

WHAT MUSHROOMS HAVE TAUGHT ME ABOUT THE MEANING OF LIFE

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Not all science is bad (just the big bits that tell us we shouldn't look forward to an eternity of ice cream and great sex in a peaceful garden where we get to meet all our pets again). —Nicholas P. Money, Mr. Bloomfield's Orchard: The Mysterious World of Mushrooms, Molds, and Mycologists (New York: Oxford University Press, 2002)

A grownup neighbor in the English village of my childhood told stories about angels that sat upon our shoulders and fairies that lived in her snapdragons. Like the other kids, I searched her flowers for a glimpse of the sprites, but agnosticism imbibed from my parents quickly overruled this innocent play. Yet there *was* magic in my neighbor's garden and I had seen real angels on her lawn: little stalked bells that poked from the dew-drenched grass on autumn mornings; evanescent beauties whose delicately balanced caps quivered to the touch. By afternoon they were gone, shriveled into the greenery. Does any living thing seem more supernatural to a child than a mushroom? Their prevalence in fairy tale illustrations and fantasy movies suggests not. A reliable piece of scenery behind unicorns, providing forest shelters for elves, mushrooms are the only things in these stories drawn from reality. Like no other species, the strangeness of fungi survives the loss of innocence about the limits of nature. They trump the supernatural, their magic intensifying as we learn more about them.

Once upon a time, I spent 30 years studying mushrooms and other fungi. Now, as my scientific interests broaden with my waistline, I would like to share three things that I have learned about the meaning of life from thinking about these extraordinary sex organs and the microbes that produce them. This mycological inquiry has revealed the following: (i) life on land would collapse without the activities of mushrooms; (ii) we owe our existence to mushrooms, and (iii) there is (probably) no God. The logic is spotless.

Mushrooms are masterpieces of natural engineering, the most wondrous inventions in evolutionary history.

The overnight appearance of the fruit body is a pneumatic process, with the inflation of millions of preformed cells extending the stem, pushing earth aside, and unfolding the cap. Once exposed, the gills of a meadow mushroom shed an astonishing 30,000 spores per second, delivering billions of allergenic particles into the air. A minority of spores alight and germinate on fertile ground and some species are capable of spawning the largest and longest-lived organisms on the planet. Mushroom colonies burrow through soil and rotting wood. Some hook into the roots of forest trees and engage in mutually supportive symbioses; others are pathogens that decorate their food sources with hardened hooves and fleshy shelves. Mushrooms work with insects too, fed by and feeding leaf-cutter ants in the New World and termites in the Old World. Among the staggering diversity of mushroom-forming fungi we also find strange apparitions including gigantic puffballs, phallic eruptions with revolting aromas, and tiny "bird's nests" whose spore-filled eggs are splashed out by raindrops. Readers of this magazine know all this, but I wanted to remind you of the brilliance of our obsessions before humbling *Homo*.

Mushrooms have been around for tens of millions of years and their activities are indispensable for the operation of the biosphere. Through their relationships with plants and animals, mushrooms are essential for forest and grassland ecology, climate control and atmospheric chemistry, water purification, and the maintenance of biodiversity. This first point, about the ecological significance of mushrooms, is obvious, yet the 16,000 described species of mushroom-forming fungi are members of the most poorly understood kingdom of life. The second

point requires a dash of lateral thinking. Because humans evolved in ecosystems dependent upon mushrooms there would be no us without mushrooms. And no matter how superior we feel, humans remain dependent upon the continual activity of these fungi. The relationship isn't reciprocal: without us there would definitely be mushrooms. They wouldn't notice our absence. Judged against the rest of life—and, so often, we do place ourselves *against* the rest of nature—humans can be considered as a recent and damaging afterthought.

Some people may find my next point more controversial. Mushrooms demonstrate, quite convincingly, that gods are figments of the hominid imagination. Carefully designed experiments with psilocybin, the hallucinogenic alkaloid from species of *Psilocybe* mushroom, show that spiritual feelings of kinship with something greater than oneself, mystical experiences, and other nebulous phenomena can be induced by this single chemical. Participants treated with psilocybin in a recent study at Johns Hopkins University described feeling closer to God. Here is an example of a patient's comment: "My conversation with God (golden streams of light) assur[ed] me that everything on this plane is perfect; but I do not have the physical body/mind to fully understand." And another: "The experience of death, which initially was very uncomfortable, followed by absolute peace and being in the presence of God. It was so awesome to be with God that words can't describe the experience." After ingestion, psilocybin is converted into psilocin. Psilocin is remarkably similar in chemical structure to serotonin and when it reaches the brain it docks with serotonin receptors, upsets the normal

functioning of the neocortex, and can conjure deities from thin air. Amateur anthropologist Gordon Wasson was right that mushrooms held the secret to understanding the origins of religion, but he was right for the wrong reason. His thesis, extended by followers, that modern faiths evolved from ancient practices involving ritual inebriation with magic mushrooms is found wanting. But psilocybin is affording investigators access to a fresh and unambiguous neurological and cognitive explanation of the supernatural. Belief in God has no more substance than a mushroom dream.

To sum up: life on earth depends on mushrooms, humans wouldn't have evolved without mushrooms, and mushrooms afford formidable support for the nonexistence of God. This is all good news. A clear picture of our place in the universe is the only path to enlightenment. That we are manufactured from stardust, rescued from disorder by the big reactor in the sky, and destined to diffusion, is the truth, the whole truth, and nothing but the truth. This simplifies things; it's a relief to know the parameters. And while mushrooms are everywhere and will

outlive us by an eternity, what marvelous and unlikely fortune to be alive at this moment!

The quotes from patients in the Johns Hopkins University study come from R. R. Griffiths, W. A. Richards, M. W. Johnson, U. D. McCann, and R. Jesse. 2008. *Journal of Psychopharmacology* 22: 621-632.

Nik's fourth book on fungal biology, titled MUSHROOM, will be published by Oxford University Press in November. His website, www.nikmoney.com, offers a selection of unpublished writings. ♣

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They somehow had acquired clothes. They had somehow managed to domesticate another animal, a horse, which they then got up on and rode away. And this all happened in the blink of an eye, as it were. I didn't imagine it – I saw it. I thought it was the funniest thing I had ever seen. I couldn't imagine anything sillier. I told the others. They were interested until I repeated it over and over. I couldn't get the scene I saw out of my mind. It's still there, as sharp as ever. I have no idea what it means except that it seems to be a way to turn Long Island into a "Coney Island of the mind."

10 On another occasion, I took this mushroom with a friend, and experienced, quite by surprise, a rebirth, a passing through the birth canal and emerging laughing out loud, having had a wonderful time, quite unlike what I have read the first time must have been like. Birth trauma redux with no "fear and trembling" this time around. A potential therapy for the traumatized? So, if you were a C-section baby, and were plucked fully formed from the head of Zeus, metaphorically speaking, does this mean you can't benefit from this experience? Only if your name is Athena, but then you'd be wise beyond your years.

11 A young woman collected some of the Big Laughing Gym for dinner one night. She thought she had collected Honey Mushrooms. She had had a drink or two before dinner, but she still found the mushrooms to be too bitter to eat.

She doused them with soy sauce. She ate the meal and went off to a meeting. During the meeting she found herself commenting out loud about various people in the room. She commented on what people looked like to her, what they were wearing, what they were saying, and she said all this in a rather loud voice, laughing at each insult she was flinging. She was heard by everyone there. Some people present thought she was drunk. Others thought she was being unforgivably rude, whatever the cause. She had no idea about any of this. She was having a great time, totally dis-inhibited from refraining to speak out about whatever casual observations came into her head. What does this all mean? Perhaps that this mushroom has an unappreciated therapeutic value as something that can allow us to separate ourselves from what we say so that a therapist can be able to get quickly to the core of a person's otherwise undiagnosed neurosis.

SUMMARY

In summary, I think we can say that psilocybin, in addition to being a college age (and middle age) "party drug," has an untapped potential for understanding (or misunderstanding) human behavior, for re-experiencing childhood traumas (as Sigmund Freud understood them), as well as birth trauma itself (as Otto Rank delineated it), and for connecting the isolated, anomalous individual with the archetypes, the permanent forms, the underlying spirit or soul, as Carl Jung wrote. It might even be a way to "experience" phylogenetic regression, as Stanislav

Grof has described it. At its best, in ways too complex to explore in this article, psilocybin might just be that tool or, as Carlos Castaneda might have said, one of the "allies" we can use to explore our inner space, our life before birth, our lives as other creatures, and our journey out of this life into the unknown. At the very least, it should keep us so busy that we have no time to spend on a therapist's couch.

THE END

REFERENCES

A few references for all those who are not familiar with non-mycological literature.

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