

Spores of Memory: Ecological Trauma, Multispecies Entanglement, and the Persistence of the Past in Anna Tsing's *The Mushroom at the End of the World*

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I. Introduction: Reading Memory in the Ruins

What does it mean to remember in the ruins? This question, at once philosophical and ecological, sits at the heart of Anna Lowenhaupt Tsing's *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (2015), a text that has done more to reorient the humanities' engagement with multispecies thinking than perhaps any other single work of the past decade. Tsing's book is, among many other things, a sustained meditation on what we might call ecological memory—the capacity of landscapes, organisms, and human-nonhuman assemblages to encode, carry, transmit, and transform the traces of the past. Drawing on more than two decades of fieldwork among matsutake mushroom hunters, traders, and mycologists across Oregon, Kyoto, Yunnan, and Lapland, Tsing builds an argument that is as much about temporality and memory as it is about fungi, global capital, or environmental degradation. The critical discourse on ecological memory has, until relatively recently, remained siloed within disciplines that rarely speak to one another: ecology proper (where the term denotes the capacity of an ecosystem to absorb disturbance and reassert its structural complexity), cultural geography, and the environmental humanities. What Tsing accomplishes—and what this essay aims to trace—is a literary and philosophical synthesis that renders ecological memory legible as a narrative category, a formal problem, and an ethical orientation simultaneously. Her concept of the "salvage accumulation," her recovery of the term "contaminated diversity," and her unflinching insistence on the productivity of ruins all constitute a poetics of ecological memory that warrants sustained close reading.

This essay proceeds in five movements. The first situates Tsing's work within the broader field of ecological memory studies and the environmental humanities, establishing the theoretical coordinates that make her intervention legible. The second offers a close reading of the book's central formal and rhetorical strategies, arguing that its non-linear, rhizomatic structure is itself a performance of ecological memory. The third examines the figure of the matsutake as a mnemonic agent—a nonhuman carrier of historical information that complicates anthropocentric models of memory and trauma. The fourth considers how Tsing's account of capitalist ruins and precarious labor generates what I will call a "distributed mnemonic field," one in which the capacity for memory is understood as an emergent property of assemblages rather than individual minds. The fifth and final movement draws out the ethical and political implications of Tsing's ecological memory poetics, situating it in relation to current conversations about the Anthropocene, slow violence, and the responsibilities of scholarly attention.

II. Ecological Memory: Theoretical Coordinates

Before turning to Tsing's text directly, it is necessary to briefly survey the theoretical landscape in which ecological memory as a concept operates, for the term carries different valences in different disciplines, and Tsing's achievement lies partly in her capacity to orchestrate these valences without collapsing their

differences. In ecology, the foundational work of C. S. Holling established resilience theory as a framework for understanding how ecosystems respond to disturbance. Within this tradition, "ecological memory" denotes the degree to which past states of an ecosystem—its species composition, soil chemistry, hydrological patterns—persist and influence its future trajectories of development. The concept is fundamentally retrospective: it names the way the past inscribes itself in the present organization of living systems.

This biological understanding was taken up and significantly complicated by scholars in the environmental humanities and what Stacy Alaimo has called "trans-corporeality"—the recognition that human bodies are continuous with, rather than bounded from, the environments they inhabit. For Alaimo, the body itself becomes a site of ecological memory, registering toxins, mineral deficiencies, and the bioaccumulated residues of industrial production in ways that confound the nature/culture divide. Paul Connerton's influential account of how societies remember through bodily habit and embodied practice provides another set of conceptual tools, though Connerton's framework remains resolutely anthropocentric and must be stretched considerably to accommodate the more-than-human memories that Tsing's work demands.

The more immediately relevant precursors for Tsing's project are to be found in what scholars now describe as the "memory turn" in environmental humanities: Rob Nixon's account of slow violence and the environmentalism of the poor, which attends to forms of harm that accumulate over time and resist spectacular representation; Kathleen Stewart's concept of "ordinary affects" as reservoirs of social memory; and Donna Haraway's theory of "making kin," which insists on the co-constitution of human and nonhuman forms of life across deep time. Tsing acknowledges her debts to Haraway throughout *The Mushroom at the End of the World*, dedicating it in part to Haraway and adopting her commitment to what Haraway elsewhere calls "staying with the trouble"—a refusal to resolve the tensions and contradictions that constitute living in a damaged world.

What distinguishes Tsing's approach from these precursors is her insistence on the role of nonhuman agents as active participants in the production and transmission of ecological memory. While Nixon's slow violence framework powerfully illuminates how environmental harm accumulates across time, it remains focused on human victims and human perpetrators. While Haraway's multispecies thinking opens conceptual space for nonhuman agency, *The Mushroom at the End of the World* grounds these theoretical possibilities in the material specificity of a single fungal species, *Tricholoma matsutake*, whose biological behavior—its ectomycorrhizal relationship with certain trees, its preference for disturbed and impoverished soils, its capacity to thrive in sites of ecological trauma—becomes the vehicle for a meditation on memory, survival, and value in the ruins of modernity.

III. The Form of Memory: Rhizomatics and the Salvage Accumulation

Any serious engagement with *The Mushroom at the End of the World* must begin with its form, for the book's structure is not incidental to its argument but constitutive of it. Tsing explicitly rejects the progressive, developmental narrative that has dominated both scientific writing and the traditional academic monograph. Instead, she organizes her text around what she calls "a series of interludes" and "open chapters"—short, digressive, formally heterogeneous sections that refuse to accumulate into a conventional argument. The book is divided into five parts with titles drawn from the language of ecological succession and disturbance: "Finding Value in a Ruined World," "After Progress: Salvage," "Contaminated Diversity," "Histories of Capitalist Natures," and "Collaborative Survival." These are not chapters in the conventional sense but nodes in a network, each connected to the others by rhizomatic threads of implication rather than by linear chains of reasoning.

This formal choice is theoretically motivated. Tsing draws explicitly on Gilles Deleuze and Félix Guattari's concept of the rhizome—the non-hierarchical, multiply-connected network that spreads horizontally rather than growing from a single taproot—as a model both for mycorrhizal networks themselves and for the kind of thinking she wants to enact. But her use of this concept is more historically and materially grounded than Deleuze and Guattari's original formulation. Where the rhizome in *A Thousand Plateaus*

functions as an abstract formal principle, in Tsing's text it names a specific biological reality: the underground network of fungal threads, the mycelium, through which information, nutrients, and chemical signals flow between individual organisms and across species boundaries. The form of the book thus enacts what it describes: a distributed, non-hierarchical network of memory and meaning.

This enactment reaches its most sophisticated expression in Tsing's concept of "salvage accumulation," which she develops across multiple sections of the book. Salvage accumulation, as Tsing defines it, is the process by which capitalism converts non-capitalist forms of value—the products of human and nonhuman labor, the residues of pre-capitalist social formations, the ecological wealth of ecosystems not yet fully incorporated into commodity production—into capital. The matsutake trade is her primary example: the mushrooms are gathered by socially marginal collectors in the forests of Oregon and exported to Japan, where they command extraordinary prices as luxury commodities associated with gift-giving, cultural memory, and aristocratic tradition. The labor of gathering is not capitalist wage labor; it is organized around older forms of sociality—reciprocity, gift exchange, ethnic community—that capitalism appropriates without fully domesticating.

What makes Tsing's account of salvage accumulation so rich as a theory of ecological memory is her insistence that the value extracted by this process is not simply economic but mnemonic. The matsutake carries within its fruiting body the memory of a particular ecological history—of forests disturbed and then left to regenerate, of soils exhausted and then partially restored, of mycorrhizal partnerships formed and dissolved over centuries. When this mushroom is extracted from its forest matrix and converted into a luxury commodity, something of this ecological memory travels with it, even as the commodity form obscures and displaces that memory. The Japanese consumer who presents a matsutake as a gift participates, unknowingly, in a chain of ecological memory that links the impoverished hillsides of rural Oregon to the aristocratic traditions of Kyoto. Tsing's project is to make this chain visible.

IV. The Matsutake as Mnemonic Agent: Nonhuman Memory and Disturbance

The central figure of *The Mushroom at the End of the World* is, of course, the matsutake mushroom itself, and any account of Tsing's ecological memory poetics must attend carefully to the way she constructs this organism as a mnemonic agent—a being that carries and transmits historical information not through language or symbol but through biological process. This is a risky rhetorical move, one that courts both anthropomorphism and what we might call the opposite error: a flattening of nonhuman life into mere ecological process devoid of significance. Tsing navigates these risks with considerable skill, and her success in doing so is one of the book's most important achievements.

The matsutake's most ecologically significant characteristic is its ectomycorrhizal relationship with certain tree species, particularly pines and oaks. Unlike saprotrophic fungi, which obtain nutrients by decomposing dead organic matter, ectomycorrhizal fungi live in intimate partnership with living tree roots, exchanging mineral nutrients from the soil for sugars produced by the tree through photosynthesis. This relationship is obligatory for both partners under most circumstances: the matsutake cannot survive without a living host, and in many forest contexts the host trees grow poorly without mycorrhizal partners. *Tricholoma matsutake* is, moreover, notoriously resistant to cultivation—all attempts to grow it in artificial conditions have failed—because it requires not simply a host tree but an entire ecological assemblage, including specific soil microbial communities, particular patterns of soil compaction and moisture, and what mycologists describe as "poor" soils: soils depleted of the rich organic matter that would favor competing fungi over the matsutake.

This biological particularity is, for Tsing, the foundation of the matsutake's mnemonic significance. The mushroom fruits only in soils that have been disturbed, impoverished, and then partially allowed to recover—soils, in other words, that carry the traces of ecological trauma. In Japan, the traditional habitat of the matsutake was the satoyama: a mosaic landscape of villages, rice paddies, and managed woodland that sustained itself through centuries of regular disturbance in the form of wood cutting, leaf raking, and charcoal production. The abandonment of satoyama management in the postwar period, as rural Japan was incorporated into an increasingly industrialized economy, produced the very forest succession that

eliminated matsutake habitat and drove the fungus toward local extinction in Japan—hence the extraordinary premium placed on imported specimens from Korea, China, and the United States.

What the matsutake "remembers," then, is a specific history of disturbance: the disruptions of traditional forest management, the impoverishment of industrial exploitation, the partial recovery of secondary succession. Its presence in a given location is an index—in the semiotic sense of a sign that maintains a direct causal relationship with what it signifies—of a particular past. In the forests of Oregon's Cascade Mountains, where many of the book's American scenes are set, the matsutake flourishes in stands of ponderosa pine that were logged in the mid-twentieth century and then abandoned: the mushroom's very abundance in these sites is a symptom of ecological trauma, a fruiting body that emerges precisely from the ruins of industrial forestry.

Tsing develops this ecological semiotics with great care, drawing on the work of mycologist David Arora and the botanist Toby Kaye alongside her own fieldwork observations. But she is equally attentive to the limits of the framework. The matsutake does not "remember" in the way that human beings or even cognitively complex animals remember. It carries no explicit record of the past, no narrative encoding of what happened to the forest in which it grows. Its mnemonic function is entirely material and relational: it is the trace left by a particular ecological history, and it can be "read" as such only by observers who know how to interpret it. This is, Tsing suggests, the form of memory most characteristic of the ruins in which we increasingly find ourselves. In her formulation: "Ruins are the perfect backdrop for a meditation on past and present, but also for an investigation of the entanglements that make life possible" (27). The matsutake does not mourn the forest that was destroyed; it simply grows where it can, and its growing is itself a form of ecological memory that precedes and exceeds any human capacity for commemoration.

V. Distributed Mnemonic Fields: Assemblage, Precarity, and the Social Life of Ruins

The third strand of Tsing's ecological memory poetics concerns the human communities gathered around the matsutake: the pickers, buyers, exporters, and traders who constitute what she calls the "assemblage" of the global matsutake trade. This is one of the most sociologically rich sections of *The Mushroom at the End of the World*, and it is here that ecological memory and social memory converge in ways that illuminate both.

The mushroom pickers Tsing encounters in the Oregon Cascades are among the most economically precarious populations in the contemporary United States: Southeast Asian refugees (Cambodian, Lao, Hmong) who arrived in the wake of the Vietnam War and its associated conflicts; displaced rural white Oregonians whose traditional livelihoods in timber and ranching have evaporated; and a smaller number of Latino migrant workers. What unites these otherwise disparate groups is their structural position in relation to formal capitalist labor markets: they are, in different ways, surplus populations—people for whom the standard mechanisms of capitalist incorporation (the wage, the career, the pension) are unavailable or insufficient.

The mushroom camp, Tsing observes, is a space in which these different communities develop forms of sociality and memory that cannot be reduced to their individual trajectories. The Hmong pickers, for example, bring with them to the Oregon forests a set of cultural practices, ecological knowledges, and forest relationships formed in the highland forests of Laos and Vietnam. Their ways of reading the forest—knowing where and when to look for mushrooms, understanding the relationship between tree species and fungal fruiting—are products of a displaced ecological memory, a knowledge of forest systems developed in an entirely different environment but still partially applicable in the new one. This is ecological memory in a radically deterritorialized form: knowledge that has been severed from its original material context and now seeks new attachments.

Tsing is careful not to romanticize this process. The knowledge transfer is imperfect and often painful; the communities that form around the matsutake camps are marked by competition, distrust, and the racialized hierarchies that pervade American social life. But she insists on the productivity of these encounters, on the ways in which different forms of ecological memory—indigenous Hmong forest knowledge, white Oregonian logging history, capitalist commodity chains—come into productive if often fraught contact in

the space of the camp. The result is what she calls a "patchwork" of memories and knowledges, a heterogeneous assemblage that is irreducible to any of its components.

The concept of the distributed mnemonic field that I am proposing here synthesizes Tsing's account of these human communities with her analysis of the matsutake's ecological mnemonic function. A distributed mnemonic field, as I use the term, names the emergent capacity for memory and historical inscription that arises from the encounter of multiple human and nonhuman agents in a particular space and time. No single component of the assemblage—not the mushroom, not the Hmong picker, not the Japanese buyer—possesses the mnemonic field in its entirety; it arises from their interaction. This concept has important consequences for how we understand the politics of ecological memory, as I will argue in the final section.

One of Tsing's most striking formal strategies in this regard is what we might call her "interlude" sections—short, essayistic passages that interrupt the main narrative to meditate on a single image, encounter, or concept. These interludes function as what Walter Benjamin called "dialectical images": constellations of past and present that suddenly illuminate a historical moment without reducing it to a continuous narrative. The interlude on "Arts of Noticing," for example, develops the argument that attention—the skilled capacity to notice things that would otherwise escape observation—is itself a form of ecological memory. To notice the matsutake is to carry within oneself a set of perceptual dispositions shaped by previous encounters with the forest: it is, as Tsing puts it, "to be in conversation with the forest's histories" (17). This is a subtle but important point: it suggests that ecological memory is not simply a property of the past but a capacity for attention in the present, a way of being open to the traces that the past has left in the landscape.

VI. "Contaminated Diversity": Rethinking Ecological Memory and Purity

One of the most theoretically provocative moves in *The Mushroom at the End of the World* is Tsing's rehabilitation of the concept of contamination. In dominant ecological discourse, contamination is typically understood as a negative category: contaminated ecosystems are degraded, impoverished, denatured. Ecological restoration projects typically aim to remove the traces of contamination—the invasive species, the toxic residues, the legacies of industrial disturbance—and restore a putatively original or pristine condition. This is, Tsing argues, a fundamentally nostalgic and often politically conservative project, one that locates value in an imagined past wholeness and measures the present against its inadequacy.

Against this, Tsing proposes what she calls "contaminated diversity" as an alternative framework for understanding ecological value and ecological memory. Contaminated diversity names the forms of biological richness that emerge precisely from the encounter of different species, practices, and histories in a disturbed or degraded environment. The matsutake forest is her primary example: these are not pristine forests but forests that have been logged, burned, grazed, and otherwise disrupted. The ecological communities they support are not "natural" in any simple sense but are products of the intersection of human history and nonhuman biology. Yet they are not therefore impoverished or valueless. On the contrary, the matsutake ecosystem is extraordinarily rich in the forms of life it sustains and the forms of value it generates.

The implications for ecological memory are significant. If we think of ecological memory as the persistence of past states in present ecosystems, and if we value only pristine past states, then ecological memory becomes a form of mourning: a record of loss, degradation, and irreversible change. This is the affective structure underlying much environmentalist discourse, from the elegiac nature writing of Barry Lopez to the "solastalgia" described by philosopher Glenn Albrecht—the distress caused by environmental change in one's home environment. Tsing does not dismiss this mourning; she acknowledges that the losses are real and that the destruction of ecosystems is a genuine tragedy.

But she insists on supplementing mourning with attention to what survives, what persists, and what new forms of life emerge in the ruins. "Contaminated diversity," in her usage, is not a resignation to degradation but an affirmative orientation toward the richness of the impure, the mixed, the hybrid. This is, she notes,

a political as well as an ecological argument: the insistence on purity—whether of nature, of culture, or of identity—has historically served conservative and often violent political projects. The alternative she proposes is a form of ecological memory that is comfortable with contamination, that finds value in the traces of multiple and often conflicting histories that have left their marks on a landscape. In one of the book's most quoted passages, she writes: "The diversity that thrives in the cracks of capitalism is neither pure nor primeval. But it is alive" (282). This is ecological memory reoriented toward the future: not a recovery of what was but a cultivation of what can be, in the ruins of what is.

The literary and cultural implications of this reorientation deserve more attention than they have received. Tsing's "contaminated diversity" is, among other things, a theory of intertextuality understood in ecological terms. Just as a contaminated ecosystem carries the traces of multiple past states and multiple human interventions, a literary text carries within it the traces of previous texts, genres, and traditions that it transforms rather than simply reproduces. The multi-genre form of *The Mushroom at the End of the World* itself embodies this principle: it is a contaminated text, one that mingles ethnographic description, nature writing, political economy, feminist theory, and experimental essay in ways that refuse easy generic classification. Its contamination is its richness.

VII. Ethical Orientations: Attention, Responsibility, and the Anthropocene

In his landmark study of slow violence, Rob Nixon observes that the environmental humanities face a fundamental representational problem: how to make visible forms of harm that unfold across time and space too vast for conventional narrative to contain. The slow violence of chemical contamination, soil erosion, or species extinction does not register as an event; it accumulates, gradually and often invisibly, in the bodies of organisms and the structures of ecosystems. Tsing's ecological memory poetics can be understood as one response to this problem. By attending to the mnemonic function of nonhuman organisms like the matsutake, she develops a mode of reading that can detect the slow accumulations of harm that Nixon describes without reducing them to a single narrative of victimization.

This mode of reading has significant ethical implications. To treat the matsutake as a mnemonic agent—to read its presence in a disturbed landscape as an index of ecological history—is to take seriously the claims of nonhuman life on our attention and our responsibility. This is not a sentimental anthropomorphism but a rigorous ecological ethics grounded in the material realities of multispecies interdependence. If the matsutake carries within its biology the traces of centuries of human and nonhuman history, then to destroy the conditions that support it is not merely to lose a commercially valuable species but to erase a form of ecological memory that cannot be recovered.

Tsing's ethical framework is explicitly oriented toward what she calls "collaborative survival"—the practical and conceptual project of finding ways for human and nonhuman communities to persist together in a damaged world. This is a deliberately modest and pragmatic orientation, one that refuses the utopian gestures of much environmental philosophy. She is not promising that we can restore the pristine ecosystems that industrial capitalism has destroyed, nor is she offering a political program for the transformation of the global economy. What she is offering is something more intimate and perhaps more durable: a set of perceptual and relational practices that might allow us to navigate the ruins with greater attention, care, and responsibility.

The concept of "arts of noticing" that runs throughout the book is central to this ethical project. To notice, in Tsing's usage, is not simply to observe but to be changed by what one observes: to allow the encounter with a nonhuman life-world to modify one's understanding of one's own situation. This is a phenomenological claim with ethical and political consequences. If the forests of the Oregon Cascades carry within them the memory of the logging industry's destruction, then to notice this—to read the second-growth pine stands as a symptom of historical trauma—is to be implicated in that history, however distant one is from its immediate causes. Ecological memory, on this account, is not merely a property of ecosystems but a responsibility of observers.

This ethics of attention connects Tsing's project to broader debates within the Anthropocene humanities about the responsibilities of scholars and the politics of knowledge production. Critics such as Dipesh

Chakrabarty have argued that the Anthropocene—the geological epoch in which human activity has become a major force shaping the Earth's systems—requires a fundamental revision of the humanities' understanding of human agency, historical time, and ethical responsibility. Tsing's response to this challenge is characteristically concrete and specific: rather than theorizing the Anthropocene in abstract terms, she asks what it means to pay attention to a single fungal species in its particular ecological and social contexts. Her answer, elaborated across more than three hundred pages of meticulous observation and theorization, is that such attention reveals forms of complexity, resilience, and value that are invisible to the grand narratives of either ecological doom or technological salvation. *The Mushroom at the End of the World* thus participates in what Ursula K. Heise has called the "risk imaginary" of contemporary environmental culture, but it transforms this imaginary from within by insisting on the irreducible specificity of particular organisms, places, and encounters.

VIII. Tsing in the Literary Tradition: Genre, Voice, and the Politics of Form

Having established the theoretical and ethical dimensions of Tsing's ecological memory poetics, it remains to situate her work within the broader tradition of literary environmental writing. *The Mushroom at the End of the World* is, in an important sense, a work of literary nonfiction as much as it is an academic monograph, and its formal ambitions connect it to a tradition of environmental writing that extends from Gilbert White's *Natural History of Selborne* through Thoreau's *Walden*, John Muir's lyrical advocacy writing, the "new nature writing" associated with British authors such as Robert Macfarlane and Richard Mabey, and the "multispecies ethnography" that has recently emerged as a distinct subgenre of academic writing.

What distinguishes Tsing's voice within this tradition is the combination of rigorous theoretical sophistication with what can only be described as a genuine capacity for wonder. Her descriptions of the mushroom camps of Oregon, the satoyama landscapes of Japan, or the high-altitude forests of Yunnan province are not merely illustrative of theoretical arguments; they have the texture and authority of writing that has been shaped by sustained, attentive presence. This is not a small achievement in academic writing, where the demands of argument-making often crowd out the particularities of observed experience. Tsing resists this pressure by organizing her text around the "interlude" sections that privilege description, anecdote, and associative meditation over linear argumentation.

Her voice is also notable for its deliberate avoidance of the elegiac mode that dominates much environmental writing. Where a writer like Barry Lopez or Terry Tempest Williams might respond to ecological damage with lyrical mourning, Tsing tends toward a more analytic and, in some ways, more hopeful register. This is not indifference to loss—she is acutely aware of the destruction wrought by industrial capitalism on both human communities and ecological systems—but a refusal to let mourning become the dominant affective mode of ecological thinking. Her preferred mood is something closer to what she calls "curiosity": an orientation toward the world that is open to surprise, alert to the unexpected, and capable of finding value in unlikely places.

This literary orientation has provoked some critical objection. Several reviewers have questioned whether Tsing's relative hopefulness—her insistence on the productivity of ruins, the richness of contaminated diversity—does not risk aestheticizing the conditions of ecological and social devastation that her book so carefully documents. This is a legitimate concern, and it is one that Tsing addresses only partially. Her response, implicit throughout the book, is that attention to what survives is not the same as endorsement of the conditions that produced the ruins. One can mourn the forests that were destroyed and still find genuine value in the second-growth stands that have taken their place; one can condemn the structural conditions that have made the Hmong mushroom pickers into economic refugees and still honor the forms of community and knowledge they have constructed in the margins of the capitalist economy. Whether this position is fully coherent is a question that deserves more sustained philosophical engagement than Tsing provides, but it represents a serious and intellectually honest attempt to move beyond the impasse of environmentalist elegizing.

IX. Conclusion: What Remains

At the end of *The Mushroom at the End of the World*, Tsing offers a meditation on the concept of "latency"—the biological phenomenon by which organisms enter a dormant state that allows them to survive conditions hostile to active life and to resume growth when conditions improve. The matsutake spore can remain viable for years, perhaps decades, in soils where conditions are currently unsuitable for fruiting. This latency is, for Tsing, a figure for a kind of hope that is appropriate to ruins: not the hope of a return to some prior wholeness, but the hope of emergence—of forms of life, value, and community that are not yet visible but whose possibility is already present in the material substrate of the world.

This figure of latency crystallizes what is most distinctive and most valuable about Tsing's ecological memory poetics. It suggests a model of memory that is not primarily retrospective but prospective: a memory that works not by preserving the past unchanged but by holding within itself the possibility of future transformation. Ecological memory, on this account, is not the accumulation of loss—not a record of what has been destroyed—but the persistence of potential: the capacity of damaged systems to surprise us with their resilience, their creativity, and their refusal to simply cease.

For scholars working in the environmental humanities and in literary and cultural studies more broadly, this is a genuinely useful model. It suggests ways of reading texts, landscapes, and communities that attend to what is latent as much as what is manifest, to what persists as much as what has been lost, and to the forms of entanglement—between species, between histories, between the human and the nonhuman—that make any form of survival possible. It also suggests, importantly, that ecological memory is not a melancholy archive but a living process: one that continues to generate new forms of significance and connection in the very ruins that industrial modernity has left behind.

The critical reception of *The Mushroom at the End of the World* has been, by any measure, remarkable for an academic monograph: widely reviewed in popular as well as scholarly venues, translated into more than fifteen languages, adopted across a range of disciplines from anthropology and ecology to literary studies and geography, and cited in an extraordinary range of scholarly contexts. This reception testifies not only to the book's intellectual originality but to the urgency of the questions it addresses. In a historical moment characterized by accelerating ecological crisis, deepening economic precarity, and a pervasive sense of civilizational emergency, the question of how we might remember differently—how we might attend to the traces of the past in ways that open rather than foreclose future possibilities—has acquired a significance that extends far beyond the academy.

Tsing does not claim to answer this question fully; *The Mushroom at the End of the World* is too honest about the intractability of the problems it addresses to offer easy resolutions. What it offers instead is something perhaps more valuable: a demonstration that rigorous intellectual work, sustained attention to the specificity of particular organisms and communities, and formal experimentation in the service of difficult ideas can together generate ways of understanding ecological memory that are adequate to the complexity and urgency of our historical moment. That is no small achievement, and it is one that literary and cultural scholars have much to learn from—and much to contribute to—in the years ahead.

Notes

1. Tsing's use of the term "assemblage" draws on the philosophical tradition associated with Manuel DeLanda's reworking of Deleuze and Guattari, but she gives the concept a distinctly empirical and material emphasis that distinguishes her usage from its more abstract philosophical antecedents. For a detailed account of the theoretical genealogy of assemblage thinking in the social sciences, see Colin McFarlane's "Assemblage and Critical Urbanism."

2. The term "satoyama" derives from the Japanese *sato* (village) and *yama* (mountain or forest). As a landscape concept, it denotes the zone of managed woodland and scrubland that traditionally surrounded rural Japanese settlements and supplied them with fuel, building materials, and food. The ecological significance of satoyama landscapes for biodiversity conservation has been extensively documented; see Takeuchi et al., *Satoyama: The Traditional Rural Landscape of Japan*.

3. The concept of "slow violence" is developed at length in Nixon's *Slow Violence and the Environmentalism of the Poor* (2011). For an account of its reception and development within environmental humanities scholarship, see the essays collected in Adamson and Davis, *Humanities for the Environment*.

4. Tsing's account of Hmong ecological knowledge in the Oregon forests raises complex questions about the politics of indigenous and diasporic knowledge systems that she acknowledges but does not fully resolve. For a more sustained engagement with these questions, see Sucheng Chan's work on Southeast Asian refugee communities in the American West and Diane Niblack Taylor's ethnographic studies of Hmong environmental knowledge in the Upper Midwest.

5. The concept of "dialectical images" is central to Benjamin's *Arcades Project* and is discussed at length in Susan Buck-Morss's magisterial study *The Dialectics of Seeing: Walter Benjamin and the Arcades Project*. For an account of Benjamin's influence on contemporary environmental humanities scholarship, see the essays in Cohen, *Prismatic Ecology*.

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