

DONNA J. HARAWAY WHEN SPECIES MEET



WHEN SPECIES MEET



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WHEN SPECIES MEET



Donna J. Haraway

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How can I acknowledge Cayenne and Roland, the dogs of my heart? This book is for them, even if they might prefer a scratch-and-sniff version, one without endnotes.

**I. WE HAVE NEVER
BEEN HUMAN**

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1. WHEN SPECIES MEET

Introductions

Two questions guide this book: (1) Whom and what do I touch when I touch my dog? and (2) How is “becoming with” a practice of becoming worldly? I tie these questions together in expressions I learned in Barcelona from a Spanish lover of French bulldogs, *alter-globalisation* and *autre-mondialisation*.¹ These terms were invented by European activists to stress that their approaches to militarized neoliberal models of world building are not about antiglobalization but about nurturing a more just and peaceful other-globalization. There is a promising *autre-mondialisation* to be learned in retying some of the knots of ordinary multispecies living on earth.

I think we learn to be worldly from grappling with, rather than generalizing from, the ordinary. I am a creature of the mud, not the sky. I am a biologist who has always found edification in the amazing abilities of slime to hold things in touch and to lubricate passages for living beings and their parts. I love the fact that human genomes can be found in only about 10 percent of all the cells that occupy the mundane space I call my body; the other 90 percent of the cells are filled with the genomes of bacteria, fungi, protists, and such,

some of which play in a symphony necessary to my being alive at all, and some of which are hitching a ride and doing the rest of me, of us, no harm. I am vastly outnumbered by my tiny companions; better put, I become an adult human being in company with these tiny messmates. To be one is always to *become with* many. Some of these personal microscopic biota are dangerous to the me who is writing this sentence; they are held in check for now by the measures of the coordinated symphony of all the others, human cells and not, that make the conscious me possible. I love that when “I” die, all these benign and dangerous symbionts will take over and use whatever is left of “my” body, if only for a while, since “we” are necessary to one another in real time. As a little girl, I loved to inhabit miniature worlds brimming with even more tiny real and imagined entities. I loved the play of scales in time and space that children’s toys and stories made patent for me. I did not know then that this love prepared me for meeting my companion species, who are my maker.

Figures help me grapple inside the flesh of mortal world-making entanglements that I call contact zones.² The *Oxford English Dictionary* records the meaning of “chimerical vision” for “figuration” in an eighteenth-century source, and that meaning is still implicit in my sense of *figure*.³ Figures collect the people through their invitation to inhabit the corporeal story told in their lineaments. Figures are not representations or didactic illustrations, but rather material–semiotic nodes or knots in which diverse bodies and meanings coshape one another. For me, figures have always been where the biological and literary or artistic come together with all of the force of lived reality. My body itself is just such a figure, literally.

For many years I have written from the belly of powerful figures such as cyborgs, monkeys and apes, oncomice, and, more recently, dogs. In every case, the figures are at the same time creatures of imagined possibility and creatures of fierce and ordinary reality; the dimensions tangle and require response. *When Species Meet* is about that kind of doubleness, but it is even more about the cat’s cradle games in which those who are to be in the world are constituted in intra- and interaction. The partners do not precede the meeting; species of all kinds, living and not, are consequent on a subject- and object-shaping dance of encounters. Neither the partners nor the meetings in this book are merely literary

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Jim's Dog. Courtesy of James Clifford.

conceits; rather, they are ordinary beings-in-encounter in the house, lab, field, zoo, park, office, prison, ocean, stadium, barn, or factory. As ordinary knotted beings, they are also always meaning-making figures that gather up those who respond to them into unpredictable kinds of “we.” Among the myriad of entangled, coshaping species of the earth, contemporary human beings’ meetings with other critters and, especially, but not only, with those called “domestic” are the focus of this book.

And so in the chapters to follow, readers will meet cloned dogs, databased tigers, a baseball writer on crutches, a health and genetics activist in Fresno, wolves and dogs in Syria and the French Alps, Chicken Little and Bush legs in Moldavia, tsetse flies and guinea pigs in a Zimbabwean lab in a young adult novel, feral cats, whales wearing cameras, felons and pooches in training in prison, and a talented dog and middle-aged woman playing a sport together in California. All of these are figures, and all are mundanely here, on this earth, now, asking who “we” will become when species meet.

JIM’S DOG AND LEONARDO’S DOG

Meet Jim’s dog. My colleague and friend Jim Clifford took this photograph during a December walk in one of the damp canyons of the Santa Cruz greenbelt near his home. This attentive, sitting dog endured for only one season. The next winter the shapes and light in the canyon did not vouchsafe a canine soul to animate the burned-out redwood stump covered with redwood needles, mosses, ferns, lichens—and even a little California bay laurel seedling for a docked tail—that a friend’s eye had found for me the year before. So many species, so many kinds, meet in Jim’s dog, who suggests an answer to my question, Whom and what do we touch when we touch this dog? How does this touch make us more worldly, in alliance with all the beings who work and play for an alter-globalization that can endure more than one season?

We touch Jim’s dog with fingery eyes made possible by a fine digital camera, computers, servers, and e-mail programs through which the high-density jpg was sent to me.⁴ Infolded into the metal, plastic, and electronic flesh of the digital apparatus is the primate visual system that Jim and I have inherited, with its vivid color sense and sharp focal power.

Our kind of capacity for perception and sensual pleasure ties us to the lives of our primate kin. Touching this heritage, our worldliness must answer to and for those other primate beings, both in their ordinary habitats and in labs, television and film studios, and zoos. Also, the biological colonizing opportunism of organisms, from the glowing but invisible viruses and bacteria to the crown of ferns on top of this pooch's head, is palpable in the touch. Biological species diversity and all that asks in our time come with this found dog.

In this camera-begot canid's haptic-optic touch, we are inside the histories of IT engineering, electronic product assembly-line labor, mining and IT waste disposal, plastics research and manufacturing, transnational markets, communications systems, and technocultural consumer habits. The people and the things are in mutually constituting, intra-active touch.⁵ Visually and tactically, I am in the presence of the intersectional race-, sex-, age-, class-, and region-differentiated systems of labor that made Jim's dog live. Response seems the least that is required in this kind of worldliness.

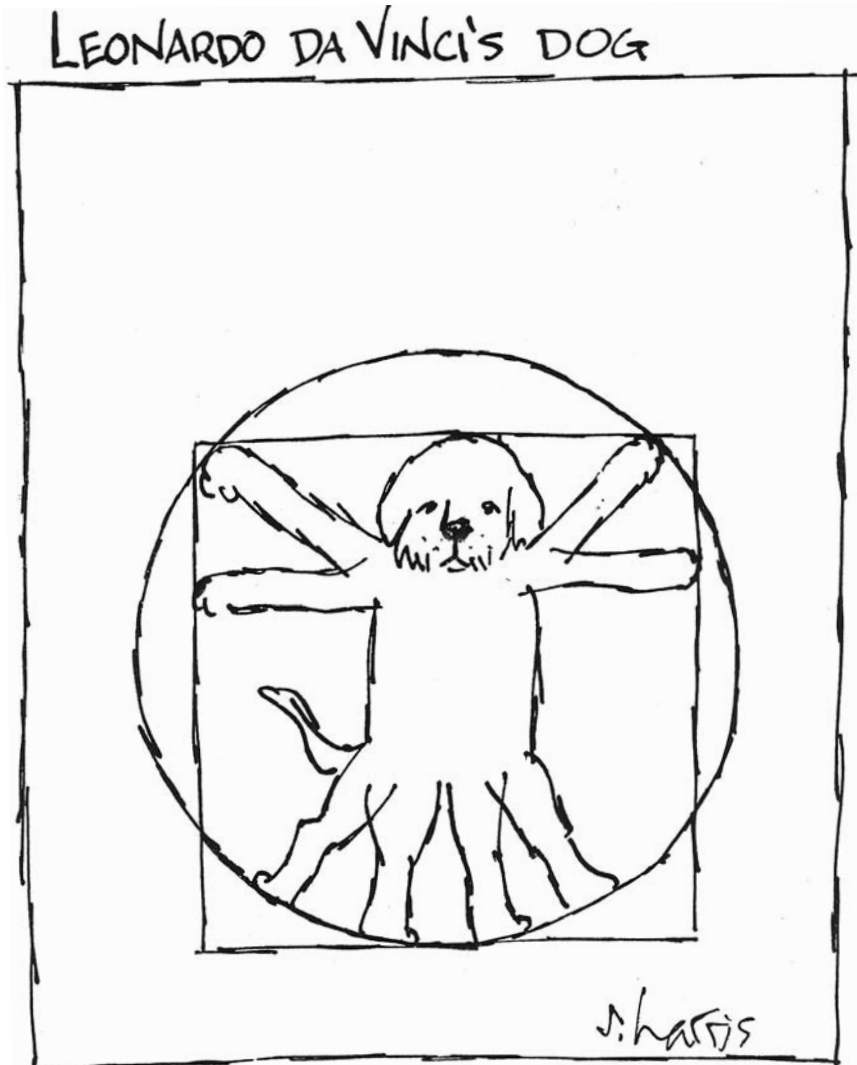
This dog could not have come to me without the leisure-time promenading practices of the early twenty-first century in a university town on the central California coast. Those urban walking pleasures touch the labor practices of late nineteenth-century loggers who, without chainsaws, cut the tree whose burned stump took on a postarboreal life. Where did the lumber from that tree go? The historically deliberate firing by the loggers or the lightning-caused fires in dry-season California carved Jim's dog from the tree's blackened remains. Indebted to the histories of both environmentalism and class, the greenbelt policies of California cities resisting the fate of Silicon Valley ensured that Jim's dog was not bulldozed for housing at the western edge of real-estate hungry Santa Cruz. The water-eroded and earthquake-sculpted ruggedness of the canyons helped too. The same civic policies and earth histories also allow cougars to stroll down from the campus woodlands through the brushy canyons defining this part of town. Walking with my furry dogs off leash in these canyons makes me think about these possible feline presences. I reclip the leashes. Visually fingering Jim's dog involves touching all the important ecological and political histories and struggles of ordinary small cities that have asked, Who should eat whom, and who should cohabit? The rich

naturalcultural contact zones multiply with each tactile look. Jim's dog is a provocation to curiosity, which I regard as one of the first obligations and deepest pleasures of worldly companion species.⁶

Jim's seeing the mutt in the first place was an act of friendship from a man who had not sought dogs in his life and for whom they had not been particularly present before his colleague seemed to think about and respond to little else. Furry dogs were not the ones who then came to him, but another sort of canid quite as wonderful dogged his path. As my informants in U.S. dog culture would say, Jim's is a real dog, a one-off, like a fine mixed-ancestry dog who could never be replicated but must be encountered. Surely, there is no question about the mixed and myriad ancestors, as well as contemporaries, in this encrusted charcoal dog. I think this is what Alfred North Whitehead might have meant by a concrescence of prehensions.⁷ It is definitely at the heart of what I learn when I ask whom I touch when I touch a dog. I learn something about how to inherit in the flesh. Woof . . .

Leonardo's dog hardly needs an introduction. Painted between 1485 and 1490, da Vinci's *Vitruvian Man*, the Man of Perfect Proportions, has paved his way in the imaginations of technoculture and canine pet culture alike. Sydney Harris's 1996 cartoon of Man's celebrated canine companion mimes a figure that has come to mean Renaissance humanism; to mean modernity; to mean the generative tie of art, science, technology, genius, progress, and money. I cannot count the number of times da Vinci's *Vitruvian Man* appeared in the conference brochures for genomics meetings or advertisements for molecular biological instruments and lab reagents in the 1990s. The only close competitors for illustrations and ads were Vesalius's anatomical drawings of dissected human figures and Michelangelo's *Creation of Adam* from the ceiling of the Sistine Chapel.⁸ High Art, High Science: genius, progress, beauty, power, money. The Man of Perfect Proportions brings both the number magic and the real-life organic ubiquity of the Fibonacci sequence to the fore. Transmuted into the form of his master, the Dog of Perfect Proportions helps me think about why this preeminently humanist figure cannot work for the kind of autre-mondialisation I seek with earthly companions in the way that Jim's dog does. Harris's cartoon is funny, but laughter is not enough. Leonardo's dog is the companion species for technohumanism and its

dreams of purification and transcendence. I want to walk instead with the motley crowd called Jim's dog, where the clean lines between traditional and modern, organic and technological, human and nonhuman give way to the infoldings of the flesh that powerful figures such as the cyborgs and dogs I know both signify and enact.⁹ Maybe that is why Jim's dog is now the screen saver on my computer.



PROFESSIONAL MEETINGS

That brings us to the more usual encounters of dogs and cyborgs, in which their supposed enmity is onstage. Dan Piraro's *Bizarro* Sunday cartoon from 1999 caught the rules of engagement perfectly. Welcoming the attendees, the small dog keynote speaker at the American Association of Lapdogs points to the illuminated slide of an open laptop computer, solemnly intoning, "Ladies and Gentlemen. . . behold the enemy!" The pun that simultaneously joins and separates lapdogs and laptops is wonderful, and it opens a world of inquiry. A real dog person might first ask how capacious human laps can actually be for holding even sizable pooches and a computer at the same time. That sort of question tends to arise in the late afternoon in a home office if a human being is still at the computer and neglecting important obligations to go for a walk with the effectively importuning beast-no-longer-on-the-floor. However, more philosophically weighty, if not more practically urgent, questions also lurk in this *Bizarro* cartoon.

Modernist versions of humanism and posthumanism alike have taproots in a series of what Bruno Latour calls the Great Divides between what counts as nature and as society, as nonhuman and as human.¹⁰ Whelped in the Great Divides, the principal Others to Man, including his "posts," are well documented in ontological breed registries in both



past and present Western cultures: gods, machines, animals, monsters, creepy crawlies, women, servants and slaves, and noncitizens in general. Outside the security checkpoint of bright reason, outside the apparatuses of reproduction of the sacred image of the same, these “others” have a remarkable capacity to induce panic in the centers of power and self-certainty. Terrors are regularly expressed in hyperphilias and hyperphobias, and examples of this are no richer than in the panics roused by the Great Divide between animals (lapdogs) and machines (laptops) in the early twenty-first century C.E.

Technophilias and technophobias vie with organophilias and organophobias, and taking sides is not left to chance. If one loves organic nature, to express a love of technology makes one suspect. If one finds cyborgs to be promising sorts of monsters, then one is an unreliable ally in the fight against the destruction of all things organic.¹¹ I was quite personally made to understand this point at a professional meeting, a wonderful conference called “Taking Nature Seriously” in 2001, at which I was a keynote speaker. I was subjected to a fantasy of my own public rape by name in a pamphlet distributed by a small group of self-identified deep ecology, anarchist activists, because, it seemed, my commitment to the mixed organic–technological hybrids figured in cyborgs made me worse than a researcher at Monsanto, who at least claims no alliance with ecofeminism. I am made to recall those researchers even at Monsanto who may well take antiracist environmental feminism seriously and to imagine how alliances might be built with them. I was also in the presence of the many deep ecologists and anarchists who have no truck with the action or analysis of my hecklers’ self-righteous and incurious stance. In addition to reminding me that I am a woman (see the Great Divides above)—something class and color privilege bonded to professional status can mute for long periods of time—the rape scenario reminded me forcibly why I seek my siblings in the nonarboreal, laterally communicating, fungal shapes of the queer kin group that finds lapdogs and laptops in the same commodious laps.

At one of the conference panels, I heard a sad man in the audience say that rape seems a legitimate instrument against those who rape the earth; he seemed to regard this as an ecofeminist position, to the horror of the men and women of that political persuasion in the room. Everyone

I heard at the session thought the guy was slightly dangerous and definitely politically embarrassing, but mainly crazy in the colloquial sense if not the clinical. Nonetheless, the quasi-psychotic panic quality of the man's threatening remarks is worth some attention because of the way the extreme shows the underside of the normal. In particular, this would-be rapist-in-defense-of-mother-earth seems shaped by the culturally normal fantasy of human exceptionalism. This is the premise that humanity alone is not a spatial and temporal web of interspecies dependencies. Thus, to be human is to be on the opposite side of the Great Divide from all the others and so to be afraid of—and in bloody love with—what goes bump in the night. The threatening man at the conference was well marinated in the institutionalized, long dominant Western fantasy that all that is fully human is fallen from Eden, separated from the mother, in the domain of the artificial, deracinated, alienated, and therefore free. For this man, the way out of his culture's deep commitments to human exceptionalism requires a one-way rapture to the other side of the divide. To return to the mother is to return to nature and stand against Man-the-Destroyer, by advocating the rape of women scientists at Monsanto, if available, or of a traitorous keynote environmentalist feminist, if one is on the spot.

Freud is our great theorist of panics of the Western psyche, and because of Derrida's commitment to track down "the whole anthropomorphic reinstitution of the superiority of the human order over the animal order, of the law over the living," he is my guide to Freud's approach on this question.¹² Freud described three great historical wounds to the primary narcissism of the self-centered human subject, who tries to hold panic at bay by the fantasy of human exceptionalism. First is the Copernican wound that removed Earth itself, man's home world, from the center of the cosmos and indeed paved the way for that cosmos to burst open into a universe of inhumane, nonteleological times and spaces. Science made that decentering cut. The second wound is the Darwinian, which put *Homo sapiens* firmly in the world of other critters, all trying to make an earthly living and so evolving in relation to one another without the sureties of directional signposts that culminate in Man.¹³ Science inflicted that cruel cut too. The third wound is the Freudian, which posited an unconscious that undid the primacy of conscious processes,

including the reason that comforted Man with his unique excellence, with dire consequences for teleology once again. Science seems to hold that blade too. I want to add a fourth wound, the informatic or cyborgian, which infolds organic and technological flesh and so melds that Great Divide as well.

Is it any wonder that in every other election cycle the Kansas Board of Education wants this stuff out of the science text books, even if almost all of modern science has to go to accomplish this suturing of rending wounds to the coherence of a fantastic, but well-endowed, being? Notoriously, in the last decade voters in Kansas elected opponents of teaching Darwinian evolution to the state board in one election and then replaced them in the next cycle with what the press calls moderates.¹⁴ Kansas is not exceptional; it figured more than half the public in the United States in 2006.¹⁵ Freud knew Darwinism is not moderate, and a good thing too. Doing without both teleology and human exceptionalism is, in my opinion, essential to getting laptops and lapdogs into one lap. More to the point, these wounds to self-certainty are necessary, if not yet sufficient, to no longer easily uttering the sentence in any domain, "Ladies and gentlemen, behold the enemy!" Instead, I want my people, those collected by figures of mortal relatedness, to go back to that old political button from the late 1980s, "Cyborgs for earthly survival," joined to my newer bumper sticker from *Bark* magazine, "Dog is my co-pilot." Both critters ride the earth on the back of the Darwin fish.¹⁶

That cyborg and dog come together in the next professional meeting in these introductions. A few years ago, Faye Ginsburg, an eminent anthropologist and filmmaker and the daughter of Benson Ginsburg, a pioneering student of canine behavior, sent me a cartoon by Warren Miller from the March 29, 1993, *New Yorker*. Faye's childhood had been spent with the wolves her father studied in his lab at the University of Chicago and the animals at the Jackson Memorial Laboratories in Bar Harbor, Maine, where J. P. Scott and J. L. Fuller also carried out their famous inquiries into dog genetics and social behavior from the late 1940s.¹⁷ In the cartoon a member of a wild wolf pack introduces a con-specific visitor wearing an electronic communications pack, complete with an antenna for sending and receiving data, with the words, "We found her wandering at the edge of the forest. She was raised by scientists." A

student of Indigenous media in a digital age, Faye Ginsburg was easily drawn to the join of ethnography and communications technology in Miller's cartoon. Since childhood a veteran of integrating into wolf social life through the rituals of polite introductions, she was triply hailed. She is in my kin group in feminist theory as well, and so it is no surprise that I find myself also in that female telecommunications-packing wolf. This figure collects its people through friendship networks, animal-human histories, science and technology studies, politics, anthropology and animal behavior studies, and the *New Yorker's* sense of humor.

This wolf found at the edge of the forest and raised by scientist figures who I find myself to be in the world—that is, an *organism* shaped by a post-World War II biology that is saturated with information sciences and technologies, a *biologist* schooled in those discourses, and a *practitioner* of the humanities and ethnographic social sciences. All three



"We found her wandering at the edge of the forest. She was raised by scientists."

of those subject formations are crucial to this book's questions about worldliness and touch across difference. The found wolf is meeting other wolves, but she cannot take her welcome for granted. She must be introduced, and her odd communications pack must be explained. She brings science and technology into the open in this forest. The wolf pack is politely approached, not invaded, and these wolves will decide her fate. This pack is not one of florid wild-wolf nature fantasies, but a savvy,



Faye Ginsburg and the wolf Remus greeting and playing in Benson Ginsburg's laboratory at the University of Chicago. Published in *Look* magazine, "A Wolf Can Be a Girl's Best Friend," by Jack Star, 1963. Photograph by Archie Lieberman. *Look* Magazine Collection, Library of Congress, Prints and Photographs Division, LC-L9-60-8812, frame 8.

cosmopolitan, curious lot of free-ranging canids. The wolf mentor and sponsor of the visitor is generous, willing to forgive some degree of ignorance, but it is up to the visitor to learn about her new acquaintances. If all goes well, they will become messmates, companion species, and significant others to one another, as well as conspecifics. The scientist–wolf will send back data as well as bring data to the wolves in the forest. These encounters will shape naturecultures for them all.

A great deal is at stake in such meetings, and outcomes are not guaranteed. There is no teleological warrant here, no assured happy or unhappy ending, socially, ecologically, or scientifically. There is only the chance for getting on together with some grace. The Great Divides of animal/human, nature/culture, organic/technical, and wild/domestic flatten into mundane differences—the kinds that have consequences and demand respect and response—rather than rising to sublime and final ends.

COMPANION SPECIES

Ms Cayenne Pepper continues to colonize all my cells—a sure case of what the biologist Lynn Margulis calls symbiogenesis. I bet if you were to check our DNA, you’d find some potent transfections between us. Her saliva must have the viral vectors. Surely, her darter-tongue kisses have been irresistible. Even though we share placement in the phylum of vertebrates, we inhabit not just different genera and divergent families but altogether different orders.

How would we sort things out? Canid, hominid; pet, professor; bitch, woman; animal, human; athlete, handler. One of us has a microchip injected under her neck skin for identification; the other has a photo ID California driver’s license. One of us has a written record of her ancestors for twenty generations; one of us does not know her great grandparents’ names. One of us, product of a vast genetic mixture, is called “purebred.” One of us, equally a product of a vast mixture, is called “white.” Each of these names designates a different racial discourse, and we both inherit their consequences in our flesh.

One of us is at the cusp of flaming, youthful, physical achievement; the other is lusty but over the hill. And we play a team sport called agility

on the same expropriated Native land where Cayenne's ancestors herded sheep. These sheep were imported from the already colonial pastoral economy of Australia to feed the California gold rush forty-niners. In layers of history, layers of biology, layers of naturecultures, complexity is the name of our game. We are both the freedom-hungry offspring of conquest, products of white settler colonies, leaping over hurdles and crawling through tunnels on the playing field.

I'm sure our genomes are more alike than they should be. Some molecular record of our touch in the codes of living will surely leave traces in the world, no matter that we are each reproductively silenced females, one by age and choice, one by surgery without consultation. Her red merle Australian shepherd's quick and lithe tongue has swabbed the tissues of my tonsils, with all their eager immune system receptors. Who knows where my chemical receptors carried her messages or what she took from my cellular system for distinguishing self from other and binding outside to inside?

We have had forbidden conversation; we have had oral intercourse; we are bound in telling story on story with nothing but the facts. We are training each other in acts of communication we barely understand. We are, constitutively, companion species. We make each other up, in the flesh. Significantly other to each other, in specific difference, we signify in the flesh a nasty developmental infection called love. This love is a historical aberration and a naturalcultural legacy.¹⁸

In my experience, when people hear the term *companion species*, they tend to start talking about "companion animals," such as dogs, cats, horses, miniature donkeys, tropical fish, fancy bunnies, dying baby turtles, ant farms, parrots, tarantulas in harness, and Vietnamese potbellied pigs. Many of those critters, but far from all and none without very noninnocent histories, do fit readily into the early twenty-first-century globalized and flexible category of companion animals. Historically situated animals in companionate relations with equally situated humans are, of course, major players in *When Species Meet*. But the category "companion species" is less shapely and more rambunctious than that. Indeed, I find that notion, which is less a category than a pointer to an ongoing "becoming with," to be a much richer web to inhabit than any of the posthumanisms

on display after (or in reference to) the ever-deferred demise of man.¹⁹ I never wanted to be posthuman, or posthumanist, any more than I wanted to be postfeminist. For one thing, urgent work still remains to be done in reference to those who must inhabit the troubled categories of woman and human, properly pluralized, reformulated, and brought into constitutive intersection with other asymmetrical differences.²⁰ Fundamentally, however, it is the patterns of relationality and, in Karen Barad's terms, intra-actions at many scales of space-time that need rethinking, not getting beyond one troubled category for a worse one even more likely to go postal.²¹ The partners do not precede their relating; all that is, is the fruit of becoming with: those are the mantras of companion species. Even the *Oxford English Dictionary* says as much. Gorging on etymologies, I will taste my key words for their flavors.

Companion comes from the Latin *cum panis*, "with bread." Messmates at table are companions. Comrades are political companions. A companion in literary contexts is a vade mecum or handbook, like the Oxford Companion to wine or English verse; such companions help readers to consume well. Business and commercial associates form a *company*, a term that is also used for the lowest rank in an order of knights, a guest, a medieval trade guild, a fleet of merchant ships, a local unit of the Girl Guides, a military unit, and colloquially for the Central Intelligence Agency. As a verb, *to companion* is "to consort, to keep company," with sexual and generative connotations always ready to erupt.

Species, like all the old and important words, is equally promiscuous, but in the visual register rather than the gustatory. The Latin *specere* is at the root of things here, with its tones of "to look" and "to behold." In logic, *species* refers to a mental impression or idea, strengthening the notion that thinking and seeing are clones. Referring both to the relentlessly "specific" or particular and to a class of individuals with the same characteristics, *species* contains its own opposite in the most promising—or special—way. Debates about whether species are earthly organic entities or taxonomic conveniences are coextensive with the discourse we call "biology." Species is about the dance linking kin and kind. The ability to interbreed reproductively is the rough and ready requirement for members of the same biological species; all those lateral gene exchangers such as bacteria have never made very good species. Also, biotechnologically

mediated gene transfers redo kin and kind at rates and in patterns unprecedented on earth, generating messmates at table who do not know how to eat well and, in my judgment, often should not be guests together at all. Which companion species will, and should, live and die, and how, is at stake.

The word *species* also structures conservation and environmental discourses, with their “endangered species” that function simultaneously to locate value and to evoke death and extinction in ways familiar in colonial representations of the always vanishing indigene. The discursive tie between the colonized, the enslaved, the noncitizen, and the animal—all reduced to type, all Others to rational man, and all essential to his bright constitution—is at the heart of racism and flourishes, lethally, in the entrails of humanism. Woven into that tie in all the categories is “woman’s” putative self-defining responsibility to “the species,” as this singular and typological female is reduced to her reproductive function. Fecund, she lies outside the bright territory of man even as she is his conduit. The labeling of African American men in the United States as an “endangered species” makes palpable the ongoing animalization that fuels liberal and conservative racialization alike. *Species* reeks of race and sex; and where and when species meet, that heritage must be untied and better knots of companion species attempted within and across differences. Loosening the grip of analogies that issue in the collapse of all of man’s others into one another, companion species must instead learn to live intersectionally.²²

Raised a Roman Catholic, I grew up knowing that the Real Presence was present under both “species,” the visible form of the bread and the wine. Sign and flesh, sight and food, never came apart for me again after seeing and eating that hearty meal. Secular semiotics never nourished as well or caused as much indigestion. That fact made me ready to learn that species is related to spice. A kind of atom or molecule, species is also a composition used in embalming. “The species” often means the human race, unless one is attuned to science fiction, where species abound.²³ It would be a mistake to assume much about species in advance of encounter. Finally, we come to metal coinage, “specie,” stamped in the proper shape and kind. Like *company*, *species* also signifies and embodies wealth. I remember Marx on the topic of gold, alert to all its filth and glitter.

Looking back in this way takes us to seeing again, to *respecere*, to the act of respect. To hold in regard, to respond, to look back reciprocally, to notice, to pay attention, to have courteous regard for, to esteem: all of that is tied to polite greeting, to constituting the polis, where and when species meet. To knot companion and species together in encounter, in regard and respect, is to enter the world of becoming with, where *who and what are* is precisely what is at stake. In “Unruly Edges: Mushrooms as Companion Species,” Anna Tsing writes, “Human nature is an interspecies relationship.”²⁴ That realization, in Beatriz Preciado’s idiom, promises an *autre-mondialisation*. Species interdependence is the name of the worlding game on earth, and that game must be one of response and respect. That is the play of companion species learning to pay attention. Not much is excluded from the needed play, not technologies, commerce, organisms, landscapes, peoples, practices. I am not a posthumanist; I am who I become with companion species, who and which make a mess out of categories in the making of kin and kind. Queer messmates in mortal play, indeed.

AND SAY THE PHILOSOPHER RESPONDED? WHEN ANIMALS LOOK BACK

“And Say the Animal Responded?” is the title Derrida gave his 1997 lecture in which he tracked the old philosophical scandal of judging “the animal” to be capable only of reaction as an animal-machine. That’s a wonderful title and a crucial question. I think Derrida accomplished important work in that lecture and the published essay that followed, but something that was oddly missing became clearer in another lecture in the same series, translated into English as “The Animal That Therefore I Am (More to Follow).”²⁵ He understood that actual animals look back at actual human beings; he wrote at length about a cat, his small female cat, in a particular bathroom on a real morning actually looking at him. “The cat I am talking about is a real cat, truly, believe me, *a little cat*. It isn’t the *figure* of a cat. It doesn’t silently enter the room as an allegory for all the cats on the earth, the felines that traverse myths and religions, literatures and fables” (374). Further, Derrida knew he was in the presence of someone, not of a machine reacting. “I see it as *this* irreplaceable living

being that one day enters my space, enters this place where it can encounter me, see me, see me naked" (378–79). He identified the key question as being not whether the cat could "speak" but whether it is possible to know what *respond* means and how to distinguish a response from a reaction, for human beings as well as for anyone else. He did not fall into the trap of making the subaltern speak: "It would not be a matter of 'giving speech back' to animals but perhaps acceding to a thinking . . . that thinks the absence of the name as something other than a privation" (416). Yet he did not seriously consider an alternative form of engagement either, one that risked knowing something more about cats and *how to look back*, perhaps even scientifically, biologically, and *therefore* also philosophically and intimately.

He came right to the edge of respect, of the move to *respecere*, but he was sidetracked by his textual canon of Western philosophy and literature and by his own linked worries about being naked in front of his cat. He knew there is no nudity among animals, that the worry was his, even as he understood the fantastic lure of imagining he could write naked words. Somehow in all this worrying and longing, the cat was never heard from again in the long essay dedicated to the crime against animals perpetrated by the great Singularities separating the Animal and the Human in the canon Derrida so passionately read and reread so that it could never be read the same way again.²⁶ For those readings I and my people are permanently in his debt.

But with his cat, Derrida failed a simple obligation of companion species; he did not become curious about what the cat might actually be doing, feeling, thinking, or perhaps making available to him in looking back at him that morning. Derrida is among the most curious of men, among the most committed and able of philosophers to spot what arrests curiosity, instead nurturing an entanglement and a generative interruption called response. Derrida is relentlessly attentive to and humble before what he does not know. Besides all that, his own deep interest in animals is coextensive with his practice as a philosopher. The textual evidence is ubiquitous. What happened that morning was, to me, shocking *because* of what I know this philosopher can do. Incurious, he missed a possible invitation, a possible introduction to other-worlding. Or, if he was curious when he first really noticed his cat looking at him that morning, he

arrested that lure to deconstructive communication with the sort of critical gesture that he would never have allowed to stop him in his canonical philosophical reading and writing practices.

Rejecting the facile and basically imperialist, if generally well-intentioned, move of claiming to see from the point of view of the other, Derrida correctly criticized two kinds of representations, one set from those who observe real animals and write about them but never meet their gaze, and the other set from those who engage animals only as literary and mythological figures (382–83). He did not explicitly consider ethologists and other animal behavioral scientists, but inasmuch as they engage animals as objects of their vision, not as beings who look back and whose look their own intersects, with consequences for all that follows, the same criticism would apply. Why, though, should that criticism be the end of the matter for Derrida?

What if not all such Western human workers with animals have refused the risk of an intersecting gaze, even if it usually has to be teased out from the repressive literary conventions of scientific publishing and descriptions of method? This is not an impossible question; the literature is large, complemented by a much larger oral culture among biologists as well as others who earn their livings in interaction with animals. Some astute thinkers who work and play with animals scientifically and professionally have discussed at some length this sort of issue. I am leaving aside entirely the *philosophical* thinking that goes on in popular idioms and publishing, not to mention the entire world of people thinking and engaging with animals who are not shaped by the institutionalized so-called Western philosophical and literary canon.

Positive knowledge of and with animals might just be possible, knowledge that is positive in quite a radical sense if it is not built on the Great Divides. Why did Derrida not ask, even in principle, if a Gregory Bateson or Jane Goodall or Marc Bekoff or Barbara Smuts or many others have met the gaze of living, diverse animals and in response undone and redone themselves and their sciences? Their kind of positive knowledge might even be what Derrida would recognize as a mortal and finite knowing that understands “the absence of the name as something other than a privation.” Why did Derrida leave unexamined the practices of communication outside the writing technologies he did know how to talk about?

Leaving this query unasked, he had nowhere else to go with his keen recognition of the gaze of his cat than to Jeremy Bentham's question: "The *first* and *decisive* question will rather be to know whether animals *can suffer*. . . . Once its protocol is established, the form of this question changes everything" (396). I would not for a minute deny the importance of the question of animals' suffering and the criminal disregard of it throughout human orders, but I do not think that is the decisive question, the one that turns the order of things around, the one that promises an *autre-mondialisation*. The question of suffering led Derrida to the virtue of pity, and that is not a small thing. But how much more promise is in the questions, Can animals play? Or work? And even, can I learn to play with *this* cat? Can I, the philosopher, respond to an invitation or recognize one when it is offered? What if work and play, and not just pity, open up when the possibility of mutual response, without names, is taken seriously as an everyday practice available to philosophy and to science? What if a usable word for this is *joy*? And what if the question of how animals engage *one another's* gaze *responsively* takes center stage for people? What if that is the query, *once its protocol is properly established*, whose form changes everything?²⁷ My guess is that Derrida the man in the bathroom grasped all this, but Derrida the philosopher had no idea how to practice this sort of curiosity that morning with his highly visual cat.

Therefore, as a philosopher he knew nothing more *from*, *about*, and *with* the cat at the end of the morning than he knew at the beginning, no matter how much better he understood the root scandal as well as the enduring achievements of his textual legacy. Actually to respond to the cat's response to his presence would have required his joining that flawed but rich philosophical canon to the risky project of asking what this cat on this morning cared about, what these bodily postures and visual entanglements might mean and might invite, as well as reading what people who study cats have to say and delving into the developing knowledges of both cat-cat and cat-human behavioral semiotics when species meet. Instead, he concentrated on his shame in being naked before this cat. Shame trumped curiosity, and that does not bode well for an *autre-mondialisation*. Knowing that in the gaze of the cat was "an existence that refuses to be conceptualized," Derrida did not "go on as if he had never been looked at," never addressed, which was the fundamental gaffe

he teased out of his canonical tradition (379, 383). Unlike Emmanuel Lévinas, Derrida, to his credit, recognized in his small cat “the absolute alterity of the neighbor” (380).²⁸ Further, instead of a primal scene of Man confronting Animal, Derrida gave us the provocation of a historically located look. Still, shame is not an adequate response to our inheritance of multispecies histories, even at their most brutal. Even if the cat did not become a symbol of all cats, the naked man’s shame quickly became a figure for the shame of philosophy before all of the animals. That figure generated an important essay. “The animal looks at us, and we are naked before it. Thinking perhaps begins there” (397).

But whatever else the cat might have been doing, Derrida’s full human male frontal nudity before an Other, which was of such interest in his philosophical tradition, was of no consequence to her, except as the distraction that kept her human from giving or receiving an ordinary polite greeting. I am prepared to believe that he did know how to greet this cat and began each morning in that mutually responsive and polite dance, but if so, that embodied mindful encounter did not motivate his philosophy in public. That is a pity.

For help, I turn to someone who did learn to look back, as well as to recognize that she was looked at, as a core work-practice for doing her science. To respond was to respect; the practice of “becoming with” reweave the fibers of the scientist’s being. Barbara Smuts is now a bioanthropologist at the University of Michigan, but as a Stanford University graduate student in 1975, she went to Tanzania’s Gombe Stream preserve to study chimpanzees. After being kidnapped and ransomed in the turbulent nationalist and anticolonial human politics of that area of the world in the mid-1970s, she ended up studying baboons in Kenya for her PhD.²⁹ About 135 baboons called the Eburru Cliffs troop lived around a rocky outcropping of the Great Rift Valley near Lake Naivasha. In a wonderful understatement, Smuts writes, “At the beginning of my study, the baboons and I definitely did not see eye to eye.”³⁰

She wanted to get as close as possible to the baboons to collect data to address her research questions; the monkeys wanted to get as far away from her threatening self as possible. Trained in the conventions of objective science, Smuts had been advised to be as neutral as possible, to be like a rock, to be unavailable, so that eventually the baboons would go

on about their business in nature as if data-collecting humankind were not present. Good scientists were those who, learning to be invisible themselves, could see the scene of nature close up, as if through a peephole. The scientists could query but not be queried. People could ask if baboons are or are not social subjects, or ask anything else for that matter, without any ontological risk either to themselves, except maybe being bitten by an angry baboon or contracting a dire parasitic infection, or to their culture's dominant epistemologies about what are named nature and culture.

Along with more than a few other primatologists who talk, if not write in professional journals, about how the animals come to accept the presence of working scientists, Smuts recognized that the baboons were unimpressed by her rock act. They frequently looked at her, and the more she ignored their looks, the less satisfied they seemed. Progress in what scientists call "habituation" of the animals to the human being's would-be nonpresence was painfully slow. It seemed like the only critter to whom the supposedly neutral scientist was invisible was herself. Ignoring social cues is far from neutral social behavior. I imagine the baboons as seeing somebody off-category, not something, and asking if that being were or were not educable to the standard of a polite guest. The monkeys, in short, inquired if the woman was as good a social subject as an ordinary baboon, with whom one could figure out how to carry on relationships, whether hostile, neutral, or friendly. The question was not, Are the baboons social subjects? but, Is the human being? Not, Do the baboons have "face"? but, Do people?

Smuts began adjusting what she did—and who she was—according to the baboons' social semiotics directed both to her and to one another. "I . . . in the process of gaining their trust, changed almost everything about me, including the way I walked and sat, the way I held my body, and the way I used my eyes and voice. I was learning a whole new way of being in the world—the way of the baboon. . . . I was responding to the cues the baboons used to indicate their emotions, motivations and intentions to one another, and I was gradually learning to send such signals back to them. As a result, instead of avoiding me when I got too close, they started giving me very deliberate dirty looks, which made me move away. This may sound like a small shift, but in fact it signaled a profound change from

being treated like an *object* that elicited a unilateral response (avoidable), to being recognized as a *subject* with whom they could communicate” (295). In the philosopher’s idiom, the human being acquired a face. The result was that the baboons treated her more and more as a reliable social being who would move away when told to do so and around whom it might be safe to carry on monkey life without a lot of fuss over her presence.

Having earned status as a baboon-literate casual acquaintance and sometimes even a familiar friend, Smuts was able to collect data and earn a PhD. She did not shift her questions to study baboon–human interactions, but only through mutual acknowledgment could the human being and baboons go on about their business. If she really wanted to study something other than how human beings are in the way, if she was really interested in these baboons, Smuts had to enter into, not shun, a responsive relationship. “By acknowledging a baboon’s presence, I expressed respect, and by responding in ways I picked up from them, I let the baboons know that my intentions were benign and that I assumed they likewise meant me no harm. Once this was clearly established in both directions, we could relax in each other’s company” (297).

Writing about these introductions to baboon social niceties, Smuts said, “The baboons remained themselves, doing what they always did in the world they always lived in” (295). In other words, her idiom leaves the baboons in nature, where change involves only the time of evolution, and perhaps ecological crisis, and the human being in history, where all other sorts of time come into play. Here is where I think Derrida and Smuts need each other. Or maybe it is just my monomania to place baboons and humans together in situated histories, situated naturecultures, in which all the actors become who they are *in the dance of relating*, not from scratch, not *ex nihilo*, but full of the patterns of their sometimes-joined, sometimes-separate heritages both before and lateral to *this* encounter. All the dancers are redone through the patterns they enact. The temporalities of companion species comprehend all the possibilities activated in becoming with, including the heterogeneous scales of evolutionary time for everybody but also the many other rhythms of conjoined process. If we know how to look, I think we would see that the baboons of Eburru Cliffs were redone too, in baboon ways, by having entangled their gaze with that of this young clipboard-toting human female. The relationships

are the smallest possible patterns for analysis;³¹ the partners and actors are their still-ongoing products. It is all extremely prosaic, relentlessly mundane, and exactly how worlds come into being.³²

Smuts herself holds a theory very like this one in “Embodied Communication in Nonhuman Animals,” a 2006 reprise of her study of the Eburru Cliffs baboons and elaboration of daily, ongoing negotiated responses between herself and her dog Bahati.³³ In this study, Smuts is struck by the frequent enactments of brief greeting rituals between beings who know each other well, such as between baboons in the same troop and between herself and Bahati. Among baboons, both friends and non-friends greet one another all the time, and who they are is in constant becoming in these rituals. Greeting rituals are flexible and dynamic, rearranging pace and elements within the repertoire that the partners already share or can cobble together. Smuts defines a greeting ritual as a kind of embodied communication, which takes place in entwined, semiotic, overlapping, somatic patterning over time, not as discrete, denotative signals emitted by individuals. An embodied communication is more like a dance than a word. The flow of entangled meaningful bodies in time—whether jerky and nervous or flaming and flowing, whether both partners move in harmony or painfully out of synch or something else altogether—is communication about relationship, the relationship itself, and the means of reshaping relationship and so its enactors.³⁴ Gregory Bateson would say that this is what human and nonhuman mammalian nonlinguistic communication fundamentally is, that is, communication about relationship and the material–semiotic means of relating.³⁵ As Smuts puts it, “Changes in greetings *are* a change in the relationship” (6). She goes further: “With language, it is possible to lie and say we like someone when we don’t. However, if the above speculations are correct, closely interacting bodies tend to tell the truth” (7).

This is a very interesting definition of truth, one rooted in material–semiotic dancing in which all the partners have face, but no one relies on names. That kind of truth does not fit easily into any of the inherited categories of human or nonhuman, nature or culture. I like to think that this is one treasure for Derrida’s hunt to “think the absence of the name as something other than a privation.” I suspect this is one of the things my fellow competitors and I in the dog–human sport called agility mean

when we say our dogs are “honest.” I am certain we are not referring to the tired philosophical and linguistic arguments about whether dogs can lie, and if so, lie about lying. The truth or honesty of nonlinguistic embodied communication depends on looking back and greeting significant others, again and again. This sort of truth or honesty is not some trope-free, fantastic kind of natural authenticity that only animals can have while humans are defined by the happy fault of lying denotatively and knowing it. Rather, this truth telling is about co-constitutive naturalcultural dancing, holding in esteem, and regard open to those who look back reciprocally. Always tripping, this kind of truth has a multispecies future. *Respecere*.

BECOMING-ANIMAL OR SETTING OUT THE TWENTY-THIRD BOWL?

The making each other available to events that is the dance of “becoming with” has no truck with the fantasy wolf-pack version of “becoming-animal” figured in Gilles Deleuze and Félix Guattari’s famous section of *A Thousand Plateaus*, “1730: Becoming-Intense, Becoming-Animal, Becoming-Imperceptible.”³⁶ Mundane, prosaic, living wolves have no truck with that kind of wolf pack, as we will see at the end of these introductions, when dogs, wolves, and people become available to one another in risky worldings. But first, I want to explain why writing in which I had hoped to find an ally for the tasks of companion species instead made me come as close as I get to announcing, “Ladies and Gentlemen, behold the enemy!”

I want to stay a while with “Becoming-Intense, Becoming-Animal, Becoming-Imperceptible,” because it works so hard to get beyond the Great Divide between humans and other critters to find the rich multiplicities and topologies of a heterogeneously and nonteleologically connected world. I want to understand why Deleuze and Guattari here leave me so angry when what we want seems so similar. Despite much that I love in other work of Deleuze, here I find little but the two writers’ scorn for all that is mundane and ordinary and the profound absence of curiosity about or respect for and with actual animals, even as innumerable references to diverse animals are invoked to figure the authors’ anti-Oedipal and anticapitalist project. Derrida’s actual little cat is decidedly not invited

into this encounter. No earthly animal would look twice at these authors, at least not in their textual garb in this chapter.

A Thousand Plateaus is a part of the writers' sustained work against the monomaniacal, cyclopean, individuated Oedipal subject, who is riveted on daddy and lethal in culture, politics, and philosophy. Patrilineal thinking, which sees all the world as a tree of filiations ruled by genealogy and identity, wars with rhizomatic thinking, which is open to nonhierarchical becomings and contagions. So far, so good. Deleuze and Guattari sketch a quick history of European ideas from eighteenth-century natural history (relations recognized through proportionality and resemblance, series and structure), through evolutionism (relations ordered through descent and filiation), to becomings (relations patterned through "sorcery" or alliance). "Becoming is always of a different order than filiation. It concerns alliance" (238). The normal and abnormal rule in evolutionism; the anomaly, which is outside rules, is freed in the lines of flight of becomings. "Molar unities" must give way to "molecular multiplicities." "The anomalous is neither individual nor species; it has only affects, infections, horror . . . a phenomenon of bordering" (244–45). And then, "We oppose epidemic to filiation, contagion to heredity, peopling by contagion to sexual reproduction, sexual production. Bands, human or animal, proliferate by contagion, epidemics, battlefields, and catastrophes. . . . All we are saying is that animals are packs, and packs form, develop, and are transformed by contagion. . . . Wherever there is multiplicity, you will find also an exceptional individual, and it is with that individual that an alliance must be made in order to become-animal" (241–42). This is a philosophy of the sublime, not the earthly, not the mud; becoming-animal is not an autre-mondialisation.

Earlier in *A Thousand Plateaus*, Deleuze and Guattari conducted a smart, mean critique of Freud's analysis of the famous case of the Wolf-Man, in which their opposition of dog and wolf gave me the key to how D&G's associational web of anomalous becoming-animal feeds off a series of primary dichotomies figured by the opposition between the wild and the domestic. "That day the Wolf-Man rose from the couch particularly tired. He knew that Freud had a genius for brushing up against the truth and passing it by, and then filling the void with associations. He knew that Freud knew nothing about wolves, or anuses for that matter.

The only thing Freud understood was what a dog is, and a dog's tail" (26). This gibe is the first of a crowd of oppositions of dog and wolf in *A Thousand Plateaus*, which taken together are a symptomatic morass for how not to take earthly animals—wild or domestic—seriously. In honor of Freud's famously irascible chows, no doubt sleeping on the floor during the Wolf-Man's sessions, I brace myself to go on by studying the artist David Goines's Chinese Year of the Dog poster for 2006: one of the most gorgeous chow chows I have ever seen. Indifferent to the charms of a blue-purple tongue, D&G knew how to kick the psychoanalyst where it would hurt, but they had no eye for the elegant curve of a good chow's tail, much less the courage to look such a dog in the eye.

But the wolf/dog opposition is not funny. D&G express horror at the "individuated animals, family pets, sentimental Oedipal animals each with its own petty history" who invite only regression (240).³⁷ All worthy animals are a pack; all the rest are either pets of the bourgeoisie or state animals symbolizing some kind of divine myth.³⁸ The pack, or pure-affect animals, are intensive, not extensive, molecular and exceptional, not petty and molar—sublime wolf packs, in short. I don't think it needs comment that we will learn nothing about actual wolves in all this. I know that D&G set out to write not a biological treatise but rather a philosophical, psychoanalytic, and literary one requiring different reading habits for the always nonmimetic play of life and narrative. But no reading strategies can mute the scorn for the homely and the ordinary in this book. Leaving behind the traps of singularity and identity is possible without the lubrication of sublime ecstasy bordering on the intensive affect of the 1909 Futurist Manifesto. D&G continue, "*Anyone who likes cats or dogs is a fool*" (240, italics in original). I don't think Deleuze here is thinking of Dostoevsky's idiot, who slows things down and whom Deleuze loves. D&G go on: Freud knows only the "dog in the kennel, the analyst's bow wow." Never have I felt more loyal to Freud. D&G go even further in their disdain for the daily, the ordinary, the affectional rather than the sublime. The Unique, the one in a pact with a demon, the sorcerer's anomaly, is both pack and Ahab's leviathan in *Moby Dick*, the exceptional, not in the sense of a competent and skillful animal webbed in the open with others, but in the sense of what is without characteristics and without tenderness (244). From the point of view of the animal

worlds I inhabit, this is not about a good run but about a bad trip. Along with the Beatles, I need a little more help than that from my friends.

Little house dogs and the people who love them are the ultimate figure of abjection for D&G, especially if those people are elderly women, the very type of the sentimental. “Ahab’s Moby Dick is not like the little cat or dog owned by an elderly woman who honors and cherishes it. Lawrence’s becoming-tortoise has nothing to do with a sentimental or domestic relation. . . . But the objection is raised against Lawrence: ‘Your tortoises are not real!’ And he answers: ‘Possibly, but my becoming is, . . . even and especially if you have no way of judging it, because you’re just little house dogs’” (244). “My becoming” seems awfully important in a theory opposed to the strictures of individuation and subject. The old, female, small, dog- and cat-loving: these are who and what must be vomited out by those who will become-animal. Despite the keen competition, I am not sure I can find in philosophy a clearer display of misogyny, fear of aging, incuriosity about animals, and horror at the ordinariness of flesh, here covered by the alibi of an anti-Oedipal and anticapitalist project. It took some nerve for D&G to write about becoming-woman just a few pages later! (291–309).³⁹ It is almost enough to make me go out and get a toy poodle for my next agility dog; I know a remarkable one playing with her human for the World Cup these days. That *is* exceptional.

It is a relief to return from my own flights of fancy of becoming-intense in the agility World Cup competitions to the mud and the slime of my proper home world, where my biological soul travels with that wolf found near the edge of the forest who was raised by scientists. At least as many nonarboreal shapes of relatedness can be found in these not-always-salubrious viscous fluids as among Deleuze and Guattari’s rhizomatic anomalies. Playing in the mud, I can even appreciate a great deal of *A Thousand Plateaus*. Companion species are familiar with oddly shaped figures of kin and kind, in which arboreal descent is both a latecomer to the play of bodies and never uniquely in charge of the material–semiotic action. In their controversial theory of *Acquiring Genomes*, Lynn Margulis and her son and collaborator, Dorion Sagan, give me the flesh and figures that companion species need to understand their messmates.⁴⁰

Reading Margulis over the years, I get the idea that she believes everything interesting on earth happened among the bacteria, and all the rest is just elaboration, most certainly including wolf packs. Bacteria pass genes back and forth all the time and do not resolve into well-bounded species, giving the taxonomist either an ecstatic moment or a headache. “The creative force of symbiosis produced eukaryotic cells from bacteria. Hence all larger organisms—protists, fungi, animals, and plants—originated symbiogenetically. But creation of novelty by symbiosis did not end with the evolution of the earliest nucleated cells. Symbiosis still is everywhere” (55–56). Margulis and Sagan give examples from Pacific coral reefs, squid and their luminescent symbionts, New England lichens, milk cows, and New Guinea ant plants, among others. The basic story is simple: ever more complex life forms are the continual result of ever more intricate and multidirectional acts of association of and with other life forms. Trying to make a living, critters eat critters but can only partly digest one another. Quite a lot of indigestion, not to mention excretion, is the natural result, some of which is the vehicle for new sorts of complex patternings of ones and manys in entangled association. And some of that indigestion and voiding are just acidic reminders of mortality made vivid in the experience of pain and systemic breakdown, from the lowliest among us to the most eminent. Organisms are ecosystems of genomes, consortia, communities, partly digested dinners, mortal boundary formations. Even toy dogs and fat old ladies on city streets are such boundary formations; studying them “ecologically” would show it.

Eating one another and developing indigestion are only one kind of transformative merger practice; living critters form consortia in a baroque medley of inter- and intra-actions. Margulis and Sagan put it more eloquently when they write that to be an organism is to be the fruit of “the co-opting of strangers, the involvement and infolding of others into ever more complex and miscegenous genomes. . . . The acquisition of the reproducing other, of the microbe and the genome, is no mere sideshow. Attraction, merger, fusion, incorporation, co-habitation, recombination—both permanent and cyclical—and other forms of forbidden couplings, are the main sources of Darwin’s missing variation” (205). Yoking together all the way down is what sym-bio-genesis means. The shape and temporality of life on earth are more like a liquid–crystal consortium

folding on itself again and again than a well-branched tree. Ordinary identities emerge and are rightly cherished, but they remain always a relational web opening to non-Euclidean pasts, presents, and futures. The ordinary is a multipartner mud dance issuing from and in entangled species. It is turtles all the way down; the partners do not preexist their constitutive intra-action at every folded layer of time and space.⁴¹ These are the contagions and infections that wound the primary narcissism of those who still dream of human exceptionalism. These are also the cobblings together that give meaning to the “becoming with” of companion species in naturecultures. *Cum panis*, messmates, to look and to look back, to have truck with: those are the names of my game.

One aspect of Margulis and Sagan’s exposition seems unnecessarily hard for companion species to digest, however, and a more easily assimilated theory is cooking. In opposition to various mechanistic theories of the organism, Margulis has long been committed to the notion of autopoiesis. Autopoiesis is self-making, in which self-maintaining entities (the smallest biological unit of which is a living cell) develop and sustain their own form, drawing on the enveloping flows of matter and energy.⁴² In this case, I think Margulis would do better with Deleuze and Guattari, whose world did not build on complex self-referential units of differentiation or on Gaian systems, cybernetic or otherwise, but built on a different kind of “turtles all the way down,” figuring relentless otherness knotted into never fully bounded or fully self-referential entities. I am instructed by developmental biologist Scott Gilbert’s critique of autopoiesis for its emphasis on self-building and self-maintaining systems, closed except for nourishing flows of matter and energy. Gilbert stresses that nothing makes itself in the biological world, but rather reciprocal induction within and between always-in-process critters ramifies through space and time on both large and small scales in cascades of inter- and intra-action. In embryology, Gilbert calls this “interspecies epigenesis.”⁴³ Gilbert writes: “I think that the ideas that Lynn [Margulis] and I have are very similar; it’s just that she was focusing on adults and I want to extend the concept (as I think the science allows it to be fully extended) to embryos. I believe that the *embryonic* co-construction of the physical bodies has many more implications because it means that we were ‘never’ individuals.” Like Margulis and Sagan, Gilbert stresses that the cell (not the genome) is the

smallest unit of structure and function in the biological world, and he argues that “the morphogenetic field can be seen as a major unit of ontogenetic and evolutionary change.”⁴⁴

As I read him, Gilbert’s approach is not a holistic systems theory in the sense that Margulis and Sagan lean toward, and his fractal “turtles all the way down” arguments do not posit a self-referential unit of differentiation. Such a unit cheats on the turtles pile, whether up or down. Software engineer Rusten Hogness suggests the term *turtling all the way down* might better express Gilbert’s kind of recursivity.⁴⁵ I think that for Gilbert the noun *differentiation* is permanently a verb, within which mortal knots of partly structured difference are in play. In my view, Margulis and Sagan’s symbiogenesis is not really compatible with their theory of autopoiesis, and the alternative is not an additive mechanistic theory but a going even more deeply into differentiation.⁴⁶ A nice touch is that Gilbert and his students literally work on turtle embryogeny, studying the inductions and cell migrations that result in the turtle’s plastron on its belly surface. Layers of turtling, indeed.

All of that takes us to the ethologist Thelma Rowell’s practice of setting out a twenty-third bowl in her farmyard in Lancashire when she has only twenty-two sheep to feed. Her Soay sheep crunch grass on the hillsides most of the day, forming their own social groups without a lot of interference. Such restraint is a revolutionary act among most sheep farmers, who rob sheep of virtually every decision until whole breeds may well have lost the capacity to find their way in life without overweening human supervision. Rowell’s empowered sheep, belonging to a so-called primitive breed recalcitrant to meat–industrial standardization and behavioral ruination, have addressed many of her questions, not least telling her that even domesticated sheep have social lives and abilities as complex as those of the baboons and other monkeys she studied for decades. Probably descended from a population of feral sheep thought to have been deposited on the island of Soay in the St. Kilda archipelago sometime in the Bronze Age, Soay sheep are today the subject of attention by rare breed societies in the United Kingdom and the United States.⁴⁷

Focused on weighty matters such as feed conversion rates, scandalized sheep scientists with an agribusiness emphasis rejected Rowell’s first papers on feral ram groups when she submitted them (the manuscripts,

not the sheep) for publication. But good scientists have a way of nibbling away at prejudice with mutated questions and lovely data, which works at least sometimes.⁴⁸ Scottish blackface hill sheep, Rowell's numerically dominant ovine neighbors in Lancashire, and the lowland Dorset white-faced breed, mostly on the English Downs, seem to have forgotten how to testify to a great deal of sheep competence. They and their equivalents around the world are the sorts of ovids most familiar to the sheep experts reviewing papers for the journals—at least for the journals in which sheep usually show up, that is, *not* the behavioral ecology, integrative biology, and evolution journals in which nondomestic species seem the “natural” subjects of attention. But in the context of the ranching and farming practices that led to today's global agribusiness, maybe those “domestic” ovine eating machines are rarely asked an interesting question. Not brought into the open with their people, and so with no experience of jointly becoming available, these sheep do not “become with” a curious scientist.

There is a disarmingly literal quality to having truck with Rowell and her critters. Rowell brings her competent sheep into the yard most days so that she can ask them some more questions while they snack. There, the twenty-two sheep find twenty-three bowls spaced around the yard. That homely twenty-third bowl is the open,⁴⁹ the space of what is not yet and may or may not ever be; it is a making available to events; it is asking the sheep and the scientists to be smart in their exchanges by making it possible for something unexpected to happen. Rowell practices the virtue of worldly politeness—not a particularly gentle art—with her colleagues and her sheep, just as she used to do with her primate subjects. “Interesting research is research on the conditions that make something interesting.”⁵⁰ Always having a bowl that is not occupied provides an extra place to go for any sheep displaced by his or her socially assertive fellow ovid. Rowell's approach is deceptively simple. Competition is so easy to see; eating is so readily observed and of such consuming interest to farmers. What else might be happening? Might what is not so easy to learn to see be what is of the utmost importance to the sheep in their daily doings and their evolutionary history? Might it be that thinking again about the history of predation and the smart predilections of prey will tell us something surprising and important about ovine worlds even on Lancashire

hillsides, or on islands off the coast of Scotland, where a wolf has not been seen for centuries?

Always a maverick alert to complexity in its details rather than in grand pronouncements, Rowell regularly discomfited her human colleagues when she studied monkeys, beginning with her 1960s accounts of forest baboons in Uganda who did not act according to their supposed species script.⁵¹ Rowell is among the most satisfyingly opinionated, empirically grounded, theoretically savvy, unself-impressed, and unsparingly anti-ideological people I have ever met. Forgetting her head-over-heels interest in her sheep, seeing her patent love for her obstreperous male adolescent turkeys on her Lancashire farm in 2003, whom she unconvincingly threatened with untimely slaughter for their misdeeds,⁵² told me a great deal about how she treats both unwary human colleagues and the opinionated animals whom she has studied over a lifetime. As Vinciane Despret emphasizes in her study, Rowell poses the question of the collective in relation to both sheep and people: “Do we prefer living with predictable sheep or with sheep that surprise us and that add to our definitions of what ‘being social’ means?”⁵³ This is a fundamental worldly question, or what Despret’s colleague Isabelle Stengers might call a cosmopolitical query, in which “the cosmos refers to the unknown constituted by these multiple divergent worlds, and to the articulations of which they could eventually be capable, as opposed to the temptation of a peace intended to be final.”⁵⁴ Eating lunch with the circa sixty-five-year-old Rowell and her elderly, cherished, nonherding, pet dog in her farmhouse kitchen strewn with scientific papers and heterogeneous books, my would-be ethnographic self had the distinct sense that Oedipal regression was not on the menu among these companion species. Woolf!

LIVING HISTORIES IN THE CONTACT ZONE: WOLF TRACKS

Whom and what do I touch when I touch my dog? How is becoming with a practice of becoming worldly? When species meet, the question of how to inherit histories is pressing, and how to get on together is at stake. Because I become with dogs, I am drawn into the multispecies knots that they are tied into and that they retie by their reciprocal action.

My premise is that touch ramifies and shapes accountability. Accountability, caring for, being affected, and entering into responsibility are not ethical abstractions; these mundane, prosaic things are the result of having truck with each other.⁵⁵ Touch does not make one small; it peppers its partners with attachment sites for world making. Touch, regard, looking back, becoming with—all these make us responsible in unpredictable ways for which worlds take shape. In touch and regard, partners willy nilly are in the miscegenous mud that infuses our bodies with all that brought that contact into being. Touch and regard have consequences. Thus, my introductions in this chapter end in three knots of entangled companion species—wolves, dogs, human beings, and more—in three places where an *autre-mondialisation* is at stake: South Africa, the Golan Heights in Syria, and the countryside of the French Alps.

At the off-leash dog park in Santa Cruz, California, which I frequent, people sometimes boast that their largish, prick-eared, shepherd-like mutts are “half wolf.” Sometimes the humans claim that they know this for sure but more often rest content with an account that makes their dogs seem special, close to their storied wild selves. I find the genealogical speculations highly unlikely in most cases, partly because it is not easy to have at hand a breeding wolf with whom a willing dog might mate, and partly because of the same agnosticism with which I and most of my dogland informants greet identification of any largish black dog of uncertain provenance as a “half Labrador retriever.” Still, I know wolf–dog hybrids do exist rather widely, and my dogs’ playing with a few motley claimants tied me into a web of caring. Caring means becoming subject to the unsettling obligation of curiosity, which requires knowing more at the end of the day than at the beginning. Learning something of the behavioral biology of wolf–dog hybrids seemed the least that was required. One of the places that led me, via an article by Robyn Dixon in the *Los Angeles Times* on October 17, 2004, “Orphaned Wolves Face Grim Future,” was to the Tsitsikamma Wolf Sanctuary on the southern coast of South Africa near the town of Storm River.⁵⁶

During the apartheid era, in quasi-secret experiments, scientists in the service of the white state imported northern gray wolves from North America with the intent of breeding an attack dog with a wolf’s smarts, stamina, and sense of smell to track down “insurgents” in the harsh

border areas. But the security-apparatus scientists at Roodeplaat Breeding Enterprises found to their dismay that wolf–dog hybrids make particularly bad trained attack dogs, not because of aggressivity or unpredictability (both issues with many of the hybrids discussed in the general literature), but because, besides being hard to train, the wolf–dogs generally defer to their human pack leaders and fail to take the lead when ordered to do so on counterinsurgency or police patrols. Members of an endangered species in much of its former range in North America became failed mixed-blood immigrants in the apartheid state intent on enforcing racial purity.

After the end of apartheid, both the wolves and the hybrids became signifiers of security once again, as people terrified for their personal safety in the ripe, still racialized discourses of criminality rampant in South Africa engaged in a brisk newspaper- and Internet-mediated trade in the animals. The predictable result has been thousands of animals unable to be “repatriated” to their continent of origin. Both epidemiologically and genetically categorically “impure,” these canids enter the cultural category of the disposable “homeless,” or in ecological terms “nicheless.” The new state could not care less what happens to these animate tools of a former racist regime. Running on private money from rich donors and middle-class, mostly white people, a rescue and sanctuary apparatus of a sort that is familiar globally to dog people does what it can. This is not an honored truth and reconciliation process trying to meet a socially recognized obligation to those nonhumans forced into “becoming with” a scientific racial state apparatus. The sanctuary practices are private charity directed to nonhumans whom many people would see as better killed (euthanized? Is there any “good death” here?) in a nation where unaddressed human economic misery remains immense. Further, the financially strapped sanctuaries accept only “pure wolves,” though only about two hundred canids could probably have passed that test in 2004 in South Africa, and have no resources for the possibly tens of thousands of hybrids who face, as the newspaper article headlined, a “grim future.”

So, what have I and others who touch and are touched by this story inherited? Which histories must we live? A short list includes the racial discourses endemic to the history of both biology and the nation; the collision of endangered species worlds, with their conservation apparatuses,

and security discourse worlds, with their criminality and terrorist apparatuses; the actual lives and deaths of differentially situated human beings and animals shaped by these knots; contending popular and professional narratives about wolves and dogs and their consequences for who lives and dies and how; the coshaped histories of human social welfare and animal welfare organizations; the class-saturated funding apparatuses of private and public animal–human worlds; the development of the categories to contain those, human and nonhuman, who are disposable and killable; the inextricable tie between North America and South Africa in all these matters; and the stories and actual practices that continue to produce wolf–dog hybrids in unlivable knots, even on a romping-dog beach in Santa Cruz, California. Curiosity gets one into thick mud, but I believe that is the kind of “looking back” and “becoming-with-companions” that might matter in making autres-mondialisations more possible.

Heading to the Golan Heights after running with the wolves in South Africa is hardly restful. Among the last companion-species knots in which I imagined living was one that in 2004 featured Israeli cowboys in occupied Syrian territory riding kibbutz horses to manage their European-style cattle among the ruins of Syrian villages and military bases. All I have is a snapshot, one newspaper article in the midst of an ongoing complex, bloody, and tragic history.⁵⁷ That snapshot was enough to reshape my sense of touch while playing with my dogs. The first cattle-ranching kibbutz was founded shortly after 1967; by 2004 about seventeen thousand Israelis in thirty-three various sorts of settlements held the territory, pending removal by an ever-receding peace treaty with Syria. Learning their new skills on the job, the neophyte ranchers share the land with the Israeli military and their tanks. Mine fields still pose dangers for cattle, horses, and people, and firing-range practice vies with grazing for space. The cattle are guarded from the resourceful Syrian wolves, not to mention Syrian people periodically repatriating stock, by large white livestock guardian dogs (LGDs), namely, Turkish Akbash dogs. Turkey does play an odd role in the Middle East! With the dogs on duty, the ranchers do not shoot the wolves. Nothing was said in this *Times* article about whether they shoot the Syrian “rustlers.” The cattle that the Israelis took over after the expulsion of the Syrian villagers were small, wiry, capable in the same kinds of ways as Rowell’s nonsheepish sheep, and resistant to

the local tick-borne diseases. The European cattle who were imported to replace the supposedly unmodern Syrian beasts are none of those things. The Israeli ranchers brought the guardian dogs into their operation in the 1990s in response to the large number of gray wolves, whose number on the Golan Heights grew significantly after the defeat of Syria in 1967 reduced the Arab villagers' hunting pressure on them.

The Akbash dogs were the prosaic touch that made the story in the newspaper of more than passing interest in the huge canvas of fraught naturecultures and war in the Middle East. I was a kind of "godhuman" to Willem, a Great Pyrenees livestock guardian dog who worked on land in California that my family owns with a friend. Willem, his human, Susan, and his breeder and her health and genetics activist peers in dogland have been major informants for this book. Willem's livestock guardian dog people are astute participants in the hotly contested dog-wolf-rancher-herbivore-environmentalist-hunter naturecultures of the contemporary U.S. northern Rocky Mountain region. Willem and my dog Cayenne played as puppies and added to the stock of the world's joy.⁵⁸ This is all quite small and unexceptional—not much of a "line of flight" to delight Deleuze and Guattari here. But it was enough to hail me and maybe us into curiosity about the naturalcultural politics of wolves, dogs, cattle, ticks, pathogens, tanks, mine fields, soldiers, displaced villagers, cattle thieves, and settlers become cowboy-style ranchers on still another bit of earth made into a frontier by war, expulsion, occupation, the history of genocides, and ramifying insecurity all around. There is no happy ending to offer, no conclusion to this ongoing entanglement, only a sharp reminder that anywhere one really looks actual living wolves and dogs are waiting to guide humans into contested worldings. "We found her at the edge of the city; she was raised by wolves." Like her forest-immigrant cousin, this wolf wore a communications pack that was no stranger to the development of military technology for command, control, communication, and intelligence.

Of course, by the first decade of the new millennium, that kind of telecommunications pack could be ordinary equipment for day walkers in the mountains, and that is where these introductions will end, but with the printed word rather than a personal GPS system situating the hiker. In 2005 primatologist Allison Jolly, knowing my livestock-guardian-dog

passions, sent me a brochure she had picked up on her walking tour through the French Alps that summer with her family. The brochure was in Italian, French, and English, already setting it off from unaccommodating monolingual U.S. aids to mountain outings. The transnational paths through the Alps and the urbane, leisured, international hikers expected on the paths were vividly present. On the cover was an alert, calm Great Pyrenees guardian dog, surrounded by text: "Important notice to walkers and hikers [or on the flip side, 'Promeneurs, Randonneurs,' etc.]: In the course of your walk, you may encounter the local guarding-dogs. These are large white dogs whose task is to guard the flocks."

We are in the midst of reinvented pastoral–tourist economies linking foot-traveling humans, meat and fiber niche markets that are complexly both local and global, restoration ecology and heritage culture projects of the European Union, shepherds, flocks, dogs, wolves, bears, and lynxes. The return of previously extirpated predators to parts of their old ranges is a major story of transnational environmental politics and biology. Some of the animals have been deliberately reintroduced after intense captive breeding programs or with transplants from less-developed countries in the previous Soviet sphere, where progress-indicating extinctions sometimes have not gone as far as in western Europe. Some predators reestablished populations on their own when people began trapping and shooting returnees less often. The wolves newly welcome in the French Alps seem to be offspring of opportunistic canids sidling over from unreliably progressive Italy, which never completely wiped out its wolves. The wolves gave the LGDs a job deterring lupine (and tourist) depredations on the shepherds' flocks. After the near destruction of the Great Pyrenees during the two world wars and the pastoral economic collapse in the Basque regions, the breed came to the Alps from the mountains for which they are named, by way of their rescue by the purebred dog fancy, especially through the collecting practices of wealthy women in England and the eastern United States. French dog fanciers learned some of what they needed to know about reintroducing their dogs to guarding work from U.S. LGD people, who had placed dogs on ranches in western states in recent decades and communicated with their European peers.

The knots of technocultural, reinvented pastoral–tourist economies and ecologies are all over North America too, raising the most basic

questions of who belongs where and what flourishing means for whom. Following the dogs and their herbivores and people in order to respond to those questions attaches me again and again to ranching, farming, and eating. In principle if not always in personal and collective action, it is easy to know that factory farming and its sciences and politics must be undone. But what then? How can food security for everybody (not just for the rich, who can forget how important cheap and abundant food is) and multi-species' coflourishing be linked in practice? How can remembering the conquest of the western states by Anglo settlers and their plants and animals become part of the solution and not another occasion for the pleasurable and individualizing frisson of guilt? Much collaborative and inventive work is under way on these matters, if only we take touch seriously. Both vegan and nonvegan community food projects with a local and translocal analysis have made clear the links among safe and fair working conditions for people, physically and behaviorally healthy agricultural animals, genetic and other research directed to health and diversity, urban and rural food security, and enhanced wildlife habitat.⁵⁹ No easy unity is to be found on these matters, and no answers will make one feel good for long. But those are not the goals of companion species. Rather, there are vastly more attachment sites for participating in the search for more livable "other worlds" (*autres-mondialisations*) inside earthly complexity than one could ever have imagined when first reaching out to pet one's dog.

The kinds of relatings that these introductions perform entangle a motley crowd of differentially situated species, including landscapes, animals, plants, microorganisms, people, and technologies. Sometimes a polite introduction brings together two quasi-individuated beings, maybe even with personal names printed in major newspapers, whose histories can recall comfortable narratives of subjects in encounter, two by two. More often, the configurations of critters have other patterns more reminiscent of a cat's cradle game of the sort taken for granted by good ecologists, military strategists, political economists, and ethnographers. Whether grasped two-by-two or tangle-by-tangle, attachment sites needed for meeting species redo everything they touch. The point is not to celebrate complexity but to become worldly and to respond. Considering still live metaphors for this work, John Law and Annemarie Mol help me think: "Multiplicity, oscillation, mediation, material heterogeneity,

performativity, interference . . . there is no resting place in a multiple and partially connected world.”⁶⁰

My point is simple: Once again we are in a knot of species coshaping one another in layers of reciprocating complexity all the way down. Response and respect are possible only in those knots, with actual animals and people looking back at each other, sticky with all their muddled histories. Appreciation of the complexity is, of course, invited. But more is required too. Figuring what that more might be is the work of situated companion species. It is a question of cosmopolitics, of learning to be “polite” in responsible relation to always asymmetrical living and dying, and nurturing and killing. And so I end with the alpine tourist brochure’s severe injunction to the hiker to “be on your best countryside behavior,” or “*serveguate il vostro comportamento,*” followed by specific instructions about what polite behavior toward the working dogs and flocks entails. A prosaic detail: The exercise of good manners makes *the competent working animals* those whom *the people* need to learn to recognize.⁶¹ The ones with face were not all human.

And say the philosopher responded?

NOTES

1. WHEN SPECIES MEET

1. Beatriz Preciado, who teaches about technologies of gender at the Museum of Contemporary Art in Barcelona and about queer theory, prosthetic technologies, and gender in Paris, introduced me both to nuances of the terms *alter-globalisation* and *autre-mondialisation* and to the cosmopolitan pooch Pepa, who walks the cities of Europe in the French lesbian canine traditions, marking a kind of worldliness of her own. Of course, *autre-mondialisation* has many lives, some of which can be tracked on the Internet, but the versions Preciado gave me animate this book. In a manuscript she sent me in August 2006, Preciado wrote: “Fabricated at the end of the nineteenth-century, French bulldogs and lesbians co-evolve from being marginal monsters into becoming media creatures and bodies of pop and chic consumption. Together, they invent a way of surviving and create an aesthetics of human–animal life. Slowly moving from red-light districts to artistic boroughs all the way to television, they have ascended the species pile together. This is a history of mutual recognition, mutation, travel and queer love. . . . The history of the French bulldog and that of the working queer woman are tied to the transformations brought on by the industrial revolution and the emergence of modern sexualities. . . . Soon, the so-called French bulldog became the beloved companion of the ‘Belles de nuit,’ being depicted by

artists such as Toulouse Lautrec and Degas in Parisian brothels and cafes. [The dog's] ugly face, according to conventional beauty standards, echoes the lesbian refusal of the heterosexual canon of female beauty; its muscular and strong body and its small size made of the *molosse* the ideal companion of the urban *flâneuse*, the nomad woman writer and the prostitute. [By] the end of the nineteenth century, together with the cigar, the suit or even writing [itself], the bulldog became an identity accessory, a gender and political marker and a privileged survival companion for the manly woman, the lesbian, the prostitute and the gender reveler [in] the growing European cities. . . . The French bulldog's survival opportunity really began in 1880, when a group of Parisian Frenchy breeders and fans began to organize regular weekly meetings. One of the first members of the French bulldog owners club was Madame Palmyre, the proprietor of the club 'La Souris' located in the lower reaches of Paris in the area of 'Mont Martre' and 'Moulin Rouge.' This was a gathering place for butchers, coachmen, rag traders, café owners, barrow boys, writers, painters, lesbians and hookers. Lesbian writers Renée Vivien and Natalie Clifford Barney and Colette, as well as modernist writers such as Catulle Mendès, Coppée, Henry Cantel, Albert Mérat and Léon Cladel gathered together with bulldogs at La Souris. Toulouse Lautrec immortalized 'bouboule,' Palmyre's French bulldogs, walking with hookers or eating at their tables. Representing the so-called dangerous classes, the scrunched-up faces of the bulldog, as those of the manly lesbians, were part of the modern aesthetic turn. Moreover, French writer Colette, friend of Palmyre and customer of La Souris, would be one of the first writers and political actors to be always portrayed with her French bulldogs, and most specially her beloved 'Toby-Le-Chien.' By the early 1920s, the French bulldog had become a biocultural companion of the liberated woman and writer in literature, painting, and the emerging media."

2. For a larger discussion of contact zones, see chapter 8, "Training in the Contact Zone."

3. Thanks to History of Consciousness graduate student Eben Kirksey for that reference and for his organizing the "Multispecies Salon" in November 2006, at UC Santa Cruz.

4. *Fingery eyes* is Eva Hayward's term for the haptic-optic join of camera with marine critters, especially invertebrates, at the multiple interfaces of water, air, glass, and other media through which visual touch occurs in art and science. See Eva Hayward, "Fingery-Eyes: What I Learned from *Balanophyllia elegans*," for the *Encyclopedia of Human-Animal Relationships*, ed. Marc Bekoff (Westport, Conn.: Greenwood Publishing Group, forthcoming).

5. *Intra-action* is Karen Barad's term. By my borrowing, I also touch her in Jim's dog. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, N.C.: Duke University Press, 2007).

6. Paul Rabinow, *Essays on the Anthropology of Reason* (Princeton, N.J.: Princeton University Press, 1996), argues for the virtue of curiosity, a difficult and often corrosive practice that is not much honored in U.S. culture, no matter my views about obligation and pleasure.

7. A. N. Whitehead, *Science and the Modern World*, Lowell Lectures, 1925 (New York: Mentor Books, 1948). Whitehead writes: "An event is the grasping into unity of a pattern of aspects. The effectiveness of an event beyond itself arises from the aspects of itself which go to form the prehended unities of other events" (111).

8. I discuss these kinds of technocultural images in Donna Haraway, *Modest_Witness@Second_Millennium* (New York: Routledge, 1997), 131–72, 173–212, 293–309.

9. My alliance with Bruno Latour in *Politics of Nature: How to Bring the Sciences into Democracy* (Cambridge, Mass.: Harvard University Press, 2004) and in *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 1993) is obvious here and often in my explorations of how "we have never been human." That suggestive title has also been used to allied effect by Eduardo Mendieta, "We Have Never Been Human or, How We Lost Our Humanity: Derrida and Habermas on Cloning," *Philosophy Today*, SPEP Supplement (2003): 168–75; and Brian Gareau, "We Have Never Been Human: Agential Nature, ANT, and Marxist Political Ecology," *Capitalism, Nature, Socialism* 16, no. 4 (December 2005): 127–40. I am indebted also to Don Ihde, *Bodies in Technology* (Minneapolis: University of Minnesota Press, 2002), for his readings of Merleau-Ponty's "infoldings of the flesh" and much else.

10. See Bruno Latour and Peter Weibel, eds., *Making Things Public: Atmospheres of Democracy* (Karlsruhe: ZKM Center for Arts and Media; and Cambridge, Mass.: MIT Press, 2005) for a wealth of worlds no longer beholden to the Great Divides.

11. All of these words, *technology*, *nature*, *organic*, and more generate protean webs of meaning that have to be addressed in intimate historical detail. But here, I want to foreground the still readily heard oppositions and assumed transparencies of meanings in still current idioms.

12. Jacques Derrida, "And Say the Animal Responded?" trans. David Wills, in *Zoontologies: The Question of the Animal*, ed. Cary Wolfe (Minneapolis:

University of Minnesota Press, 2003), 121–46, 138. In an e-mail dated September 1, 2006, Isabelle Stengers reminded me that Freud was conducting an exclusionary propaganda war for his own theory of the unconscious by means of his apparatus of narcissistic wounds and their treatment. Human exceptionalism has not been the only Western tradition, much less a universal cultural approach. Stengers was most annoyed by the third wound, in which Freud seems to address Descartes and Cie, “but which also entails blanket judgment about traditional soul healing crafts, which get assimilated to sheer suggestion.” Derrida does not address this matter because the orthodox Cartesian tradition is his target. The pity is that this tradition stands for the West *tout court* in so much philosophy and critical theory, a fault of which I have been as guilty as anyone. For a crucial corrective, see Erica Fudge, *Brutal Reasoning: Animals, Rationality, and Humanity in Early Modern England* (Ithaca, N.Y.: Cornell University Press, 2006). The question Derrida takes on is how “to break with the Cartesian tradition of the animal–machine that exists without language and without the ability to respond,” but only to react (121). To do that, it is not enough to “subvert” the subject; the topography of the Great Divide that maps the animal *in general* and the human *in general* has to be left behind in favor of “the whole differentiated field of experience and of life-forms” (128). Derrida argues that the truly philosophically scandalous (and psychoanalytically revealing) move in positing human exceptionalism, and so dominion, is *less* refusing “the animal” a long list of powers (“speech, reason, experience of death, pretense of pretense, covering of tracks, gift, laughter, tears, respect, and so on—the list is necessarily without limit”) and *more* “what calls itself human” rigorously attributing to man, to himself, such self-constituting attributes (137). “Traces erase (themselves), like everything else, but the structure of the trace is such that it cannot be in anyone’s *power* to erase it. . . . The distinction might appear subtle and fragile but its fragility renders fragile all the solid oppositions that we are in the process of tracking down” (138).

13. A useful analysis of the nonteleological heart of Darwinism can be found in Elizabeth Grosz, *The Nick of Time: Politics, Evolution, and the Untimely* (Durham, N.C.: Duke University Press, 2004).

14. Yudhijit Bhattacharjee, “Evolution Trumps Intelligent Design in Kansas Vote,” *Science* 313 (August 11, 2006): 743.

15. In a 2005 survey of adults in thirty-two European nations and the United States and a similar 2001 query of the Japanese, only people in Turkey expressed more doubts about evolution than U.S. Americans, whereas 85 percent of Icelanders were comfortable with the idea that “human beings, as we

know them, developed from earlier species of animals.” About 60 percent of U.S. adults surveyed either did not “believe” in evolution or expressed doubts. Over the last twenty years, the percentage of adults in the United States accepting evolution has declined from 45 percent to 40 percent. The percentage of adults not sure of their position increased from 7 percent in 1985 to 21 percent in 2005. See Jon Miller, Eugenie Scott, and Shinji Okamoto, “Public Acceptance of Evolution,” *Science* 313 (August 11, 2006): 765–66; *New York Times*, Tuesday, August 15, 2006, D2. I do not find it strange that these doubts about the histories of human evolution go along with hypertrophied faith in certain kinds of engineering and in war-making and profit-extraction technologies. Science is not one.

16. With little feet growing from its ventral surface for moving from salty seas to dry land in the great evolutionary adventure, the Darwin fish is a symbol generally understood to be a parodic reply to the Christian Jesus fish (no feet) on car bumpers and refrigerator doors of fellow citizens. Check out www.darwinfish.com; the opportunity to market a commodity is never missed. One can also purchase a fish design with *gefилte* inscribed in it. As Wikipedia (http://en.wikipedia.org/wiki/Parodies_of_the_ichthys_symbol) tells us, “The Darwin fish has led to a minor arms race in bumper stickers. A design was made with a larger ‘Jesus fish’ eating the Darwin fish. Sometimes, the larger fish contains letters that spell the word ‘TRUTH.’ A further step shows two fish, one with legs labeled ‘I evolved,’ the other without legs labeled ‘You didn’t.’”

17. John Paul Scott and John L. Fuller, *Genetics and Social Behavior of the Dog* (Chicago: University of Chicago Press, 1965). For a discussion of this research project in biological, political, and cultural contexts, see Donna Haraway, “For the Love of a Good Dog,” in *Genetic Nature/Culture*, ed. Alan Goodman, Deborah Heath, and M. Susan Lindee (Berkeley and Los Angeles: University of California Press, 2003), 111–31. In my account I drew heavily on Diane Paul, “The Rockefeller Foundation and the Origin of Behavior Genetics,” in *The Politics of Heredity* (Albany: State University of New York Press, 1998). On August 27, 1999, Faye Ginsburg e-mailed me, “Paul Scott was like an uncle to me, and my dad has spent a good part of his life studying the evolution of canine behavior as a social process. [I] played with [my father’s] wolves as a kid, not to mention the coy-dog and other unfortunate creatures. . . . I should dig out the December 3, 1963 issue of *Look* magazine with me romping with the wolves and playing with super aggressive inbred rabbits!!!” The lab also had dingoes. Faye did dig out the article, complete with great pictures of wolf and girl in proper face-to-face greeting and in play. For the photos and more, see “Nurturing the Genome: Benson Ginsburg Festschrift,” June 28–29, 2002, <http://ginsburgfest>

.uconn.edu/. Faye Ginsburg studies Indigenous digital media production and consumption, as well as disability and public culture. See Faye Ginsburg, "Screen Memories: Resignifying the Traditional in Indigenous Media," in *Media Worlds: Anthropology on New Terrain*, ed. Faye Ginsburg, Lila AbuLughod, and Brian Larkin (Berkeley and Los Angeles: University of California Press, 2002).

18. This passage is taken from Donna Haraway, *The Companion Species Manifesto: Dogs, People and Significant Otherness* (Chicago: Prickly Paradigm Press, 2003), 1–3.

19. I adapt the term *becoming with* from Vinciane Despret, "The Body We Care For: Figures of Anthro-zoo-genesis," *Body and Society* 10, no. 2 (2004): 111–34. She refigured the story of Konrad Lorenz with his jackdaws: "I suggest that Lorenz became a 'jackdaw-with-human' as much as the jackdaw became in some ways a 'human-with-jackdaw' . . . This is a new articulation of 'with-ness,' an undetermined articulation of 'being with.' . . . He learns to be affected. . . . Learning how to address the creatures being studied is not the *result* of scientific theoretical understanding[;] it is the *condition* of this understanding" (131). For a feminist extension of "becoming with," see Maria Puig de la Bellacasa, "Thinking with Care," paper delivered at the meetings of the Society for Social Studies of Science, Vancouver, B.C., November 2–4, 2006.

20. Foundational theorists of intersectionality have been U.S. feminists of color, including Kimberle Crenshaw, "Demarginalizing the Intersection of Race and Sex," in *Feminist Legal Theory: Foundations*, ed. D. Kelly Weisberg (Philadelphia: Temple University Press, 1993), 383–98; Angela Davis, *Women, Race and Class* (New York: Random House, 1981); Chéla Sandoval, *Methodology of the Oppressed* (Minneapolis: University of Minnesota Press, 2000); Gloria Anzaldúa, *Borderlands/La Frontera* (San Francisco: Aunt Lute Books, 1987); and many others. For a primer, see "Intersectionality: A Tool for Gender and Economic Justice," *Women's Rights and Economic Change* 9 (August 2004), www.awid.org/publications/primers/intersectionality_en.pdf.

21. For trenchant analysis, see Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999); and Cary Wolfe, *Animal Rites: American Culture, the Discourse of Species, and Posthumanist Theory* (Chicago: University of Chicago Press, 2003). The "posthumanities," however, seems to me a useful notion for tracking scholarly conversations. On "conversation" (versus "debate") as political practice see Katie King, *Theory in Its Feminist Travels* (Bloomington: Indiana University Press, 1994). King's new book, *Network Reenactments: Histories under Globalization* (in preparation), is an indispensable guide to transknowledge makings

and reenactments of many kinds, in and out of the contemporary university. King's notion of pastpresents is particularly useful for thinking about how to inherit histories.

22. See note 20 above for "intersectionality." Carol Adams, *Neither Beast nor Man: Feminism and the Defense of Animals* (New York: Continuum, 1995), 71–84, argues persuasively for an intersectional, not an analogical, approach to the needed allied oppositions to the deadly oppressions and exploitations of animals and of categories of human beings who cannot fully count as "man." Adams writes: "That is, from a humanocentric perspective of oppressed peoples who have been, if not equated with animals, treated like animals, the introduction of animals to resistance politics suggests that, once again, even in resistance humans are being equated with animals. But again this is a result of thinking analogically, of seeing oppression as additive, rather than comprehending the interlocking systems of domination" (84). Sandoval's *Methodology of the Oppressed* has developed a robust theory of oppositional and differential consciousness that should forever prevent hierarchized analogical moves, in which oppressions are both equated and ranked, rather than made to animate another kind of entanglement of becoming with one another that is attentive to the asymmetries of power. For varied ways of dealing with these issues, see also Octavia Butler, *Fledgling* (New York: Seven Stories Press, 2005); Alice Walker, "Am I Blue?" in *Living by the Word* (New York: Harcourt Brace, 1987), 3–8; Angela Davis, "Rape, Racism, and the Myth of the Black Rapist," in *Women, Race and Class*, 172–201; Marcie Griffith, Jennifer Wolch, and Unna Lassiter, "Animal Practices and the Racialization of Filipinas in Los Angeles," *Society and Animals* 10, no. 3 (2002): 222–48; Eduardo Mendieta, "Philosophical Beasts," *Continental Philosophy Review*, under review; and Mendieta, "The Imperial Bestiary of the U.S.," in *Radical Philosophy Today*, vol. 4, ed. Harry van der Linden and Tony Smith (Charlottesville, Va.: Philosophy Documentation Center, 2006), 155–79. In his search for another logic of metamorphosis, Achille Mbembe, *On the Postcolony* (Berkeley and Los Angeles: University of California Press, 2001), tracks the brutalization, bestialization, and colonization of African subjects in philosophy and history. In my experience of writing on the topic, the readiness with which taking animals seriously is heard to be an animalization of people of color is a shocking reminder, if one is needed, of how potent colonial (and humanist) tools of analogy remain, including in discourses intended to be liberatory. Rights discourse struggles with this legacy. My hope for companion species is that we might struggle with different demons from those produced by analogy and hierarchy linking all of fictional man's others.

23. Sha La Bare, writing on sf and religion, Ursula LeGuin, farfetchings, Afro-futurism, Scientology, and the sf mode as historical consciousness, taught me to pay attention to the sf tones of “species.” Sha La Bare, “Science Fiction: Theory and Practice,” PhD dissertation in progress, History of Consciousness Department, University of California at Santa Cruz.

24. Anna Tsing, “Unruly Edges: Mushrooms as Companion Species,” in *Thinking with Donna Haraway*, ed. Sharon Ghamari-Tabrizi (Cambridge, Mass.: MIT Press, forthcoming). See also Anna Tsing, *Friction: An Ethnography of Global Connection* (Princeton, N.J.: Princeton University Press, 2004), especially chapter 5, “A History of Weediness.”

25. Jacques Derrida, “The Animal That Therefore I Am (More to Follow),” trans. David Wills, *Critical Inquiry* 28 (Winter 2002): 369–418. Further references to this essay are in parentheses in the main text. This essay is the first part of a ten-hour address Derrida gave at the third Cerisy-la-Salle conference in 1997. See Jacques Derrida, *L’animal autobiographique*, ed. Marie-Louise Mallet (Paris: Galilée, 1999).

26. “Confined within this catch-all concept, within this vast encampment of the animal, in the general singular . . . are *all the living things* that man does not recognize as his fellows, his neighbors, or his brothers. . . . Animals are my concern. . . . I will venture to say that never, on the part of any great philosopher from Plato to Heidegger, or anyone at all who takes on, *as a philosophical question in and of itself*, the question called that of the animal . . . have I noticed a protestation of *principle* . . . against the general singular that is *the animal*. . . . The confusion of all nonhuman living creatures within this general and common category of the animal is not simply a sin against rigorous thinking . . . but a crime of the first order against the animals, against animals” (402, 403, 408, 416).

27. I highlight “once its protocol is properly established” to differentiate the kind of question that needs to be asked from the practice of assessing nonhuman animals in relation to human ones by checking the presence or absence of a potentially infinite list of capacities, a process that Derrida so rightly rejected. What is at stake in establishing a different protocol is the never denotatively knowable, for human or nonhuman animals, *relation* of response. Derrida thought Bentham’s question avoided the dilemma by pointing not to positive capabilities assessed against one another but to “the non-power at the heart of power” that we share with the other animals in our suffering, vulnerability, and mortality. But I am not satisfied with that solution; it is only part of the needed reformulation. There is an unnamable being/becoming with in copresence that Barbara Smuts, below, will call something we taste rather than something we

know, which is about suffering *and* expressive, relational vitality, in all the vulnerable mortality of both. I am (inadequately) calling that expressive, mortal, world-making vitality “play” or “work,” not to designate a fixable capability in relation to which beings can be ranked, but to affirm a kind of “non-power at the heart of power” other than suffering. Maybe a usable word for this is *joy*. “Mortality . . . as the most radical means of thinking the finitude we share with animals” does not reside only in suffering, in my view. (Both quotations come from “The Animal That Therefore I Am,” 396.) Capability (play) and incapability (suffering) are *both* all about mortality and finitude. Thinking otherwise comes from the ongoing oddities of dominant Western philosophical conversations, including those Derrida knew best and undid so well most of the time. Some kinds of Buddhist idioms might work better here and be closer to what Derrida meant by establishing a different protocol from Bentham’s to ask about suffering, but other idioms offer themselves from many varied and mixed traditions as well, some of which are “Western.” I want a different protocol for asking about a lot more than suffering, which at least in U.S. idioms will regularly end in the self-fulfilling search for rights and their denial through abuse. I am more worried than Derrida seems to be here about the way animals become discursive victims and little else when the protocols are *not* properly established for the question, Can animals suffer? Thanks to Cary Wolfe for making me think more about this unsolved problem in this chapter.

28. Emmanuel Lévinas, “The Name of a Dog, or Natural Rights,” in *Difficult Freedom: Essays on Judaism*, trans. Sean Hand (Baltimore: Johns Hopkins University Press, 1990), 151–53. Lévinas movingly tells the story of the stray dog called Bobby, who greeted the Jewish prisoners of war as they returned from work each day in a German forced-labor camp, restoring to them knowledge of their humanity. “For him, there was no doubt that we were men. . . . This dog was the last Kantian in Nazi Germany, without the brain needed to universalize maxims and drives” (153). Thus was Bobby left on the other side of a Great Divide, even by a man as sensitive as Lévinas was of the service rendered by this dog’s look. My favorite essay in animal studies and philosophy on the question of Bobby and whether an animal has “face” in Lévinas’s sense is by H. Peter Steeves, “Lost Dog,” in *Figuring the Animal: Essays in Animal Images in Art, Literature, Philosophy, and Popular Culture*, ed. Catherine Rainwater and Mary Pollock (New York: Palgrave Macmillan, 2005), 21–35. See also H. Peter Steeves, *The Things Themselves: Phenomenology and the Return to the Everyday* (Albany: State University of New York Press, 2006). For a full explication of the many ways the dog Bobby “traces and retraces the oppositional limits that configure

the human and the animals,” see David L. Clark, “On Being ‘the Last Kantian in Nazi Germany’: Dwelling with Animals after Lévinas,” in *Animal Acts*, ed. Jennifer Ham and Matthew Senior (New York: Routledge, 1997), 41–74, 70. On Derrida and others in the Continental philosophical canon on animals, see Matthew Calarco, *Zoographies: The Question of the Animal from Heidegger to Derrida* (New York: Columbia University Press, forthcoming).

29. The book based on that and subsequent research is Barbara Smuts, *Sex and Friendship in Baboons* (Cambridge, Mass.: Harvard University Press, 1985). I wrote about Smuts in *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (New York: Routledge, 1989), 168–69, 176–79, 371–76. See also Shirley Strum, *Almost Human: A Journey into the World of Baboons* (New York: Random House, 1987). When I wrote *Primate Visions*, I think I failed the obligation of curiosity in much the same way I suggest Derrida did. I was so intent on the consequences of the Western philosophical, literary, and political heritage for writing about animals—especially other primates in the so-called third world in a period of rapid decolonization and gender rearrangements—that I all but missed the radical practice of many of the biologists and anthropologists, women and men both, who helped me with the book, that is, their relentless curiosity about the animals and their tying themselves into knots to find ways to engage *with* these diverse animals as a rigorous scientific practice and not a romantic fantasy. Many of my informants for *Primate Visions* actually cared most about who the animals are; their radical practice was an eloquent refusal of the premise that the proper study of mankind is man. I, too, often mistook the conventional idioms of the philosophy and history of science spoken by most of “my” scientists for a description of what they did. They tended to mistake my grasp of how narrative practice works in science, how fact and fiction co-shape each other, to be a reduction of their hard-won science to subjective storytelling. I think we needed each other but had little idea of how to respond. Smuts, as well as such people as Alison Jolly, Linda Fedigan, Shirley Strum, and Thelma Rowell, continued to engage with me then and later with a mode of attention that I call generous suspicion, which I regard as one of the most important epistemological virtues of companion species. Out of the kind of respect I identify as mutual generous suspicion, we have crafted friendships for which I am mightily grateful. See Shirley Strum and Linda Marie Fedigan, eds., *Primate Encounters* (Chicago: University of Chicago Press, 2000). Had I known in 1980 how to cultivate the curiosity I wanted from Derrida, I would have spent much more time at risk at field sites with the scientists and the monkeys and apes, not in the facile illusion that such ethnographic fieldwork would give the truth about

people or animals where interviews and documentary analysis mislead, but as a subject-forming entanglement that requires response one cannot know in advance. I knew I too cared about the actual animals then, but I knew neither how to look back nor that I lacked the habit.

30. Barbara Smuts, "Encounters with Animal Minds," *Journal of Consciousness Studies* 8, nos. 5–7 (2001): 293–309, 295. Further page references are in parentheses in the main text.

31. I did not write "smallest possible units of analysis" because the word *unit* misleads us to think that there is an ultimate atom made up of internal differential relatings, which is a premise of autopoiesis and other theories of organic form, discussed below. I see only prehensile turtles all the way up and down.

32. On the creative force of the prosaic, the propinquity of things in many registers, the concatenation of specific empirical circumstances, the misrecognition of experience by holding to an idea of the experience before having had it, and how different orders of things hold together coevally, see Gillian Goslinga, "The Ethnography of a South Indian God: Virgin Birth, Spirit Possession, and the Prose of the Modern World," PhD dissertation, University of California at Santa Cruz, June 2006.

33. Barbara Smuts, "Embodied Communication in Nonhuman Animals," in *Human Development in the 21st Century: Visionary Policy Ideas from Systems Scientists*, ed. Alan Fogel, Barbara King, and Stuart Shanker (Toronto: publication of the Council on Human Development, forthcoming).

34. When a run goes awry in agility, I hear my fellow dog sport people say of the canine and human persons, "They look like they have never met; she should introduce herself to her dog." A good run can be thought of as a sustained greeting ritual.

35. Gregory Bateson, *Steps to an Ecology of Mind* (Chicago: University of Chicago Press, 1972), 367–70.

36. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 232–309. Further references are in parentheses in the main text. I am playing with the tones of the vegetable communication of "truck" and Deleuze and Guattari's call-of-the-wild version of a wolf pack. The online word detective (www.word-detective.com/) told me that "the archaic sense of 'truck' means 'dealings, communications, bargaining or commerce,' and is heard today most often in the phrase 'have no truck with,' meaning 'have nothing to do with.' The original form of the English verb 'to truck' appeared in the 13th-century meaning 'to exchange or barter.' One of the surviving uses of this sense of 'truck'

is in the phrase ‘truck farm,’ meaning ‘vegetables produced for market.’” We will see in a minute what production for small markets has to do with setting out a twenty-third bowl and my sense of becoming with significant others.

37. Steve Baker, *The Postmodern Animal* (London: Reaktion Books, 2000), 102–34, has much more appreciation than I do for Deleuze and Guattari’s workings of becoming-animal, but Baker too is annoyed by their treatment of pet dogs and cats. Much as I do care about both literary and fleshly dogs and cats, their well-being is not my core worry in reference to D&G’s becoming-animal. I think Baker misses the systematic nausea that D&G let loose in their chapter in response to all that is ordinary, especially evident in the figural wolf/dog contrasts but not reducible to them. Multiplicities, metamorphoses, and lines of flight not trapped in Oedipal and capitalist fixities must not be allowed to work that way. Sometimes the herculean efforts needed to dodge various versions of humanism catapult one into empyrean lines of flight proper only to the anomalous gods at their buffed worst. I’d rather own up to the fraught tangle of relations called “individuals” in idiomatic English, whose sticky threads are knotted in prolific spaces and times with other assemblages, some recognizable as (human and nonhuman) individuals or persons and some very much not. Individuals actually matter, and they are not the only kind of assemblage in play, even in themselves. If one is “accused” of “uncritical humanism” or its animal equivalent every time he or she worries about the suffering or capabilities of actual living beings, then I feel myself in the coercive presence of the One True Faith, post-modern or not, and run for all I am worth. Of course, I am indebted to Deleuze and Guattari, among others, for the ability to think in “assemblages.”

38. Unfairly, because D&G could not have known most of these things in the late 1970s in France or elsewhere, I think of trained therapy dogs working to bring autistic children into a social world where even human touch can become less terrifying, or pet dogs visiting the elderly to bring them back to an interest in a bigger life, or dogs accompanying teenagers with severe cerebral palsy in wheelchairs to help both with practical daily tasks like opening doors and even more with social interactions with other humans. I think of all the conversations among humans watching their canine buddies at an ordinary dog park that lead them to a larger civic and artistic world, as well as exchanges about poop bags and dog diets. These are not about becoming-animal, but they are about ordinary, daily becoming-with that does not seem very Oedipal to me. Claims about either bounded individuation or regression are always worth an empirical check; real dogs are ready to oblige. How world-building relations actually develop between a human being and a dog is the subject of ethological and ethnographic

research initiated by Adrian Franklin in Tasmania. See Adrian Franklin, Michael Emmison, Donna Haraway, and Max Travers, “Investigating the Therapeutic Benefits of Companion Animals,” *Qualitative Sociology Review* (special issue “Animals and People”) 3, no. 1 (2007): 42–58. Franklin is also savvy about how animals, including dogs (in this case, dingoes), feature in disturbing colonial and postcolonial nationalisms. See Adrian Franklin, *Animal Nation: The True Story of Animals and Australia* (New South Wales: New South Wales Press, 2006).

39. The passages on becoming-woman and becoming-child in *A Thousand Plateaus* have been the subject of many commentaries, both for D&G’s embrace of the feminine-outside-confinement and the inadequacy of that move. However unintended, the primitivist and racist tones of the book have not escaped notice either. In my calmer moments, I understand both what D&G accomplish and what this book cannot contribute to a non-Oedipal, antiracist feminism. Rosi Braidotti is my guide to fruitfully learning from Deleuze (who wrote much more than *A Thousand Plateaus*) and, in my view, offers much more toward an *autre-mondialisation*. See Rosi Braidotti, *Transpositions: On Nomadic Ethics* (Cambridge, U.K.: Polity, 2006). For a wonderful book partly shaped by Deleuze’s sensibilities in *Difference and Repetition* (trans. Paul Patton [New York: Columbia University Press, 1995]), see Kathleen Stewart, *Ordinary Affects* (Durham, N.C.: Duke University Press, 2007), which is a subtle backstory of the emergent forces we call things like neoliberalism and advanced consumer capitalism.

40. Lynn Margulis and Dorion Sagan, *Acquiring Genomes: A Theory of the Origins of Species* (New York: Basic Books, 2002). Further references are in parentheses in the main text.

41. Who knows if Lawrence’s “becoming-tortoise” referenced in *A Thousand Plateaus* (244) had any relation to the many versions of the “turtles all the way down story”? To track both the positivists’ and the interpretivists’ approaches to this narrative about nonteleological infinite regress—the world rests on an elephant resting on a turtle resting on turtles all the way down—see http://en.wikipedia.org/wiki/Turtles_all_the_way_down. Stephen Hawking, Clifford Geertz, Gregory Bateson, and Bertrand Russell all got into the act of refashioning this quasi-Hindu tale. In a chapter of that title, Isabelle Stengers tells a “turtles all the way down” story involving William James, Copernicus, and a savvy old lady, in *Power and Invention: Situating Science*, trans. Paul Bains (Minneapolis: University of Minnesota Press, 1981), 61–62. See also Yair Neuman, “Turtles All the Way Down: Outlines for a Dynamic Theory of Epistemology,” *Systems Research and Behavioral Science* 20, no. 6 (2002): 521–30, available online. Neuman

summarizes: “The most serious problem facing epistemological research is how to establish solid foundations for epistemology within a recursive system of knowing. The aim of this paper is to respond to this problem by presenting some outlines for a dynamic theory of epistemology. This theory suggests that the most basic unshakeable unit of epistemology is a process of differentiation, which is a self-referential activity. This paper elaborates on this thesis and illustrates its relevance to solving the problem of embodiment in Piaget’s genetic epistemology” (521). The self-referential part is the trouble. I want an idiom for both—and; “self-other referential” all the way down.

42. “‘Autopoiesis,’ literally ‘self-making,’ refers to the self-maintaining chemistry of living cells. No material object less complex than a cell can sustain itself and its own boundaries with an identity that distinguishes it from the rest of nature. Live autopoietic entities actively maintain their form and often change their form (they ‘develop’), but always through the flow of material and energy.” Margulis and Sagan, *Acquiring Genomes*, 40. Their target was the notion that a virus, or a gene, is a “unit of life.”

43. For his critique of autopoiesis, see Scott F. Gilbert, “The Genome in Its Ecological Context: Philosophical Perspectives on Interspecies Epigenesis,” *Annals of the New York Academy of Science* 981 (2002): 202–18. See also Scott Gilbert, John Opitz, and Rudolf Raff, “Resynthesizing Evolutionary and Developmental Biology,” *Developmental Biology* 173 (1996): 357–72, 368. For reciprocal induction, see chapter 8, “Training in the Contact Zone.”

Lest the reader think “turtles all the way down” is excessively mythological or literary, Gilbert directed me to the Turtle Epibiont Project at Yale, at www.yale.edu/peabody/collections/iz/iz_epibiont.html. Gilbert writes: “Interestingly, the notion that turtles carry the world is a theme found in several cultures. And while they might not support a universe, turtles do support considerable ecosystems on their backs.” E-mail from Gilbert to Haraway, August 24, 2006.

For the relevance of this discussion to the phenomena of immunology, see Donna Haraway, “The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse,” in *Simians, Cyborgs, and Women* (New York: Routledge, 1991), 205–30, 251–54. For an update, see Thomas Pradeu and Edgardo Carosella, “The Self Model and the Conception of Biological Identity in Immunology,” *Biology and Philosophy* 21, no. 2 (March 2006): 235–52. Pradeu and Carosella summarize: “The self/non-self model, first proposed by F. M. Burnet, has dominated immunology for 60 years now. According to this model, any foreign element will trigger an immune reaction in an organism, whereas endogenous elements will not, in normal circumstances, induce an immune reaction.

In this paper we show that the self/non-self model is no longer an appropriate explanation of experimental data in immunology, and that this inadequacy may be rooted in an excessively strong metaphysical conception of biological identity. We suggest that another hypothesis, one based on the notion of continuity, gives a better account of immune phenomena. Finally, we underscore the mapping between this metaphysical deflation from self to continuity in immunology and the philosophical debate between substantialism and empiricism about identity” (235).

44. E-mail from Scott Gilbert to Donna Haraway, August 23, 2006.

45. Personal communication, August 23, 2006.

46. Drawing from second-generation cybernetic thinkers such as Humberto Maturana and Francisco Varela, Cary Wolfe reworks autopoiesis so that it cannot mean “self-organizing systems,” which is the chief complaint Gilbert and I have. Nothing “self-organizes.” Wolfe’s development of nonrepresentationalist communication is close to what I mean by companion species engaged in turtling all the way down. The word *autopoiesis* is not the main problem, although I prefer to let it go because I do not think its meanings can be bent enough. What Wolfe and I both insist on is finding an idiom for the paradoxical and indispensable linkages of openness and closure, called by Wolfe “openness from closure” repeated recursively. See Cary Wolfe, “In the Shadow of Wittgenstein’s Lion,” in *Zoontologies*, ed. Cary Wolfe (Minneapolis: University of Minnesota Press, 2003), especially 34–48. My thanks to Wolfe for pushing this question in his e-mail of September 12, 2006. In *Meeting the Universe Halfway* (Durham, N.C.: Duke University Press, 2006), Karen Barad’s agential realism, phenomena, and intra-action provide another vital theoretical idiom for this conversation.

47. The Soay are listed with the Rare Breeds Survival Trust in the United Kingdom, and St. Kilda is a “mixed” UNESCO World Heritage Site, designated for both natural and cultural significance. The North American registry and breeder organization can be tracked at www.soaysofamerica.org/. Soay wool fiber enters Internet-mediated spinning and weaving circuits, and Soay meat is valued in agropastoral local and global practices. A tannery sells certified-organic Soay skins, also by Internet. About one thousand Soay sheep on St. Kilda have contributed DNA samples for an important database. Since the 1950s, an “unmanaged,” translocated Soay population on the island of Hirta, where people no longer live, has been the subject of extensive ecological, behavioral, genetic, and evolutionary investigation. Archaeologists track the chemical residues of ancient tanneries and collect old Soay DNA from hides. From tourism, through modern agropastoralism and opposition to factory farming, to comparative genomics,

all of this is technoculture in action. See www.soaysheepsociety.org.uk/; www.kilda.org.uk/; and T. H. Clutton Brock and J. Pemberton, *Soay Sheep* (Cambridge: Cambridge University Press, 2004).

48. Thelma Rowell and C. A. Rowell, “The Social Organization of Feral *Ovis aries* Ram Groups in the Pre-rut Period,” *Ethology* 95 (1993): 213–32. These ram groups were not her current beloved Soay but hardy U.S. Texas Barbados critters encountered before she retired from UC Berkeley and returned to Lancashire. Note the article was published not in a sheep journal but in a major biobehavioral zoology journal, in which comparisons to monkeys, even if surprising, were normal scientific practice and not evidence for mental disorder. See Thelma Rowell, “A Few Peculiar Primates,” in *Primate Encounters*, ed. Shirley Strum and Linda Fedigan (Chicago: University of Chicago Press, 2000), 57–70, for a discussion of the history of studying what Rowell calls the “entertaining, squabbling species” such as people and many other primates (69). Recent evidence from feral Soay indicates that they might shape their grazing patterns as a function of the seasonal densities of parasites lying in wait on tall grass tufts. Big predators aren’t the only ones who count in the evolution of behavior. Michael R. Hutchings, Jos M. Milner, Iain J. Gordon, Ilias Kyriazakis, and Frank Jackson, “Grazing Decisions of Soay Sheep, *Ovis aries*, on St. Kilda: A Consequence of Parasite Distribution?” *Oikos* 96, no. 2 (2002): 235.

49. Contending meanings of “the open” in Heideggerian philosophy and after appear in chapter 8, “Training in the Contact Zone.”

50. Vinciane Despret, “Sheep Do Have Opinions,” in *Making Things Public*, ed. Latour and Weibel, 363. I am indebted to Despret’s interview with Rowell and her interpretation of the biologist’s work in terms of “making available,” “the virtue of politeness,” and the role of the twenty-third bowl. Thanks to Maria Puig de la Bellacasa for bringing the research DVD made by Didier Demorcy and Vinciane Despret, *Thelma Rowell’s Non-sheepish Sheep*, to my graduate seminar in winter 2006. Despret, Isabelle Stengers, Bruno Latour, Thelma Rowell, and Sarah Franklin all infuse my writing here and elsewhere. With Sarah Franklin, I visited Rowell’s farm in March 2003 and had the privilege of meeting her sheep and turkeys and talking with her and Sarah about worlds of animals and people. For much more on worldly sheep in British and transnational life and technoscience, see Sarah Franklin, *Dolly Mixtures* (Durham, N.C.: Duke University Press, 2007). Stengers’s former doctoral student Maria Puig de la Bellacasa was a visiting postdoc at UC Santa Cruz from 2005 to 2007. Maria and other colleagues and graduate students in our animal studies/science studies/feminist theory grad seminar in winter 2006 helped shape my thinking about cosmopolitics, the

twenty-third bowl, the open, and companion species. Thanks to all those in my animal studies seminars in the last few years who meet in this book.

51. Thelma Rowell, "Forest Living Baboons in Uganda," *Journal of Zoology* 149 (1966): 344–64. See also Thelma Rowell, *The Social Behaviour of Monkeys* (Middlesex, U.K.: Penguin, 1972). Somewhat to her horror, this little book became very popular among feminists in the 1970s and '80s, including me, who had a grudge against male dominance–hierarchy explanations of all things primate. Haraway, *Primate Visions*, 124, 127, 292–93, 420–21.

52. Running a working farm, Rowell accompanies any decision to kill an animal for food or another reason with arrangements for slaughter on her land, to minimize trauma. Therefore, her animals must remain within informal exchange and cannot be sold commercially. If animals are to be marketed, responsibility includes conditions from breeding to the human meal, shoes, or sweater, including travel and slaughter of the animals. In the context of the work to sustain valuable human–animal lifeways in contemporary terms, the Rare Breed Survival Trust tries, imperfectly, to operationalize these responsibilities in the United Kingdom. Legal changes to allow the sale of meat when the working animal has been slaughtered where he or she lived, and not limit home-slaughtered meat to noncommercial circuits, are crucial to animal and environmental well-being in any meat-eating ecology. In the United States, a movement is growing to develop and legalize mobile slaughter units with certified inspectors. Such practices ought to be mandatory, not just permitted. Two consequences would be no longer limiting such meat to upscale markets but making it the norm for everyone, and therefore greatly reducing meat-eating, since such responsible practices are incompatible with factory-scale slaughtering. The naturalcultural changes inherent in both these points are immense. Currently, a mobile unit can kill about twelve hundred cows per year and serves at best small, niche-market farmers. An industrial slaughtering enterprise kills more than that number of large animals per day, with predictable consequences for human and nonhuman brutalization and environmental degradation. Class, race, and regional well-being are all at stake here for people; living and dying with less suffering are at stake for meat-, hide-, and fiber-producing working animals. For a point of view in Montana, see "Mobile Slaughter Units," *News and Observer*, May 23, 2005, www.mycattle.com/news/dsp_topstories_article.cfm?storyid=17218. On serious work to reform slaughter practices and industrial animal welfare broadly, see Temple Grandin's Web site, www.grandin.com. Her designs of less terrible industrial slaughter systems, with mandatory auditing for actual reduction of animal stress, are well known.

Less well known is her 1989 PhD dissertation at the University of Illinois, focused on the other end of the production process, that is, on environmental enrichment for piglets so that their neural development and behavior can be more normal (www.grandin.com/references/diss.intro.html).

Still “normal” actual conditions for pigs are described and documented at www.sustainabletable.org/issues/animalwelfare/: “Factory farmed pigs are born in small crates that limit the sow’s mobility to the point where she cannot turn around. As their mother lays [*sic*] immobile, unable make a nest or separate herself and her offspring from their feces, piglets are confined in the crate together, prohibited from running, jumping and playing according to their natural tendencies. Once separated from their mother, pigs are confined together in concrete pens with no bedding or soil for them to root in. In such conditions, pigs become restless and often resort to biting other pigs’ tails as an expression of stress. Rather than simply giving the pigs straw to play in, many factory farm operators will cut off their pigs’ tails in response to this behavior.”

Four companies control 64 percent of pork production in the United States. For a soul-chilling analysis of the hog industry, see Dawn Coppin’s science-studies and ethnographic PhD dissertation, “Capitalist Pigs: Large-Scale Swine Facilities and the Mutual Construction of Nature and Society,” Sociology Department, University of Illinois, Champaign–Urbana, 2002. See Dawn Coppin, “Foucauldian Hog Futures: The Birth of Mega-hog Farms,” *Sociological Quarterly* 44, no. 4 (2003): 597–616. Coppin’s work is radical in many ways, not least her insistence in bringing the animals into research and analysis as actors. Joining scholarship to work for structural change, Coppin has been the executive director of the Santa Cruz Homeless Garden Project and a visiting scholar at UC Berkeley. In 2006, Arizona voters (64 percent) overwhelmingly passed the Humane Treatment of Farm Animals Act, which prohibits the confinement of calves in veal crates and breeding pigs in gestation crates, both practices that are already banned throughout the European Union but are the norm in the United States.

For the syllabus for my winter 2004 graduate seminar “Animal Studies as Science Studies: We Have Never Been Human,” see <http://feministstudies.ucsc.edu/facHaraway.html>. See also Jonathan Burt, “Conflicts around Slaughter in Modernity,” in *Killing Animals*, the Animal Studies Group (Urbana: University of Illinois Press, 2006), 120–44. Then watch Hugh Dorigo’s film on factory farming, *Beyond Closed Doors* (Sandgrain Films, 2006).

53. Despret, “Sheep Do Have Opinions,” 367.

54. Isabelle Stengers, “The Cosmopolitical Proposal,” in *Making Things Public*, ed. Latour and Weibel, 994–1003, 995. See also Stengers, *Cosmopolitiques*,

2 vols. (Paris: La Découverte, 2003; originally in 7 vols., Paris: La Découverte, 1997). Stengers's cosmopolitics is more thoroughly introduced in chapter 3, "Sharing Suffering."

55. On the prosaic and effects through contingent contiguity, see Goslinga, "The Ethnography of a South Indian God."

56. For Dixon's November 7, 2004, article on the wolf-dog hybrids of South Africa, see www.wolfsonalaska.org/Wolves_south_africa_exile.htm.

57. James Bennett, "Hoofbeats and Tank Tracks Share Golan Range," *New York Times*, January 17, 2004, A1, A7. The light tone of this piece is hard to read in 2006, when war upon war upon war tears and threatens to tear everybody and everything apart without end, and it is hard even to imagine what cosmopolitics could look like on this land now. For an unpublished prose poem about three unarmed Arabs who were killed by the Israeli Army when attempting a cattle raid in 1968, see www.janecollins.org/uploads/The%20Golan%20Heights.doc. For pictures, see "Raising Beef Cattle in Kfar Yehoshua and the Golan Heights," <http://geosci.uchicago.edu/~gidon/personal/cattle/cattle.html>. See www.bibleplaces.com/golanheights.htm for a story of the biblical presence of cattle on this land; that kind of story shapes today's claims of belonging. For the Zionist notion on "the people of Israel returning to the Golan" (not the only position held by Israelis), see www.golan.org.il/civil.html. For hikes on the Golan Heights, see <http://galileeguide.com/gguide/etours.html>. For a sketch of the complex situation on the Golan Heights after the war in Lebanon in 2006, see Scott Wilson, "Golan Heights Land, Lifestyle Lure Settlers: Lebanon War Revives Dispute over Territory," *Washington Post*, October 30, 2006, A1 (www.washingtonpost.com/wp-dyn/content/article/2006/10/29/AR2006102900926_pf.html). Annexed in 1981, the Golan Heights supplies about a third of Israel's water. Wilson reports that in 2006, "the population of roughly 7,000 Arabs who remained after the 1967 war has grown to about 20,000. Most of them refused citizenship. Those who accepted are ostracized to this day in the four insular mountain towns where the Druze population is concentrated." (All Web sites accessed on May 4, 2007.)

58. When I first wrote this paragraph, seven-year-old Willem was living with an amputated rear leg from bone cancer, and metastases had recently appeared on his lungs. On that day in early November, he was bright-eyed and energetic, if a little short of breath; and he went on an easy walk with Rusten or me when we finished work for the day. This chapter is for him and his human, Susan. The contiguities of the prosaic, indeed. Willem died just before Thanksgiving, 2006.

59. Check out Food Alliance, founded in 1997, as a collaboration among Washington State University, Oregon State University, and the Washington State Department of Agriculture (www.foodalliance.org/). Explore the “Certified Humane” labeling project (www.certifiedhumane.org/), and see “Humane Treatment of Farm Animals Can Improve the Quality of the Meat We Eat,” *San Francisco Chronicle*, September 27, 2006. Then go to the Community Food Security Coalition (www.foodsecurity.org/) for a view of race, class, gender, and—in embryonic form—species intersectional analysis and action. Then go to the American Livestock Breeds Conservancy (<http://albc-usa.org/>) and the networks of the National Campaign for Sustainable Agriculture (www.sustainableagriculture.net/index.php). The California Food and Justice Coalition (www.foodsecurity.org/california/) prominently states in its key principles that “the production, distribution, and preparation of food must be healthy and humane for all humans, animals and ecosystems.” Brave words, and a lifetime’s work. Not so finally, check out the Intertribal Bison Cooperative, uniting fifty-one American tribes around the restoration of agriculture and the well-being of Indian land, its organisms, and its people (www.intertribalbison.org/). There are also many vegan approaches to food security and justice, for example, track from www.vegan.org/, the Humane Society of the United States, and, of course, People for the Ethical Treatment of Animals. (All Web sites accessed in November 2006.) I end this list, however, not with my sometimes-allied PETA foe but with vegan colleagues-in-struggle—that is, the antiracist, antisexist, justice-oriented, animal-focused vegan Carol Adams, *Neither Man nor Beast*, and her British counterpart, Lynda Birke, *Feminism, Animals, and Science* (Milton Keynes, U.K.: Open University Press, 1994).

60. John Law and Annemarie Mol, “Complexities: An Introduction,” in *Complexities: Social Studies of Knowledge Practices*, ed. John Law and Annemarie Mol (Durham, N.C.: Duke University Press, 2002), 20. For a beautiful analysis of the inadequacy of humanist, personalist models for worldly human–animal encounters, see Charis Thompson, “When Elephants Stand for Competing Philosophies of Nature: Amboseli National Park, Kenya,” in *Complexities*, 166–90.

61. Perhaps here, in an endnote at the close of introductions, is the place to remember that apparently friendly and curious behavior from wild wolves directed at people is most likely to be an exploration of a possible lupine lunch rather than an affectionate cross-species romp. Companion species, *cum panis*, breaking bread, eating and being eaten, the end of human exceptionalism: this, and not romantic naturalism, is what is at stake in the remembrance. Wildlife expert Valerius Geist explained to hunters in the northern U.S. Rockies that as

wolf population numbers rise well above the levels to which active extermination reduced them and herbivore populations adjust downward from renewed predator pressure, the competent North American opportunistic canids start acting more like Russian wolves than like remnants of a vanishing species set down in the midst of gustatory excess. That is, they start checking out and then stalking and occasionally attacking humans and their animals. Valerius Geist, “An Important Warning about ‘Tame’ Wolves,” *Conservation Connection* (newsletter from the Foundation for North American Wild Sheep) 10 (Summer 2006): 4–5. Thanks to Gary Lease for the article and for many generous conversations about hunting, dogs, and conservation.

2. VALUE-ADDED DOGS AND LIVELY CAPITAL

1. Karl Marx, *Capital*, vol. 1, trans. Ben Fowkes (New York: Vintage Books, 1977), 926.

2. Marx came closest in his sometimes lyrical early work, “Theses on Feuerbach” and “The Economic and Philosophic Manuscripts of 1844,” in *The Marx–Engels Reader*, 2nd ed., ed. Robert Tucker (New York: Norton, 1978). He is both at his most “humanist” and at the edge of something else in these works, in which mindful bodies in inter- and intra-action are everywhere. I follow Alexis Shotwell’s subtle analysis of Marx’s near escape from human exceptionalism implicit in his discussions on how labor power becomes a commodity, sensuousness, aesthetics, and human species being. Alexis Shotwell, “Implicit Understanding and Political Transformation,” PhD dissertation, History of Consciousness Department, University of California at Santa Cruz, December 2006, 111–21.

3. An early interdisciplinary effort to write that missing Marxist volume is Sarah Franklin and Margaret Lock, eds., *Remaking Life and Death: Toward an Anthropology of the Biosciences* (Santa Fe, N.M.: School of American Research, 2003). Then came the following abbreviated but crucial list that I take from my winter 2007 graduate seminar called Bio[X]: Wealth, Power, Materiality, and Sociality in the World of Biotechnology: Kaushik Sunder Rajan, *Biocapital: The Constitution of Postgenomic Life* (Durham, N.C.: Duke University Press, 2006); Jerry Mander and Victoria Tauli-Corpuz, eds., *Paradigm Wars: Indigenous People’s Resistance to Globalization* (Berkeley and Los Angeles: University of California Press, 2006); Marilyn Strathern, *Kinship, Law and the Unexpected: Relatives Are Always a Surprise* (New York: Cambridge University Press, 2005); Catherine Waldby and Robert Mitchell, *Tissue Economies: Blood, Organs, and Cell Lines*