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Conjuring time, Kyoto Prefecture. Mr. Imoto's map of revitalizing. This is his matsutake mountain: a time machine of multiple seasons, histories, and hopes.

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Arts of Noticing

> I am not proposing a return to the Stone Age. My intent is not reactionary, nor even conservative, but simply subversive. It seems that the utopian imagination is trapped, like capitalism and industrialism and the human population, in a one-way future consisting only of growth. All I'm trying to do is figure out how to put a pig on the tracks.
>
> —*Ursula K. Le Guin*

In 1908 and 1909 two railroad entrepreneurs raced each other to build track along Oregon's Deschutes River.[1] The goal of each was to be the first to create an industrial connection between the towering ponderosas of the eastern Cascades and the stacked lumberyards of Portland. In 1910, the thrill of competition yielded to an agreement for joint service. Pine logs poured out of the region, bound for distant markets. Lumber mills brought new settlers; towns sprung

up as millworkers multiplied. By the 1930s, Oregon had become the nation's largest producer of timber.

This is a story we know. It is the story of pioneers, progress, and the transformation of "empty" spaces into industrial resource fields.

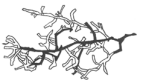
In 1989, a plastic spotted owl was hung in effigy on an Oregon logging truck.[2] Environmentalists had shown that unsustainable logging was destroying Pacific Northwest forests. "The spotted owl was like the canary in the coal mine," explained one advocate. "It was . . . symbolic of an ecosystem on the verge of collapse."[3] When a federal judge blocked old-growth logging to save owl habitat, loggers were furious; but how many loggers were there? Logging jobs had dwindled as timber companies mechanized—and as prime timber disappeared. By 1989, many mills had already closed; logging companies were moving to other regions.[4] The eastern Cascades, once a hub of timber wealth, were now cutover forests and former mill towns overgrown by brush.

This is a story we need to know. Industrial transformation turned out to be a bubble of promise followed by lost livelihoods and damaged landscapes. And yet: such documents are not enough. If we end the story with decay, we abandon all hope—or turn our attention to other sites of promise and ruin, promise and ruin.

What emerges in damaged landscapes, beyond the call of industrial promise and ruin? By 1989, something else had begun in Oregon's cutover forests: the wild mushroom trade. From the first it was linked to worldwide ruination: The 1986 Chernobyl disaster had contaminated Europe's mushrooms, and traders had come to the Pacific Northwest for supplies. When Japan began importing matsutake at high prices—just as jobless Indochinese refugees were settling in California—the trade went wild. Thousands rushed to Pacific Northwest forests for the new "white gold." This was in the middle of a "jobs versus the environment" battle over the forests, yet neither side noticed the mushroomers. Job advocates imagined only wage contracts for healthy white men; the foragers—disabled white veterans, Asian refugees, Native Americans, and undocumented Latinos—were invisible interlopers. Conservationists were fighting to keep human disturbance out of the forests; the entry of thousands of people, had it been noticed, would hardly have been welcome. But the mushroom hunters were mainly not noticed. At

most, the Asian presence sparked local fears of invasion: journalists worried about violence.[5]

A few years into the new century, the idea of a trade-off between jobs and the environment seemed less convincing. With or without conservation, there were fewer "jobs" in the twentieth-century sense in the United States; besides, it seemed much more likely that environmental damage would kill all of us off, jobs or no jobs. We are stuck with the problem of living despite economic and ecological ruination. Neither tales of progress nor of ruin tell us how to think about collaborative survival. It is time to pay attention to mushroom picking. Not that this will save us—but it might open our imaginations.



Geologists have begun to call our time the Anthropocene, the epoch in which human disturbance outranks other geological forces. As I write, the term is still new—and still full of promising contradictions. Thus, although some interpreters see the name as implying the triumph of humans, the opposite seems more accurate: without planning or intention, humans have made a mess of our planet.[6] Furthermore, despite the prefix "anthropo-," that is, human, the mess is not a result of our species biology. The most convincing Anthropocene time line begins not with our species but rather with the advent of modern capitalism, which has directed long-distance destruction of landscapes and ecologies. This time line, however, makes the "anthropo-" even more of a problem. Imagining the human since the rise of capitalism entangles us with ideas of progress and with the spread of techniques of alienation that turn both humans and other beings into resources. Such techniques have segregated humans and policed identities, obscuring collaborative survival. The concept of the Anthropocene both evokes this bundle of aspirations, which one might call the modern human conceit, and raises the hope that we might muddle beyond it. Can we live inside this regime of the human and still exceed it?

This is the predicament that makes me pause before offering a description of mushrooms and mushroom pickers. The modern human conceit won't let a description be anything more than a decorative

footnote. This "anthropo-" blocks attention to patchy landscapes, multiple temporalities, and shifting assemblages of humans and nonhumans: the very stuff of collaborative survival. In order to make mushroom picking a worthwhile tale, then, I must first chart the work of this "anthropo-" and explore the terrain it refuses to acknowledge.

Consider, indeed, the question of what's left. Given the effectiveness of state and capitalist devastation of natural landscapes, we might ask why anything outside their plans is alive today. To address this, we will need to watch unruly edges. What brings Mien and matsutake together in Oregon? Such seemingly trivial queries might turn everything around to put unpredictable encounters at the center of things.

We hear about precarity in the news every day. People lose their jobs or get angry because they never had them. Gorillas and river porpoises hover at the edge of extinction. Rising seas swamp whole Pacific islands. But most of the time we imagine such precarity to be an exception to how the world works. It's what "drops out" from the system. What if, as I'm suggesting, precarity *is* the condition of our time—or, to put it another way, what if our time is ripe for sensing precarity? What if precarity, indeterminacy, and what we imagine as trivial are the center of the systematicity we seek?

Precarity is the condition of being vulnerable to others. Unpredictable encounters transform us; we are not in control, even of ourselves. Unable to rely on a stable structure of community, we are thrown into shifting assemblages, which remake us as well as our others. We can't rely on the status quo; everything is in flux, including our ability to survive. Thinking through precarity changes social analysis. A precarious world is a world without teleology. Indeterminacy, the unplanned nature of time, is frightening, but thinking through precarity makes it evident that indeterminacy also makes life possible.

The only reason all this sounds odd is that most of us were raised on dreams of modernization and progress. These frames sort out those parts of the present that might lead to the future. The rest are trivial; they "drop out" of history. I imagine you talking back: "Progress? That's an idea from the nineteenth century." The term "progress," referring to a general state, has become rare; even twentieth-century modernization has begun to feel archaic. But their categories and assumptions of improvement are with us everywhere. We imagine their objects every day:

democracy, growth, science, hope. Why would we expect economies to grow and sciences to advance? Even without explicit reference to development, our theories of history are embroiled in these categories. So, too, are our personal dreams. I'll admit it's hard for me to even say this: there might not be a collective happy ending. Then why bother getting up in the morning?

Progress is embedded, too, in widely accepted assumptions about what it means to be human. Even when disguised through other terms, such as "agency," "consciousness," and "intention," we learn over and over that humans are different from the rest of the living world because we look forward—while other species, which live day to day, are thus dependent on us. As long as we imagine that humans are *made* through progress, nonhumans are stuck within this imaginative framework too.

Progress is a forward march, drawing other kinds of time into its rhythms. Without that driving beat, we might notice other temporal patterns. Each living thing remakes the world through seasonal pulses of growth, lifetime reproductive patterns, and geographies of expansion. Within a given species, too, there are multiple time-making projects, as organisms enlist each other and coordinate in making landscapes. (The regrowth of the cutover Cascades and Hiroshima's radioecology each show us multispecies time making.) The curiosity I advocate follows such multiple temporalities, revitalizing description and imagination. This is not a simple empiricism, in which the world invents its own categories. Instead, agnostic about where we are going, we might look for what has been ignored because it never fit the time line of progress.

Consider again the snippets of Oregon history with which I began this chapter. The first, about railroads, tells of progress. It led to the future: railroads reshaped our destiny. The second is already an interruption, a history in which the destruction of forests matters. What it shares with the first, however, is the assumption that the trope of progress is sufficient to know the world, both in success and failure. The story of decline offers no leftovers, no excess, nothing that escapes progress. Progress still controls us even in tales of ruination.

Yet the modern human conceit is not the only plan for making worlds: we are surrounded by many world-making projects, human and not human.[7] World-making projects emerge from practical activities of

making lives; in the process these projects alter our planet. To see them, in the shadow of the Anthropocene's "anthropo-," we must reorient our attention. Many preindustrial livelihoods, from foraging to stealing, persist today, and new ones (including commercial mushroom picking) emerge, but we neglect them because they are not a part of progress. These livelihoods make worlds too—and they show us how to look around rather than ahead.

Making worlds is not limited to humans. We know that beavers reshape streams as they make dams, canals, and lodges; in fact, all organisms make ecological living places, altering earth, air, and water. Without the ability to make workable living arrangements, species would die out. In the process, each organism changes everyone's world. Bacteria made our oxygen atmosphere, and plants help maintain it. Plants live on land because fungi made soil by digesting rocks. As these examples suggest, world-making projects can overlap, allowing room for more than one species. Humans, too, have always been involved in multispecies world making. Fire was a tool for early humans not just to cook but also to burn the landscape, encouraging edible bulbs and grasses that attracted animals for hunting. Humans shape multispecies worlds when our living arrangements make room for other species. This is not just a matter of crops, livestock, and pets. Pines, with their associated fungal partners, often flourish in landscapes burned by humans; pines and fungi work together to take advantage of bright open spaces and exposed mineral soils. Humans, pines, and fungi make living arrangements simultaneously for themselves and for others: multispecies worlds.

Twentieth-century scholarship, advancing the modern human conceit, conspired against our ability to notice the divergent, layered, and conjoined projects that make up worlds. Entranced by the expansion of certain ways of life over others, scholars ignored questions of what else was going on. As progress tales lose traction, however, it becomes possible to look differently.

The concept of *assemblage* is helpful. Ecologists turned to assemblages to get around the sometimes fixed and bounded connotations of ecological "community." The question of how the varied species in a species assemblage influence each other—if at all—is never settled: some thwart (or eat) each other; others work together to make life possible; still others just happen to find themselves in the same place. As-

semblages are open-ended gatherings. They allow us to ask about communal effects without assuming them. They show us potential histories in the making. For my purposes, however, I need something other than organisms as the elements that gather. I need to see lifeways—and nonliving ways of being as well—coming together. Nonhuman ways of being, like human ones, shift historically. For living things, species identities are a place to begin, but they are not enough: ways of being are emergent effects of encounters. Thinking about humans makes this clear. Foraging for mushrooms is a way of life—but not a common characteristic of all humans. The issue is the same for other species. Pines find mushrooms to help them use human-made open spaces. Assemblages don't just gather lifeways; they make them. Thinking through assemblage urges us to ask: How do gatherings sometimes become "happenings," that is, greater than the sum of their parts? If history without progress is indeterminate and multidirectional, might assemblages show us its possibilities?

Patterns of unintentional coordination develop in assemblages. To notice such patterns means watching the interplay of temporal rhythms and scales in the divergent lifeways that gather. Surprisingly, this turns out to be a method that might revitalize political economy as well as environmental studies. Assemblages drag political economy inside them, and not just for humans. Plantation crops have lives different from those of their free-living siblings; cart horses and hunter steeds share species but not lifeways. Assemblages cannot hide from capital and the state; they are sites for watching how political economy works. If capitalism has no teleology, we need to see what comes together—not just by prefabrication, but also by juxtaposition.

Other authors use "assemblage" with other meanings.[8] The qualifier "polyphonic" may help explain my variant. Polyphony is music in which autonomous melodies intertwine. In Western music, the madrigal and the fugue are examples of polyphony. These forms seem archaic and strange to many modern listeners because they were superseded by music in which a unified rhythm and melody holds the composition together. In the classical music that displaced baroque, unity was the goal; this was "progress" in just the meaning I have been discussing: a unified coordination of time. In twentieth-century rock-and-roll, this unity takes the form of a strong beat, suggestive of the listener's heart;

we are used to hearing music with a single perspective. When I first learned polyphony, it was a revelation in listening; I was forced to pick out separate, simultaneous melodies *and* to listen for the moments of harmony and dissonance they created together. This kind of noticing is just what is needed to appreciate the multiple temporal rhythms and trajectories of the assemblage.

For those not musically inclined, it may be useful to imagine the polyphonic assemblage in relation to agriculture. Since the time of the plantation, commercial agriculture has aimed to segregate a single crop and work toward its simultaneous ripening for a coordinated harvest. But other kinds of farming have multiple rhythms. In the shifting cultivation I studied in Indonesian Borneo, many crops grew together in the same field, and they had quite different schedules. Rice, bananas, taro, sweet potatoes, sugarcane, palms, and fruit trees mingled; farmers needed to attend to the varied schedules of maturation of each of these crops. These rhythms were their relation to human harvests; if we add other relations, for example, to pollinators or other plants, rhythms multiply. The polyphonic assemblage is the gathering of these rhythms, as they result from world-making projects, human and not human.

The polyphonic assemblage also moves us into the unexplored territory of the modern political economy. Factory labor is an exemplar of coordinated progress time. Yet the supply chain is infused with polyphonic rhythms. Consider the tiny Chinese garment factory studied by Nellie Chu; like its many competitors, it served multiple supply lines, constantly switching among orders for local boutique brands, knock-off international brands, and generic to-be-branded-later production.[9] Each required different standards, materials, and kinds of labor. The factory's job was to match industrial coordination to the complex rhythms of supply chains. Rhythms further multiply when we move out of factories to watch foraging for an unpredictable wild product. The farther we stray into the peripheries of capitalist production, the more coordination between polyphonic assemblages and industrial processes becomes central to making a profit.

As the last examples suggest, abandoning progress rhythms to watch polyphonic assemblages is not a matter of virtuous desire. Progress felt great; there was always something better ahead. Progress gave us the "progressive" political causes with which I grew up. I hardly know how

to think about justice without progress. The problem is that progress stopped making sense. More and more of us looked up one day and realized that the emperor had no clothes. It is in this dilemma that new tools for noticing seem so important.[10] Indeed, life on earth seems at stake. Chapter 2 turns to dilemmas of collaborative survival.

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Note: Page numbers in italics indicate photographs.