

International Review Since 1913

Art in America

Bio Art: Interspecies Collaborations + Sculpting with Mushrooms + Art for Octopuses



March 2022

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Xiaoqing Yan:
Longshi Girl #10, 2017



Courtesy the artist

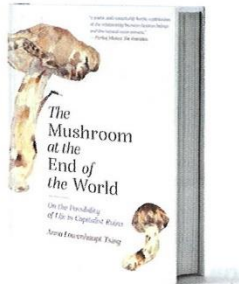
mushrooms as metaphors

These sculptors reveal what fungi
can teach us about surviving a climate crisis.

By Emily Watlington

THE EARLIEST WORKS OF ART WERE INTERSPECIES collaborations. Or, at least, this is what the controversial ethnobotanist Terence McKenna argues in his 1992 book *The Food of the Gods*. Over the course of three million years, he writes, human brain size tripled, outpacing the growth of any other complex organ ever recorded in the history of life. The exact cause of this growth remains a mystery. McKenna promoted a theory that eventually gained him a cult following: that psilocybin – a hallucinogenic, consciousness-altering chemical found in more than 200 species of fungi – can cause something of a reset of one’s brain, “rewiring” certain connections (which is why it’s sometimes used to treat post-traumatic stress disorder today). The biochemical reaction also increases self-reflection and erodes certain boundaries and inhibitions. McKenna believed that psilocybin-induced soul-searching brought about art, language, poetry, dance, and all else that makes us human.

Largely self-taught, McKenna was a mystic who readily admitted that his evidence was more cultural than scientific. Interested primarily in the meanings and uses humans find for plants (at the time, mushrooms were largely considered plants, though now it’s clear they don’t photosynthesize), he searched out ancient artworks and myths from Mesopotamia to the Mayan civilization that evoke reverence for fungi. The most crucial component of this theory is its moral; he focused on what his hypothesis *would* mean if it were true. Essentially, he believed that we ought to seek a state of interspecies respect – perhaps our original state – and allow psilocybin to dissolve the egos that have made a mess of our planet and our social relations.



Opposite, Xiaojing Yan: *Far from where you divined*, 2017, cultivated lingzhi mushrooms, mycelium, wood chips, dimensions variable.

Above, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, 2015, Princeton University Press.

Over the past year or so, mushrooms have been fruiting in galleries across the globe. Today’s artists are turning their attention to fungi not because they want to pontificate on humanity’s beginnings, though, but because they are keenly aware of our potentially imminent end. For artists who use mushrooms as metaphors, mediums, and muses – many of whom are influenced by anthropologist Anna Lowenhaupt Tsing’s beloved study of matsutake pickers, *The Mushroom at the End of the World: The Possibility of Life in Capitalist Ruins* (2015) – fungi are wise teachers in times of climate crisis, or at least in times of loss and mourning. Mushrooms accelerate decay to make way for new life. Certain species thrive in landfills, turning our trash into ingredients for delicious bowls of ramen or fancy hors d’oeuvres, while others abound in post-wildfire forests, prompting new hope for the desiccated lands that are quickly taking over the American West. The pandemic, too, brought about a need to commune with species that do not host the novel coronavirus. Works by Urbonas Studio, Xiaojing Yan, Nour Mobarak, TJ Shin, and Jemila MacEwan evince a natural tendency: times of crisis engender symbiotic relationships.

The Western world has long suffered from what some mushroom enthusiasts call “fungophobia.” And not without reason – at least thirty species can knock you dead. But in 2006, the tables began to turn, as self-taught mycologist Peter McCoy launched a grassroots movement called Radical Mycology, designed to undo this attitude, demystify the study of fungi, and empower citizen scientists. He led workshops teaching mushroom identification, cultivation, and even “mycoremediation” (using mushrooms to restore



Above, **The Living: Hy-Fi**, 2014, 10,000 compostable mycelium bricks.

Right, **The Living: Documentation** of mycelium brick construction.

landscapes) across the United States and Canada. Then, in 2014, an architecture firm called The Living garnered institutional recognition for the kooky idea of using mushrooms as material, installing a structure made of corn husks and fungi in the courtyard of MoMA PS1. Countless myco-products have been introduced since then. Several start-ups are replacing polystyrene packaging with mycelium – the white, webby rootlike threads from which mushrooms fruit. Mycelium leather was taken up last year by brands such as Adidas, Stella McCartney, and Hermès, which all announced vegan spins on classic leather products. And countless start-ups are devoted to finding other fungus-based solutions, be they biodegradable buildings, meat alternatives, or coffins that help expedite one’s fate as compost.

THE LITHUANIAN ARTISTS GEDIMINAS AND NOMEDA URBONAS are intrigued by the implications of these solutions – not just whether they work, but what they mean. For their contribution to the 2017 Folkestone Triennial, the duo, known as Urbonas Studio, hacked a symbol of municipal dysfunction in the English town’s Market Square – a streetlight that stayed on all day and turned off at night. The pair took



the faulty lamp off the grid entirely, then connected it to an alternative energy source – a black blob at least twenty times larger than the lamppost itself. The two objects were connected by a thick wire coated in red. The blob represented the amount of fossil fuel that would have been used to senselessly power the lamppost during the exhibition’s two-month run had the artists not intervened. Inside was a battery made of, yes, mushrooms – an invention that a team of scientists led by University of Kent biomedical engineer Viktorija Makarovaite is developing in Canterbury, England.

The alternative battery is more reusable than conventional graphite batteries and has double their storage capacity. Urbonas Studio made apparent our desperate need for alternative energy – something many people are aware of yet easily ignore, since we have grown deeply accustomed to conventional power-system infrastructure, from hydroelectric dams to countertop toasters. The mushroom battery itself is entirely hidden. This gesture mirrors the often-unnoticed underground contributions of mycelium, which enriches and enlivens our planet: over 90 percent of plants have formed symbiotic (or mycorrhizal) relationships with mycelium. Mycelium both predates plants and makes them possible, helping them absorb nutrients from the soil and exchange resources over vast subterranean mycorrhizal systems. Urbonas Studio’s project, then, is best thought of not as the genesis of a product that will solve all our problems, but as a provocation. It’s a reminder that alternatives are possible and even on the horizon, as well as a plea to consider lessons from other species that have survived more apocalypses than we have.

In many cultures outside the US, mycophilia is no fad. In the Baltic region, where the Urbonases are from, and in other parts of central and Eastern Europe, mushroom picking is a traditional pastime. There, many learn to identify tasty, nontoxic species from a young age. In China, mushrooms are used in traditional medicine, as artist Xiaojing Yan reminds us. Yan, who grew up in Jiangsu Province, north of Shanghai, and is now based in Toronto, makes sculptures using mycelium that eventually fruits into *lingzhi* mushrooms – which are better known among English speakers by their Japanese name, *reishi*. *Lingzhi* are bracket mushrooms, meaning they create shelf or fan shapes when growing on trees or stumps, and

in their prime are shiny and mostly burgundy, with cream-colored edges. *Lingzhi* are thought to promote health and longevity by boosting the immune system; some Taoists believe that God ingested them to achieve immortality.

Yan, who is trained in traditional Chinese painting, began working with mushrooms in 2014, while grieving the death of a loved one. Longevity was very much on her mind. In her first experiments, she cast *lingzhi* mushrooms in bronze, hoping to literalize the durability they symbolize in Chinese culture. But a few months later, back in China, she went mushroom picking on a farm where *lingzhi* were being cultivated. (She describes the activity as analogous to American apple picking in the fall.) Then, in 2015, impressed by the growing techniques she had seen at the site, she began creating sculptures using mycelium. After experimenting, she noticed she could form mycelium into controlled shapes by creating wood chip armatures that the fungus would engulf and eat. The resulting texture approximates that of papier-mâché. Wanting to control the shapes more precisely, Yan began creating molds out of fiberglass and resin. The mushrooms grow in the molds' dark, damp interiors, and eventually take their form: human figures and busts, or animals, like deer. A species skilled in mushroom foraging, deer enjoy even the psychedelic varieties.

Yan's works generally evoke the cultural significance of *lingzhi*. A frequent motif is a bust depicting a fictive figure, a mash-up of the artist herself and the many women who often power folklore, such as the female protagonist of the origin story *The Mountain and the Sea*: a young woman whose soul becomes a mushroom – again a symbol of immortality. Two such busts were recently on view as part of the artist's solo exhibition at 456 Gallery in New York. In a virtual studio visit, Yan described making the works as akin to taking care of a baby: every morning, she gets up and checks on her sculptures. They are, after all, alive. Eventually,



Above, Xiaojing Yan: *Auspicious Omens No. 5*, 2017, *lingzhi* spores and glue on canvas, 48 by 36 inches.

Right, Yan: *Lingzhi Girl #18*, 2021, cultivated *lingzhi* mushrooms, mycelium, wood chips, 17 by 19 by 16 inches.

Below, Nomeda and Gediminas Urbonas: *View of Folke Stone Power Plant at Folkestone Triennial*, Kent, 2017.



the mycelium starts fruiting burgundy brackets. Yan carefully controls the temperature and humidity, which affect the shape of the growing bodies. But still, only about half of the sculptures fruit. The artist is intent on ceding some control to her fungal collaborators, though in the end, it's she who decides whether to compost the material or exhibit it. Describing herself as organized and methodical, she readily admits that it can be tricky to decide when to intervene and when to let nature run its course.

To prevent the forms that she deems artworks from decaying, Yan dries them out in an oven at a low temperature. Some release spores that coat parts of the sculpture with brown dust, making it look almost like tiramisu. In 2016, she began mixing the spore dust – the same material used to make *reishi* tea – with a binding agent, acrylic medium, to create abstract paintings that evoke traditional Chinese landscape compositions. Her procedures continue the lineage of process-oriented art-making, which involves setting up a system and then ceding some control to chance. More than a creative method, though, this system reflects on the role of humankind within a larger ecosystem, highlighting the value of collaboration with other species.

MUSHROOMS SYMBOLIZE DECOMPOSITION

and decay – longevity's antithesis – for other artists, like TJ Shin, Jemila MacEwan and Nour Mobarak, who make use of fungal species other than *lingzhi*. The sculptures in Mobarak's 2021 show "Logistique Elastique" at Miguel Abreu Gallery in New York featured *Trametes versicolor*, a bracket mushroom sometimes referred to as "turkey tails," so named for the organism's fan shapes and stripy rings of earthy hues. These common mushrooms perform one of the most important roles played by fungi: they break down fallen trees, allowing young seeds beneath the debris to reach sunlight. These mushrooms expedite not only decay but new life too. For Mobarak's 2020





series “Sphere Studies,” on view at Miguel Abreu, the Los Angeles-based artist (who was born in Egypt but has lived in several countries) filled five one-foot spheres with turkey tail mycelium. As they fruited, the mushrooms ate some of the materials – vinyl, wood – to differing effects. In *Sphere Study 3 (Failed Sphere)*, 2020, tan brackets that look like pencil shavings poked out of a lumpy beach ball they had begun to consume.

Mobarak doesn’t see the project as addressing climate change or the apocalypse. Instead, she began working with mushrooms while contemplating the circle of life. Like Yan, Mobarak was spurred by a familial loss – her father developed a neurological disease that left him with a short-term memory of about thirty seconds. In response, Mobarak made an album that drew from recordings of their conversations. The talks lacked continuity in terms of both content and language – the two would switch fluidly between English, Arabic, Italian, and French. Then, in 2019 at Miguel Abreu, Mobarak played the sounds on speakers that were covered in mushrooms and mycelium, suggesting parallels between the dispersed nature of mycorrhizal networks and the nonlinear aspects of the father-daughter conversations.

An abortion inspired the works in “Logistique Elastique,” the mushrooms symbolizing how death and new life are often deeply interrelated. Mobarak was also moved by how mycelia, which often reproduce asexually, can collaboratively procreate in times of crisis. The show’s spheres were attempts to give form to living decay, and the mushrooms were fed sperm and hair from the artist’s potential impregnators. Nevertheless, the turkey tails’ impressive ability to eat plastic – over the course of the show, they slowly devoured a material long thought of as nonbiodegradable – was so spectacular that it stole the show.



Top, Nour Mobarak: *Sphere Study 3 (Failed Sphere)*, 2020, vinyl, *Trametes versicolor*, wood, 11¼ by 13 by 14 inches.

Above, Mobarak: *Silver Spring: Finding Jiddo Aziz Dead at the Bottom of the Stairs at Age 4*, 2021, mixed media, 12 by 12 by 2 inches.

Right, TJ Shin: *Untitled (Poop bag)*, 2021, mixed media, dimensions variable.

For MacEwan and Shin, mushrooms are supposed to steal the show – that’s the whole point. Both artists do more cultivating than sculpting. And herein lies the catch-22: is it odd to call mushrooms in a gallery “art” simply because the artist frames them as a metaphor; imposing human meaning on organisms that have no say in the matter? At the same time, is it antithetical to intervene and tightly control their behavior (or, in Yan’s case, to kill them) for the sake of producing a more interesting form? Most artists collaborating with other species wrack their brains as to how much intervention is appropriate, since their goal, to varying degrees, is to honor and showcase the species they’re working with. It doesn’t help that we have no tools for communicating with fungi. This tension is wholly unresolvable, but the many stories and principles fungi evoke are so potent that artists keep trying nonetheless.

For the group exhibition “Contretemps,” put on last summer by New York University’s laboratory/gallery WetLab on Governors Island, MacEwan displayed cone-like structures with fruiting *reishi* and various oyster species inside a plexiglass cube. Their chosen mushrooms are direct descents of *Prototaxite* – an extinct, prehistoric life-form that was most likely a fungus. Notable as the largest known organism of its time, 470 to 360 million years ago, it grew twenty to thirty feet tall. The species predates dinosaurs, and in the gallery, its descendants evoke deep time – a vast planetary duration that makes present-day problems feel minuscule in a way that is both freeing and frightening. Titling their act of cultivation *Dead Gods* (2021), MacEwan convincingly framed it as a monument. The work inspires reverence as well as mourning – for extinctions past and those to come. Rather than suggesting that mushrooms might save us from the end, MacEwan pays homage to the life force that fostered our planet’s biodiversity. In an artist’s statement pasted on a nearby wall, they also refer to the desire to “reverse the inevitable process of extinction” as being “utopic.” MacEwan’s goal is simply to remind us that humans are but one part of a larger ecosystem, and to inspire humility accordingly. Their gesture echoes theorist Donna Haraway’s call to reframe ideas of post-humanism as “compostism,” a reminder that our species’ decomposition will benefit the Earth and, one hopes, generate new life along with it. MacEwan pays homage to the way mycelium,



Top: Nour Mobarak; Above: Nour Mobarak; Right: TJ Shin; Middle: Nour Mobarak; Bottom: Nour Mobarak



the only life-form that does not require sunlight, has changed our atmosphere over time, lowering carbon dioxide and increasing oxygen levels.

Mushroom sculptures, it seems, are a new form of end-time sublime. Bereft of many of the grand tropes that ordinarily define that aesthetic category, these works, to non-mycophiles, might look simply like everyday entrées or typical forest floor growth. But for a growing number of initiates, they inspire wonder in response to the natural world, even as they remind us of our own insignificance. In the sublime tradition, few mushroom works are without a heavy dose of romanticizing – and MacEwan’s are no exception: as their title suggests, the artist views the fungi as “deities.” But that romanticism is most effective when balanced by skepticism, as in Shin’s compellingly humble sculpture *Untitled (Poop bag)*, 2021. For a group exhibition titled “SHIT!,” which Shin curated at Cuchifritos Gallery in New York, the Los Angeles artist cultivated lion’s mane mushrooms in their own feces, then placed the concoction in a plastic bag on the desk next to the gallery attendant. The gesture was, in part, a potent “fuck you” to the farm-

Jemila MacEwan:
Dead Gods, 2021,
mixed media,
dimensions variable.

fresh, organic, vegan, and locally sourced products for sale just outside the gallery (which is located in the “quality foods” emporium Essex Market), especially since one could smell the artwork even through an N95 mask. Shin reveres mushrooms, but is skeptical of the ways corporations gussy them up, turning them into high-end “ethical” products with alleged health and environmental benefits. “Mycelium is all about sharing resources,” the artist said in a virtual studio visit. “It’s so communist.” The greatest lessons we can learn from fungi, Shin suggests, is not that they will save us from an ecological hell of our own making, but rather that everything rots and erodes eventually. Our best chance for survival may be to collaborate in times of crisis – within our own species and with others. But if we *Homo sapiens* don’t make it, perhaps we’ll pave the way for some sort of new, possibly better, life-form. Or, as Lowenhaupt Tsing put it in a recent interview, art/science projects like Shin’s inspire “wonder in the midst of dread” – highlighting the inevitability of decay in a manner that’s neither paralyzing nor solutionist, but instead marked by the sort of playful curiosity that just might be our last gasp. ●