

THE MYCOLOGICALLY STRANGE: FUNGI AND MYXOMYCETES IN SURREALISM, FANTASY, AND SCIENCE FICTION (PART 1)

I wanted to transfuse myself thus into all of nature, to experience what it was like to be an old boletus mushroom with its spongy yellow underside, or a dragonfly, or the solar sphere.—Vladimir Nabokov¹

THE SURREALIST REVOLUTION that exploded in Paris in the 1920s spawned a visual legacy of clock faces that melt like camembert cheese and telephones in the form of lobsters thanks to the enduring popularity of the art of Salvador Dalí. The chief theoretician of the surrealist movement, Andre Breton (1896–1966), disdained Dalí’s pandering to popular taste and insisted that the true intention of surrealism was based on the search for the marvelous and “on the belief in the superior reality of certain forms of previously neglected associations, in the omnipotence of dream, [and] in the disinterested play of thought.”² Breton directed a critical but fascinated eye toward nature in this search and delighted in geomorphic transformation and in botanical incarnations of the marvelous among “surrealist flora” like Indian pipe (*Monotropa uniflora*) and staghorn fern. Not surprisingly, Breton’s surrealist colleagues, working in poetry, prose, and the plastic arts, also induced a surreal potential from the subvisible world of mold and decay and from the astonishing display of form

and distortion among the macromycetes. Fungi, in a word, are surreal, and the mycological undercurrent that exists in surrealism and related forms of literary endeavor claims our attention by the eerie luminescence that seeps from the realms of poetry and dream into that of science and into our regular perception that these life forms—the mushrooms—are an extraordinary and persistent intrusion from another world.

In advance of surrealism, the nineteenth century beheld various literary experiments that, too, evoked both the expanding horizons of science (microscopic, macroscopic, and prehistoric) and a dawning perception of the multitudinous and bizarre complexion of nature’s life forms. The great appeal of natural history in Europe and America served to reinforce popular interest in collecting flowers, ferns, shells, and mushrooms and turned the attention of countless nature lovers from the common (garden flowers and trees) to the uncommon (*Tremella mesenterica* and *Phallus impudicus*). Edgar Allan Poe was one of the first writers to capitalize systematically on the botanically and mycologically strange; his short stories form a key part of the canon of tales bridging several developing genres—the tale of horror, science fiction, the detective story—which deploy the fungal metaphor in explora-

tion of dreams, madness, and the supernatural. The proto-surrealist Lautreamont developed a bestiary of menacing fauna in *Les Chants de Maldoror* that would parallel the Darwinian vision of nature in endless flux and transformation, while Nathaniel Hawthorne personified toxic principles of plant life in his disarming story “Rappaccini’s Daughter.” As astronomical discovery conjured the possibility of space travel and writers like Jules Verne and H. G. Wells gave voice to the dilemmas and insecurities of science and technology through speculative fiction, “science fiction” proper then began its career as the twentieth century’s most notable genre of outsider literature. *The War of the Worlds* (1898) endures as the paradigmatic tale of alien invasion, but Wells also explored genetic experimentation, limned with the fungoid trappings of a strange jungle environment, in *The Island of Dr. Moreau* and constructed his story “The Purple Pileus” on the premise that fungi have the power to alter human destiny. After World War II, the themes of invasion and colonization by alien life-forms characterized countless works of science fiction, and the role of mushrooms and myxomycetes in this is considerable: Eleanor Cameron’s *The Wonderful Flight to the Mushroom Planet* (1954), John Wyndham’s *Trouble with Lichen* (1960), Philip K. Dick’s *Clans of the Alphan Moon* (1964), Ray Bradbury’s story “Boys! raise giant mushrooms in your cellar!” (1964), Piers Anthony’s *Omnivore* (1968), Harry Adam Knight’s *The Fungus* (1989), Bernard Werber’s *Empire of the Ants* (1991), Elizabeth Hand’s *Icarus Descending* (1993), and Jeff VanderMeer’s *City of Saints and Madmen* (2002) are all works of visionary, mycological, science fiction. Fungal themes palpitate in cult classics of cinema like *The Blob* (1958) and *Matango: Attack of the Mushroom People* (1963), and even mycologists have turned their spore prints into fairy tales: witness the fiction of mycologist E. C. Large or Louis C. C. Krieger’s fantasy, “The Millennium of Systematic Mycology.” These works have antecedents in a deeper literary tradition, and though it exceeds the scope of this study to trace the subject exhaustively back to the dawn of literature, a few early cases deserve mention.

Cryptogamic Biomorphism

The Greek satirist Lucian (ca. 117–ca. 180) wrote humorous dialogues that exposed the classic philosophers to ridicule, and his *True History* is a wildly fantastic adventure that numbers among its descendants *Gargantua and Pantagruel* of Rabelais, More’s *Utopia*, Swift’s *Gulliver’s Travels*, and H. G. Wells’s *The First Men in the Moon*. A more ridiculously ironic title cannot be imagined, for the *True History* is anything but true, dealing as it does with rivers of wine, flying islands, biomorphic tree-people, and birds with wings of lettuce. Mushrooms enter the narrative in a description of a fantastic war prosecuted by the king of the moon:

Next to the mercenaries were about ten thousand Mushroom Commandoes, heavy-armed troops trained for

hand-to-hand fighting who used mushrooms as shields and asparagus stalks as spears; and next to them again were five thousand Bow-wows from Sirius. These were dog-faced human beings mounted on flying chestnuts.³

The *True History* revels in a mulligatawny of biomorphic forms and processes, and Lucian’s bizarre notion of reproduction among the “tree-men” recalls fungal morphology, suspiciously close to the gasteromycetes:

Even more surprising is the method of propagating what are known as Tree-men. This is how it’s done: you cut off the father’s right testicle and plant it in the ground, where it grows into a large fleshy tree rather like a phallus, except that it has leaves and branches and bears fruit in the form of acorns, which are about eighteen inches long. When the fruit is ripe, it is picked and the babies inside are hatched out.⁴

Although mushrooms, particularly *Amanita caesarea* and boletes, were eaten and appreciated in the ancient world, it was not until centuries later that they began to appear in botanical herbals, and subsequently in works of imaginative literature. *Gargantua and Pantagruel* by François Rabelais (ca. 1494–1553) commands our attention; famous for its depiction of the weed “Pantagruelion” (*Cannabis sativa*), it bears the fantastic stamp of the *True History* with a superadded cornucopia of vegetation, ribaldry, nonsense, gluttony, and scholarship both medical and theological. Training a botanical eye upon this masterpiece serves to contextualize it as a kind of herbal encyclopedia that includes a host of vegetable products and medicinal plants: saffron, thistle, hellebore, henbane, moss, euphorbium, leeks, quince, rhubarb, cassia, mandrake, and many more. Rabelais had a mania for listing; interpolated lists form part of the narrative structure. The Rabelaisian list of the known mycological world includes agarics, lichens, morels, tree ear, and toadstools; in addition, he brings an incipient understanding of mycological phenomena like fermentation, human parasites (“ringbone” or ringworm), mycorrhizae (a tree “that nourishes the good agaric on its roots”), and, above all, Saint Anthony’s fire, the gangrenous disease caused by ergot (*Claviceps purpurea*), the curse of the Middle Ages. Rhizotome is a young page in charge of Gargantua’s botanical education, and Lent is a monstrous character whose chin is formed of mushrooms and who defecates toadstools and morels. These fantastic elements generate an explosive proliferation of botanical and mycological entities in the somatic cosmos of gargantuan characters and cataclysmic events, for these people are truly giants. Fungi play a critical role both as the “food of the gods” and as mysterious subterranean and subcutaneous forces in the “Gaia Hypothesis” of Rabelais’s world, and one may easily imagine the devilish *Boletus satanus* si-

lently lurking off to one side in Hieronymous Bosch's painting *The Haywain* as one delights in this ribald and comic masterpiece.⁵

E. T. A. Hoffmann (1776–1822) is another fantasist and precursor to the surrealist enterprise and twentieth-century science fiction, and his knowledge of the botanical world was formidable. Hoffmann has been called “the archpriest of ultra-German romanticism.” He wrote enduring tales like “The Sandman” and “Nutcracker and the King of Mice” on which Offenbach and Tchaikovsky based, respectively, an opera and a ballet, and his world is populated with gnomes, salamanders, sylphs, undines, and other denizens of the occult. In “*Datura Fastuosa*” (“Gorgeous Thorn Apple”), a tale which stands with Nathaniel Hawthorne’s “Rappaccini’s Daughter” as a model fiction of the allure of toxic plants in botanic gardens, Hoffmann bids us enter the nightshade world of the solanaceae in a story of repression, mother fixation, and symbolic incest with the poisonous datura. “The King’s Bride (A Fairy Tale after Nature)” recounts the story of Fraulein Annchen whose innocent delight in her vegetable garden leads to divided loyalties between her betrothed and *Daucus carota*, king of the vegetables, who claims her love by tempting her with a seductive vision of rule over the entire vegetable kingdom. By his occult genius, Annchen’s father reveals, as if through a microscope, the hellish underground medium in which her prize cabbages grow—a nauseating, slimy chaos of wriggling worms and beetles carrying onions with ugly human faces—and subverts *Daucus carota*’s proposals. In the end, the father’s hidden identity as an “obnoxious toadstool” is cast off as an evil spell through a poetic incantation by Annchen’s betrothed, and peace returns to their botanical world. Hoffmann’s metaphoric transformations among vegetal, fungal, and supernatural agents in his vivid characterizations underscore his root belief that humankind has suffered a degenerate estrangement from the harmonious circle of nature.⁶ His German contemporaries, Achim von Arnim (1781–1831) and Clemens Brentano (1778–1842), also writers of fantastic romances, were most famous for the folk-song collection *Des Knaben Wunderhorn* (*The Boy’s Magic Horn*), upon which the Mahler song cycle is based. According to Günter Grass, the two folklorists, like the brothers Grimm and Hoffmann, pursued their research in an environment where forests of mushrooms and supernatural stories were organically linked: “Shout, shout in the woods, / Mushrooms and fairy tales / are overtaking us.”⁷

The philosophical underpinnings of the *Kunstmärchen* (literary fairy tales) of Arnim, Brentano, and Hoffmann may be detected in the *Naturphilosophie* that influenced the romantic movement in Germany and Great Britain (through Coleridge). In brief, *Naturphilosophie* held that nature is an integrated, spiritual whole, and it is noteworthy that nineteenth-century mycology inherited the influence of *Naturphilosophie* through the work of Elias Magnus

Fries. Fries was also influenced by Johann Wolfgang von Goethe, whose unique contribution to this philosophy of nature was the notion that all living entities exhibited fundamental organic types. Remarkably, a version of this idea turns up again one century later under the empiric guise of the “type concept” that entered modern taxonomic theory via the American botanist Nathaniel Lord Britton. One of the greatest artists and critics in the Western canon, Goethe was also a research biologist and morphologist (he coined the term “morphology”), and his idea of the “*urpflanze*”—the primordial archetype of all plant life—underlay both his notions of type and of morphogenesis in the kingdom *Plantae*.⁸ In this, he countered the artificial taxonomic system of Linnaeus just as he prefigured the evolutionary thought of Darwin. But what of the fungi? Goethe speaks nothing of mushrooms (though surely he knew *Fliegenpilz*, i.e. *Amanita muscaria*), but the idealistic construct of the *urpflanze* suggestively prefigures the whole enterprise of exploring the dreamlike—the *strange*—properties of mushrooms in the surrealism and science fiction to come. The literature to be examined from the romantic period forward involves successive confrontations with the ideality of the fungus world in the continual attempt to render it comprehensible through fantasy, a process of de-realization and estrangement. Andre Breton complained that modern biology was contaminated by a “mania for classification,” and he singled out Hegel, rather than Goethe, as the reference point for a dialectics of natural history. Breton’s morphogenetic approach to nature veered sharply away from the taxonomic schema that dominated the expanding scientific reconnaissance of the natural world; instead, he would prefer the absurd, as in George Christoph Lichtenberg’s taxonomic fantasy of “a system of natural history in which animals were classified by the shape of their excrements . . . distinguished by three classes: cylindrical, spherical, and pie-shaped.”⁹

Breton championed the externalization of a “purely internal model” as the basis for surrealist painting and the salvation of the plastic arts; this is one key to understanding the depiction of fungi in fantastic literature, complemented by the Hegelian view of organic existence as an “absolutely fluid condition wherein determinateness . . . is dissolved.”¹⁰ Linnaeus himself suspected the determinateness of spore-bearing organisms in the plant world, relegating them to the “lowest” order, the *cryptogamia*, a word that means “secret marriage.” The rapid dissolution of determinate form is a hallmark of the fungal world, and literature began to take increasing cognizance of this as mycological entities and agents of the strange (like bioluminescence) make their appearance in works of fantasy. Just as Fries and Persoon began their mycological careers, Samuel Taylor Coleridge’s extravagant poem of madness and adventure, “The Rime of the Ancient Mariner,” was published in Wordsworth’s *Lyrical Ballads* in 1798. These two, arch-romantic poets and lovers of nature, had spent time poring through bo-

tanical microscopes and studying William Withering's *British Plants*, and it is well-known that William Bartram's *Travels* was a decisive influence on Coleridge's poem "Kubla Khan." "The Rime of the Ancient Mariner" incorporates several esoteric scientific influences: Joseph Priestley's "Light from Putrescent Substances" from his *Opticks*, among others.¹¹ Coleridge mythologized the eerie phenomenon of the phosphorescent sea as he gave voice to the mariner's tale of death and disaster brought on by killing an albatross. Bioluminescence caused by teeming dinoflagellates and marine protozoa in ocean waters (a phenomenon later called "the burning of the sea") was a fairly familiar marvel thanks to the reports of Captain James Cook, William Dampier, and other seafarers. These appearances took on the form of artificial fire, shiny trails of milk, starry skies, and even slime. In "The Rime of the Ancient Mariner," the mystery of the sea and the properties of oceanic bioluminescence coalesced in a monstrous image of rot and slime:

*The very deep did rot: O Christ!
That ever this should be!
Yea, slimy things did crawl with legs
Upon the slimy sea.*¹²

The image of a rotting sea teeming with untold animalculae conjoins the supernatural and the fungal as it burns "green, and blue and white." Appropriately, Thomas Carlyle described Coleridge himself as "a mass of richest spices putrefied into a dunghill," a fitting metaphor for a mushroom that neatly summarized the contradictions of the poet.¹³

The mushroom that appears in Lewis Carroll's *Alice's Adventures in Wonderland* (1865) is arguably the best-known mushroom in the western literary tradition. The controversy and mystery surrounding Carroll's mycological knowledge is therefore proportionally large, and this is significant, given that the mushroom was the size of Alice herself. That is to say, it was the size of a mushroom, for Alice had shrunken considerably. In a fantasy world



John Tenniel illustration for Lewis Carroll's *Alice's Adventures in Wonderland*, 1865.

where size and proportion are called into question at every turn, it seems a surprise that Carroll presented the mushroom itself as so matter-of-factly ordinary, for in the original illustration by John Tenniel it looks utterly unremarkable. Is it possibly a tricholoma? The very question indicates the naturalist's strong desire "to put a name on the thing," forgetting entirely that we are in Wonderland. What is this mushroom? And why do we need to know? Carroll and

Tenniel offer the reader no more than wonderland associations: a talking caterpillar languidly puffing on a hookah and the mushroom's ability, once eaten, to alter size and proportion. These two clues have led several to speculate that the Wonderland mushroom is an hallucinogenic fungus; more specifically, that it is *Amanita muscaria*. The infamous fly agaric rears its superpotent pileus here thanks first to Robert Gordon Wasson's "mushroomic" speculations in *Mushrooms, Russia, and History*. Fly agaric is unquestionably the most abundant and easily recognized mushroom in all the world of fantasy and folklore, and its bright red cap with white spots has become a fairytale cliché. Wasson, constantly sifting for evidence for his beloved soma through the pages of history and literature, and often reaching conclusions that are as suspect as they are tantalizing, hypothesized that Carroll, if not directly influenced by Mordecai Cubitt Cooke, the British mycologist, may have read a review of Cooke's *A Plain and Easy Account of British Fungi* (1862) in *The Gardeners' Chronicle and Agricultural Gazette*. Wasson springs to an inevitable Q.E.D.:

With a shout of discovery we leap to the conclusion that Alice's mushroom is the one that Cooke serves us [*Amanita muscaria*]. The timing is perfect. Surely the progenitor of Alice, in the cloistered retreat of Christ Church, with Cooke's manual at hand, transmuted the untamed practices of the uncivilized Korjaks into the poetry of wonderland.¹⁴

But why place real toadstools in imaginary gardens? For the common reason that the metaphoric valence of strangeness in a mushroom that causes perceptual distortions propels us forward with an inexorable taxonomic imperative as it sparks us with the need to explain. Richard Evans Schultes, the magisterial authority on plant hallucinogens, also entertained a close connection between Cooke's *Seven Sisters of Sleep* (1860) and Lewis Carroll's mycology but wisely advised "we have absolutely no proof" of this. Terence McKenna, in *The Archaic Revival* (1991) helps to clarify Wasson's speculations a bit, and Elio Schaechter suggests "there is evidence that Lewis Carroll was well-informed about the hallucinogenic power of mushrooms," and offers a key bit of evidence that Carroll first described Alice as eating separately from mushroom cap and stem (producing the differing effects) in the earlier *Alice's Adventures Underground*.¹⁵ In all of this, no one has bothered to examine the illustrations, and these are rife. Carroll himself and Tenniel created the first illustrations; Arthur Rackham illustrated a famous edition of *Alice* in 1907; an Italian edition in 1953 depicted an elf-like caterpillar atop a lepiota-like mushroom; and the Walt Disney LP recording of 1944 featured a saucy, smiling Ginger Rogers with arms akimbo under a massive lavender mushroom with a long, grumpy face on its stipe. There are many, many more. The genesis of John Tenniel's drawings in the first edition of *Alice*

in *Wonderland* that Carroll saw into print is crucial to a corrective interpretation of our mushroom. According to Michael Hancher in *The Tenniel Illustrations to the "Alice" Books*, Tenniel's famous illustration derived not from mycology but from illustrations in *Punch* magazine that depicted the pope of Roman Catholicism as a caterpillar. In two critical drawings for *Punch*—one by John Leech, "The Pope in his Chair" (1851), and one by Tenniel himself of Nicholas Cardinal Wiseman (1855)—both subjects are seated on a squat platform with a curiously stipe-like base. This was known as a "faldstool," an armless chair used by bishops and other prelates when not occupying the throne or when officiating in any but their own church. Hancher maintains that, "taken together, they yielded the now well-known image of the arrogant Caterpillar savoring his hookah on a toadstool." Moreover, the hookah was a common motif in Victorian orientalism, and Hancher singles out the *Punch* drawing by H. R. Howard, "Mushroom and Hookah" (1860), as another possible influence.¹⁶ In sum, the Tenniel mushroom illustration, so suggestive in its constellation of psychedelic motifs, had an entirely nonmycological derivation, which begins to contradict the theory that this mushroom derives from *Amanita muscaria*. While little has been confirmed or invalidated here about Carroll's mycological knowledge or his intuitions about altered states of consciousness, we must learn to appreciate the dialectic of story and illustration in order to recognize the transference of metamorphic properties from the mushroom to Alice as she gazes down at it from her own private wonderland, ten feet tall.

Lewis Carroll's and John Tenniel's famous mushroom, rooted in its fairytale setting, counteracted for a moment the common perception of fungi as grotesque and disgusting, even as it added the psychedelic baggage of hookah and hallucination that prompted twentieth-century psychonauts to smile omnisciently like Cheshire cats. Fairy tales and children's stories are integral to the legacy of Victorian literature, but one is surprised to find scant reference to the world of mushrooms in classics like Charles Kingsley's *Water Babies* (1863), Beatrix Potter's tales of farmyard and woodland animals, or Kenneth Graham's *The Wind in the Willows* (1908). Kingsley, for instance, was a formidable naturalist in his own right, and George Eliot once reviewed his novel *Westward Ho!* in terms intrinsically mycological, personifying the novel itself as a tempting mushroom:

Every one who was so happy as to go mushrooming in his early days, remembers his delight when, after picking up and throwing away heaps of dubious fungi, dear to naturalists but abhorred of cooks, he pounces on an unmistakable mushroom, with its delicate fragrance and pink lining tempting him to devour it there and then, to the prejudice of the promised dish for breakfast. . . . The

plentiful dubious fungi are the ordinary quarter's crop of novels, not all poisonous, but generally not appetizing, and certainly not nourishing; and the unmistakable mushroom is a new novel by Charles Kingsley.¹⁷

And while Beatrix Potter did not pepper every one of her stories with mushroom references, she used them to good effect in *The Fairy Caravan*, where the "toadstool tartlet" may be yet another version of *Amanita muscaria*. Her stories apart, Potter expressed her passion for mushrooms through her paintings and scientific investigations: she established the symbiotic relationship of alga and fungus in the lichens and produced a classic paper on the germination of spores.¹⁸ The Victorian world expressed deep ambivalence about the fungi, and if children's fairy stories are populated with innocent versions of the fly agaric, imbued with the magic of sprightly pixies dancing in fairy rings, the evil investiture of the subterranean world seethes and crawls just below the surface, ready to spring forth in the next toxic toadstool. The science of mycology was developing apace and devoted amateurs were out in the fields and woods collecting, but popular antipathy to the fungi still carried the day. In the words of mycologist Miles Joseph Berkeley, this antipathy stems "from the poisonous qualities, the evanescent nature, and the loathsome mass of putrescence presented in decay by many species, [and has] become a byword among the vulgar."¹⁹ The earliest investigators helped to transmit such prejudice, even as they labored to disengage the empiricism of botany and mycology from superstition and folklore. Pliny believed that polypores were morbid outgrowths of trees; Dillenius maintained that mushrooms were "a sterile kind of plant . . . arising from putrefactive fermentation;" and Bauhin saw them as the "superfluous humidity of soil, trees, rotten wood, and other decaying substances." Linnaeus once called them "thievish and voracious beggars."²⁰ Mushrooms were vile and unclean excrescences, the excrement of the earth, created merely "for vengeance." Little wonder, then, that, notwithstanding the sympathetic appreciation of amateur naturalists like George Eliot and Beatrix Potter, the following neatly summarizes the general Victorian outlook on mushrooms:

[Mushrooms] are looked upon as vegetable vermin, only made to be destroyed. No eye can see their beauties; their office is unknown; their varieties are not regarded; they are hardly allowed a place among Nature's lawful children, but are considered something abnormal, worthless and inexplicable. By precept and example children are taught from the earliest infancy to loathe, despise and avoid all kinds of toadstools. The individual who desires to engage in the study of them . . . is actually regarded as a sort of idiot.²¹

Fungal Metamorphosis and the Surrealist Aesthetic

The stories of Edgar Allan Poe (1809–1849) are so well known to American readers that they may induce a yawn of ennui instead of the expected *frisson* of horror, especially in an age supersaturated with cinematic terror and gratuitous gore. Yet, mention the name *Lautreamont*, and one will invite only stares of incomprehension. Isidore Ducasse (1846–1870), or Lautreamont, was the author of *Les Chants de Maldoror*, a work of such hyperbolic malignity of the imagination that Andre Breton championed him unconditionally as the purest precursor to the surrealist enterprise. Both Poe and Lautreamont intuitively grasped the mutative flux of the natural world, and both populate their narratives with an abundance of fauna and flora, mythical and otherwise, if only better to unsettle the reader and blaspheme the Creator. Some scholars have disputed that Poe was particularly knowledgeable about natural history, perhaps because he abhorred “the triumph of mechanical reason” at the expense of an integrated vision of science and poetry.²² However, his stories abound in references to vegetation, wildflowers, insects, reptiles, mammals, and not a few mushrooms, truffles, and mildews as if to catalogue completely the known world of flora and fauna in the course of spinning crazy tales of disaster, intrigue, and terror. Poe may have excelled in recounting fantastic stories of travel and adventure, but his very first publication was a textbook on conchology, and his prescient deployment of technological invention and cosmological speculation culminated in his prose-poem *Eureka*, dedicated to Alexander von Humboldt and prefiguring Albert Einstein’s theory of relativity.

Fungi—provoking wonder or arising from decay—populate Poe’s stories. In “The Pit and the Pendulum” the peculiar stench of “decayed fungus” is the olfactory counterpart to a trial of horror in a slime-covered dungeon of the Inquisition; in “The Premature Burial” decay that emanates from open graves does so with “phosphoric radiance.” Poe folds these images together in his tale “The Thousand-and-Second Tale of Scheherazade” in which a cave-dwelling species of “cryptogamous fungus . . . emits an intense phosphorescence.” In “The Angel of the Odd” a dinner which includes a “dyspeptic truffle” instigates a dreamlike encounter with an evil sprite, and several other stories are littered with molds and lichens along with a retinue of poisonous plants. It is in “The Fall of the House of Usher,” one of the greatest short stories of the genre, that fungi receive their key theoretic position as an occult principle in Poe. The house, a locus for the story’s action and a metaphor for Roderick Usher’s cranium, features a façade in which “minute fungi overspread the whole exterior, hanging in a fine tangled web-work from the eaves” and joining the stonework to camouflage a perilous fissure. This alone would seem an adequate portrait of dilapidation, but Poe carries the scenario further by embodying it in Usher’s psychopathic belief in the “sentience of all vegetable things,” i.e., that vegetable life, including

the fungi, is capable of feeling or perception, possibly of thinking. Usher’s belief was “connected . . . with the gray stones [and] the conditions of the sentience had been here . . . fulfilled in the method of collocation of these stones . . . as well as in that of the many *fungi* which overspread them, and of the decayed trees which stood around.”²³ Far from mere adornment, Poe’s fungi represent a strange life form insinuated into a desolated environment, imbued with the malignancy of decay, and supernaturally sentient at the very border of life and death. That we find the “dead” Madeleine Usher alive in her tomb at the penultimate moment before the cataclysmic destruction of the entire house supports the offstage role of fungi as liminal entities having more control over human destiny than we would prefer to believe. In Jean Epstein’s fine 1928 cinematic version of Poe’s story, the fungi do not appear until we enter Madeleine’s crypt, where we find a crazy array of mushrooms decidedly crystalline in appearance.²⁴ Fungi are macabre, metaphoric bridges from life to death and back again, symbolizing transit between the natural and supernatural just as they themselves seem to be unpredictably transformative in so many guises, in so many different ways.

The nineteenth-century French illustrator Charles Meryon (1821–1868) produced an etching in 1860 entitled “The Sickly Cryptogam.” In it, a convoluted, mushroom-like growth seems to feed upon itself, as if it had coalesced by anastomosis into a topological enigma like a Klein bottle. Meryon’s cryptogam would be a fitting emblem for Lautreamont’s *Les Chants de Maldoror*, which posits an enigmatic world superabundant with menacing wildlife and seething with the bestial, the pestilential, and the unexplained. A literary beacon of the first magnitude for the surrealists, Lautreamont unleashed *Les Chants de Maldoror* upon the world in 1869, and it remains an uncanny counterpart to Charles Darwin’s theory of evolution by natural selection, in which life forms appear in riotous profusion and endless metamorphosis. The natural history index to Lautreamont is formidable: there are approximately 70 botanical, 34 entomological, 60 ornithological, 106 zoological, 11 mycological, and 9 fabulous taxa represented in *Les Chants de Maldoror*, amid countless other general references to the living world, a bestiary that eclipses even that of Poe. What is



Charles Meryon – *The Sickly Cryptogam* (etching), 1860

more, Lautreamont’s surreal taxonomy subverts the fixed chain of being in other ways: e.g., in the portrayal of humankind under animal guises and in cross fertilizations of incompatible species. For example, a man mates with a louse, producing a swarming cluster of indescribable hybrid monsters that writhe like liquid mercury and form tributaries reminiscent of *Dictyostelium discoideum*. If we were to

look upon the organic world completely anew, shedding all our preconceptions of the fixity of stable relationships, perhaps Lautreamont's revolutionary vision would be the closest brush to understanding the meaning of *strange*. When man becomes toadstool and toadstool becomes man, we confront a vision that is deliberating revolting and utterly devastating:

I am filthy. Lice gnaw me. Swine, when they look at me, vomit. The scabs and sores of leprosy have scaled off my skin which is coated with yellowish pus. I know not river water nor the cloud's dew. From my nape, as from a dungheap, an enormous toadstool with umbelliferous peduncles sprouts. Seated on a shapeless chunk of furniture, I have not moved a limb in four centuries. My feet have taken root in the soil forming a sort of perennial vegetation—not yet quite plant life but no longer flesh—as far as my belly, and filled with vile parasites. My heart, however, is still beating. But how could it beat if the decay and effluvia of my carcass (I dare not say body) did not abundantly feed on it?²⁵

Not quite plant life but no longer flesh: it is easy to see why Andre Breton and the surrealists lionized Lautreamont as a forebear of genius, for this hellish portrait, worthy of Bosch, is a vision *in extremis*, and can be matched only by a similar vision, one of hell itself. James Joyce, though not to be cast in any way as a surrealist, had earlier produced the most startling depiction of the merging of human and fungal worlds in his sermon on hell from *A Portrait of the Artist as Young Man*:

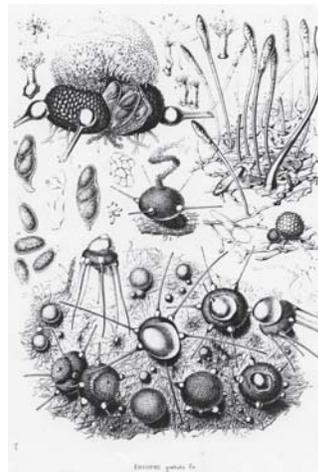
Consider then what must be the foulness of the air of hell. Imagine some foul and putrid corpse that has lain rotting and decomposing in the grave, a jellylike mass of liquid corruption. Imagine such a corpse a prey to flames, devoured by the fire of burning brimstone and giving off dense choking fumes of nauseous loathsome decomposition. And then imagine this sickening stench, multiplied a millionfold and a millionfold again from the millions upon millions of fetid carcasses massed together in the reeking darkness, a huge and rotting human fungus. Imagine all this and you will have some idea of the horror of the stench of hell.²⁶

Andre Breton published his first *Manifesto of Surrealism* in 1924 amidst a burst of creative experimentation intended to incite social revolution as it attempted to fuse dream with reality. Defining surrealism as “psychic automatism” that expressed “the actual functioning of thought,” he and his devotees exploded the boundaries of art through the sheer intellectual ferment of this enterprise into a search for *the marvelous* in poetry, painting, and cin-

ema. An appreciation of the natural world was often not far off. Breton once constructed a sculpture, a “surrealist object,” from various lichens. As a poet, he was a seeker of bizarre and unverifiable eidetic images via the verbal inspiration of automatic writing, imagining his lover's hair as “a patch of pink mushrooms, among pine needles and very fine glassware of dried leaves,” flowers whose aerial stems were connected to “the rhizome of the sky,” and roots as “subterranean nerve endings.”²⁷ Surrealism's predominating legacy is most evident in painting: Max Ernst incorporated natural history subjects wholesale into his work (e.g., *Farcical Hydropic Parasitic Plantation*, 1921); Joan Miró and Yves Tanguy regularly deployed geo- and biomorphic entities throughout their otherworldly landscapes; and Salvador Dalí connected with a broader, popular audience via his morbid fascination with decay, the dematerialization of organic matter, and the morphological aesthetics of soft and hard. However, this fusion of the fungal and the fantastic was not limited to pictorial (or verbal) *representation*, for surrealist writing itself could mimic the wild monstrosity of the natural world as an ideological transformation of Lautreamont, as in Louis Aragon's *Treatise on Style* (1924). In this vitriolic diatribe against all and everything, Aragon postured: “My style is like nature. . . . Here, a werewolf of moss lies in wait for you; there, you would be devoured by a minotaur mushroom.” Again, “My style is vast enough to accommodate both ergot and phylloxera.” Or, “I have harvested mildew. Lichens call me by name.” Or, recalling Lautreamont's uncanny bestiary: “I enjoyed the swan's embarrassment in the presence of the truffle.” In *Treatise on Style*, Aragon showed no restraint in his snotty vituperation against all that is phony, stupid, or mediocre, but in his earlier *Le Paysan de Paris* (1924) he waxed a bit more lyrical about the natural world in his appreciation of the Parc de Buttes Chaumont in Paris. One wonders whether Aragon and Breton were guided by the glow of luminescent mushrooms couched in the dark recesses

of this mysterious urban park on their sojourns in search of the marvelous. One thing is sure: Aragon the *agent provocateur* was intoxicated with effect of his own writing, and he reveled in the blue mushrooms that he found growing only “in the squishiness of brains.”²⁸

One of the scientific foundations that underlay these surreal visions arrived in the nineteenth century through the work of mycologists who explored the physiology of the fungi through the microscope. Notable among



Louis Rene and Charles Tulasne: plate (*Phyllactinia guttata*) from *Selecta Fungorum Carpologia*, 1861–65.

these are the French brothers Louis René Tulasne (1815–1885) and Charles Tulasne (1816–1884), best known for first postulating the pleomorphic nature of the fungi in *Selecta Fungorum Carpologia* (1861–1865). Charles Tulasne’s illustrations in this, their magnum opus, a total of 61 uncolored plates, stand as a magnificent example of pictorial surrealism, regardless that their manifest content is the minute depiction of the erysiphales (powdery mildews) and pyrenomycetes as seen through a microscope. What makes the Tulasne illustrations surreal? Does it even make sense to apply this term to scientific illustration? One example will suffice: the plate depicting *Phyllactinia guttata*, the cleistothecium (fruiting body) of which bears a series of radiating appendages and a mucilage-secreting crown. The fungus is a powdery mildew that parasitizes common trees. Charles Tulasne’s illustration shows a field of energized cleistothecia febrile with life, multiplying, sporulating, lifting off like alien ships, and brandishing spiny points in great agitation. One cleistothecium under greater magnification bursts with phalloid asci from under a foaming thicket of mucilage that literally spurts multiplex appendages. Here is the convulsive beauty that Andre Breton had claimed as an aesthetic paradigm: the lyricism of the subvisible rendered visible, unearthly but of the earth, and while not exactly an internal model externalized, an external model (the fungus itself) utterly unconventional, dangerous as a potent vector of plant disease yet outside normal awareness and perception. For mycologists only? Perhaps. But what Tulasne had done is pictured the unknown, nature’s imagination, from a plane of reality dripping with the hallucinatory décor of advancing mycelial threads that propagate, threaten, and control. Never mind the paeans of praise to the Good Lord that these righteous mycologists, the Tulasne brothers, have fixed firmly in the preface to the *Selecta*, for in these illustrations they have undermined the great chain of being and all that it symbolized as a Christian hierarchy by asserting the omnipotence of the fungus. As a surrealist subject, Tulasne’s *Phyllactinia guttata* far surpasses Salvador Dalí’s tedious iconography of common objects that liquefy and melt, and he explores much wilder terrain than Grandville or even Odilon Redon. His worthy successor is the surrealist Yves Tanguy, whose milky landscapes erupted incrementally with indistinct fungal nodules climaxing in his last great painting, *Multiplication of the Arcs* (1954), a riot of fungal formations turned to frozen stone. It is quite surprising that Breton and company never claimed Charles Tulasne as one of their own.²⁹ As it requires no great exertion of imagination to find an arcyria or cordyceps lurking in the artwork of Joan Miró (e.g., *Le Jardin de Mousse*, 1968), so too it makes sense, analogically, to validate the surreal potential in the mycological illustrations of Charles Tulasne.

Many other examples may be gleaned from surrealism’s history. The Czech surrealist Toyen, for example, painted mushrooms directly from experience. In her painting *Chateau Lacoste* (1946),

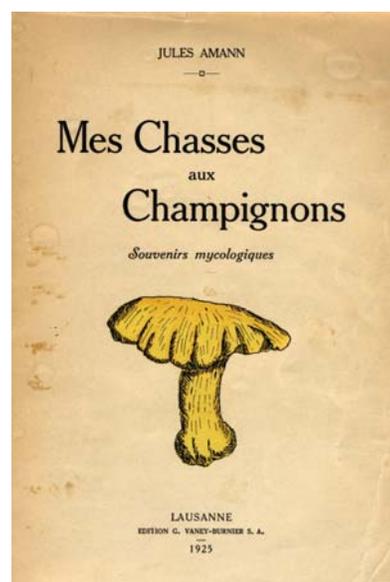


Toyen: *Chateau Lacoste*, 1946.

Toyen depicts a cluster of olivaceous fungi emerging from cracks in a wall near the sketched outline of a fox whose foot is strangling a blue bird at the wall’s base. The caespitose fungi contribute significantly to the menacing atmosphere. A case could be made for fungal manifestations in the wraith-like paintings of Wolfgang Paalen, whose lifework blended surrealist with scientific and anthropological perspectives.³⁰ The culmination of this hybrid sensibility (surrealism and science) appears in the work of Jean Painlevé (1902–1989), an idiosyncratic French filmmaker who directed over two hundred science and nature films and whose credo was “science is fiction.” Aligned with the surrealists for a time and scandalizing the scientific community with an avant-gardist’s propensity to shock, Painlevé pioneered underwater photography and lovingly befriended octopi and crustaceans in his perfervid pursuit to reveal their human qualities in cinema. Among many notable films were *Hyas and Stenorhynchus* (1929), depicting crabs in seaweed camouflage; *Freshwater Assassins* (1947), which explored “forms of alimentary destruction” with a jazzy soundtrack by Louis Armstrong; *Love Life of the Octopus* (1965), on the mechanics of sex among the cephalopods; and *Acera or The Witches’ Dance* (1972) in which acera mollusks whirl like flying mushrooms. At the close of World War II, Painlevé revived the Institute of Scientific Cinema in Paris, whose film conference in 1946 screened over three dozen science films including *Predatory Mushrooms* and *Insects in Vegetables*. Painlevé relentlessly sought to make the familiar alien and the alien familiar by upending traditional categories of human and animal in his painstaking documentaries. In this, he was also a friend of the fungi and claimed his affection in a surrealist tract “Neo-Zoological Drama” (1924) that begins: “The plasmodium of the Myxomycetes is so sweet.” His taxonomic principles were exacting but crazy, that is to say, surreal: just as Georges Buffon postulated that truffles were an intermediate stage between stones and mushrooms, and Andre Breton ridiculed the idea of three kingdoms as the “height of absurdity,” so too Painlevé insisted, “To me there is no difference between minerals, vegetables, and animals. They are all linked through evolution.” As a cinematographer of nature, Jean Painlevé

was a surrealist and a realist: “I’m very proud that we live in an era that finally recognizes its dependence on shit. All of genetics relies on colon bacilli, which in turn rely on our feces. All experiments are done on it. We’re deep into the shit.” Regrettably, Painlevé seems never to have discovered the fascination of pilobolus.³¹

Popular mycology in Europe also had its resident surrealist of sorts. In 1925, Swiss bryologist Jules Amann (1859–1939) published *Mes Chasses aux Champignons* (*My Mushroom Hunts*), a discourse on mushrooms in the form of an extended dialogue of three contrasting character types: a mushroom expert (*Le Docteur*), a gourmand (*Maitre-Coq*), and a versifier (*Le Poète*). Though *Mes Chasses aux Champignons* reviews common mushroom genera and species systematically, primarily by spore color, one hesitates to call this a standard identification guide. Likewise, it is not associated with the surrealist movement per se, even if it seems so in spirit. Unique in the mycological literature, Amann’s book brings a Rabelaisian charm and erudition to the appreciation of mushrooms as each of the three characters pushes his distinct agenda. *Le Docteur*, the illustrious mycologist, represents science, and his goal is to bring classification and order to the jumble of nature much like a department store arranges its merchandise. *Maître-Coq*, a passionate mycophile who boasts tasting 70 species, invariably brings the conversation around to the culinary arts; whereas *Le Poete*, an “enthusiastic rhymor,” can see only the aesthetic qualities of “the sons of Pomona” (as the mushrooms are called) and delivers witty alexandrines and doggerel for nearly every genus. Along the way history, customs, recipes, microbes, parasites, common names, scientific names, poisons, nutrition, songs, and ballads all get discussed in a veritable gallimaufry of mushroom lore. Fries, Persoon, and Saccardo are invoked as giants of mycology; “*Morilles a la binbin*” is declared the most celebrated recipe; and



Jules Amann: cover for *Mes Chasses aux Champignons*, 1925.

Amanita muscaria is given a mock trial in court. The poet’s zany poem “Ballad of the Astronomer Poisoned by an Entoloma” is trumped only by *Maître-Coq*’s pictorial poem, “*Le Long-Pied Estropie*”:

Le Long-Pied Estropie

Au pied
D’un arbre mort
Un Long-pied estropie
Se plaignait de son triste sort:
Il deplorait l’amere malechance
Qui l’avait afflige, le jour de sa naissance

Du pied bot
D’un nabot
Malchanceux
Disgracieux,
Souffreteux,
Scrofuleux,
Caverneux,
Tortueux,
Monstrueux,
Calamiteux,
Cartilagineux,
Globuleux et anguleux,
Noureux, goutteux et lepreux,
Defectueux et desastreux,
Mucilagineux,
Tuberculeux,
Scandaleux,
Cagneux
Boiteux
Honteux,
Piteux !

Le Long-Pied Estropie means “Long-footed Cripple” and is in actuality *Hebeloma longicaudum*; though from the radicating stipe in the poem-silhouette one might have supposed an amanita, section lepidella. *Le Docteur* and *Le Poete* snicker at *Maître-Coq*’s unorthodox attempt at versification because they believe this is not a poem at all: it fails to conform to usual standards of meter and poetic form, consisting primarily of a string of rhyming adjectives that recapitulates all that is objectionable in the fungi.³² Ostensibly derived from Rabelais, the proximate influence for this poem is the celebrated Parisian poet Guillaume Apollinaire, whose collection *Calligrammes* (1918) was the closest model of typographical picture-poems for Amann. Apollinaire, who coined the term “surrealism,” was conversant about mushrooms and mentioned obvious ones like the “*fausse orange*” (*Amanita muscaria*) in his poetry. His brother Albert was an avid mushroomer, constantly picking mushrooms, it was said, in the Ardennes forest. Other mushroom-savvy Parisians of the age included Gertrude Stein and her companion Alice B. Toklas, who reproduced several recipes—for mushroom flan, sauce mornay, Francillon salad, and mushroom sandwiches (her specialty)—in *The Alice B. Toklas Cook Book*.³³

Though not endorsed by Andre Breton or the surrealists, Amann's *Mes Chasses aux Champignons* represents a vision of the mushroom world at the confluence of popular mycology and literary imagination that, if not surrealist in intention, was very much surrealist in spirit. Amann's poeticized mycology also brings to mind the illustrations of Roland Sabatier, whose anthropomorphic mushrooms much later in the century have delighted many with artful personifications of the fungi as a form of cartoon comedy. Sabatier, more than any other mycological artist, has given mushrooms recognizable personalities that we do not call into question because they seem so undeniably true. Jules Amann and Roland Sabatier, in anthropomorphizing the fungi, also humanized them.³⁴

Surrealism's fluid pseudopodia oozed from the human psyche to palpate science and natural history and secretly discovered in mycology a wanton succubus. The revelations of the microscope, the potency of evolutionary thought, and the expanding boundaries of the cosmos all stimulated imaginative wonder in countless poets and artists of the late 19th century, who responded in turn with an effusion of provocative visions. As scientists like Ernst Haeckel and Anton de Bary brought forth new schema to classify ambiguous organisms like slime molds that controverted the boundaries of the familiar, artists like Edward Lear and Odilon Redon portrayed this crossing-over with farcical caricatures or nightmarish illustrations that reveled in hybrid forms. In *The Temptation of Saint Anthony* (1874) Gustave Flaubert attempted to represent the delirium of nature in a pantheistic rapture of hybrid and composite entities from inexplicable globular masses brimming with hairs to lichens that break out like a rash on the face of the Sphinx. Another proto-surrealist, Joris-Karl Huysmans, invoked "bathybius," a protoplasmic slime postulated by Ernst Haeckel as the basis of all underwater life, and Arthur Rimbaud, the bad boy of French poetry, recommended "a rhymed treatise on potato blight" to overtake the cliché-ridden verse of the Parnassians.³⁵ The surrealist revolution of the 1920s resorbed the mesmeric revelations of literary natural history in its pursuit of the marvelous by plumbing the unconscious world of dreams, the wellspring of all that was worth investigating surrealistically, according to Andre Breton. Breton insisted that a key foothold into dreams was gained by the psychoanalytic theories of Sigmund Freud, and even here, in *The Interpretation of Dreams*, the mycological analogy characterized the very nature of dreaming in Freud's observation that "dream-wish grows up, like a mushroom out its mycelium."³⁶ Surrealism's sympathy toward the revelatory nature of organic forms spread far beyond its own ideological constraints to affect literature and popular culture to this day. We find it in Bruno Schulz's *The Street of Crocodiles* (1934) wherein a man's deep "biological sympathy . . . for kindred, yet different, forms of life" leads to the cultivation of fantastic, amorphous creatures that could equally be considered pseudofauna or pseudo-

flora.³⁷ In cinema, David Lynch's *The Grandmother* (1970) equates bodily decay with a putrescent fungus; in Jan Švankmajer's surrealist fantasy *Little Otik* (2001) a tree stump comes to life in the form of a human infant: a sublimated mushroom; and in Bill Morrison's *Decasia* (2002) surrealist imagery is produced by the very mold that has deteriorated archival film footage. The hallmark of surrealism remains the juxtaposition of two unlike realities that shocks one into heightened poetic receptivity. This device has become such a commonplace that the shock fails to register, though a certain fascination has lingered on, and turns up in mycology as in the exhibit labeled "hair growing on wood" in the "Believe It or Not" pavilion of the 1933 World's Fair in Chicago. "Hair growing on wood" was not a surrealist artifact but a myxomycete, a species of stemonitis.³⁸ It remains for us to find landscapes of arcyria in the cinema of the Brothers Quay.

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