ANIMATE PLANET

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Making Visceral Sense of Living in a High-Tech Ecologically Damaged World

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Michael Peck, *Untitled*, 2011. 198 cm × 198 cm, oil on linen. Courtesy of the artist.

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ACKNOWLEDGMENTS

Generosity and Nothing But

Appreciation and debt: these are the topics of many an acknowledgment. Appreciation, to be sure. Without it, misrecognition ensues, things break apart, and what then is the point? But rather than speak of debts incurred in the making of a book that works hard to avoid reducing a world of cottonwood saplings, RFID tags, bedtime stories, computer modeling, pilgrimages, moose hunts, nuclear ruins, and ever-shifting entanglements to the terms of finance, I dedicate a few pages here to interdependencies. Interdependencies rely on give-and-take, on call-and-respond-and-call-again. Listen carefully, and even if you never consult a footnote, you can hear legacies of conversations past and bids for reciprocity whistle through the passages. Interdependencies thrive on generosity. Without them, nothing happens. Certainly not the writing of a book.

Above all, I am grateful to Geeta Patel, my once and future inspiration, for the many delectable debates, references, meals, and critiques that have underwritten and overwritten this text. With experience I have come to wonder why spouses, especially when they serve as indispensable interlocutors, conventionally come last in acknowledgments, when it seems clearer and clearer that they should come first.

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During my time in the UK, Vick Ryder, Stacy Makishi, Max Carocci, Simona Piantieri, and Yael Navaro provided life support in every sense of the word. Salem Mekuria stopped by en route to Addis to remind me, as she always does, that it's all well and good to reason, but sometimes you just have to laugh. *Ad astra per aspera*, dear friends, no matter what beckons. I was also hosted in fine style by Janet Carsten and Jonathan Spencer in Social Anthropology at the University of Edinburgh, where they graciously engaged with a frightfully preliminary version of chapter 2; by Jeanette Edwards and Penny Harvey on several inspiring occasions at the University of Manchester; and by James Leach and Marysia Zalewski at the University of Aberdeen, who were game enough to stray from the topic of my designated talk to puzzle through some of the topics explored in these pages. I can't say enough about how this book has benefited from the intellectual curiosity that illuminated a series of conversations that same year with Barbara Bodenhorn, Janet Carsten, Sophie Day, Jeanette Edwards, Robert Foster, Sarah Franklin, Kriti Kapila, Cindi Katz, Nayanika Mathur, Henrietta Moore, David Sneath, and the inimitable Marilyn Strathern.

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tion provided the very definition of serendipitous support by granting me a Guggenheim Fellowship for an unrelated project, which in turn led me to the research in the history of science on embodied empiricism that became integral to chapter 4. Administrative staff at the Bhasin Group in New Delhi with no previous experience with a wandering anthropologist kindly provided admission passes to gain entry to the soft launch of the Grand Venice mall described in chapter 3. An invitation from Andrea Muehlebach and Nitzan Shoshan to contribute to the special issue on "Post-Fordist Affect" they were editing for *Anthropological Quarterly* galvanized the writing of "Political Ecologies of the Precarious," which reappears here in a substantively modified incarnation as chapter 5. Yasuhito Abe helped me track down the いってきます image in chapter 2, while Allison Alexy suggested a way to draw on the literature in medical anthropology for the same chapter. An International Studies Research Grant from the Center for International Studies at my home institution funded my way to an Asian studies conference in Tokyo that never happened, but it also located me in Tokyo during the earthquake/tsunami/nuclear meltdown at the heart of that same chapter. Satsuki Takahashi, my partner Geeta Patel, friends too many to name, and participants in the Reuters live blog set up to cover the disaster offered a lifeline of counsel and support while the earth continued to shudder through the nights, the wind threatened to shift, and it wasn't at all clear what would happen next. I'll never forget.

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INTRODUCTION

Animating Intimacies, Reanimating a World

The bedtime story that sings a fitful world to sleep while it hurtles toward ecological destruction goes something like this:

Long ago but not so far away, perhaps in the very place where you lay your head tonight, the creatures of the earth depended on one another, and they knew it. It was the Age of Intimacy, the Era of Connection, an Anthropocene in which Relation had not yet birthed Alienation, its shadowy twin. Even on the hunt—especially on the hunt—the people waited to see which animals might offer themselves, and made sure to handle those gifted bodies properly, with respect. Then came a mighty gale, scouring every field and glade and village in its path, until the winds of Capital had laid the old ways bare.

Some creatures took flight before the relentless advance of the market, finding solace on islands, seeking shelter in hollows, until eventually there was nowhere left to go. Their cousins, too weak to travel or fixed in place by the siren song of More, stayed behind and became something different from what they once were. Many looked down after the gale swept past to find themselves shackled—ankles, wrists, and minds—to desks, furrows, machines. Huddled in shiny new towers, they raised their hands to the sky waiting for the plans or the planes that would seed the clouds with jobs and water the earth with wondrous playthings to light up the nights.

Chained or unchained, chained and unchained, the lords and lieges of Capital had something in common. What the lieges shared with the lords was this: They had come to live a life once, twice, thrice removed from all that sustains it. They piled their glass castles high with plunder or whatever ambitions they could afford, until the castles became so heavy that the turtles upon turtles upon whom the land rested could no longer come up for air.

Everyone knew better than to inquire too deeply into the matter of where the jobs and packages came from, or why during the lean years known as Re-

cession the deliveries stopped. Oh, they asked why, all right, but they stopped expecting answers that would make a difference. When occasionally they visited their plant relatives in the forests that had not yet been turned into charcoal, or their animal relatives near rivers whose sand had not yet fed the cement mixers, they forgot how to signal their approach. They forgot to bring gifts. Eventually they forgot they had forgotten.

Then one day something stirred on the mesas and whispered through the gullies laid bare by Capital. "Do you think there's something missing?" one brave (or was it foolhardy?) soul asked. She gathered comrades to venture out into what was left of the deserts and the tundra and the forests to ask the animals the same questions but found that her human companions could no longer understand the replies of the lizard or the bear. Where water trickled in streambeds below the dams, they thought they heard a lazy gurgling sound but couldn't decide if it was a message. In the sharp crack of ice cliffs tumbling to the sea they thought they heard something ominous, but the ice was on its way before their jerry-rigged prayers could reach it.

So they set about reconstructing, as best they could, what they suspected might once have been. They built temples of commerce to new gods called Sustainability and Resilience (whom they imagined to be old), tried catching rainwater in barrels, rediscovered how their grandmothers had brightened winter days by turning jars crimson with tomatoes. They dusted off ancient technologies to see what they could learn about living "in harmony with Nature." They tasked their scholars with revealing the paths traveled by things, so that every link in that most binding of bonds, the commodity chain, could be laid out for inspection. When the faces of the farmers who had raised their coffee beans appeared on the packages dropped from planes, they felt a bit better, if not quite cured of their malaise. They had a vague sense that something more was required, which they called "Community," although the ways to build it seemed as mystifying as they were varied.

They knew something had to change, so they changed, constantly, too quickly and never enough. They thought they heard something coming, so they looked around and they waited. They prepared for the day when the waiting would end, but they never really prepared for the waiting. Eventually they grew tired, too tired to read a book, much less write one, about things they thought their ancestors had already mastered.

Then suddenly, a sign appeared. It was small at first, a tingling sensation that started in . . . what was that? A foot? One person started to roll over, then another, like sea otters diving back into the dream, but now someone was shouting, shouting, and that tingling sensation was getting harder to ignore . . .

This is modernity's story, not necessarily or always our own, dropped onto pillows in candy-colored foil-wrapped installments, two sustainable steps forward and three steps back, night after night another character lost. Passenger pigeons yesterday, the Kalimantan mango today, pandas tomorrow. Like any dreamwork, this one is a farrago, a mélange of reminders about the proper way to hunt recounted by elders in the pages of *Indian Country Today*, descriptions of New Guinea cargo cults from introductory anthropology textbooks, the uses of a fairy tale in the hands of a theorist like Michel Foucault, *Hindustan Times* exposés of riverbed dredging by the construction industry's "sand mafia," the shifting registers of billboards across three decades and four continents, Christian echoes of exile from any garden worthy of the name, the things my grandfather might have told me if silence had not already claimed him.[1] It is the sort of narrative that can only be pieced together at a time when the travelers who long to range across borders are forced to settle, while people who have just invested two month's wages in their first set of chrome and veneer furniture are chucked out onto the road. As such, and even so, it is a story to take with two lumps of salt.

If Apocalypse had a fifth rider, it would be Foreshadowing. Although the final chapter in modernity's tale has yet to be told, Foreshadowing (as a lead category in an updated morality play) has long insisted that the story's end must coincide with the End of the Planet, or with some respite that only an Age of Miracles can provide. Even though the dreamers think they know what is coming, the pathos these endings evoke keeps them coming back for more, lured not so much by the denouement as by the intermediary spectacle of What Comes Next. When last we tuned in, the new god Resilience had demanded that animacy and intimacy no longer be sacrificed to the old god Development, that humans reimmerse themselves in a world of connections they have yet to recover. Most excellent: a quest! While the earth continues along its trajectory of ecological destruction, this, at least, gives them something to do.

Like the best bedtime stories, modernity's tale directs the sleepy listener's attention to an elsewhere. If worldly intimacies with anyone and anything other than the human belong to some far-ago place before capitalism, before roads, before the advent of an "environment" in need of rescue, why would anyone look for them here? Likewise, if such worldly intimacies become possible only by overcoming a modernity whose distinctive demand is a perpetual progressive overcoming, surely the seekers will only find themselves transported, night after night, to endless vistas of deferral?[2]

Yet there are other stories that could be told—aren't there always?—about a world in which each ravaged ecosystem, each technological triumph, each bold new synthesis of Nature pulls creatures into new forms of connection, as compelling as any that shadowed futures past.[3] New animisms and new intimacies thread their way through these alternate stories, as humans come to terms with both the injury they daily inflict in the name of "advance" and the transformation of their very bodies through biotechnology, industrialized food production, and synthetic chemistry.

Older animisms, in the limited way that European anthropologists such as Edward Tylor (1871) understood them, prompted nineteenth-century debates about the status of cultural beliefs in trees with "souls" and twentieth-century controversies about studies that claimed flowers cry out when plucked on a decorative whim. The new animisms of the twenty-first century (dubbed "animacies" to mark the distinction) are less concerned with whether trees and rocks and cows are sentient or "like us" or even in need of our salvific ministrations (although they occasionally discuss all that as well). Instead they remake the world with the conviction that animacy renders trees and humans and rocks and cows inseparable, not only in the sense that each acts upon the others in ways that may or may not be deliberate but also in the sense that each takes up something lively from the others that contributes to its very form.

Synthetic hormones flow into cows into milk and back into humans, accomplishing life-altering work along the way. Plants need not be genetically modified to ingest more than water from polluted streams and pass it on when creatures turn them into food. Uranium extracted from rocks to power turbines yields hot radioactive particles that lung tissue can incorporate in the event of a nuclear meltdown. In this sense new animisms literally reconceive humans as the products of an "environment" that has itself taken shape through embodied human action, often in pursuit of profit.

These visions of an animated world are as remarkable for the conditions that have produced them as for their distinctive take on how bodies move through industrial and postindustrial landscapes. My purpose here is not to extend the arguments on one side or the other of recent debates on posthumanism, new materialities, or what anthropologists have dubbed "the ontological turn." As any beaver caught up in the more animated versions of these debates can tell you, the discussions have already grown somewhat long in the tooth. My interest, rather, lies in taking the twenty-first-century fascination with ecologically infused animacies and intimacies as a symptom—perhaps a sign—worthy of investigation in its own right.

New animisms may differ in their details, in their materialist versus epistemological emphases and so on, but collectively they represent an intimate, emergent, mutually constitutive vision of a world infused with life, down to the pavement caressed by our feet as we walk down the road and the exiled wildflowers finding a way back to the sun through crevices in the asphalt. What "life" in this extended sense means has, not surprisingly, become the subject of yet more debate.

Many recent accounts of animacy have focused on decentering the human, while others come closer to the approach I favor here, which studies animating and reanimating as an efflorescent, historically located process. But which parts of this process are conceptual, perceptual, or made in practice? What part, if any, is given or, for that matter, *a* given? Marilyn Strathern (2012) has suggested that we set aside the morally laden assumption that proper knowledge-making occurs prior to doing, to events, to action, long enough to reconsider what *actualization* might entail, particularly when it comes to emplacement of a world as we (or you, or they) know it. Even the conundrum of actualizing the virtual appears different then: "For isn't the body—or the part we call mind—always on the edge of description?" (Strathern 2012:404). This is not the world fully formed, springing from the hands or head of a god (not even the secular pantheon of science, society, and modernity). This is not the kind of lifeworld that dutifully offers up a holistic cosmology to the anthropologist. Instead, the pressing matter of what evokes embodied worlds on the edge of description, and how, becomes the very thing.

Animate Planet presents five case studies of the animacies and intimacies involved in particular reworlding projects that have emerged as people in rather different places have begun to wake up from the dream of modernity that opens these pages. Of course, they do not always manage it. Sometimes they stir, then drift off again. Occasionally they marshal enough clarity for lucid dreaming, knowing they are sleeping as they sleep, understanding themselves to be guests or prisoners or authors of the dreamwork, depending. What happens along the way, as they try to make sense of incongruities between modernity's vaunted technological prowess, its ecological harms, its claims on life, and its still glistening yet wavering promises? What sorts of visceral sensory engagements are embedded in these bids to *make* sense?

In the pages that follow I draw on ethnography, STS (science and technology studies), social critique, and political theory to flesh out the cases I take up. There is even a bit of memoir. Instead of quest narratives in which the hero sets out to regain a lost paradise of ecological balance and inter-

species connection, readers will find themselves dropped into scenarios in which the characters have already arrived, living however they are living, in ways that matter for understanding their simultaneous attraction to and disillusionment with technology's siren song. And wherever the characters are living, Chicago or New Delhi or Tokyo, "the environment" is already there, not off in some faraway place that requires saving.

Although cultural theorist Lauren Berlant (2012) might not have been thinking about relentlessly rising greenhouse gas emissions when she described how the dissociative life can be lived in intimate relation to (and through) a world, her observation that this can be so is right on the mark for understanding the things that ecologically ail us. People do not leave their bodies behind when they feel detached, or even when mysterious manufacturing processes stand between them and the food in a box. For every moment in which urban dwellers confess to having no idea where their water comes from, there is another moment when they use their bodies to connect viscerally with whatever materials capitalism sells back to them in a bottle. And for every coal seam, aquifer, energy drink, and chicken nugget that late industrialism produces as alienated "resources" destined for consumption, there are people who have to engage—intimately, creatively, sometimes eagerly, sometimes reluctantly—with the land dispossession that new factories entail, the arsenic poisoning as borewells sink ever deeper, the sweet scent of the latest chemical concoctions, the unreliability of electrons dispatched on overstretched grids, the taste of hydroponically grown vegetables, the fish ladders that salmon disdain, the monsoons that fail to come, the monsoons that fall in a day, the advertisements for "green solutions," the too-familiar warnings about where such a world is headed. Technology mediates it all, in ways that the literature on intimacy and animacy has scarcely begun to explore.

"To call something a resource is to make certain claims about it," Elizabeth Emma Ferry and Mandana Limbert (2006:4) remind us: claims that are "imbued with affects of time, such as nostalgia, hope, dread, and spontaneity." The chapters in this book take up classic environmental resource categories—food, energy, climate, water—to search for intimacies embedded in them. There is the techno-intimacy threaded through North American surveillance regimes that tag and track animals destined for stir fries or sandwiches. There is the bio-intimacy spawned by the 2011 nuclear meltdowns in Japan, which ensured that radioactive isotopes would become part of the walking, crawling, and swimming creatures they encountered, as well as the trees and mountains culturally charged with protection.

There are corporeal intimacies that suffuse the highly politicized North American debate over climate change, in which some climate skeptics argue they should be able to sense these changes with their bodies if they are really happening. There are playful intimacies that water spectacles stage in the north Indian desert, where players may not know how the water gets there but capitalism throws up new possibilities for becoming viscerally acquainted with water nonetheless. There are the affective intimacies fostered by synthetic chemistry, whose sensuous qualities tempt even people who want to "heal the planet" to act in ways that seem at odds with their politics.

Why introduce a term like *intimacy*, already applied rather loosely by scholars, into a discussion of animation and political ecology? Why not simply use *closeness*, *proximity*, *entanglement*, *incorporation*, or *suffusion* instead?[4] For several reasons: First, because although any one of these terms might substitute for *intimacy* in any given instance, *intimacy* is capacious enough to carry all these meanings and more. It is this conjuncture of meanings and the way they play off one another, the slip-and-slide between the spatial contiguity of *proximity* and the permeability of *suffusion* that accounts for some of the appeal of a term like *intimacy* for our times. The particular range of meanings that the concept carries also serves as a reminder that situated modes of intimacy do not automatically lead to empathy or identification. As Veena Das (1995:3) has pointed out with regard to knowledge production in anthropology, the "intimacy and experience" of immersive fieldwork can equally well produce the kind of alterity that transforms acquaintances into exotic Others. Last but not least, the generative imprecision of a term like *intimacy* allows interesting and fruitful things to happen when analysts extend that concept into arenas that have no well-worn historical associations with it.

When most people think about intimacy, ecology is not the first thing that comes to mind. Intimacy dwells in the realms of family, friendship, sexuality, and romance—or so the latest scholarship and the latest cinema releases, from Hollywood to Bollywood, tell us.[5] Those established kingdoms for intimacy, staked out through world-traveling calls for modernization, constitute, by and large, a human preserve, with occasional exceptions made for pets or other creatures granted companion status by those self-same humans.

In this book I use the cultural category *intimacy* not as some universal free-floating descriptor, not as an ontological claim, but as a heuristic that can be helpful for getting at some of the ways in which people try to make creative sense of tensions between all that technology promises and the

way they keep looking over their shoulders at an ecological deterioration, if not devastation, that seems to be gaining ground. My focus throughout is on scenarios in which people (but not always only people) throw their bodies into the mix by *viscerally* engaging with a socially manufactured, recursively constituted "environment" that is also, crucially, them. For Gimi villagers in Papua New Guinea, people and the forest have been one as long as the elders can remember, with the life force (*kore*) of humans who die returning to and animating the wildness (*kore*) of the forest (West 2006: 80). But even heirs to the Euro-American conception of a Nature held at arm's length and reserved for aesthetic contemplation are having trouble maintaining their distance, as they imagine polluted rivers infiltrating their bodies and call upon those same bodies to register changes in abstractions like climate.[6]

Industrial capitalism still packages trees, oceans, air, uranium into "resources" that it relegates to a sector called Nature, located at a remove where it waits for humans to utilize, exploit, manage, destroy, or even sustain it (see N. Smith 1990). This way of apprehending the world is evident, for instance, in the parlance of international mining corporations, which transforms topsoil, rock, and their associated ecosystems into "overburden" notable only for its part in obstructing machine access to underlying minerals. After World War II a flurry of projects initiated under the sign of development melded notions of progress via modernization to narratives about a Nature that would supply the necessary matériel for capitalist expansion (Sachs 1999). Awareness about environmental harms inflicted in the name of development might have grown since, but the basic stance of separation from a world of insensate resources forever bonded into human service persists (Sullivan 2009). When today's conservation initiatives portray Nature as a provider of essential ecological services (water filtration, landslide prevention, and the like), they traffic in what Jim Igoe (2013: 38) has called "eco-functional nature," a way of approaching the world "as though it can be calibrated to optimize ecosystem health and economic growth" simultaneously. Calibrated by humans, that is: everything else is still consigned to its place as impassive matériel for a more enlightened, less ecologically damaging form of growth. But it was not, is not, always and everywhere thus.

As Tim Ingold (2000:243) points out, this neat division between humans and, well, everything else "bears the imprint of a certain way of imagining the human subject—namely, as a seat of awareness, bounded by the skin, and set over against the world." It is entirely possible to inhabit a world

in which things work differently, as senior Cree hunters in Canada tried to explain to Fikret Berkes (2012:106), an ecologist, when he interviewed them. It was quite clear to them that animals, not people or high-powered rifles, controlled the success of a hunt. Bear, beaver, and elk would not offer themselves to someone who treated them disrespectfully or failed to distribute their meat in the proper manner. Where plants and animals are the ones who determine whether people will find them, rather than vice versa, human management of "the environment" becomes more than hubris: it is impossible.[7]

Resource management discourse replicates nature/culture dualism through the very act of divvying up the world into managers and managed, with the experts and activists who argue for environmental policy on one side, and the resources crying out for benevolent administration on the other. Philippe Descola (2013:32), whose writing, like Ingold's, has been part of a move in anthropology to decenter the human, puts it this way:

> Distinguishing among the objects of the world those that are a matter of human intentionality and those that stem from the universal laws of matter and of life is an ontological operation, a hypothesis and a choice with regard to the relations that beings maintain with one another as a result of the qualities which are ascribed to them. Neither physics, nor chemistry, nor biology can provide proof of this, and it is furthermore extremely rare that the practitioners of these sciences, in their everyday use, actually refer to the abstraction that is nature as their domain of investigation.

But for every elder and every scholar who recognizes this nature/culture divide for what it is—a somewhat strange, somewhat arbitrary, sociohistorically particular way of parsing the world—there is another who perpetuates that divide, sometimes unwittingly. Descola (2013:66), for one, contends that Ingold's ontological critique smuggles nature/culture back in through an inversion that elevates "the animism of archaic peoples" into the position of "the true objectification of reality" previously claimed by the Moderns, leaving the divide between the two firmly in place.

In the absence of any presupposed distinction between culture and nature—between humans and the watersheds they terraform as they drink to replenish the liquid that makes up most of what they are in any material sense—things look rather different. Intimacy then does not confine itself to set activities such as flirtation or fixed categories of relationship such as friendship. Intimacies emerge once animated in practice. Practice fosters

the intimate sensory knowledge of plants acquired in the course of raising them, that intimate longing for manufactured products whose ingredients may be killing you, the visceral delights of close encounters with meals whose ingredients are becoming harder to find. Practice also occupies the gap between constituting something as a source and reconstituting (re-sourcing) it into a product (see Ferry and Limbert 2006:6). These days a capitalist economy dedicated to resource extraction and management configures life at the molecular level, intimately insinuating itself into the architecture of organisms through genetic manipulation, chemical synthesis, and the like. None of this can happen without bodies *and* technologies, working their alchemy.

If you attend carefully to the layout of this book, you will notice an attempt to begin to describe a range of ecological intimacies through which people have co-constituted a world in which their finest technological achievements are implicated in habitat destruction. These intimacies emerge not least from attempts to make sense of the pleasures and the suffering that late capitalism affords, in which they are viscerally implicated. So it is that the chapters speak of intimacies lost and intimacies unwanted, as well as empiricist intimacies, affective intimacies, and the topsy-turvy intimacies of the carnivalesque. This is not meant to be an exhaustive list but a suggestive one, composed with appreciation for how often the way we imagine things to be could just as easily be otherwise.

These days, organisms live in and through scientifically reconstituted ecosystems that include their own bodies, which are subject to constant technological amendment. We are not just talking about strontium from aboveground nuclear testing making its way into mammalian teeth, or the industrially modified mix of gases that now cycles through plant and animal respiration. When it becomes possible to swallow a vitamin pill that "remembers" your online passwords and uses them to unlock accounts while it feeds your body vital nutrients, all bets as to where "nature" begins and "culture" ends are off (see Gates 2013). The resolutely corporeal creatures you will meet in the following pages assume the forms they do with a technological assist from power plants, engineered foods, water pumps, do-it-yourself Geiger counters, mass-produced combustion engines, even the humble radio frequency tags attached to the ear of a cow. In the chapter on the relationship of empiricism to climate change skepticism, bodies even double as scientific instruments, every taste bud a sensor, every skin fold a measuring device. In the process, technologies draw people into new forms of embodied intimacy with themselves and with others, with air in

its feathered cloak of newly industrialized colors, with water that falls from the skies or evaporates from the fountains in a shopping mall, as the case may be.

But prepare yourselves: what follows are not bedtime stories, suitable for just any sort of dreaming. They are analytic stories, where the narratives that *look* like stories illustrate the text and the analytic passages tell a tale of their own. If the analytic passages, too, are the stuff of dreams, they are dreams meant to be spoken, passed from hand to hand, reworked, each one finding in them what they can. They are stories to wake up by, best encountered in the morning when the mind is fresh enough to see the sandy shorelines of the world in those gray blocks of apartments rising everywhere around you, glistening.

Swish, Crackle, Fizz

Although you can still hear strains of the old twentieth-century alienation song whenever modernity lulls a child to sleep, lately there are other sounds vying for attention, sounds that have something to do with the swish, crackle, fizz a boundary makes when it dissolves. It is, if you will, the sound of intimacy as it works upon a material world, though not perhaps intimacy as conventionally conceived. It is the sound of people trying to make visceral and political sense of the damaged ecologies that late capitalism has bequeathed them, in the shadow of the promise and the peril that high technology represents.

The ecological challenges of the twenty-first century do not turn on morality tales about the conquest of nature or exile from some self-contained paradise. They have more to do with the gritty, messy, often intricate, inevitably intimate matters of infiltration and interdependence. What might making visceral sense of a less boundary-inflected world look like, feel like, in the course of a day? Perhaps something like this:

- The cancer that was once someone else's malady has now become yours, or not yours exactly, but you, or as much you as any other cells in those skeins of tissue that come together as a body. There is no history of cancer in the family, so you wonder: Could it be pesticide residues in your food? Something in the carpet they laid down at work that you breathed in, tens of thousands of times per day? A rather less satisfying explanation called randomness? Kismet with a materials technology twist?

- You come across an article in which Marijn Dekkers, CEO of the drug maker Bayer, extols the virtues of the fully industrialized body that renders manufactured goods and cellular "machinery" indistinguishable. "Once we move on with material science," he explains, "every product we make ends up in the cell of a living species and regulates their processes" (Vasagar 2014:17).
- The you who sips morning chai while reading that article in a Tier II city in India puts on yesterday's sweaty clothes, gingerly. And why are they still sweaty? Because the municipal authority never sent water through the pipes yesterday, and when some finally arrived today, it was too oily for washing laundry. But the water came!
- By afternoon this same you, or perhaps it is another, discovers that your eco-minded boss at corporate headquarters in North America has not been able to sleep since his hybrid-powered car hit one of the deer that seem to be everywhere on the roads. He understands that when humans banished top predators like the wolves from eastern forests, deer populations exploded. He knows that the shrubs and forbs deer love to eat are getting harder to find in the forest. It is just that the eyes of that tawny doe keep trying to meet his, whenever his mind wanders.
- Come dusk you skim a hard copy of the day's news by solar lantern, your evenings miraculously extended once the kerosene runs out. Unpaid utility bills or a desire to live off the grid, in this respect it does not matter: The sunlight is free and makes you feel rather virtuous. Yet the plastic in the lantern's base, and the photovoltaic technology that lights up its diminutive panel, come at a cost. That you know, because you read a lot, and when you first found out, your eyes stung. Mine tailings, oil wells, plastic pellets clogging the innards of sea birds who mistake them for fish eggs, nights without electricity: it seems impossible to "go back."
- As you read, you watch the journalist watch a young man in Alaska hunt his first moose. No romantic about-face there: the setting is a suicide prevention camp for Native American teenagers. When the moose charges one of the organizers, the young man fires his rifle. Killing becomes inseparable from taking care of the animal, as the hunter pours water from his mouth into the mouth of the moose. When the animal breathes

his last, "the young man felt it go through him. It was a blessing" (Woodard 2013:34).

Swish, crackle, fizz. As nation-states took measures to fortify their borders with walls, fences, and capital controls at the turn of the twenty-first century, social theorists increasingly marked the ways in which boundaries between received categories would not hold. Gloria Anzaldúa (2012) directed attention away from the fences and the walls toward the borderlands on either side, divided by fiat but united by history and culture. Homi Bhabha, Paul Gilroy, Stuart Hall, and Françoise Lionnet displaced oversimplified assumptions about group membership with inquiries into the hybrid affiliations and complex allegiances forged in the long shadow of colonialism and the slave trade (see Prabhu 2007). Donna Haraway (1991) and Lucy Suchman (2006) reframed debates about human–machine interaction, which had previously taken the distinction between the two for granted, using the figure of a cyborg who melded them into a single form.[8] In the wake of decades of such interventions, from Bruno Latour (1988, 2010) to and through Philippe Descola (2013), the old "nature versus culture" dualism in which structuralism trafficked gave way, transformed in some quarters into a "natureculture" that echoed Einstein's amalgamation of Kantian categories of space and time into "spacetime."

In the growing field of political ecology, conceptual and material boundaries also seemed more permeable than before, for reasons that exceeded the preoccupations of theorists. Fieldwork-based studies such as Arun Agrawal's (2005) *Environmentality* and Paige West's *Conservation Is Our Government Now* (2006) explored how politically and culturally negotiated conceptions of "nature" and "development" make a difference for what happens to land and livelihood. Analysts stopped positioning technologies over or against landscapes. Harris Solomon (2016), an anthropologist with a focus on biomedicine, introduced the concepts of "absorption" and "metabolic living" in order to grasp how people in Mumbai associated the rise of diabetes and obesity with bodily infusions of substances from the city where they lived: everything from "stress" to packaged snacks. As glass-fronted shopping districts crept from town to town, circling the planet like some carbon dioxide–enhanced jungle vine, "nature" had become inseparable from its cultivation, synthesis, and reincarnation in the form of commodities, available for those with resources of a rather different sort to buy.

Before you could say "save the rain forest," it seemed you did not have to have a day job as a scholar to question the relevance of a host of entrenched

dualisms: not only nature/culture, but also derivatives such as technology/nature, animal/human, and human/ecology. With no place untouched by human in(ter)vention, and with ecologies ever more broadly conceived to incorporate the industrial byproducts on which they now feed, anyone could see that such cut-and-dried oppositions obscured as much as they revealed. Everywhere they looked, it seemed that someone was attempting to bridge, integrate, or at least tack between bits of a world once imagined to be marooned on one or another side of an ecological divide.

As one might suspect, this conceptual reorientation entailed much more than the way people thought about the world, which is to say, the organization of knowledge. To illustrate the far-ranging implications, consider just three examples of the visceral shift toward a more intimate engagement with all that surrounds us and all that *is* us, as the lines between technology, bodies, and their surroundings smudged. The first comes from the rise of the environmental justice movement in North America, the second from developments in bioscience, and the third from an Indian eco-magazine for children.

The environmental justice movement emerged in the 1980s from predominantly African American and Latino/a communities in metropolitan areas of the United States. Under its banner, grassroots organizations worked to raise awareness about the inequitable ways in which ecological damage is distributed. People who had never thought of themselves as environmentalists began to mobilize against the targeting of poorer neighborhoods—*their* neighborhoods—for projects such as chemical factories and trash incinerators. To these newly minted activists, racism and classism seemed obviously, achingly central to understanding ecological harm. They launched their own studies to demonstrate how asthma rates skyrocketed in the vicinity of bus depots, which never seemed to be located where wealthier people lived. They started growing vegetables in abandoned lots as a creative response to "food deserts" that made it impossible to get the ingredients for healthy meals in neighborhoods where retailers refused to invest. A push for conservation might serve the needs of well-off white families who took their vacations in the national parks, since they were less likely to experience environmental violence at home, but for activists in the environmental justice movement, environmentalism had to hook up with a much broader struggle for social equality. Their rallying cry of justice, carried forward from the civil rights movement, targeted power differentials, not simply conservation or protection as such (see Bullard 2005; Corburn 2005; Nayak 2009; Steady 2009; Stein 2004).

One of the consequences of introducing justice into an already established environmentalist discourse was to foster a new and deep-seated conviction that "the environment" is located wherever you live, not in some unlogged remnant of a far-off nature preserve—brownfields, special export zones, and skyscrapers included. After critiquing the "sadistic admiration" embedded in an environmentalism that places Nature on a pedestal, the philosopher Timothy Morton (2007) argued for an "ecology without nature." Environmental justice advocates addressed the same problem by calling for more expansive, inclusive notions of "nature" and "environment." In his essay "Healing Ecology," David Loy, a Buddhist scholar and activist, offers an insight into one of the principal ways in which the environmental justice movement broke with the back-to-the-land movement of the 1960s, when middle-class white youth attempted to build low-cost ecologically viable lives in the North American countryside. "The solution does not lie in 'returning to nature,'" Loy (2010:262) writes. "We cannot return to nature, because we have never left it." While offering diametrically opposed prescriptions for what should become of "nature," Morton and Loy met on the common ground of intimate engagement: no elsewhere, no divide.

As one century gave way to another, that swish, crackle, fizz sound could also be heard emanating from the bodies that roamed through these high-tech ecologically pressured landscapes, if you knew how to listen. It was no longer just ecologists like Paul Shepard (1996:72) who urged humans to come to terms with themselves as "edge animals," lest, "by disdaining the beast in us, we grow away from the world instead of into it." The isolated, armored body described by Emily Martin (1995) in her review of an earlier generation of medical textbooks had begun to disappear. Once biomedicine recognized the important part that viruses and bacteria played in keeping bodies healthy, it no longer seemed to make sense to stage an all-out war against "germs." Doctors advised parents to protect their children from allergies by letting them play in the dirt, instead of treating all microorganisms as potential invaders from a dangerous exterior world that must be kept at bay. Popular articles featured headlines such as "Our Germs, Ourselves" (Herper 2009), "Microbes Maketh Man" (2012), and "Some of My Best Friends Are Germs" (Pollan 2013).[9] In the latter essay Michael Pollan (2013) explains how he "began to think of myself in the first-person plural—as a superorganism, that is, rather than a plain old individual human being." Humans acquired a "microbiome" and a "virome" made up of tiny creatures that turned out to influence everything from immunity to metabolism. The science and technology editors at the *Economist* encouraged

readers to "think of the microbiome . . . as an additional human organ, albeit a rather peculiar one."[10] As Elizabeth Pennisi (2010:1619) noted in a review published in the journal *Science*, although these "intimately intertwined" denizens of the body had been there all along, "the ideas of a microbiome and a virome didn't even exist a decade ago."[11]

Like most emergent phenomena, this one did not sweep away everything that had gone before. The old melodrama that treated germs as villains persisted in the adversarial language of "friendly" and "unfriendly" bacteria, which pits bacteria that help keep organisms running smoothly against bacteria that tend to make humans sick. The legacies of imperial politics lived on in accounts that portrayed microorganisms as "colonizing" the gut. A tattered nature/culture divide resurfaced in the notion that eating, as Pollan (2006:11) puts it, "turns nature into culture, transforming the body of the world into our bodies and minds." There is a meaningful difference between a microbiome conceived as some contained diversity *inside us* and a microbiome made up of bacteria that are *as much us* as lymph or blood cells or a stomach, so integral to gene transport and digestion that we need them to live. Be that as it may, both views describe a "without within," a bodily "ecosystem" where old separations no longer obtain and the skin no longer functions as a purely defensive boundary. In both versions, intimacy edges over into animacy: people are not just *in* the world, but *of* it.

The world: that would be the place where, when the big organism called a human opens its mouth, the microorganisms in residence eat from the same pot. The world: that would also be the place where ecological injustice prevails, where the happy commensality in which microphages and "their" humans dine together coexists with diminished lifespan for those whose diet lacks vital nutrients or whose water comes from polluted aquifers. Only an analysis that links knowledge production to power can explain how people make visceral sense of scenarios that sanitized terms like *chronic exposure* and *ecological disaster* cannot possibly begin to cover.

When a British Petroleum (BP) well blew out in the Gulf of Mexico in April 2010, creating one of the worst oil spills in history, Gary Smith (2010) set out to interview some of the area's boat pilots, rig workers, restaurant operators, fisherfolk, realtors, even monks at a Buddhist temple. The aftermath of the Deepwater Horizon spill had affected each of them profoundly. Smith found that the way they expressed their distress linked economic survival to both the loss of everyday pleasures and what was happening to their bodies:

> People from every part of the earth had been carried here by the world's loop current: Cajuns, Croats, Cambodians, Canary Islanders, Cubans, Serbs, Africans, Vietnamese, Native Americans, Filipinos, Greeks, Italians, Germans, and Lebanese. They couldn't watch TV anymore, they said. The marsh was their workplace, their playground, their grocery store. *They smelled oil at night, they said, and couldn't sleep, wondering how they'd pay off the big loans they'd taken to rebuild after Hurricane Katrina. . . . They sensed the oil had begun seeping inside them*." (G. Smith 2010:70, my emphasis)

The kind of damage that the Deepwater Horizon survivors literally embodied lent a sensory dimension to protests outside BP offices, demands for corporate responsibility and compensation, as well as the ongoing struggle to consider what might be at stake before laying a pipeline or drilling a well. If, as Kim Fortun (2012) has argued, ecological disasters are only going to become more common due to aging infrastructure and profit-driven constraints, then it becomes that much more important to understand how visceral entanglements with the "resources" that guarantee loans, health, and breath will play into what lies around the corner.

Given an outside that is always already inside (inside bodies, that is), it becomes possible to link visceral apprehension to "nature's" synthesis, in everyday as well as corporatized forms. There is not a reader of this book who does not rely on synthetic chemistry, which inhabits the ink that renders these words fleetingly indelible, the glue that holds the pages together, and (in the case of a digital edition) the transistors and diodes that render the products of algorithms accessible to the eye. For better or worse—for better *and* worse—synthetic chemistry has altered the very composition of the earth. Those "friendly germs" that medicine now seeks to understand, the toxic ecologies that investigators now look for in human bodies as well as contaminated ponds, derive their characteristics in part from industrialized processes. It takes political economy as well as political ecology to explain why the microbiome of someone whose staple diet relies on fast food restaurants in one of Phoenix's food deserts will vary in some not so salutary ways from the microbiome of someone who eats regularly from a rooftop garden in Caracas.

Synthesis of the material world involves more than the stuff cooked up by food processors and materials scientists in laboratories. It includes, of course, attempts to reverse-engineer plants into "essences" that allow manufacturers to serve up methylated theophyline (manufactured caffeine)

in lieu of more expensive coffee beans. But a certain synthesis of the material world also occurs whenever human labor is involved. What begins as a *daikon* (white radish) seed becomes food not just because it grows into a root vegetable that stores well, adds a bit of zest to a meal, and helps a farmer aerate a field by pushing its way deep into the soil. That seed becomes synthesized into food only in the course of activities such as planting, cooking, sharing, and harvesting.

It may sound obvious, but a focus on the transformative power of labor underscores the extent to which eco-intimacies involve what people do as well as how they think about what they do. Feminist environmentalism has long emphasized how divisions of labor can give people who perform certain sorts of tasks a more intimate knowledge than others of the resources with which they work (see Agarwal 1992). Water is the classic example. Where women (and children) spend hours every day securing water for their households, they are likely to know more about its quality, where to find it, the timing of its comings and goings (by the season or at fitful municipal taps), and how to negotiate the claims that neighbors make upon it. If a man who has not lugged water home since he was eight years old speaks in the local river parliament about how to "manage" upstream/downstream disputes, his recommendations might be expected to differ from those of his female colleagues. That is, unless those colleagues are themselves wealthy enough to employ someone else to fetch water, in which case being women without performing "women's work" would afford them no special insight into the condition of the river at all.

The intimacies embedded in any attempt to work a change upon the material world are as integral to ecological restoration projects as they are to running a household, protesting a waste incinerator, or living in an environmental "sacrifice zone." And so we come to our third illustration of the eco-intimacies that have emerged as boundaries drawn in an earlier age waver and diffuse (if not thoroughly dissolve). This one comes from a magazine aimed at primary school students in India called *Gobar Times*. Each issue contains a sidebar framed with the question that may be preoccupying you right now: "Why *Gobar Times*?" In northern India, even city kids enrolled in English medium schools know that *gobar* means cow dung. What is not so clear is why a word for the stuff that emanates from the business end of a cow should grace the cover of the country's leading eco-publication for kids.

"So why such a 'yuck' and 'tacky' name when we could have a more cool or sophisticated one? Well, because it captures our eco-philosophy and tra-

dition of generating wealth from waste. How? Because the apparently waste gobar serves as an anti-bug and water-proof coat for walls, an energy source for non-LPG India, and a natural manure for farmers' crops" ("Why *Gobar Times*?" 2013:61). Like the humble daikon seed, gobar is what you make it, and what you make *of* it.

Gobar can mean cow dung molded into patties, sticking first to the hands, then to the sides of buildings where people leave them to dry in the sun. Gobar means grasses, bits of Styrofoam, old *chapatis* traveling through the innards of a cow until the unused bits of that particular "outside within" emerge in a bid for a new life as stucco or fertilizer. But that new life can ensue only when hands are willing to touch it, when minds see something of benefit to life rather than a nasty mess to step over in the road. The conceptual and practical transformations go together.

Swish, crackle, fizz: There went the parceling of the world into resources that drop from the sky into the hands of those who can pay. There went the reification of "the environment" into a damsel in distress who exists out there somewhere, immobilized, waiting for rescuers to appear. As the lines between nature and culture, habitats and organisms, power and knowledge dissolved, scholarship on new materialisms emerged that treated plants, water, even plastics as agents or actants in their own right. These new materialisms, however controversial, had much to say to people who were trying to make sense of how their bodies kept changing in tandem with the "environmental conditions" produced by a high-octane brew of capitalist finance and new technologies. How were they to live in a world that seemed newly invigorated, if not enchanted, through some of the very processes that had damaged it? But first, a word about the structure of this book.

The Varieties of Eco-Intimacy

The chapters that follow present more than a series of essays that thematically link ecology to the topics of intimacy and animacy, although they do that as well. Certainly each chapter can stand on its own. Read in sequence, however, they invite readers to join a *yatra*, a pilgrimage that may double as a protest march of sorts, through some of the questions that people in otherwise culturally disparate places are asking as they notice the harm that many projects undertaken in the name of modernization have inflicted on the ecosystems that sustain them. Should they "look back" toward older, healthier ways of growing food, or "forward" to technologically innovative means of coming up with the nutrients that animals need to thrive? Can

people "get along" with radioactive cesium in the aftermath of a nuclear meltdown? Should they even try? Does hostility to science really undergird the skepticism that has provided political cover for those who wish to block climate change treaties? Is there more to water politics than disputes over distribution, supply, and demand? Might there be better ways to pose these questions after taking eco-intimacies into account?

Each chapter departs from the premise that intimacies must be animated and so may emerge anywhere under the right conditions, rather than springing forth in pregiven sites such as marriage that may be culturally designated as "intimate relationships." The animating factors in a town filled with refugees from a massive hydro project are likely to differ from the animating factors in a village where second-generation bonded laborers fire bricks in a kiln or in a village engulfed by an expanding metropolis. What forms those differences take is the kind of empirical question that ethnography excels at addressing. The case studies taken up here draw their ethnographic and archival material from three countries—the United States, Japan, and India—with rather different histories when it comes to technological modernization drives and their associated ecological impacts.

Chapter 1, "Surveillance in the Food Chain," examines the deployment of surveillance technologies during the attempt to establish a National Animal Identification System in the United States. The use of electronic devices to tag and track millions of animals bred for human consumption has come to symbolize the loss of an intimacy that ostensibly once prevailed between animals and the farmers who raised them during an earlier, less mechanized era of food production. In the United States, people often contrast face-to-face animal–human relations on small farms with the alienated relations they attribute to the "modern" bureaucratic oversight that prevails on factory farms. Yet even the most high-tech surveillance schemes can generate their own forms of intimacy: techno-intimacies that produce "close" knowledge of animals from a technologically mediated distance.

Rather than trying to get reacquainted with the food we eat by settling for high-tech traceback schemes and/or searching for connection on the artisanal side of a premodern/modern divide, this chapter argues that there are compelling reasons to foster more intimate engagements with the *conditions* of food production, regardless of the abstracted or face-to-face relations involved. For it is the conditions under which animals mature that have the most to say about the increasingly industrialized, often impover-

ished fabrication of their bodies, not the intimacies generated through surveillance or even some nodding acquaintance with a harried farmer.

Chapter 2, "The Unwanted Intimacy of Radiation Exposure in Japan," reminds readers that not all forms of intimate entanglements with "resources" are desirable, or desired. Even people who aspire to own the latest electronic gadgets are not so enamored of unregulated exposure to the radioactive isotopes that help the world meet its energy needs. After the March 2011 earthquake/tsunami led to triple meltdowns at the Fukushima Daiichi nuclear plant, many Japanese residents who found official government data unreliable decided to take their own radiation measurements. Because the body's senses cannot detect radiation directly, they had to *seize the means of perception* by acquiring equipment such as Geiger counters and dosimeters. In order to make meaningful use of the equipment, they then began to familiarize themselves with aspects of nuclear science, including processes of radioactive decay and various configurations of nuclear technology. Some used crowdsourced maps of radioactive hot spots and other digital technologies to disseminate the results of their studies. Citizen science–based initiatives like these can be considered a form of *technostruggle* in which ordinary people avail themselves of technology to produce knowledge about their visceral engagements with potentially lethal derivatives of the "resources" upon which they rely. Technostruggle can foster a politics of popular sovereignty when used to challenge government and corporate reassurances about safety. Alternatively, technostruggle can end up fostering other culturally resonant forms of political engagement, which in the case of Japan took the form of a *politics of protection*. Technostruggle also generates new forms of bio-intimacy, as people come to experience "the environment" not as something separate that surrounds them but rather as a constitutive part of the very fabric of their bodies, which take up radioactive strontium and cesium right along with vital nutrients. This chapter concludes with a look at the post-3.11 phenomenon of the "radiation divorce" in order to consider how bio-intimacies can affect intimacies more conventionally conceived, such as those entailed in kinship.

Chapter 3, "Climate Change, Slippery on the Skin," asks what it would mean to take North American climate change skepticism seriously when that skepticism takes the form of the adamant assertion that global warming cannot be happening because it's not particularly hot out and the observer has hardly broken a sweat. The idea here is not to marshal evidence to refute such claims but rather to stage an earnest inquiry into why *some*

climate change skeptics wield the body as an instrument they judge capable of registering conditions that enliven or imperil it.

Although many have characterized the conclusion that "there's no such thing as climate change" as anti-science, intimate appeals to the evidence that bodies can provide are not necessarily strangers to scientific inquiry. Researchers have utilized their bodies as testing, measuring, and tracking devices since the very birth of empiricism. In the early days of the Scientific Revolution in Europe, the body's senses doubled as a sensory *apparatus* when investigations were underway. The eye seemed every bit as integral to generating knowledge about the movements of comets or planets as that revelatory upstart the telescope. By the time climate change entered North America's vocabulary in the twentieth century, the telescope's precision had long relegated the eye to the status of unreliable informant, yet scientists continued to irradiate themselves, ingest poisons, and expose themselves to strange concoctions of gases, in an effort to use their bodies to better understand the properties of substances and the effects of atmospheric conditions. These corporeal forms of investigation, sometimes called embodied empiricism, treat the human body as a technology at once intimately connected to and set against objects of scientific inquiry through the very act of training the senses upon them.

To an embodied empiricist, "I'm (not) sweating" looks more like evidence than resistance. Without for a moment disputing the gravity of the changes now upon us, my goal here is to sketch an alternative sociohistorical genealogy for climate contrarianism in the United States in which certain strands of contrarianism run through the reasoned history of science rather than through theistic forms such as creationism. This approach opens a space for dialogue by extricating discussions of climate change skepticism from simplistic dichotomies that oppose science to religion, facticity to denial, and evidence to belief.

Chapter 4, "The Greatest Show on Parched Earth," focuses on some of the ways in which a visceral approach that attends to intimate, playful, yet spectacular engagements with a critical "resource" like water can have nontrivial implications. The ethnographic focus here is on the Grand Venice, a water-themed multiuse shopping and business complex located in the semiarid scrublands outside New Delhi, which promised investors gondola rides, a mermaid show, and India's first aquarium. Tucked into the confection of a building façade meant to conjure the Doge's Palace, these enticements raise the question of whether there might be room for embodiment, play, and aesthetics in a sea of utilitarian treatments of water,

and if so, whether it would matter for anything more than an elite's passing entertainment. As the world rightly turns its attention to the mounting problems associated with overuse, contamination, and inequitable distribution of water, a casual observer could be forgiven for concluding that water politics must concern itself solely with a logic of scarcity and need. Human beings are *made* of water, the pundits explain, anywhere from 45 to 75 percent, while a mere 3 percent of the world's water supply is freshwater, and much of that inaccessible. Odes to the profits to be made from declining supplies, dire predictions about water wars, and jeremiads about an increasingly illiquid future all share this framing device. Critics depict waterworks that seek to escape this logic, including elaborate displays of fountains in the desert, as simple acts of hubris. Yet the appeal of such spectacles cannot be denied, as well as the social struggles embedded in them. This is not the bio-intimacy discussed in previous chapters in which food, water, bacteria, and radioactive isotopes become integral to organisms at a cellular level but an equally embodied intimacy of connection through contact, in this case with sparkling displays of a life-giving substance in locations where clean water is already scarce. Might the carnivalesque intimacies staged in places like the Grand Venice have the potential to reanimate relationships with neglected or exploited surroundings that critics assume to be evacuated of care and meaning, even as developers of such spectacles put added pressures on workers and ecologies?

Chapter 5, "Political Ecologies of the Precarious," raises the mother of all questions when it comes to the paradoxical coupling of technological prowess with ecological harm: Why do diverse societies with such varied histories and relationships to capitalist markets seem stuck in a downward spiral of resource exploitation, even as evidence mounts that if things carry on like this, the future of life on earth for complex organisms may be in doubt? Any answer would have to take politics and economics into account, as well as the many critiques of modernity. But the notion of affective intimacies suggests there is also a rather specific materiality involved: a viscerally fueled romance with synthetic chemistry embedded in current modes of production and consumption. As Geeta Patel (2016:2) points out, innovative technologies can serve as "incitements to closeness of various kinds." In this chapter a series of ethnographic *stopgaps* set in Chicago, New Delhi, and Venice (the "real" Venice this time) examines the part that one key technology, the automobile, has played in cultivating this affective stance by bringing people into an intimate, visceral engagement with newly created chemicals. What is it about such an affective stance that allows people

to live with apparent contradictions, reassuring them that they can poison the world without limit even as they recognize that a limit must be out there somewhere, and suturing them to ecological damage even as they work against it?

The interactive ending to this just-so story of how humanity acquired its industrial spots will be either a reanimation of affective intimacies that organizes the world into something other than a collection of dead resources waiting to be managed, or a cataclysmic one, in which ecological precariousness bleeds into the economic precarity that has already robbed a generation of steady work under livable conditions. The apocalyptic finale is all too familiar. What would, what could, a reanimation of distanced abstractions such as "the environment" and "natural resources" for our (still) modern times look like?

The Last Animist

In an essay that isn't much read these days, but ought to be—"'What I'm Talking about When I'm Talking about My Baskets'"—Greg Sarris (1992: 24) describes the perplexity that greeted Mabel McKay when he invited her to speak to a class at Stanford University. Mabel was a renowned basket weaver, a fellow Pomo tribal member, the focal point of Sarris's research, and by most accounts a mischievous if not downright cantankerous woman. On this particular day, after two hundred students file into the classroom and the professor finishes his introduction, Mabel puts out her cigarette, unties a bundle of sedge roots, and starts weaving. And weaving. And weaving.

Sarris, who is not above indulging in a bit of wicked humor of his own when he implies that the professor decked himself out with a turquoise ring in Mabel's honor, seems truly mortified when he realizes that the speaker he has escorted to class may very well never say a word. Perhaps this is her way of showing her determination not to become another exhibit of the vanishing, but then again, with Mabel, who knows?

Much to Sarris's relief, Mabel finally has words for her audience. "Traditional weavers," she explains, "only weave the designs the spirit tells you," whereas "some modern weavers and the white people" court danger because "they just weaves whatever they like." A person "could get trouble that way," she cautions, holding up a basket: "These things . . . is living, is living." After a pause, she asks, "Now who can tell me what I mean 'is living'?"

"Does it breathe?" ventures a student. Mabel bursts out laughing. "That's cute," she says, "'Does it breathe?'" Another student asks if the basket talks. "Depend what kind of basket, what it's talking to," Mabel responds. "You got to hear it, but how *you* going to hear it?"

Anthropological studies of what animates our surroundings, even now, often find themselves in the position of that first student: earnestly and respectfully inquiring into phenomena so beyond their ken, materially-cum-ideologically, that they attempt to grasp those phenomena by replicating the very habituated ways of thinking they hope to transcend. To be fair, it is not easy to convey to people heavily invested in Euro-American conceptions of dead matter what it means to live in a world where trees ruminate, baskets talk, ancestral spirits inhabit palisade fortifications, elk decide whether to offer themselves to the hunter, and so forth, much less a world in which radioactive isotopes and polyamide resin pellets have their way with people. This business of tethering things newly apprehended to more culturally and historically familiar notions, the better to comprehend otherwise inexplicable differences, is anthropology's forte as well as anthropology's predicament. But it is one thing to recognize the difficulties inherent in the project and quite another to believe that you have moved on, moved up, or otherwise achieved some kind of clear-eyed understanding at the very moment you insistently relate everything back to the categories already in your bag. That last move is the one likely to provoke giggles.

When posthumanist anthropology opened one possible avenue for reanimating the world by taking steps to decenter the human, it seemed a radical step for a discipline once known as the study of man. This controversial anthropost-ology, as it were, beckons practitioners to investigate the lives of baskets and bacteria, to engage in an enterprise called multispecies ethnography, and to bring it all back to bear on the little matter of what it means to be human in the first place. In these endeavors ethnographers have had plenty of company of late. Their work coincides with (and draws upon) research by a contingent of philosophers, ecologists, and political theorists who have also stopped treating humans as the consummately sentient beings who dominate a fundamentally inert universe where everything else serves at their pleasure.[12] That lively company would include Jane Bennett's (2010) work on vibrant matter, Mel Chen's (2012) use of Silverstein's linguistic animacy hierarchies to "trouble the binary of life and nonlife," and Noortje Marres's (2012) technologically infused concept of "material participation" in which "things" engage in a transformative politics

with the capacity to mobilize publics. Even the sociologists have gotten in on the act, treating plastic as a substance with work to do in the world, as well as a life and a death that may or may not be metaphorical (see Gabrys, Hawkins, and Michael 2013).

As scholars continue to debate the vitality and even volitionality of matter broadly conceived, one development stands out: everybody wants to rethink animacy, but almost no one wants to be an animist.[13] I am not referring, of course, to people who weigh in on blogs like *The New Animist* or *The Allergic Pagan*. I'm talking about intellectuals with degrees and reputations to protect. A basket may act as an agent or enter into social relations with other things, in scholarship as in life, no problem there, but in a Deleuzian or Latourian world of assemblages there is not much room for animist visions that are more than material.[14] That remains true even for theorists who have flirted with the concept of animism while remaining wary of its broader connotations. In an interview with *Eurozine*, Jane Bennett, who seemed to shy away from the term *animism* immediately following the publication of her book *Vibrant Matter*, alluded to "what could playfully be called my neo-animist views," but with a critically distancing emphasis on the playful (Bennett and Loenhart 2011). Timothy Morton (2013b:101), another philosopher interested in rethinking "objects," concurs with Bennett that "a little bit of animism" might be of some use if carefully deployed, but that "it would be better if we had some term that suited neither vitalism nor mechanism." Sian Sullivan (2013:50) hedges by proposing the temporally qualified "becoming-animist" (not yet! not quite!) to describe the impasse at which social theory finds itself with the emergence of "new techno-configurations of nature."[15] Morton (2013b:101) suggests creating an alternative to animism by "appending some kind of negation to life and death, so that objects become *undead*." But in a cinematically infused world, it seems that would simply force theorists to grapple with the living legacies of another culturally charged form: the zombie (see McNally 2012).

It's quite striking, really, the breadth of this qualification and disavowal. Why in the world, in these times of renewed interest in the animacy of everything from puppies to rocks, would analysts take such pains to distance themselves from animism as such? Why would they insist on working out the intricate details of everyday life and sociocultural difference in a way that melds subject to object without a close reading of the classic debates about animism that preoccupied Edward Tylor (1871) and his interlocutors in the nineteenth-century? Why would they dismiss out of hand the possibility that a concept such as spirit (if not spirits) in the way

that Mabel McKay used it could convey something important theoretically, while coming down so resolutely on the hard ground of a materialism that too often conceals its own debts to history?[16] These days a biologist such as Colin Tudge (2006:359–60) might describe how mopane trees in Africa release pheromones to promote tannin production in neighboring trees by depicting a forest in which "the air is abuzz with their conversations . . . conducted in vaporous chemistry." It is an interesting development that he should explain things just this way, in an account filled with plants that can "warn" one another about threats or even "summon help" from insects. Still, the conversation Tudge has in mind denotes a strictly material exchange of fragrances.

Now you might say to yourself, "My goodness, all these folks must be taking a long detour around animism for a reason." And you'd be right, but perhaps not for the reasons you originally conceived. It can't simply be because animism is oh-so-nineteenth-century. After all, the twenty-first century began with steampunk fiction and steampunk fashion, bringing Victoriana back into vogue. How hard would it be to imagine the emergence of a steampunk anthropology in which theoretical fashions such as animism could be revived with a bit of polish on the brass and a nod to latter-day critique? Alternatively, and to their credit, perhaps contemporary writers have no taste for the contempt that Tylor occasionally visited upon those he consigned to the animist stage of social evolution.

It might also be, however, that when today's new materialists and speculative realists hold relations momentarily constant by using "the assemblage" as a marker in order to focus on the intrigues of immanence, they intend to give a wide secular berth to anything that smacks of anthropomorphism or the kind of *indwelling* immanence that many versions of Christianity fostered. Lo these many years on, surely "we" know better than to project a soul or a spirit into a palm tree. Don't we? So long as that remains the case, Mabel's interlocutors can take her seriously, but only up to a point. That point arrives when she talks about weaving "the designs the spirit tells you."

It is not that Mabel necessarily understood herself to be in communication with a subjective presence that inhabited the "mere matter" of the basket's willow, feathers, and sedge; indeed, her laughter seemed directed at the very notion of such a subject/object split. It is rather that the commitment to matter which underwrites the new materialisms already presupposes a certain ontology that precludes the possibility of others, an ontology bound up with the voyages of discovery undertaken by European

science. In this respect new materialisms find themselves at odds with the so-called ontological turn in anthropology, since the ontological turn, from Eduardo Viveiros de Castro (1998) onward, committed ethnographers to taking people (especially indigenous people) at their word as a starting point for inquiry.[17]

Let me hazard a rather different sort of guess as to the reasons for this adamant, almost embarrassed, backpedaling from animism, one that does not necessarily preclude explanations such as these: The disavowal of animism in accounts that position themselves as beyond humanism constitutes what the con man or the poker player would recognize as a tell. A tell reminds those who care to look that all is not as it appears. But what can this particular tell tell us?

Performatively speaking, the move to distance an argument from animism marks the moment in which the posthumanist puts paid to humanism. When it comes to animism, soul and spirit are the headliners for people who have not read many nineteenth-century texts. At best most scholars command a potted history of ethnological research on the subject, populated by soul-filled baskets that breathe. And nothing spells humanism like subscribing to the notion of a soul.

For Pico della Mirandola (2012), who left his imprint on Renaissance humanism as much as any philosopher, it was the thoroughly Christianized immortal soul that allowed shape-shifting humans to leapfrog right over Seraphim and Cherubim in the Great Chain of Being and assume a place beyond this world in the presence of God. Whatever else it might be, then, the flight from animism is a credentialing move. If you reject the attribution of soul/spirit to objects, even objects newly resignified as subjects, you must have put the problematic assumptions embedded in humanism behind you. Except, as the tell reminds us, all may not be as it appears.

Take the piece of lifesaving advice Eduardo Kohn (2013) received when he bedded down for the night during fieldwork in the Amazonian forests of Ecuador. Lie face up, his Runa companion Juanicu instructed him. Going to sleep face down encourages a jaguar to attack. Kohn has good reason to place this vignette at the opening to his eloquent multispecies inquiry, *How Forests Think*. By pondering what it would mean to greet a jaguar eye to eye in the wee hours of the night, the sacred cord that binds representation too tightly to language loosens, leaving room for a being of another sort who parses the world without words, in this case a world divided into fellow creatures versus dead meat. The jaguar pursues an intimacy of incorporation: eat or be eaten, unless some perceived kinship counsels forbearance.

In this imagined encounter, conventional understandings of representation become more capacious. But the implications do not end with a *rethinking* of what the jaguar sees or what the anthropologist knows. By returning the jaguar's gaze, Kohn (2013:2) contends that humans—his "we"—*become* something new, "aligned somehow with that predator."

That last bit of Kohn's argument implicitly responds to the critique that charges the ontological turn, in its execution, with having gotten mired in the quicksand of worldview instead of adequately addressing the more properly ontological matters of being or becoming. It is not that there isn't something important about urging people to take seriously Mabel McKay's "view" that a basket lives. If you treat her declaration as a testament to the way the world *is* (at least if you are Pomo), rather than merely some folkloric *belief*, different possibilities for inquiry as well as living open up. But—leaving aside the matter of relativism—a focus on *testimonio* and truth claims still does not get at how the world is, full stop, which is to say never stopping at all.

For an anthropologist such as Tim Ingold (2000), seeing is never a matter of view and never confined to the eyes. Sensation becomes a whole-body activity for humans and presumably jaguars as well, involving the kind of participatory movement that led William James to write, from within his thoroughly Euro-American context, that "the first time we see light . . . we are it rather than see it" (Ingold 2000:269). Kohn, for his part, goes directly for negotiations over is-ness. Even when he enters the mind of the jaguar, one could argue that he does no more (albeit sans language) than cognitive linguists do with their theory of mind when they attempt to explain how it is that one human can speak in any meaningful way to whatever is going on in the ostensibly separate and unknown mind of another. The profoundly visceral realignment Kohn describes at the moment when two sorts of animal eyes meet in the dark matters hugely for the earth's hard-pressed ecosystems. But there is still in this lullaby for people and for jaguars the scent of something not only human but humanist, and that whiff of humanism emanates from the gaze.

In many posthumanist studies, if humans no longer monopolize the picture, they are at least left holding the frame. Inside that frame, as in any self-respecting Renaissance painting, perspectivalism rules: points of view, lines of sight, vanishing point and all. (Note that here I am not speaking of perspectivism, the Nietzschean animal that has prowled the jungle of ethnographic ruminations on ontology since Viveiros de Castro delivered his famous lectures at Cambridge, but of perspectivalism, its playful artis-

tic ancestor, more comfortable in the hill country outside Florence.)[18] A perspectival gaze emanates linearly from a viewer who occupies a distinctive vantage point. Face up is not face down, after all. And it is hard to have emanation without something immanent, be it ever so simply conceived, perhaps as a starting point or a source. The looking-back emanates from someone at least covertly imagined as immanently present, a being with an inside and an outside, albeit these days with leaky boundaries: in other words, a classically, suspiciously humanist subject, however much the disavowal of animism might seem to indicate otherwise.

The perspectivalism embedded in this gaze exemplifies Ingold's earlier point about "the imprint of a certain way of imagining the human subject—namely, as a seat of awareness, bounded by the skin, and set over against the world" (2000:243). This was the human subject who could "look off" into the distance in a Renaissance painting by Masolino or Raphael, watching buildings and floor tiles recede along then newly invented "lines of sight" into a mathematically generated distance. Or, in another part of the world, on another day entirely, the one who can open startled eyes to "look out" onto a predator who looks back, then makes its/her/his own fine-grained distinctions before deciding whether to dine.

And here is where it gets interesting. Instead of dissolving the humanist subjectivity of the human, the tactical device of perspectivalism begins to constitute the jaguar as a humanist subject, too, complete with his own "point of view" and his own gaze looking down or out. This is no garden-variety anthropomorphism that attributes humanized traits, habits, or sensations to an emphatically nonhuman creature. Quite the contrary: perspectivalism becomes the very ground that opens up representation to allow some not fully fathomable communication to take place, as the predator pads away from an alert fellow traveler or sticks around for a meal.

To any jaguar who knows her Renaissance history, the retention of a bit of humanist perspectivalism in posthuman inquiry offers more than additional evidence of human duplicity. (As though any creature sizzling away in rainforest temperatures jacked up by greenhouse gas emissions needs evidence of *that*.) It is an indication that much of posthumanism has not quite yet come to terms with the subtleties of its humanist legacies in an era when "post-" is all the rage and everyone reaches for a beyond. Whether humanist legacies like perspectivalism can be of value to a project that sets out to jettison human exceptionalism is, of course, another matter entirely.

Perspectivalism is not integral to the way that Gujars living in the Sariska tiger reserve in India approach tigers, for example. They have devised a

protocol—an etiquette, if you will—for how to meet and greet a tiger, complete with specific vocalizations, that has proved remarkably successful in terms of minimizing human casualties. Paul Greenough (2012:337) calls this "interspecies accommodation," no projection into the imputed mind or gaze of another creature necessary to carry it off.

Neither is perspectivalism integral to Ingold's analysis. If, as he argues, perception arises as a whole-body experience produced by moving through the environment, then eyes, ears, mouths no longer figure as single-point origins of sensation. Seeing, hearing, and tasting holistically effectively banish the interiority assumed by discussions of animism when they picture spirit or soul as something that inhabits a thing and persists as an indwelling presence. Yet some sort of divide remains, insofar as Ingold's creatures remain on the side of life, neatly distinguished from this nebulous thing called an "environment" that activates perception as they pass through.

Animate Planet adopts another approach by attending to the shifting eco-political context that has given rise to posthumanism in the first place. Rather than trying to explain the living baskets and discriminating jaguars of the world, the case studies in this book ask what happens to people's visceral understanding of what it means to be human when damage to ecosystems has muddied any interior/exterior divide.[19] This is a move that sidesteps the arguments for and against attributing personhood to plants, rocks, or animals (see Hoeppe 2007:123), in favor of inquiring into the circumstances that made it seem important to stage such debates in the first place. The goal is to learn from the new animacies and to identify the intimacies embedded in them, but at the same time to read them as symptom.

If "materialism by itself is like honey on a razor's edge," as rapper Born I Music has it (qtd. in Sperry 2013:63), then a creatively *historical* materialism that asks "why this, now?" swaps the razor for the cutting edge of bittersweet insight from a time when modernity's story no longer suffices. Objections to the use of surveillance technologies to track livestock in the United States enlist nostalgia for what Leo Marx (2000) called "the machine in the garden," the historical yet fantastical production of a pastoral world of face-to-face relationships through an engineered landscape.[20] The rush to buy Geiger counters following the 2011 nuclear meltdowns in Japan addressed practical concerns but also historical memories of how radioactivity had insinuated itself into people's bodies through wartime bombing. Allusions to the body as a measuring instrument in North American debates on climate change make more sense with a grasp of the history of empiricism in European science. The attraction to spectacles staged with water

in the arid lands around New Delhi signifies differently than the attraction to similar spectacles staged in Las Vegas, provided the historical ecology of the Yamuna River watershed is taken into account. All of these cases have arisen at a moment in which the ecological impacts of several centuries of industrialization have become so inescapable that they frame even the most triumphalist versions of the tale of how we got here.

In late industrial societies people increasingly depict themselves as capable of intimacies with matter that they have trouble describing because they have inherited a language of relationship and connection after-the-(individuated)-fact. Of late, they seem to be feeling their way toward something less fragmented. As they wake up to an ecologically compromised world, they have started to imagine it less as a setting for binding discrete entities into some sort of relationship and more as a place where beings permeate and co-constitute one another from the start. In the process, living versus nonliving, biological versus technological, creature versus environment, cease to be hard-and-fast dichotomies. The world becomes a place in which human beings are and are not separate, a place in which people begin to perceive themselves as integral to ecologies that they acknowledge, however begrudgingly, they need.

Though born from ecological decay, even catastrophe, this latest turn of the wheel refuses to place "resources" or an "environment" over, above, or against the lives they sustain. More is at stake than some "disintegration of our notion of the natural world," as Descola (2013:83) puts it, although his phrase describes as well as any an important aspect of the shift. Without a circumscribed natural world, the enchantments that travel in modernity's wake do not, cannot, spring from naïve calls for return to some ethnologically enhanced realm of totems and animal spirits, unless those animal spirits happen to include the Keynesian ones said to haunt the financial markets upon which industrialized edifices rest.

If the plot of modernity's story advanced through *techne*, then the reanimation of the world that modernity has gifted us emerges from attempts to grapple with the knock-on effects of a certain technological intensification. It is the sort of reanimation that becomes possible only once industrialized prowess has transformed the earth into a glorified makerspace of inequitably distributed ecological harms and marvels. It is the sort of reanimation that arises with the contention that the supposedly "dead matter" upon which the Industrial Revolution fixed its sights (and altered) appears to have had its way with the earth's inhabitants in the process. What people in different parts of the world make of their newfound eco-intimacies—

whether they long for them, evade them, embrace them, or propose to reconfigure them in some more deliberate and deliberated manner—is the open question that animates this book.

The entanglement of animacies with intimacies under investigation here is not the same as the one sketched out in posthumanist briefs for the equal standing or ontological equivalence of all creatures. These twenty-first-century eco-intimacies are not about separate-but-equal. Neither are they the products of relations between entities, be they rice seedlings, farmers, waterways, puppies, or robots. Rather, these eco-intimacies are *compositional*. They inhabit the growing conviction that creatures co-constitute other creatures, infiltrating one another's very substance, materially and otherwise, with "creatures" broadly conceived to include the products of industrial technologies.

How do people come to terms with such a world, even as they constantly rework it? How do the enchantments that travel in modernity's wake diverge from those that have gone before? At stake is the difference between ingesting probiotics to help an ostensibly bounded immune system survive a daily chemical assault and taking probiotics to nurture gut bacteria that are also in some sense me. It is also the difference between a relationally conceived "exposure to" radiation after the meltdown at Fukushima Daiichi and a historical moment in which Mochizuki Iori can speak of a generation of people in Japan becoming nuclear fuel rods.[21] The forms of ecological damage that environmental justice movements target, in which some bodies are compelled to take up more heavy metals or Cesium-137 or E. coli 0157:H7 than others, make these political as well as perceptual observations. This is not your great-great-grandmother's animism.

NOTES

INTRODUCTION: ANIMATING INTIMACIES, REANIMATING A WORLD

1. Dreamworks can never be properly referenced, since they exceed the referential, but readers interested in pursuing some of these threads might start here: News coverage from *Indian Country Today* is available at http://indiancountrytodaymedianetwork.com/ and is highly recommended for anyone who presumes to think they know what it means to be "American" (accessed April 22, 2016). Coverage of the devastation caused by the mining of beaches and riverbeds for sand to mix into concrete can be found in P. Anand (2013); Babu (2013); Chakravarty (2014); HT Correspondent (2013d); Rajput (2013b); and Sinha (2013). For a timeless tale of another sort that plays with its historical setting, see the story about Victorian repression that opens Foucault's (1978) *The History of Sexuality*. I am grateful to Geeta Patel for making the connection.

2. I take my lead here from Harry Harootunian's (2000:33) account of the impossibly contradictory task embedded in the project of overcoming modernity and Shannon Lee Dawdy's (2010:762) observations on "the slow death of modernity as a temporal ideology."

3. By "futures past" I have in mind the ruins of a once forward-looking modernity so movingly portrayed in Tong Lam's (2013) photographs of "abandoned futures": the gutted concrete shell of an apartment block listing to one side, the rounded bodywork of an obsolete fire engine rusting in a field, the detached nose of a jetliner buffeted by the very air currents it once mastered.

4. My thanks to Rosalind Morris for articulating this question in a way that helped me in turn articulate my answer to it.

5. Even in the hands of theorists such as Elizabeth Povinelli (2006) and Ann Stoler (2006, 2010), who would be the first to acknowledge the importance of ecology for any analysis of empire, intimacy largely confines itself to human relationships (e.g., the ways that colonial rule enlisted intimacies associated with human kinship in the project of governance). Likewise for the intricately theorized, often counterintuitive accounts of intimacy offered by Lauren Berlant (2000), for Lisa Lowe's (2015) extension of intimacy to the reading practices that helped generate postcolonial critique, and for Nayan Shah's (2011) evocative use of the concept of "stranger intimacy" to examine sexual citizenship and racialization in North American immigration history.

6. For an argument that more recent speculative approaches to "nature" build upon, rather than supplant, earlier contemplative discourses, see Igoe (2013).

7. Some of the most sympathetic readings of indigenous eco-practices, such as Charles Menzies's (2006) *Traditional Ecological Knowledge and Natural Resource Management*, become oxymorons when viewed through this lens.

8. Like any illustrative list, this one could go on, adding, for example, Wendy Brown's (1995) cautionary tale about a politics of *ressentiment* that sorts people into neatly bounded constituencies of injuring and injured.

9. Note the allusion in the title of Herper's article to the feminist "know your body" manual, *Our Bodies, Ourselves*, periodically revised since the 1970s by the Boston Women's Health Book Collective (2005).

10. The editors make it clear that they mean to apply the term *organ* to the microbiome descriptively, not analogically: "It weighs as much as many organs (about a kilogram, or a bit more than two pounds). And although it is not a distinct structure in the way that a heart or a liver is distinct, an organ does not have to have form and shape to be real. The immune system, for example, consists of cells scattered all around the body but it has the salient feature of an organ, namely that it is an organised system of cells" ("Me, Myself, Us" 2012:69).

11. Knight (2015) and Spector (2015) offer pedagogical introductions to "our microbial guests" (or is it "our microbial components"?). For the microbiome to emerge, its constituents first had to take shape as a conceptually distinct entity ("the microbe"). Microbes occupy center stage in Bruno Latour's (1993) retelling of the story of pasteurization, serendipitously (for our purposes) becoming lead characters in Latour's attempt to work out how nonhuman entities might also become actants that exert a certain agency in the world.

12. For an introduction to the new materialisms, see Coole and Frost (2010) and Dolphijn and van der Tuin (2012).

13. There are exceptions, of course, most notably David Abram's embrace of animism in *The Spell of the Sensuous* (1997), but those exceptions tend to attribute a kind of subjectivity to objects that replicates some very humanist notions.

14. Bennett captures the flavor of the distinctions made in these debates in her *Eurozine* interview: "There is a difference between a human individual and a stone, but neither considered alone has real agency: the locus of agency is always a human-nonhuman collective" (Bennett and Loenhart 2011:6).

15. "Becoming-" in the technical sense formulated by Deleuze and Guattari indicates a process of change within the assemblage, in this case a becoming-animism that brings the old element "animism" into novel relationships that endow the assemblage with new and generative properties.

16. History, that is, conceived as more than contingency. For a related critique, see Ahmed (2008).

17. Of course, the status of the word vis-à-vis ontologically informed practice sets up its own tensions. On the ontological turn in anthropology, see also Henare, Holbraad, and Wastell (2007) and Jensen and Morita (2012). For an attempt to bring "local

knowledge" to bear in a way that becomes meaningful for ecological "management," see Cruikshank's *Do Glaciers Listen?* (2010).

18. To better locate the concept of perspective in its European Renaissance context, see James Elkins's *The Poetics of Perspective* (1996). For a nuanced consideration of *perspectivism* (not perspectivalism) as an attempt to grapple with the theoretical crisis of structuralism in Amazonian anthropology, see Turner (2009). Viveiros de Castro (2014:55) articulates the epistemological thrust of perspectivism concisely in his *Cannibal Metaphysics*, where he is at pains to distinguish perspectivism from relativism: "As various ethnographers have noted (unfortunately too often only in passing), virtually all peoples of the New World share a conception of the world as composed of a multiplicity of points of view. Every existent is a center of intentionality apprehending other existents according to their respective characteristics and powers." Or, as Harry Walker (2013:12) puts it, in the perspectivist formulation, "Animals are assumed [by Amazonians] to inhabit a cultural universe more or less shared by everyone: they may dwell in longhouses, drink manioc beer, have chiefs and shamans, marry exogamously, and so on. We do not see any of this under normal waking conditions, because of the limitations imposed by our own species-specific 'nature,' our (human) body with its unique capacities, affordances, and dispositions." Walker goes on to argue that some of the ideological emphases in perspectivist accounts—especially predation (the hungry jaguar again!)—do not really capture, as it were, the social life of Urarina and other Amazonian groups. More salient for the Urarina Walker got to know were sensation-saturated forms of companionship, of the sort that fabricate a self through participation in the lives of others (Walker 2013:14).

19. For an incisive take on personhood that treats enslavement, labor, and resistance as key to the emergence of specific forms of African American materialism, see Allewaert (2013), who traces the swish-crackle-fizz of boundary dissolution between persons and things back to eighteenth-century plantation economies.

20. And not just any garden, but gardens shaped by perspectival planning, as pioneered in quite different ways by André Le Nôtre at Versailles and Lancelot "Capability" Brown at various estates across England. Thomas Jefferson, the third president of the United States and an architect of landscapes in his own right, studied the designs of both men and emulated various features upon his return to North America.

21. See the October 24, 2011, entry in Mochizuki's blog, *Fukushima Diary*, "Breaking News: Uranium from Finger Nail of a Tokyo Citizen," at http://fukushima-diary.com/2011/10/breaking-news-uranium-from-nail-of-a-tokyo-citizen/ (accessed May 3, 2016).

CHAPTER 1: BIOSECURITY AND SURVEILLANCE IN THE FOOD CHAIN

1. Private initiatives that used electronic technologies to track children also began to appear around this time. One little-noticed yet historic example is Kidspotter, "the first Wi-Fi/RFID tracking network," installed at the Legoland theme park in Denmark. Rented RFID-chipped bands affixed to children's wrists alerted guardians via mobile