood and other high-tech lab equipment, storage space, and a platform to advertise the group. In addition, FAB hosts semi-regular low-cost events and pay-what-you-can workshops to help fund their activities and spread mycological knowledge and know-how.

Psychedelia and American Countercultural Ecology

In this chapter, I address a question that has been with me since I first spoke to Ben in the fall of 2014: How do DIY mycologists relate to psychedelic mushrooms, and what can this tell us about how Americans think about and consume psychedelics today? When I began fieldwork, I thought Ben's introduction to mycology would be typical of FAB members, but I found that, although it was common, it wasn't exactly typical. Several DIY mycologists that I interviewed had learned to cultivate mushrooms by growing *Psilocybe cubensis* (the most well-known and easy to cultivate psychedelic mushroom), but their ideas about psychedelics, and their practices related to them, were far from monolithic. Some had tried the mushrooms just once or twice, while others had long histories of use; some saw them as purely recreational, while others used them for explicitly spiritual or therapeutic purposes (or both). A couple were unequivocally dismissive of the idea of truth claims being ascribed to the psychedelic experience—as one FABer put it, the mushrooms just “confuse the brain.” There were also three members that had never eaten psychedelic mushrooms. And yet, it was readily apparent that all FABers were gleeful that such mushrooms existed. They loved to joke about them and the altered states they engender as much as they loved to regale each other with stories of the gourmet wild mushrooms they found on their latest forays.

Since their grand entrance onto the American cultural stage, psychedelics have gone through many reversals of fortune. At the time of writing this chapter, it seems that not a month goes by without another mainstream news source reporting on the promise of psilocybin research for depression. Yet, all the mainstream hype about a “psychedelic renaissance” can feel disingenuous: Anyone paying attention knows that psychedelics never went away—they just went underground.⁵ After LSD and psilocybin were criminalized in 1970, they disappeared from the public eye but

⁵See Jarnow, n.d., on the recurring trope of the “psychedelic renaissance.”

remained in the cultural repertoire, especially in subcultures like the Grateful Dead circuit and the rave culture of the 1990s (Jarnow, 2016; Letcher, 2007).

Psychedelics are nonaddictive and usually used infrequently by those who partake of them. They barely register on the National Survey on Drug Use and Health (NSDUH), which defines a user as someone who has used a substance within the last 30 days (Drug Policy Alliance, 2017). Yet, due to their powerful psychological effects, a single use can leave a long-lasting impression. One study tracked “lifetime use” among Americans (i.e., those that have used psychedelics at least once in their lives), based on the 2010 NSDUH survey, and the results were illuminating.⁶ The same number of people (around 17%) between the ages of 21 and 49 had used psychedelics as had the so-called baby boomers between the ages of 50 and 64, who came of age in the 1960s and 1970s. And yet the rate of lifetime use was highest (around 20%) among people aged 30–34 (Krebs & Johanson, 2013). In other words, younger Americans today are just as psychedelically “experienced” as young people were in the 1960s and 1970s, the period of American history considered the heart of the psychedelic era.

Psychedelics cast a long shadow across the cultural landscape of the United States. If we look at American pop culture alone, they are usually depicted as a rite of passage or a transformative or revelatory event, sometimes comic, sometimes unexpectedly profound.⁷ Of course, this kind of use is lost in the shuffle of surveys meant to measure abuse and dependency. In the case of DIY mycology, the question of participants’ relationship to psychedelia has particular historical and cultural resonance. On a practical level, the technical genealogy of DIY mycology is rooted in the psychedelic underground. While the idea of “tinkering” with fungi for targeted, low-tech applications can be traced most recently to *Mycelium Running*, the techniques employed by DIY mycologists originate in the novice experimentations of psychedelic enthusiasts in the 1970s. Paul Stamets is a key figure in this history too, as I’ll discuss further on.

DIY mycologists are embedded in a countercultural–ecological milieu in which psychedelics have historically been a significant element. As is well documented, psychedelics were a key component in the counterculture that coalesced around the new environmentalism and the ecological lifestyles of the 1970s that left their marks on California and West Coast culture. At that time, LSD and psilocybin were seen as aids to dropping into one’s body, tuning into the universe, becoming one with nature, finding one’s authentic self, realizing one’s true potential, or simply tackling complex problems (Binkley, 2007; Kirk, 2007; Kripal, 2007; Markoff, 2005; Turner, 2006). FABers and other DIY mycologists participate in hobbies, lifestyles, and vocations that emerged out of these ecological movements. In other words, their

⁶The data pool was 57,873 individuals aged 12 and older. The substances they tracked were LSD, psilocybin, peyote, and mescaline.

⁷See, for example, the use of psilocybin mushrooms in American sitcoms like *Silicon Valley* or *This is Us* and in the movie *Bohhood*.

relationships to psychedelic mushrooms and mushroom in general take place in a world that has already been shaped by psychedelics.

Although it's recurrently treated as a breakthrough or dawning cultural revolution, modern American psychedelia is a social and cultural phenomenon with historical depth, one that has undergone its own evolution and ramifications. My inquiry here is set against the background of an interrelated suite of narratives and popular theories about psychedelics that have circulated in the contemporary cultural landscape for some time. Most prominent among them is the notion of an inherent link between the psychedelic experience and ecological concern. This is often part and parcel of a discourse on the redemptive dimensions of these substances, one that is best illustrated by the discourse of entheogens.⁸

Advocates of entheogens often imply (and sometimes state explicitly) that part of the promise of these substances is that they allow users to experience oneness with the natural world, thereby instilling a sense of responsibility and care toward our threatened environment. For example, in an introduction to the special issue of the Multidisciplinary Association for Psychedelic Science (MAPS) bulletin on psychedelics and ecology, psychologists Stanley Krippner and David Luke wrote, "at the very least the consumption of psychedelic substances leads to an increasing concern for Nature and ecological issues" (Krippner & Luke, 2009). Countless psychedelic thinkers, many of them referenced in the piece, have elaborated this idea at length; among them is Paul Stamets.

With his message of universal patterns, mystical depth, and Gaian consciousness and his tone that is both revelatory and evangelical, it doesn't seem surprising that Stamets got his start as an expert in psilocybin mushrooms. For the most part, though, he's an expert at glossing his abiding fascination with the psychoactive mushrooms in texts meant for a general audience. In asserting that fungi are sentient, as he does in *Mycelium Running*, Stamets evokes a kind of neoshamanic vision of communication that in turn alludes to an entheogenic/psychedelic model. Stamets's own biography charts what would seem to be an archetypal psychedelic narrative in which intense use of psychedelic mushrooms reveals insights and intuitive knowledge about the fungi themselves. Of course, the author most closely associated with this scenario is Terence McKenna, the folk philosopher of psychedelia who published several texts in his lifetime that he described as "straight transcription" from "the mushroom" (Deus Ex McKenna, 2011). What's notable about Paul Stamets, who was friends with McKenna, is the way he sublimates this narrative and its epistemological models into his texts as he weaves his assertions, and their implications, with the conventions of contemporary scientific scholarship.

⁸Entheogen is a neologism meaning "God/divine-generating" (Ruck, Bigwood, Staples, Ott, & Wasson, 1979). It was coined in the late 1970s by several ethnobotanists that had been researching psychotropic plants and fungus since the 1950s, including R. Gordon Wasson, the banker-turned-mycologist credited with "discovering" psilocybin-active mushrooms in Southern Mexico. The term was meant as a clarification and re-branding of "psychedelics," whose public image had been sullied by countercultural excesses.

In questioning the causal relationship between psychedelics and ecological concern, I take my cue from Nicolas Langlitz, Andy Letcher, and others that seek to historicize and problematize the meaning we ascribe to the psychedelic experience (Langlitz, 2012; Letcher, 2013; Shortall, 2014).⁹ In this chapter, I attempt to historicize and contextualize the meaning of psychedelic mushrooms among DIY mycologists. As I show below, along with their diverse relationship to psychedelics, FABers share an ethical system that views nonhuman life as essentially valuable and, in varying degrees, vital in ways continuous with human consciousness. Members told me they believed in “panpsychism,” the Gaia theory, and biocentrism, while some expressed respect and awe at the “web of life.” But not all those who expressed these ideas cited psychedelics as being part of their personal evolution. In this chapter, drawing on historical and ethnographic material, I hope to add some perspective and complexity and helpfully destabilize the tacit link between psychedelics and ecology that is so often at the core of the redemptive hope projected onto these substances.

The History of DIY Mycology, Part 1: Psilocybin and Ecology

The goal of groups like FAB is not only to use fungi to restore ecosystems but to make mycological knowledge and know-how more accessible to everyone, to inspire people to learn about fungi and its many beneficial applications and give people tools to experiment with and implement fungal applications on their own. DIY mycologists are informed by an ethos of openness and accessibility that combines the countercultural ecology of the 1970s with the hacker and open source movements of the 1980s and 1990s—and, as I’ll show below, intertwines with psychedelia in its technical methodology and its cultural values and practices (Kelty, 2008; Kirk, 2007). Paul Stamets’s career is one thread that takes us through much of this history.

The first technically accurate manual for growing psychedelic mushrooms was *Psilocybin*, by Terence and Dennis McKenna, writing under the pseudonyms O. T. Oss and O. N. Oeric, published in 1976. It came out about 20 years after R. Gordon Wasson’s article in *Life* magazine that described psychoactive mushrooms to mainstream audiences, leading to a steady flow of hippies into Southern Mexico in search of the “magic mushrooms.”¹⁰ Although there were a few other pamphlets published before this book, the McKennas’ was the first that relied on practical microbiological skills that might, if followed carefully, result in actual mushrooms. The book focused

⁹I use the phrase “the psychedelic experience,” with the troublesome definite article, to refer to this particular discursive formation as it’s circulated over the last 50 years. I do not mean to imply a universal phenomenon.

¹⁰See Letcher (2007), for this history in depth; Feinberg (2003), for a view of this history from the Mazatec perspective. Also see Feinberg in this volume to revisit this history alongside contemporary practices in the southern Mexican town where Wasson’s article took place.

on inconspicuous indoor methods for growing *P. cubensis*. It included a now-famous introduction by Terence McKenna that, speaking in the voice of the mushroom, claimed to usher in a new era of cosmic fungal intelligence (Oss & Oeric, 1976). Mycologist Steven Pollock also published his book *Magic Mushroom Cultivation* around this time, which included outdoor methods. Unfortunately, the book went out of his print after Pollock's murder in 1981 (Morris, 2013).

Paul Stamets learned to cultivate using these books and then, after studying mycology at Evergreen State College, published his first book, a field guide to psilocybin-active species called *Psilocybe Mushrooms and Their Allies* (later renamed *Psilocybin Mushrooms of the World*) (Stamets, 1996, 2014).¹¹ Stamets then made a name for himself with two cultivation manuals: the first, *The Mushroom Cultivator* (1983) picked up where these earlier manuals left off but was written for a general audience and included a wider range of species. About half were psychoactive *Psilocybes* and the rest were culinary and medicinal mushrooms. As the first book to break down the most obscure aspects of fungal biology and the tricks of cultivation for a general audience, *The Mushroom Cultivator* quickly became the bible of cultivation. *Psilocybes* were interspersed between culinary and medicinal species, minimally described within the highly technical text, normalized within the rapidly growing repertoire of popular mycological knowledge.

Stamets's second book, *Growing Gourmet and Medicinal Mushrooms* (1993), included more historical, philosophical, and hypothetical exposition, as well as a range of creative applications. *Psilocybes* are described more elaborately but still carefully elided with tongue-in-cheek references. This obfuscation makes sense, of course (the mushrooms are illegal after all and could undermine his legitimacy), but any reader paying attention would understand that many of the methods could be applied to these mushrooms too, as many readers did.

The success of these books, and the mycological know-how they helped to foster, is interwoven with several trends that emerged in the 1970s. I've already mentioned the "counter-cuisine"; this was interwoven with the rise of natural medicine, organic agriculture, homesteading,¹² and the revival of preindustrial food practices (pickling, beer brewing, bread baking), all of which reflected a changing relationship to the natural world, especially, in how Americans produced, thought about, and consumed food. Americans developed new tastes, in both senses of the word, and as the countercultural palate grew more exotic and earthy, new markets, industries, and vocations opened up to cater to these tastes. Hippies began foraging—that is, gathering wild plants, fruits, and mushrooms—as a back-to-the-land practice (following Euell Gibbon's cult classic, *Stalking the Wild Asparagus*), while Alice Waters developed what would come to be called "California cuisine." Wild

¹¹*Psilocybe* is the genus that contains the vast majority of psilocybin-active species.

¹²Homesteading is the practice of simple subsistence living on the land around one's home. It was one component of the back-to-the-land movement in the 1970s, inspired primarily by the writing of Helen and Scott Nearing. For a look at the homesteading movement in the 1970s and beyond, including its particularly American history, see *At Home in Nature: Modern Homesteading and Spiritual Practice in America*, by Rebecca Kneale Gould (University of California Press, 2005).

mushrooms began to appear in the American diet, while macrobiotic cooking and East Asian cuisines brought other “exotic” mushrooms to the dinner table. All of this meant that someone who figured out how to hunt or grow mushrooms could make a modest income selling them.

This shift in tastes corresponded to a new genre of books that catered to this readership, following in the wake of the *Whole Earth Catalog*'s phenomenal success in the late 1960s and early 1970s. Most of these were published by an emerging West Coast publishing industry. Natural food cookbooks taught people how to cook these new foods, various instructional manuals taught DIY and homesteading practices (everything from cheese making to home births), and lifestyle books taught readers how to live in ways that were “natural,” “authentic,” and “holistic” (Belasco, 2007; Binkley, 2007; Fairfax et al., 2012; Kaiser & McCray, 2016; Paxson, 2013).

Stamets's career reflects this history. His first book combined countercultural interests in foraging and psychedelics. His second book picked up on the DIY and homesteading trend, offering itself as a tool of both the amateur home cultivator and the aspiring small-scale mushroom farmer (and, however tacitly, the illicit cultivator of *Psilocybes*). By the late 1980s, he began to focus on gourmet and medicinal mushrooms, as new markets were opening up for natural medicine and organic mushroom farmers. In general, he wrote for readers who are living ecological lifestyles. All of his books, including *Mycelium Running*, are clearly written with spacious organic gardens in mind. He's also been involved in permaculture since the 1990s; his second book has a chapter called “the Stametsian Model for permaculture with a mycological twist.” The company he founded in 1980, Fungi Perfecti, still specializes in mycological products catering to the markets opened up by these ecological values and lifestyles. Besides his books, they sell soil augmentation with mycorrhizal fungi, in-house medicinal mushroom tinctures, and much more.

These trends were the gradual result of the ecology movement that coalesced in the 1970s, growing out of the counterculture and the new wave of environmentalism, producing many offshoots, in various sectors of society. The practices that were popularized through this new literature inculcated a new orientation, both practical and philosophical, to the natural world, one in which fungi are especially significant. With the spread of organic agriculture in both farms and gardens, people became familiarized with the microbial worlds of compost and soil ecology and, along with them, the essential roles of mycorrhizal and endophytic fungi (Ingram, 2007). Paul Stamets played a central role in translating and popularizing the significance of mushrooms and mycology within this web of practices.

These countercultural ecological practices, particularly in the realms of food production, were characterized by a desire to live in balance with the natural world, in closer rhythm with the cycles of life and death, among humans and other life forms. In her ethnography of artisan cheesemakers, Heather Paxson has called this a post-Pasteurian orientation that sees nonhuman agency not as an unruly force that must be put in order—the paradigmatic modern relationship to nature—but rather as forces with whom we can collaborate in mutually beneficial endeavors (Paxson, 2013). This orientation is part of a shift in the position of science and technology vis-à-vis the natural world among countercultural ecologists: Rather than

seeing science and technology as opposed to “nature,” they sought to subsume it within an ecological worldview (Kirk, 2007).

I see American countercultural ecology as a contemporary variation on an older lineage of ecological thought that can be traced back through Leopold, Muir, Thoreau, and Humboldt—thinkers who, though embedded in the scientific enterprise, expressed a profound ambivalence toward aspects of industrial modernity and scientific materialism and proposed alternative perspectives, from vitalism to biocentrism (Worster, 1985). Countercultural ecology draws on the multivalence of ecology as both a holistic philosophy of interconnectedness and as a scientific understanding of the material world, weaving this thread of ecological thought with the countercultural concerns of social, political, and personal transformation. Paul Stamets is very much in line with this particular American lineage of ecological thinkers and designers.

The History of DIY Mycology, Part 2: The Internet

Around the same time, a vast rhizomorphic web known as the Internet was also growing. Websites like Shroomery and Mycotopia were founded in the mid-1990s, with forums focused on *Psilocybe* cultivation, allowing people to swap information, troubleshoot their failures, and crowdsource solutions. A number of ingenious, jury-rigged techniques came out of these communities and have since become part of home cultivation “best practices.” The most famous of these is the PF Tek.

Psylocybe Fanaticus (his real name was Robert McPherson) was part of a flourishing industry that exploited a loophole in the criminalization of psychedelic mushrooms that made possession of *Psilocybes* spores legal in some US states. In 1994, as part of his business selling *Psilocybe* spores to would-be cultivators, Fanaticus published online a method for growing *P. cubensis* with a simplified, streamlined recipe that had no need for sterilization (Letcher, 2007; Yachaj, 2001). He named it the PF Tek—the first initials after his nom de guerre and “tek” being cultivator slang for “technique.” Within just a few years, the PF Tek was the go-to method for growing *P. cubensis* and still is today. It’s been improved upon with some tricks and updates (inventions of Shroomery and Mycotopia users), but the basic recipe and concept remain tried and true, easily accessible with a simple Google search.

Amateur mushroom cultivation has come a long way since Oss and Oeric. Shroomery and Mycotopia are still the primary resources for technical instruction and advice. The sites are used by DIY mycologists who consult the countless subthreads on culinary and medicinal species. Since the mid-1990s, there are also numerous instructional videos on YouTube and free downloadable PDFs online as well. In all of this, we can see how psilocybin-active mushrooms were the impetus for the development of modular techniques for small-scale home cultivation that were then borrowed and modified for use with other species. This history explains part of the deep appreciation DIY mycologists today feel for psychedelic

mushrooms, in that they epitomize the enthusiasm and populism that drives the practice. What's more, besides the obvious mycelial homology, there's another, less obvious relationship between digital technology and DIY mycology: As documented by historian Fred Turner, the *Whole Earth Catalog* milieu was intertwined with the birth of the Internet, as illustrated in their shared discourse of DIY practice and knowledge sharing (Turner, 2006). This common genealogy reveals an inner logic to this convergence.

In all of these activities, people were becoming familiarized with fungi as a life form and home cultivar as the practice itself became increasingly easy and accessible. What began as an attempt to recreate the modern lab in kitchens and closets was now placed alongside revivalist food practices like brewing and fermenting. Creative outdoor applications converged with organic agriculture and wildcrafting techniques. Last, but not least, *Psilocybe* spores were being spread far and wide, both through the mail and on the clothing of people picking wild *Psilocybes*. These strains have found ample new habitat in the woodchip lawns of American cities and suburbs, making them even more available to human curiosity and engagement.

DIY Mycology and Psychedelic Naturalism

Today, DIY mycologists are engaging with fungi in a landscape that has been shaped by all of these developments. Oscar, a FABer since 2013, articulates well several common themes. Now in his late 20s, Oscar grew up foraging for chanterelles with his parents in Northern California. Today, Oscar is an experimental filmmaker, arborist, and permaculture gardener in Oakland. When I asked him if psychedelics shaped how he related to mushrooms, he said that probably the “fractal imagery,” as he put it, had an effect (“understanding that mycelium is a fractal”) but, he continued, “As far as how that got me into mushrooms, honestly, it's just food. Like, the psychedelic part was definitely a big part of shaping who I am and the path I chose, but what really kept me with mushrooms is that I'm a food person. And I *really* liked foraging. . .”

The thing about mushroom foraging is that it keys you into the landscape in a way that other things don't. You start to think about *hydrology*, and *shade*, and *aspect*, and *humidity traps*, and . . . just micro-climate because in order to find the mushrooms, you have to find the micro-climate that will get them to fruit. . . . So through my desire to get a bunch of porcini [laughing] I had to figure out *what makes a porcini—*which is a complicated set of variables. And all of that built my interest in understanding ecosystems. Which is now something I like to apply [in permaculture].

Later, I asked him what he meant when he said psychedelics were a big part in shaping who he is and his path. He told me that he sees psychedelics as a means to produce a spiritual state, which he understands as an innate propensity of human brains.

When I experienced a spiritual state, what became immediately crystal clear to me is that all organisms are valid and alive and interconnected. And we all share life together. None of us exists in any separate bubble. There are *people*—there is no “me” without the ecosystem. There is no me without trees, or bacteria, or mountains and rivers, and there’s no me without the entire . . . framework.

Having had that, then . . . working with organisms, and thinking about nonhuman life, became very central to me. . . . But also death is part of it and that’s okay too. Death is necessary. Mushrooms and death are really close to each other. *And that’s really cool*, because they eat the dead. The mushrooms are what *deal* with death in the world. They are like the pallbearers of nature. . . . [Laughing] You know, nature’s not all flowers and butterflies. It’s also rotting things. [Laughing]

This description expresses beautifully the sense of kinship and connection with all life that can be part of the psychedelic experience. It includes the classic experience of ego-dissolution as the “I” (or “me” in this case) is dissolved into the panorama of existence. This is the quintessential psychedelic experience (and its ideal aftermath) referenced in the entheogenic discourse.

However, Oscar’s own story reveals interesting discontinuities in this narrative. While his experiences did instill in him a relational, biocentric ethos, it was not the impetus to study mycology; that was foraging. Psychedelics shaped his vocation and that in turn led him to engage with fungi; but it was fungi themselves, in their vital particularity, that maintained his attention. Then, circling back, he described fungi evocatively as having a privileged position in this web of life as the ultimate soil builders and essential actors in the natural cycle, at the seam between life and death.

Toward the end of our conversation, I asked Oscar how he would describe himself in terms of religion. He thought for a second and then said, “Like, ‘psychedelic naturalist’ . . . I feel at peace and connected, and like, I’m whole, when we go to the woods.” This sentiment is quite common among FABers. Stamets himself described the old growth forests of Washington as his and his wife’s church (Stamets, 2008). Oscar, though, avoids explicitly religious language.

It’s not a coincidence that foraging takes place in the same forests where Oscar finds spiritual sustenance and retreat, a fact that blurs the common distinction between sites of spirituality and sites of practical (profane) activity. Foraging is an active, inquisitive, and pragmatic practice. It calls for skills of attention and attunement in order to perceive that “complicated set of variables” that allow fungi to thrive. This is what anthropologist Anna Tsing has called, in her work on matsutake foragers, “the arts of noticing” (Tsing, 2015). Food motivated Oscar to look for mushrooms, but the practice itself intrigued and enchanted him. In this way, fungi found their place within his broader interest in “working with [and] thinking about nonhuman life” that grew out of his spiritual psychedelic experience. Although Oscar never refers to foraging as “spiritual,” it sits geographically, conceptually, and ethically adjacent to things that are.

Renée, quoted earlier, became interested in mushrooms in college when she learned about mycorrhizal fungi and read *Mycelium Running*. As she said, “It blew my mind, just seeing how everything is connected.” She added later, “You asked how I got into the mushroom stuff—it was just that I *fell in love* with mushrooms. I

started having dreams about them. It was like a spiritual awakening.” When I asked her what that process was like, she said it involved “being out in the woods, and hanging out with mushrooms, and eating mushrooms, and growing mushrooms.”

Fred, in his mid-twenties, discovered permaculture in college and became enthralled with the idea of combining sustainable food systems with community building. He referred to himself as “spiritual,” which he described as “an understanding that I’m connected to everything. . . . That’s how I see it. Like, I’m a microorganism living in the earth [the way] there’s gut bacteria inside of me.” When I asked him if mushrooms played into his spirituality, he mentioned psychedelic mushrooms as “empowering” and told me he had used them to cure himself of a chronic twitch and to quit smoking. Then he added, “and foraging, it’s an amazing thing. It’s just a really deep connection—I mean that’s spirituality to me in a nutshell: it’s connection; connection to myself. Connection to community, and to the earth, and obviously, to mushrooms.”

For these DIY mycologists, the connectivity of all life is an ecological reality with spiritual, affective, and ethical dimensions. Foraging enacts this connectedness as a kind of purposeful relationality, through attention and attunement to nonhuman life. They access “spirituality” through seemingly mundane activities, like foraging, cultivating, and walking in the woods. In their words, these activities become enchanting and immersive. The revelatory experience of psychedelics is less significant than the profound connectivity of everyday practice in one’s engagement with life, human and otherwise.

In fact, they took pains to differentiate their take on fungi from typical psychedelic discourse. For example, Fred expressed skepticism at cultivators that were a little too into “the gospel and the dogma.”

I have known a lot of people that have taken that shit *way* too far. They’re like, [dopey voice] “You know, like the mushrooms were like telling me that they don’t really like being in plastic. . . .” And it’s like, “You know, shut up!” If you observed that they don’t do as well in plastic as they do in glass jars, that’s one thing, but just because you took a few mushrooms and you’re trippin’ a little bit. . .

Sam, a 27-year-old member of the Mycelial Network, dates his interest in mycology to his teenage love of psychedelic mushrooms, but when I asked him if psychedelics influenced his relationship to fungi today, he responded pointedly:

I’m not guided by psychedelics. It’s not like that’s my hidden agenda, to get people to start eating psychedelic mushrooms. My agenda is that I want to live in a world that’s better, where people have so much more . . . you know, respect for themselves and for others and for the planet and for the universe and for the complexity of this fuckin’ infinite crazy reality.

As with Oscar, we find an implicit aversion to ritual prescriptions and the imposition of supernatural beliefs (presumably representing the “religion” to their “spirituality” in the sense of “spiritual-not-religious”). To be constrained by “dogma,” or merely following “gospel,” is to ignore “the complexity of this fuckin’ infinite crazy reality”; it’s both escapist and pretentious. Empiricism, on the other hand, is both authentic and the doorway to wonder and enchantment in its own right.

Ultimately, it's this commitment to authenticity ("reality") and "respect" that translate into the everyday ethics invested in these practices.

In contrast to common narratives of psychedelic revelation and communion, DIY mycologists construed psychedelics primarily as a form of natural medicine or therapy. Renée's only mention of them is in the reference to "inner and outer" healing. For Ben (quoted at the beginning of this chapter), they are a natural treatment for depression. Fred characterizes them as "empowering." David, the FAB member who told me that they just "confuse the brain," corrected me when I told him I was quoting him in this chapter: "They are good for depression

But not good for divining truth," he told me (quoting my prose back to me). Although David expressed a classically materialist understanding of the natural world, he too had been persuaded by the discourse of psilocybin as a treatment for depression. In short, DIY mycologists have multiple and nuanced understandings of psilocybin-active mushrooms. While the neoshamanic construction circulates, it is treated ambivalently for complicated reasons; in contrast, the practical, therapeutic construction has become more widespread in both spiritual and non-spiritual contexts. What's more, these two constructions—as a means to achieve a spiritual experience on one hand and a means of therapy on the other—are not opposed. Rather, they signal a shift within countercultural ecological discourse.

This shifting discourse reveals the more basic element of power and potentiality that informs both constructions and that DIY mycologists tend to extend to the whole of the fungal kingdom. When I asked Fred specifically if psychedelics motivated his interest in mycology, he said yes, but it was hard to say how, and then he added:

Understanding that there is such a thing as a psychedelic mushroom is kind of a cornerstone to the unbelievable nature of mushrooms, and fungus, in general. I mean, if you don't know *anything* about them, you at least know that they can kill you or make you trip balls [laughing]. You know?

This recalls Oscar's description of fungi's essential role as "the pallbearers of nature." The ability of fungi to "deal with death" adds another dimension to their mystical character, one that Stamets includes in his more evocative passages of *Mycelium Running*. It also reflects the underlying, and sometimes unnerving, power associated with the organisms, to which Fred alludes: fungi are ecologically critical as the ultimate decomposers,¹³ but they can also be deadly in and of themselves, containing some of the most lethal toxins in nature (i.e., amatoxins).

There is gravitas in the fungal kingdom in this proximity to both death and healing. In this sense, fungi epitomize the etymological constellation engendered by the Latin root *potis*, as "power," "potency," and "potential," expressed here as empowerment, capacity, transformation, and resilience. They exemplify what philosopher of science Isabelle Stengers refers to as the *pharmakon*, the thing that can

¹³Fungi breakdown the lignin from plants (e.g., in dead trees) and other carbon-based materials, including animal excrement and corpses. This quality of fungal life makes it essential to forest ecosystems. This ability to creatively produce digestive enzymes adapted to the material in their environments is also what makes them promising as remediative organisms.

either kill and heal, depending on the dosage (Stengers, 2015). For DIY mycologists, this ultimate quality of fungi as imperial, cryptic, and magical all at once subsumes the neoshamanic abilities ascribed to some species in the genus *Psilocybe*.

American Biomysticism and the Human–Fungal Alliance

Over the last half century, a love of psychedelic mushrooms has gradually been encompassed by an emergent cross-kingdom relationship between humans and fungi. Historically, psychedelic mushrooms were the gateway to mycological enthusiasm that led to small-scale indoor cultivation and, eventually, imaginative experimental methods that could be understood and implemented by nonexperts. The recuperation of psilocybin by normative medical discourse—in the form of a lab-synthesized compound—as a potential treatment for persistent mood disorders like anxiety and depression can be seen as the most triumphant and visible product of the psychedelic entheogenic movement. But the lineage of underground technical innovations, like the ones recounted here, alongside the broad cultural shifts they were intertwined with, accounts for another, less visible history of the psychoactive *Psilocybe*, one that is more ambivalent, complex, and varied in the practical knowledge and collective fascination it generated. Today, *Psilocybes* occupy just one corner of a broad, multidimensional engagement with the fungal kingdom. From one angle, it looks like domestication; from another, it looks like technological invention. It is this unexpected human–fungal relationship—under-determined, in formation, and invested with potentiality and hope—that is the larger story here.

In the midst of contemporary environmental crisis, our ties—ecological, microbiological, ethical, and spiritual—with other life-forms have come to the fore. Contemporary anthropological discourse reflects this moment with its own turn to multispecies ethnography and post-humanist theorizing. DIY mycology takes on this crisis through attempting to live otherwise with other beings, realizing a biocentric ethics without disavowing science but rather extending a populist, DIY, and open source scientific practice. This builds on the counter modern thread of ecological thought that courses through modern Euro-American history, as expressed in Paul Stamets’s work and in related countercultural–ecological practices like permaculture.

In his ethnography of psychedelic researchers, Nicolas Langlitz concludes that, although “natural science and mysticism appear to be antagonistic,” in practice, scientific materialism can be compatible with certain kinds of mysticism. He calls this “biomysticism” and explains that “its spiritual focal point is not the extraordinary mental states engendered by hallucinogenic drugs but rather the ordinary existence to which the self-experimenter eventually returns” (Langlitz, 2012, p. 110). DIY mycology typifies a populist, secular biomysticism in which psychedelics are appreciated and revered but are just one of several access points into a casual spirituality of vital connectivity. The singularity of the psychedelic experience is overshadowed by the everyday ethics and practice of how we *live with* other

beings. This reality is enriched and propelled by the post-Pasteurian turn and its opening into intersubjective relationality.¹⁴ The rhetoric of alliance is distinguished from the neoshamanic conceit of intuitive communion: Fred’s rhetorical rebuke to just “observe” the mushrooms reflects the values of scientific objectivity and empiricism, as well as the arts of noticing that are the essence of successful foraging and cultivation. In this way, the psychedelic experience as a path into an ecologically inspired spirituality is decentered. This history suggests that the link between psychedelics and ecological care is not as natural as it seems, but might just as well be a case of historical propinquity.

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¹⁴See Dev in this volume for a contemporary shamanic perspective on interspecies relationality. Her chapter provides a fruitful juxtaposition to the conditional absorption of modern epistemologies among my North American interlocutors.

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