Chapter 1
Introduction: Biology and the Idea of Culture

> There is so much resistance to the idea of animal culture that one cannot escape the impression that it is an idea whose time has come.
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> —Frans de Waal, *The Ape and the Sushi Master*

The idea of nature has long been the subject of ecocritical analysis. Ecological thinkers have amply demonstrated the dangers of a notion of nature that excludes culture and its role in ecological crisis; it positions human beings as outside ecological conditions and superior to the other inhabitants of the world. However, the idea of culture defined by this binary, the exclusive realm of human enterprise, has not been adequately considered.

When ecocritical work has discussed culture *as such* in the last decade and a half, it has often been in the process of contesting a view of nature as a cultural construction. As ecocritics have pointed out, though this constructionist view of nature seems to "undo" the binary of nature and culture, it often merely replaces one side of the equation with the other. Taken to its extreme, this paradigm denies the cogent reality of materiality, of an agential world apart from human culture. Yet, as postmodern, poststructuralist, Marxist, and other theorists have pointed out, isn't everything "always already" mediated by culture? In this tired debate, ecocritics, busy refuting an erasure of nature, and other theorists, busy asserting the primacy of culture, both end up affirming the essentialist idea of culture at the core of this binary and the humanities. The persistence of this formulation of culture is *the* most pressing philosophical problem for ecocriticism and green studies, and critical and cultural theory generally.

In 1980, Lewis Thomas expressed frustration with cultural criticism's fascination with physics, especially quantum mechanics. "I wish the humanists," he wrote, "would leave physics alone for a while and begin paying more attention to biology" (70). The need for a more biologically, ecologically informed critique is, if anything, now more urgent.[1] By turning to biology, cultural biology, and related branches of the life sciences, we find the broader and more nuanced notion of culture necessary for a materialist ecocritical practice. While our experience of the

[1] Glen Love's *Practical Ecocriticism* (2003) and numerous articles and conference panels since its publication call for greater scientific awareness in ecocritical practice. Echoing Thomas, Love remarks, "If some humanists have been attracted to some of the most difficult and obscure physics, they have for the most part ignored the life sciences, especially evolutionary biology and ecology" (49).

world is culturally mediated and constructed, culture is itself a product of nature, and human culture is only one of many types of culture in the material world.

In light of this expansive notion of culture, discussed in this chapter, this book considers one of the most enduring of modern Western cultural forms, the Bildungsroman, not only as the novel of individual development but also as humanism's origin story of culture. This "ecocultural materialist" approach to various examples of genre, including François-Marie Arouet de Voltaire's *Candide,* Mary Shelley's *Frankenstein*, Virginia Woolf's *Orlando*, and Jamaica Kincaid's *A Small Place*, reveals the foundational opposition of "nature" and "culture" as a tension that sometimes manifests itself as anxiety, sometimes as marked fluidity, sometimes as inversion. In these radical examples of the genre—or examples read radically—this tension suggests, however latent or denied, humanism's knowledge of nonhuman agency and, sometimes, subjectivity. If critique is to intervene meaningfully in our historical crises, it must move beyond solipsistic (that is, solely anthropological) notions of society and culture. The purpose of attempting a broader scope for Marxist cultural analysis and a dialectical methodology for ecocriticism is not to engage debates about the nature of ideology or anthropocentrism, but to suggest a necessarily more diverse, complex field for *materialist* critiques that already tend to analyze systematic rationalism (industries, institutions, discourses, etc.) in terms of the domination of human and nonhuman nature.

Recognizing the existence of other animal cultures—and, in so doing, rejecting various ideologies of nature, particularly that of human supremacy—challenges structures of power that oppress both human and nonhuman animals. My project here is twofold: to consider the Bildungsroman in terms of humanism's claim about our radical uniqueness, to see how examples of the genre reveal the cracks at the core of this claim, and to work toward an ecocultural materialism. It is at once an experiment in "immanent critique," an examination of the form and content of ideology in the service of emancipatory knowledge,[2] and a participant in the recent

[2] As Terry Eagleton explains in *Ideology*, "it is perfectly possible, as with the Marxist concept of an 'immanent' critique, to launch a radical critique of culture from somewhere inside it, not least from those internal fissures or fault-lines which betray its underlying contradictions" (4). In "Cultural Criticism and Society," Theodor Adorno acknowledges that while dialectical critique is always in a sense both transcendent and immanent, immanent criticism is the more inherently dialectical of the two modes of analysis. "The choice of a standpoint outside the sway of existing society is as fictitious as only the construction of abstract utopias can be. Hence, the transcendent criticism of culture, much like bourgeois cultural criticism, sees itself obliged to fall back upon the idea of 'naturalness,' which itself forms a central element of bourgeois ideology. The transcendent attack on culture regularly speaks the language of false escape, that of the 'nature boy.' … Against this struggles the immanent procedure as the more essentially dialectical … The traditional transcendent critique of ideology is obsolete" (*Prisms* 31–3).

materialist turn in theory.[3] A more materialist, more "worldly" multiculturalism might intervene in forms of oppression that have long functioned by excluding some—human and nonhuman—from the realm of culture. This question of culture is, of course, not only a disciplinary but a political one. And, in the end, the very idea of politics—politics itself—is what is at stake.

Disciplinary/Politics

In May of 2010, the United Nations International Year of Biodiversity, geneticist Craig Venter and his research team created what he calls "the world's first synthetic life form"—a bacterium described as "a defining moment in biology." Venter claims this single-celled organism with its made-from-scratch genome "heralds the dawn of a new era in which new life is made to benefit humanity, starting with bacteria that churn out biofuels, soak up carbon dioxide from the atmosphere and even manufacture vaccines" (Sample, "Craig Venter").[4] This new lifeform, invention and intervention, is a source of tremendous interest and anxiety—not unlike Alan Weisman's *The World Without Us*, "a penetrating, page-turning tour of a post-human Earth," twenty-six weeks on *The New York Times* bestseller list, *Time Magazine*'s number one nonfiction book of 2007, and inspiration for the 2010 television series (and IPhone App), *Life After People*.[5] This novel creature's

[3] For example, in 2010 Stacy Alaimo describes this turn with respect to feminist theory: "What has been most notably excluded by the 'primacy of cultural' and the turn toward the linguistic and the discursive is the 'stuff' of matter. Theorists within the overlapping fields of feminist theory, environmental theory, and science studies, however, have put forth innovative understandings of the material world. Some feminist theorists, such as Moira Gatens, Claire Colebrook, and Elizabeth Bray, have embraced the work of Spinoza and Deleuze as counter traditions to the linguistic turn. Others have reread theorists at the heart of poststructuralism—for example, Jacques Derrida (Vicki Kirby and Elizabeth Wilson), Michel Foucault (Ladelle McWhorter and Karen Barad), and Judith Butler (Karen Barad). Together, these theorists, along with others, constitute the materialist turn in feminist theory" (*Bodily Natures* 6).

[4] "To mark the genome as synthetic, they spliced in fresh strands of DNA, each a biological 'watermark' that would do nothing in the final organism except carry coded messages, including a line from James Joyce: 'To live, to err, to fall, to triumph, to recreate life out of life'" (Sample, "Synthentic").

[5] See http://www.worldwithoutus.com/about_book.html. *Life After People* is a series on the History Channel: "In every episode, viewers will witness the epic destruction of iconic structures and buildings, from the Sears Tower, Astrodome, and Chrysler Building to the Sistine Chapel … With humans gone, animals will inherit the places where we once lived. Elephants that escape from the LA Zoo will thrive in a region once dominated by their ancestors, the wooly mammoth. Alligators will move into sub-tropical cities like Houston—feeding off household pets. Tens of thousands of hogs, domesticated for food, will flourish. In a world without people, new stories of predators, survival and evolution will emerge. Humans won't be around forever, and now we can see in detail, for the very first time, the world that will be left behind in *Life After People: The Series*." See http://www.history.com/shows/life-after-people/articles/about-life-after-people.

place in material reality and, conversely, the resonance of a world after humanity in the human imagination would seem to confirm what some theorists have argued for decades, that at some point we or the world became "posthuman." Increasingly, when we encounter the subject of biology in the media or in scholarship in the humanities, it is in the context of posthumanism.

All of which begs the question: is it we *or* the world, or we *as* the world? We imagine life after people not only because human sovereignty over the rest of life on earth continues to intensify exponentially, but also because our cultures (perhaps particularly, but not only, in the West) tell us we *are* the world, the pinnacle or "brain" of nature, nature's self-reflexive agency or *natura naturans*[6] (even as we render it less and less inhabitable for ourselves and many other creatures). If evolutionary thought and the ecological sciences have taught nothing else, surely it has taught us that humans are not *the* world. And yet we are the world too—our bodies are themselves ecosystems, our atoms the very fibers of it. In *Bodily Natures*, Stacy Alaimo argues that we are not so much corporeal as "trans-corporeal": "the human is always inter-meshed with the more-than-human world" (2).[7] But while we and the world interpenetrate, we do not equate. As D.H. Lawrence wrote of Whitman's pantheism, "Aristotle did not live for nothing. All Walt is Pan, but all Pan is not Walt" (*Phoenix* 24). While we are still here—the world is not yet without us even if it is too much with us—the apocalyptic *post* of posthumanism warns that the Age of "Man" may soon give way to an age without human beings (at least, as we have known them[8]) and a great many others.

While the term posthumanism may reinforce ideas of human supremacy, promoting life beyond biology (after all, we are the creators of wholly new life

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[6] For two assertions of *natura naturans*, both of which posit problematic readings of *The Winter's Tale*, see Frederick W. Turner's "Cultivating the American Garden" in *The Ecocriticism Reader* and Terry Eagleton's *The Idea of Culture*. Far better, though equally problematic, Eagleton argues: "We resemble nature in that we, like it, are to be cuffed into shape, but we differ from it in that we can do this to ourselves, thus introducing into the world a degree of self-reflexivity to which the rest of nature cannot aspire. … Cultivation, however, may not only be something we do to ourselves. It may also be something done to us, not least by the political state. For the state to flourish, it must inculcate in its citizens the proper sorts of spiritual disposition; and it is this which the idea of culture or *Bildung* signifies in a venerable tradition from Schiller to Mathew Arnold" (6).

[7] Alaimo's project here overlaps with but is very different from mine. She is one of the very few (if not the only) scholar working in the field at the moment to state specifically that nonhuman animals have culture: "Rather than arguing, however, that humans are natural creatures, that nonhuman animals are cultural creatures, and that the nature/culture divide is not sustainable (all of which I believe), I will locate my inquiry within the many interfaces between human bodies and the larger environment" (4).

[8] As Rob Nixon recently wrote, we are faced with "amorphous calamities," not only in the form of the Anthropocene (and its "Great Acceleration" of CO2 emissions since 1950) but also in the age of the new "man"—in which "high speed planetary modification has been accompanied (at least for those increasing billions who have access to the Internet) by rapid modifications to the human cortex"; these increasing connections, and "the paradoxical disconnects that can accompany it," seem to redefine time itself (12).

forms "made to benefit humanity") and sometimes, more specifically, human life beyond the current bounds of humanity (cue the robotic and virtualized selves of the imagination), it also signals a renewed interest in the biological world, human animality, and our kinship with other creatures (as we see in the field of animal studies).[9] Posthumanism may challenge the primacy of humanity or it may champion a humanist teleology, a race for infinite technological power over material life; it may function as a landscape of virtuality or a deeper recognition of the connections between material agencies, a reimagining of what Darwin described in *Origin of the Species* as "a web of complex relations." In short, posthumanism may mean many things, some of which are mutually-exclusive: a revaluing of human animality or the desire to transcend animality; a radical, ecological sensibility; or a teleological essentialism.

While humanism is certainly far more complex than any caricature of the Enlightenment[10] (as I will argue in the next chapter), there is no mistaking its essentialist legacy. In *What is Posthumanism?* Cary Wolfe also differentiates between the two poles of the term, between transhumanist (teleological, transcendent) and critical (materialist) posthumanisms, but argues that even critical posthumanism must move beyond "a thematic of the decentering of the human" to challenge the form of thought itself if it is to be truly "posthuman." In the field of animal studies, the radical impact of posthumanism ("what makes it not just another flavor of 'fill in the blank' studies") "is that it fundamentally unsettles and reconfigures the question of the knowing subject and the disciplinary paradigms and procedures that take for granted its form and reproduce it." Wolfe argues that the posthuman challenge of this field is lost when "the animal" becomes simply another "object" of study (xxix).

Like animal studies, ecocriticism is in the process of contesting paradigms and considering conditions of knowledge as well as the purposes of such knowledge. We too must focus on our philosophical, disciplinary challenge to the anthropocentric orthodoxies of the humanities. Ecocriticism's radical challenge lies not only in recognizing other forms of subjectivity and the ecological interconnectedness of biologically diverse subjects, but in recognizing that the relations between them are *political*—they are life and death relations. We are one animal among many in this shared world, living in interwoven interspecies communities, a series of polises themselves comprised of differing societies. This is not to say that this political work must take the form of human political relations, or that the ethical

[9] In *How We Became Posthuman*, N. Katherine Hayles asserts the duality of what is called posthumanism: the rejection or erasure of the body or materiality for a fantasy of disembodiment *and* the realization of that fantasy's root in the familiar subject of liberal humanism, with its disavowal of embodiment and embeddedness in pursuit of individuality and freedom. This realization makes possible the second posthumanism, the critique that reveals that the human of humanism, the free-floating Cartesian mind, or the atomized subject of "free" political-economy, is itself a fantasy. This posthumanism suggests that, far from finding ourselves on the far side of an historic rupture, we may have always been posthuman, even as it offers new modes of subjectivity (Hayles 2).

[10] A point Neil Badmington makes in "Theorizing Posthumanism."

consideration of other animals[11] depends on how "intelligent" or *like us* we think they are, but that we must begin to take seriously the implications of our real similarities with and differences from other creatures. As Terry Eagleton famously argued, "Political argument is not an alternative to moral preoccupations: it is those preoccupations taken seriously in their full implications" (*Literary Theory* 208).

The discussion of politics is, of course, always itself political. And as Jacques Rancière suggests, what is at stake is the definition of politics itself:

> "Disagreement" and "dissensus" do not imply that politics is a struggle between camps; they imply that it is a struggle about what politics is, a struggle that is waged about such original issues as: "where are we?", "who are we?", "What makes us a we", "what do we see and what can we say about it that makes us a we, having a world in common?" Those paradoxical, unthinkable objects of thinking mark … the places where the question 'How is this thinkable at all?' points to the question: "who is qualified for thinking at all?" (116)

We are all part of a common world, but one that is changing rapidly for the immediate benefit of some at the expense of a great many others. In this context, to ask who is qualified for politics, what counts as political, is to ask who *counts* full stop. For humanism (and, indeed, its uncritical *posts*-), the question of who counts is intimately bound up with the question of what counts as culture; to think politically, to think about politics, we must contest the humanist ideology of culture still at the core of the humanities and Western culture. To do this, we must look beyond laboratory cages, computers, and cyborgs. A more "worldly" critique requires a turn to the larger world.

Cultural Biology

> [I]f nature is dynamic and active, if it is not alien to culture but is the ground which makes the cultural logically and historically possible, then what would a new conception of culture, one which refuses to sever it from nature, look like?
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> —Elizabeth Grosz, *Time Travels*

While some scientists continue to disagree over the use of the term "culture,"[12] *Nature* and other prominent journals have published the findings of dozens of

[11] As Derrida demonstrates in *The Animal That Therefore I Am,* there is no simple, wholly positive way to refer nonhuman animals; his partial solution to this problem is the term "animot." I will use several terms interchangeably—other animals, nonhuman animals, and animal-others—as these remind us of our animality and the reality of our political relations with the larger animal world—that is, their position as Other in our (and their) world.

[12] There are skeptics, chief among them psychologist Bennett G. Galef, co-editor with Kevin N. Laland of *The Question of Animal Culture* (discussed in this chapter). In the humanities, neither animal studies nor ecocriticism seem to have processed the idea of nonhuman cultures, though an interest in biological research is rapidly growing. Love's *Practical Ecocriticism* stresses that "[b]iological evolution and cultural evolution

studies demonstrating that many species learn socially and pass on traditions or skills. For example, a comprehensive synthesis of several long-term studies of chimpanzees in Africa (151 years cumulatively) documents thirty-nine group-specific, learned behavioral patterns (including tool usage): "[T]he combined repertoire of these behavioral patterns in each chimpanzee community is itself highly distinctive, a phenomenon characteristic of human cultures but previously unrecognized in non-human species" (Whiten et al. 682). A particularly resonant example of learned tool use was reported in 2007 by researchers in Senegal, who recorded twenty-two examples of chimps creating spears to hunt smaller primates ("Chimpanzees 'hunt using spears'").[13] Primates, though, are not the only culture-makers in nature; evidence of animal cultures abounds—from Hal Whitehead's work on orcas and sperm whales to Kevin Laland's studies of birds and fish.[14] Writing on animal cultures, primatologist Frans de Waal exclaimed, "one cannot

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are not independent but interrelated; hence such scientists' descriptions of the process as 'coevolutionary' or 'biocultural'" (19). Though Love does not discuss nonhuman cultures, he does note that the "traditional reluctance of many scientists and philosophers to attribute consciousness to animals must be questioned in the face of new evidence" (33). More recently, in "Eluding Capture: The Science, Culture, and Pleasure of 'Queer' Animals," Alaimo wrote, "Nonhuman animals are also cultural creatures, with their own sometimes complex systems of (often nonreproductive) sex. … Rather than continuing to pose nature/culture dualisms that closet queer animals as well as animal cultures … we can think of queer desire as part of an emergent universe of a multitude of naturecultures" (57–60).

[13] "Researchers documented 22 cases of chimps fashioning tools to jab at smaller primates sheltering in cavities of hollow branches or tree trunks. The report's authors, Jill Pruetz and Paco Bertolani, said the finding could have implications for human evolution. Chimps had not been previously observed hunting other animals with tools" (BBC).

[14] For example, see "Culture in Whales and Dolphins," by Luke Rendell and Hal Whitehead in *Behavioral and Brain Sciences*, and Whitehead's *Sperm Whales: Social Evolution in the Ocean*. On fish and birds, see Kevin N. Laland and William Hoppitt's "Do Animals Have Culture?" in *Evolutionary Anthropology*. While they take issue with the famous example of the potato-washing macaques, they do claim that some birds, whales, and fish have culture: "Cultures are those group-typical behavior patterns shared by members of a community that rely on socially learned and transmitted information. … According to the preceding definition, which animals have culture? There are two kinds of answers to this question. The first kind is based exclusively on hard experimental evidence. That is, for which species do we have reliable scientific evidence of natural communities that share group-typical behavior patterns that are dependent on socially learned and transmitted information? The answer, which will surprise many, is humans plus a handful of species of birds, one or two whales, and two species of fish" (150–1). Also, see the recent issue *Culture Evolves* (edited by Andrew Whiten, Robert A. Hinde, Christopher B. Stringer and Kevin N. Laland), and John M. Marzluff and Tony Angell's *In the Company of Crows and Ravens*, which includes "a detailed look at the cultural life of crows, exploring their behavior and traditions and our influences on them." http://yalepress.yale.edu/yupbooks/excerpts/crows_and_ravens.asp.

escape the impression that it is an idea whose time has come" (13–14).[15] It is also an idea that has been kicking around, even if only to be dismissed, for quite some time.

In *Civilization and its Discontents*, Sigmund Freud considers, albeit briefly, the existence of nonhuman cultures:

> Why do our relatives, the animals, not exhibit any such cultural struggle? We do not know. Very probably some of them—the bees, the ants, the termites—strove for thousands of years before they arrived at the State institutions, the distribution of functions and the restrictions on the individual, for which we admire them today … In the case of other animal species it may be that a temporary balance has been reached between the influences of their environment and the mutually contending instincts within them, and that thus a cessation of development has come about. (83)

Freud's question about animal culture was turned on its head (or, more accurately, stood on its feet) in 1953 when Kinji Imanishi, founder of Japanese primatology, applied ethnographic study to an animal society on the island of Koshima, creating animal cultural studies. In September of that year, Satsue Mito noticed Imo, an 18-month old macaque, carry a sweet potato to a freshwater stream and clean it before eating, minimizing wear on her teeth.[16]

> She playfully repeated this behavior on the first day. Later, she improved her technique by going deeper in the water, holding the potato in one hand and rubbing off the mud with the other, occasionally dipping it in the water … Within three months, two of [Imo's] peers as well as her mother were showing the same behavior. From these potato pioneers the habit spread to other juveniles, their older siblings, and their mothers. Within five years, more than three quarters of the juveniles and young adults engaged in regular potato washing. (de Waal 200–201)

[15] Even the Animal Planet network has a webpage on animal culture. Here is a sample from their five-page overview: "Primates are not the only animals in which scientists have discovered evidence of cultural transmission of behavior. Researchers believe the best nonprimate evidence for culture is found in songbirds, which include thrushes, jays, wrens, warblers, finches, and other common backyard birds. Many studies have indicated that songbirds learn their melodies from parents and neighbors of the same species. Songs within a particular species show regional variations similar to the regional dialects (variant forms of speech) common in human populations. … [B]iologists think of the songs as culture because they represent behaviors that are transmitted through learning and imitation rather than being genetically determined." http://animals.howstuffworks.com/animal-facts/animal-culture-info.htm.

[16] Imanishi concluded that the advantage to washing potatoes is the wear it saves on teeth. While Satsue Mito first observed and reported this behavior, Imanishi interpreted the behavior and his team conducted the formal research confirming social transmission.

This has become a rather famous example[17] of the "struggle" Freud did not see in the animal world: cultural change through socially learned problem solving.[18]

Building on the work of William McGrew's *Chimpanzee Material Culture* in 1992, primatologist Frans de Waal's *The Ape and the Sushi Master*, published in 2001, surveys and theorizes the methodological and conceptual issues of the growing field of animal cultural research, termed "cultural biology" (267).[19] He argues,

> The standard notion of humanity as the only form of life to have made the step from the natural to the cultural realm—as if one day we opened a door to a brand-new life—is in urgent need of correction … The idea that we are the only species whose survival depends on culture is false, and the entire juxtaposing of nature and culture rests on a giant misunderstanding. (28)

De Waal goes on to state that even aesthetics may be found in nonhuman cultures: "Given that our aesthetic sense has been shaped by the environment in which we evolved, it is logical to expect preferences for shapes, contrasts, and colors to transcend species" (36).

While the question of aesthetics, and its associations with "high" culture, need not come into play here, it was just this view of culture that was used to deny its existence in various human groups. To my mind, incorporating the insights of cultural biology into analysis in the humanities is a clear continuation of the work of cultural materialism. As Tony Bennett reminds us in *New Keywords*, "By showing how the supposedly universal standards of perfection associated with the normative view of culture turned out, in practice, to have strong connections with the particular views of ruling groups and classes, [Raymond Williams] extended our sense of what might count as culture" (67). Let's return to Williams's foundational observation in *Keywords* that "culture" is "one of the two or three most complicated words in the English language … [The Latin root] *Colere* has

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[17] See Sara Shettleworth's *Cognition, Evolution, and Behavior* for a skeptical reading of this famous evidence. Also, see Galef's well-known 1990 article, "The Question of Animal Culture" in *Human Nature*. De Waal discusses Galef's argument in *The Ape and the Sushi Master*. "Galef questioned whether the spreading of potato washing had anything to do with imitation. The Canadian psychologist was right to take a close look at the evidence and to insist that scientists carefully weigh the options when they see a behavior spreading in a population. … But given Galef's valid warning, it was all the more disturbing that he himself made so little effort to verify his own assumptions, for example, by actually visiting the island in person" (207).

[18] Potato washing, however, is not the only example of socially learned behavior on Koshima Island. "In 1956, she [Imo] introduced a solution to the problem that wheat thrown on to the beach mingles with sand. Imo learned to separate the two by carrying handfuls of the mixture to nearby water, and throwing it into it. Sand sinks faster than wheat, making for easy picking. This sluicing technique, too, was eventually adopted by most monkeys on the island" (de Waal 202).

[19] De Waal notes that this term was first proposed by Imanishi in 1950 (381).

a range of meanings: inhabit, cultivate, protect, honor with worship" (87). While all animal species inhabit, many live and learn socially, and some cultivate or transform food (such as leaf cutter ants). Even abstractions such as honor form a part of the lives of some animals. The elephant practice of ritual mourning is one such example.[20]

In 2005, Gay Bradshaw and her colleagues argued in *Nature* that human interference (poaching, "culling," and habitat loss) has led to a collapse of "elephant culture" (807). Wild elephants are demonstrating unprecedented aggression toward humans, and occasionally other animals, attacking villages and crops, killing hundreds of people each year. In an interview with Charles Siebert, Bradshaw describes this wide-scale phenomenon as psychological and cultural breakdown: "What we are seeing today is extraordinary. Where for centuries humans and elephants lived in relatively peaceful coexistence, there is now hostility and violence. Now, I use the term 'violence' because of the intentionality associated with it … " She asks, "How do we respond to the fact that we are causing other species like elephants to … breakdown? In a way, it's not so much a cognitive or imaginative leap anymore as it is a political one" ("An Elephant"). In *Elephants on the Edge*, Bradshaw contextualizes the implications of her research, interpreting elephant violence as another form of resistance to colonial oppression and global power:

> Much like other cultures that have refused to be absorbed by colonialism, elephants are struggling to survive as an intact society, to retain their elephant-ness, and to resist becoming what modern humanity has tried to make them—passive objects in zoos, circuses, and safari rides, romantic decorations dotting the landscape for eager eyes peering from Land Rovers, or data to tantalize our minds and stock in the bank of knowledge. Elephants are, as Archbishop Desmond Tutu wrote about black South Africans living under apartheid, simply asking to live in the land of their birth, where their dignity is acknowledged and respected. (71–2)

Bradshaw's work not only requires the recognition of our relations with elephants (and many other lifeforms) as political, it also suggests that the resistance to the idea of nonhuman animal cultures is not, or not only, intellectual but ideological. With many animals, including most mammals, and their habitats still treated as raw materials for production (much in the way other colonial subjects have been subject to horrific exploitation, physical and cultural genocide), the existence of other animal cultures, their numbers and scope, and the new political terrain they imply, present a profound challenge to power, including scientific humanism.

[20] For example, see work by Cynthia Moss, including "African Elephants Show High Levels of Interest in the Skulls and Ivory of Their Own Species" in *Biology Letters* and *Elephant Memories*. Also, see Marc Bekoff's *The Emotional Lives of Animals*. Finally, see Derrida's comment on this phenomenon in *The Animal That Therefore I Am*.

Carel van Schaik's *Among Orangutans: Red Apes and the Rise of Human Culture*, which documents twenty-four cultural variants among the orangutans he observed in Sumatra (including sophisticated tool-making and a variety of other socially learned behaviors), lays out the philosophical and scientific problem with traditional definitions of culture and the new biocentric corrective:

> The anthropological definitions emphasize the underlying beliefs and values of culture bearers … The Japanese primatologist Kinji Imanishi was perhaps the first, in 1952, to point out that at its core, culture is socially transmitted innovation: culture is simply innovation followed by diffusion. This biological (as opposed to anthropological) definition leads to an operational emphasis on observable behaviors or artifacts, things we can actually see in animals, rather than beliefs or values, which we cannot. It also explains the key property of culture in humans: geographic variation. Useful or popular innovations spread until they hit some barrier, producing geographic differentiation. So, if we see geographic variation in behaviors that we know reflect innovation and are transmitted through some socially mediated learning process, then we have animal culture (and we can worry about how symbolic any of it is later on). (139)

However, in *Sense and Nonsense*, Kevin N. Laland and Gillian R. Brown assert that scientists are a long way from a consensus definition: "Most social scientists would agree on two points, that culture is composed of symbolically encoded acquired information and that it is socially transmitted within and between populations, largely free of biological constraints. Is that the way evolutionists regard culture? For the most part it would seem not" (310).[21] Put most simply, our notion of culture is culturally (and, more narrowly, disciplinarily) constructed; the emphasis on a narrow notion of symbol, along with symbolic learning and syntactic communication, is only one of the anthropological biases underlying some definitions of culture.

The definition of culture de Waal uses is as follows:

> Culture is a way of life shared by the members of one group but not necessarily with the member of other groups of the same species. It covers knowledge, habits, and skills, including underlying tendencies and preferences, derived from exposure to and learning from others. Whenever systematic variation in knowledge, habits, and skills between groups cannot be attributed to genetic or ecological factors, it is probably cultural. The way individuals learn from each other is secondary, but that they learn from each other is a requirement. (31)

Within the parameters of this definition, de Waal and other biologists have documented a number of examples of culture in a range of species: socially-learned practices such as complex nut-cracking by chimps in the Guinea forest; the tool-

[21] Even among social scientists definitions vary significantly; in 1952, A.L. Kroeber and C. Kluckholm published an article citing 164 different definitions of culture held by social scientists.

use of Sumatran orangutans; and self-medication in a variety of primates. Again, cultural practices are not limited to primates: Dorothy M. Fragaszy and Susan Perry's *The Biology of Traditions: Models and Evidence* published the findings of nearly a dozen separate studies of social learning and traditions among nonhuman creatures, from fish and dolphins to birds and rats.

As the title of Fragaszy and Perry's book suggests, not all biologists are comfortable with the use of the term "culture," despite the fact that the idea of nonhuman cultures has a great deal of support (primatologist William McGrew, a "pro-culturalist," has characterized this state of affairs as "the controversial, value-laden use of the 'c' word" [127]). In fact, in their introduction to *The Question of Animal Culture*, editors Laland and Bennett G. Galef refer to "the recent spate of articles in prominent scientific journals, newspapers, and news magazines that argue that differences in the behavioral repertoires of animals living in different locales provide evidence that they, like humans, are cultural beings" (1). While several researchers in the collection advocate the idea or actuality of nonhuman cultures without any or many qualifications, others do not, in part because of the interdisciplinary nature of this research:[22] there are varied methodologies, differing ideas of evidence, and basic definitional disagreements. One author's nonhuman "culture" is another's animal "tradition," "pre-cultural" practice, or social learning. Nevertheless, "There is nothing more circular than saying that we, humans, are the product of culture if culture is at the same time the product of us," de Waal and Kristin E. Bonnie argue in their chapter. "Natural selection has produced our species, including our cultural abilities, and hence these abilities fall squarely under biology. This inevitably raises the question whether natural selection may have produced similar abilities in more than one species" (19).

In the decades since Mito and Imanishi first discovered the cultural innovation of potato washing on Koshima Island, the macaques have shifted their practices by dipping their potatoes in the ocean, rather than freshwater. On a recent trip to the island, de Waal observed this first hand:

> Walking in shallow water, they would alternate dipping a potato in and chewing off a piece. They did not do much rubbing in the water, probably because these potatoes were prewashed: there was hardly any dirt to be removed. … For this reason, Japanese scientists have changed their terminology … Assuming that it is the salty taste of the water that the monkeys are after, they now speak of 'seasoning.' (204)

Not only have cultural practices now been documented, but even the evolution of such practices.

The most dramatic example of observed nonhuman cultural change doesn't focus on tool use or the transformation of food, but on large-scale social evolution

[22] The emergent field of nonhuman social studies includes primatology, behavioral ecology, evolutionary biology, ethology, comparative psychology, and (to a lesser extent) anthropology.

(or, one might say revolution), documented by neurobiologist and primatologist Robert M. Sapolsky's ongoing research on an olive baboon troop in East Africa. His best-selling account of this work, *A Primate's Memoir*, chronicles the changing personalities and social structures of this group over two decades and its near-destruction by environmental poisoning; many of the male baboons, and some females, contracted bovine tuberculosis from infected meat and organs (tossed to them as scraps, and left in the garbage dump of a nearby tourist lodge). The most interesting finding of Sapolsky's research, however, follows the events described in this book.

Among primates, baboons are famously aggressive; as Sapolsky puts it, "they're no one's favorite species" (299). Sapolsky began studying the biology of stress through baboons in the first place because their societies, like the human society Sapolsky comes from (he is based in the American academy), are hierarchical and aggressive: "Basically, baboons [in the Serengeti] have about a half a dozen solid hours of sunlight a day to devote to being rotten to each other. Just like our society … We live well enough to have the luxury to get ourselves sick with purely social, psychological stress" (15). However, in the years following the tuberculosis (TB) epidemic, which killed half of the males, including every alpha male, the culture of the troop changed radically. In the National Geographic documentary *Stress: Portrait of a Killer*, Sapolsky states that before the TB deaths, this troop was "your basic old baboon troop at the time, which means males were aggressive and society was highly stratified." Following the deaths, however,

> what you were left with was twice as many females as males, and the males who were remaining were, you know, just to use scientific jargon, they were good guys. They were not aggressive jerks. They were nice to the females. They were socially-affiliated. It completely transformed the atmosphere of the troop. And when new adolescent males joined the troop, they'd come in just as jerky as any adolescent males elsewhere on this planet, and it would take them about six months to learn we're not like that in this troop. We don't do stuff like that. We're not that aggressive. We spend more time grooming each other. Males are calmer with each other. You do not dump on a female if you are in a bad mood. And it takes these new guys about six months and they assimilate this style [of social life] and you have baboon culture. And this particular troop has a culture of very low levels of aggression and very high levels of social affiliation. And they're doing that 20 years later. (*Stress*)

Here, Sapolsky has found evidence that what he wrote in *A Primate's Memoir* about TB is also true of another biological product, of culture: "Biology in the lab is not biology in the wild" (287). It also suggests, as he has it in the documentary, "if they [these baboons] are able to in one generation transform what are supposed to be textbook social systems, sort of engraved in stone, we don't have an excuse when we say there are certain inevitabilities about human social systems."

Interestingly, even Sapolsky's groundbreaking work isn't free from science's traditional fear of anthropomorphism. "I was," he writes of his early research,

"way too insecure in my science to publish technical papers using these names [for baboons]—everyone got a number then. But the rest of the time I *wallowed* in biblical names (14, italics mine). Sapolsky confronts this fear in the form of behavioral categories:

> Debates rage among animal behaviorists as to the appropriateness of using emotionally laden human terms to describe [nonhuman] animal behaviors. Debates as to whether ants really have "castes" and make "slaves," whether chimps carry out "wars." One group says the terms are a convenient shorthand for lengthier descriptions. One group says they are the same thing as human examples of these behaviors. Another group says they are very different, and that by saying that all sorts of species take "slaves," for example, one is subtly saying that it is a natural, widespread phenomenon. My bias is to agree somewhat with this final group. Nevertheless, Solomon did something that day that I think merits the emotionally-laden term that is typically used to describe a human pathology. Solomon chased Devorah, seized her near an acacia tree, and raped her. (24)

Throughout *A Primate's Memoir*, Sapolsky struggles with and, eventually, against this (as he writes) "bias" against anthropomorphism, concluding the book with a wish for the right Prayer for the Dead for the baboons he is unable to save (301).

The study of nonhuman cultures overlaps with the biological study of human cultures. The charge leveled at the former, anthropomorphism, is related to the charge of determinism leveled at sociobiology and its descendants.[23] In the first case, critics mischaracterize anthropomorphism as anthropocentrism, whereas de Waal distinguishes between "animalcentric anthropomorphism" and "anthropocentric anthropomorphism," saying, "The first [makes every effort to take] the animal's perspective, the second takes ours. It is a bit like people we all know, who buy us presents that they think *we* like versus people who buy us presents that *they* like. The latter have not yet reached a mature form of empathy, and perhaps never will" (77). He argues that if anthropomorphism is risky, "its opposite carries a risk too. To give it a name, I propose *anthropodenial* for the a priori rejection of shared characteristics between humans and animals when in fact they may exist" (de Waal 68–9, italics in original). While anthropodenial is still the default position of

[23] In 1975, E.O. Wilson's *Sociobiology: the New Synthesis* applied Darwinian principles to human behavior. Wilson coined the term sociobiology, and from this discipline grew other evolutionary approaches to behavior: behavioral ecology, evolutionary psychology, and gene-culture co-evolution. For an explanation of the differences between these fields, see Laland and Brown's *Sense and Nonsense.* In *A Primate's Memoir*, Sapolsky argues, "Sociobiology is often faulted for the Machiavellian explanations it gives for some of the most disturbing of social behaviors. … Less noticed is that it also generates just as valid (or invalid) explanations for some of the most selfless, altruistic, caring of behaviors and shows the circumstances under which those are highly rewarding behavioral strategies to follow" (101).

the sciences and the humanities, it may be a hard habit to maintain. As biologist Marc Bekoff writes of his colleagues,

> I know no practicing researcher who doesn't attribute emotions to their companion animals—who doesn't freely anthropomorphize—at home or at cocktail parties, regardless of what they do at work. (This anthropomorphizing is nothing to be ashamed of, by the way … these scientists are simply doing what comes naturally. Anthropomorphizing is an evolved perceptual strategy; we've been shaped by natural selection to view animals in this way.) (10)

Just as our survival depends on the survival of a great many other creatures, it seems reasonable to assume this evolved capacity of anthropomorphism, and the biophilia it engenders, is necessary for human (and other animal) survival. Bekoff argues, "If we don't anthropomorphize, we lose important information. … it is a necessity, but it also must be done carefully, consciously, empathetically, and biocentrically. We must make every attempt to maintain the animal's point of view" (124–5).

The second case is a variation on a theme if not a mirror image. If nonhuman cultural studies, or cultural biology, is mired in false, sentimental identifications, then the biological study of human behavior denies the unique significance of human thought and feeling by claiming a biological basis of culture—treating *us* like "mere" animals! In his 1996 retrospective *In Search of Nature*, E.O. Wilson defends the evolutionary study of human and other animal behavior from charges of determinism:

> Concern over the implications of sociobiology usually proves to be a simple misunderstanding about the nature of heredity. Let me try to set the matter straight as briefly but fairly as possible. *What the genes prescribe is not necessarily a particular behavior but the capacity to develop certain behaviors and, more than that, the tendency to develop then in various specified environments* … It is this *pattern* of possibilities and probabilities that is inherited. (89–90, italics in original)

Laland and Brown concur: "When researchers talk about genetic influences on human behavior, they do not mean that the behavior is completely determined by genetic effects, that no other factors play a role in our development, or that a single gene is responsible for each behavior" (17). In fact, "developmental biologists are agreed that the very idea that an individual's behavior can be partitioned into nature and nurture components is nonsensical, as a multitude of interacting processes play a role in behavioral development" (18).

The notion of freedom fueling this charge of determinism is, at root, a notion of human supremacy only conceptually possible if the rest of the living world is determined. Both logic and daily experience suggest, however, that nothing is determined and, equally, nothing is "free." We fear biological determinism not only because of the use made of the idea in the past, but also because Western culture at large continues to attribute every action and desire of other animals to a

reductive notion of their biology, summed up in the derogatory (and tautological) use of the term "instinct." It is a shorthand way of saying that *they* are machines, organic machines acting under the rubric of their design. This, of course, is no more true of "them" than of us. De Waal reminds us that if biology restricts our freedom, culture does so to the same extent. "And where do our cultural capacities come from?" he asks. "Don't they spring from the same source as the so-called instincts? … Whereas we can fully expect that definitions of culture will keep changing to keep the apes [and other animals] out, the proposals heard thus far seem insufficient to do so" (236). Just how far some scientists will go to keep changing definitions of culture to keep the "riffraff" out is itself a question of culture.[24]

Perhaps those who expressed horror at Wilson's *Sociobiology*, scientists and scholars in the humanities alike,[25] did so not because, or simply because, they misunderstood the text (or, as Wilson has it, took the notion of heredity to be deterministic) but because of the most pervasive form of liberal humanism: anthropocentric rationalism. "To be anthropocentric," Wilson writes, "is to remain unaware of the limits of human nature, the significance of biological processes underlying human behavior, and the deeper meaning of long-term genetic evolution" (100).[26] Val Plumwood characterizes anthropocentric rationalism, this dominant form of reason, as "a doctrine about reason, its place at the apex of human life, and the practice of oppositional construction in relation to its 'others,' especially the body and nature, which are simultaneously relied upon but disavowed or taken for granted" (18). It is a doctrine of power for power, which erases the subjectivity of other beings, creating living "resources" available for consumption. While this functional "misunderstanding" of the world enables its domination, it also misunderstands the enabling conditions of human life, of embodiment and embeddedness, at our peril.

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[24] In "An Ape Among Many: Animal Co-Authorship and Trans-species Epistemic Authority," Bradshaw writes that science has traditionally excluded nonhuman animals from the creation of knowledge and its application to their lives, even in environmental policy. There is new science, however, which includes other species in the project of human knowledge, challenging old epistemological assumptions about other animals. Bradshaw discusses languaged ape and human participatory action research (PAR) at the Great Ape Trust as one example of trans-species science, work that contradicts the idea that language and knowledge are properties unique to humans.

[25] For just one example, see Richard Levins and Richard Lewontin's otherwise intelligent *The Dialectical Biologist*, in which they dismiss Wilson as *wholly* reductive: "A recent avatar [of vulgar reductionism] is Wilson's (1978) claim that a scientific materialist explanation of human society and culture must be in terms of human genetic evolution and the Darwinian fitness of individuals" (134).

[26] Or, "culture is created and shaped by biological processes while the biological processes are simultaneously altered in response to cultural change" (Wilson 111).

"The question of the purpose of human life has been raised countless times; it has never yet received a satisfactory answer and perhaps does not admit of one," argues Freud. And yet,

> Nobody talks of the purpose of the lives of animals, unless, perhaps, it may be supposed to lie in being of service to man. But this view is not tenable either, for there are many animals of which man can make nothing, except to describe, classify, and study them; and innumerable species of animals have escaped even this use, since they existed and became extinct before man set eyes on them. (24)

Here Freud presents us with the story of the first human question (what is the purpose of human life?) as the very origin of culture. It only makes sense, then, that nobody talks of the purpose of the lives of animals. Our purpose, as our story goes—the story that seems the very foundation of Western culture—relies on their distinct lack of purpose. Whether the story is religious (God has made us in his image and our purpose is to please him) or teleological (we are the unique pinnacle of life on earth) or both does not make a substantive difference. In either case, this story is a defense-narrative, what Freud calls a *détour* en route to a mature, frank acceptance of human powerlessness and finitude: "If the believer finally sees himself obliged to speak of God's 'inscrutable decrees,' he is admitting that all that is left to him … is an unconditional submission. And if he is prepared for that, he probably could have spared himself the *détour* he has made" (36). What Freud called the reality principle we might call the biological conditions of life: the fact that human beings are not deities, cannot master nature or control their fate, but are, in fact, animals that evolved and continue to evolve with other lifeforms. "This recognition," writes Freud, "does not [need to] have a paralyzing effect. On the contrary, it points the direction for our activity" (37).

The implications of cultural biology are far-reaching and radical: we do not have to look to the sky to see that we are not alone in the universe. In her field-making introduction to *The Ecocriticism Reader*, Cheryll Glotfelty writes, "In most literary theory 'the world' is synonymous with society—the social sphere. Ecocriticism expands the notion of 'the world' to include the entire ecosphere" (xix). We must take this formulation a step further: ecocriticism must not only expand our notion of "the world" but also of "the social." Although we are not the only species that use culture to alter our environment, we are at the moment the only one endangering the existence of a *great many others*. Despite Venter's pronouncement that his new bacterium "heralds the dawn of a new era in which new life is made to benefit humanity," the new era doesn't sound *so* very new; other lifeforms have long been made to benefit humanity. That is, made to benefit some of us, in the short term, with widespread suffering and the risk of more.

For political intervention in this historical, ecological crisis, in which a great many real beings suffer, we must change our conception of the human and the nonhuman, of animality itself. The postanthropological concepts and findings of cultural biology topple the humanist idea of culture perpetuated by various ecocriticisms and posthumanisms, and the humanities generally. The realization

that the human animal is one of many lifeforms engaged in the interwoven (indeed, co-creating) processes of nature and culture (or naturecultures) is the first step toward a more materialist ecocultural analysis or posthumanist multiculturalism—toward concepts of subjectivity and knowledge, and knowledge itself, transformed by interconnected social and ecological worlds. It is a step toward a political sensibility in cultural theory and analysis attuned to anthropodenial as well as anthropomorphism, one willing to explore the messiness of needs and our responsibilities to similarity and to difference.

The Bildungsroman

Exploring the implications of cultural biology in the humanities requires a fresh look at the stories culture explicitly tells about itself. In the West, these stories fall into the genre of the Bildungsroman (literally, narrative of acculturation). The Bildungsroman, as Adorno argues for lyric poetry, is the most social when it seems the least so.[27] While explicitly the story of the origin and development of the individual, the Bildungsroman is also culture's own origin story, the humanist myth of its separation from and opposition to nature. In the examples of the genre read in this book, underneath the positioning of nature as the Other of culture lies the recognition of the deep interconnectedness of the cordoned-off worlds of our biology and all that we build, physically and conceptually. It is the recognition of the agency, and sometimes even subjectivity, of nonhuman nature.

Marc Redfield writes that "[m]onographs on the *Bildungsroman* appear regularly; without exception they possess introductory chapters in which the genre is characterized as a problem, but as one that the critic, for one reason or another, plans either to solve or ignore" (380). This book would seem little exception to Redfield's rule if it were another genre study, for the Bildungsroman is truly one of the most, if not the most, defined, redefined, reconstructed and contested subgenres in literary study. This is due, in part, to interesting (and much needed) revisionist work by feminist and postcolonial scholars and writers. But, only in part. The category of the Bildungsroman has from its inception presented, as Redfield suggests, "a problem" for *many* critics. While Lukács, as Susan Suleiman remarks, seemed to consider all novels variations of the genre (64),[28] James Hardin stresses the importance of the genre's Germanic roots, bemoaning the "careless" or "naïve" use of the term in Jerome Buckley's 1974 *Season of Youth* and similar works (and the more recent, "needlessly cavalier application" of the term in feminist scholarship, such as *The Voyage In*).[29] However, Hardin also notes that in the eighteenth century, Bildung meant formation, in a "broad, humanistic sense" (xi)—that is development, acculturation. It is this foundational sense of the term

[27] See "On Lyric Poetry and Society" in *Notes to Literature*, also referenced in Chapter 3. This way of reading "negatively" will become important from Chapter 3.

[28] See *The Theory of the Novel*.

[29] x, xviii.

that interests me, as the formation of the human itself. The Bildungsroman is humanism's story of becoming human as becoming part of culture, the humanist origin story of culture itself, of its self-creation out of nature.

And yet, this origin story, like others, contains (or fails to contain) its own contradictions. It is the premise of this book that the story of individual acculturation is always the story of culture—but it is the argument of this book that this is also the story of "nature," of our knowledge of human animality and nonhuman agency or subjectivity. The Bildung of the protagonist, or Bildungsheld, need not be positive nor successful, and the novel need not be Germanic nor even realist to be useful to this project. The tale, novels, and, more radically, narrative essay discussed in this book were chosen because they too seem interested in this fateful question of nature and culture, in various forms: ideas of the garden, materiality, the human body, animalization, and, of course, development. While these texts, save Jamaica Kincaid's *A Small Place*, are characterized by some critics as Bildungsromane, they might by others be considered counter or anti-Bildungsromane or, by others still (such as Hardin or Franco Moretti), quite outside the genre altogether.[30]

Perhaps the most pressing "problem" any text that creatively or critically engages the genre faces is the specter of Goethe's *Wilhelm Meisters Lehrjahre*—for many, *the* prototypical Bildungsroman. Susan Fraiman's *Unbecoming Women*[31] handles this problem rather well:

> The continual fetishizing of *Wilhelm Meister* as originary text, even by many revisionist critics, has not only defended as normative the single path of middle-class, male development described above, eclipsing all others; not only established a canon of overwhelmingly male-authored and male-centered texts. It has also to a larger degree fetishized Wilhelm himself. Indeed, there has been

[30] The term itself was coined in 1819 by Karl von Mortgenstern who, as Hardin suggests, "linked the word *Bildung* to the hero's development and experience, to his education, and to the *Bildung* of the reader" (xiii–xiv). This book follows the lead of both Mortgenstern and the feminist study Hardin attacks, *The Voyage In*, for its expansive use of the term. Yet, prior to any reformation, the genre is already bound up with so many others that locating its traditional borders is no small task—it overlaps with (or, for scholars such as Hardin, is contrasted with) the Entwicklungsroman (novel of development), Erziehungsroman (pedagogical novel), roman-a-thèse (didactic novel), conte philosophique (philosophical tale), Künsterlerroman (novel of the artist's formation), and Bildungsgeschichte (novel of complex psychological development) to name a few. The Bildungsroman is, in turn, often subdivided, as in the classical, European (as opposed to German), English, female, parodistic, postcolonial, Caribbean, and postmodern Bildungsromane. See Melitta Gerhard's *Der deutsche Entwicklungsroman bis zu Goethes* "Wilhelm Meister" on the first two of these terms, and Jeffrey Sammons's "The Bildungsroman for Nonspecialists: An Attempt at Clarification," in Hardin's *Reflection and Action*, on the Bildungsmotiv and Bildungsgeschichte.

[31] *Unbecoming Women* examines conduct literature as well as fictional examples of the genre: "We should think of women's conduct books and novels as particularly contiguous and interpenetrating forms" (14).

> a tendency to think of the tradition as a family not of texts but of personages: Wilhelm and his kinsmen. The effect of this has been to define the genre in terms of a single heroic figure and to privilege an approach that emphasizes character. (9–10)[32]

In order to think *with* the Bildungsroman, to use it "as a conceptual tool" as *The Voyage In* suggests,[33] one must avoid "renaturalizing the Germanic genre," as Fraiman succinctly put it (144). And so it seems less useful to create the category of "radical Bildungsroman" for these texts, radical though they are, than to consider more broadly what they suggest about the complexity and contradictions of humanism.

Given Glotfelty's foundational statement of the impetus for ecocritical work—to move beyond the equation of the (human) social world with the world—this genre seems ideal "terrain" for work on the nature of humanist culture. Moretti's genre-study *The Way of the World* may as well have been titled *The Way of Culture*, or the world *as* human culture. Its birth more or less congruent with that of the Anthropocene, the Bildungsroman is, as Moretti famously articulates it, the "'symbolic form' of modernity" (5); it makes modernity human (6),[34] as it makes the human modern. It does so by being, of necessity, "*intrinsically contradictory*" (6):

> The success of the *Bildungsroman* suggests in fact that the truly central ideologies of our world are not in the least … intolerant, normative, monological, to be wholly submitted to or rejected. Quite the opposite: they are pliant and precarious, "weak" and "impure." When we remember that the *Bildungsroman*—the symbolic form that more than any other has portrayed and promoted modern socialization—is also the most contradictory of modern symbolic forms, we realize that in our world socialization itself consists first of all in the interiorization of contradiction. The next step, being not to "solve" the contradiction … but rather to learn to live with it, and even transform it into a tool for survival. (10)

I would take this formulation of the Bildungsroman as contradiction a step further with Pierre Macherey's explanation of the contours of ideology in text from *A Theory of Literary Production*:

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[32] Many critics have noted that not even *Wilhelm Meister* entirely fits the definition of the genre it supposedly exemplifies.

[33] "It has become a tradition among critics of the *Bildungsroman* to expand the concept of the genre: first beyond the German prototypes, then beyond historical circumscription, now beyond the notion of *Bildung* as male and beyond the form of the developmental plot as a linear, foregrounded narrative structure. Our reformation participates in a critical tradition by transforming a recognized historical and theoretical genre into a more flexible category whose validity lies in its usefulness as a conceptual tool" (*The Voyage In* 13–14).

[34] "Bourgeois freedom is peculiar in that is has generated the unceasing counter-melody of the 'escape' from its harshness. The Frankfurt School … defined this ambivalence as a chronological succession: first freedom—then the escape of which Erich Fromm wrote. … [In the Bildungsroman] the dialectic of bourgeois freedom does not unfold as a succession of 'first, then later'—but as the continual co-presence of the two opposing tensions" (66).

> This conflict is not the sign of an imperfection; it reveals the inscription of an *otherness* in the work, through which it maintains a relationship with that which is not, that which happens at its margins. To explain the work is to show that, contrary to appearances, it is not independent but bears in its material substance the imprint of a determinate absence which is also the principle of its identity. The book is furrowed by the allusive presence of those other books against which it is elaborated; it circles about the presence of that which it cannot say, haunted by the absence of certain repressed words which make their return. The book is not the extension of meaning; it is generated from the incompatibility of several meanings, the strongest bond by which it is attached to reality, in a tense and ever renewed confrontation. (79–80)

One of the books—in fact, the chief "book"—against which all others are elaborated is "the book of nature."[35] When Moretti writes that the Bildungsroman creates the modern sense of "everyday life" as an "anthropocentric space" (12),[36] he approaches the edge of the idea that the Bildungsroman constructs, as suggested earlier, a vision of the world itself as (humanist) culture.

And so the narrative of the individual coming into culture is not only the story of the unquestioned "truth" of human separateness from and supremacy over the rest of nature; it is often (perhaps always) also the story of the struggle for and anxiety about this supremacy. As Redfield remarks, "the content of the genre is never simply a 'content,' but is always also '*Bildung*,' formation—the formation of the human as the producer of itself as form" (380).[37] In other words, it is, as I will argue, the formation of the human as the producer of itself *as culture*, the humanist equation of the human with culture (and culture as exclusively human).

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[35] Michel Foucault writes in *The Order of Things*: "The great metaphor of the book that one opens, that one pores over and reads in order to know nature, is merely the reverse and visible side of another transference, and a much deeper one, which forces language to reside in the world, among the plants, the herbs, the stones, and the animals" (35).

[36] Moretti describes what he terms the classical Bildungsroman as conservative (59), concluding:

> "[m]eaning in the classical *Bildungsroman* has its price. And this price is freedom" (63), even as "[l]iberal thought itself coined a definition of freedom as 'freedom from'" (66).

[37] Following Redfield, Maria Helena Lima notes that the Bildungsroman is "recognizably one of the main carriers of humanist ideology" ("Imaginary Homelands …" 859). Lima introduces the notion of "transculturation" to describe the way in which some, particularly postcolonial, cultures transform this "originary" genre to serve specific needs, "a corrective to anthropology's unidirectional 'acculturation.' Transculturation implies different cultural matrices impacting reciprocally on each other to produce a heterogeneous ensemble rather than a single culture" ("Decolonizing Genre …" 433). Here Lima uses the term to describe the way in which postcolonial texts use the Bildungsroman to "write back" to the center; we will see an example of this in Chapter 5, with several of Kincaid's works. I am, however, more interested in the broader implications of "transculturation" in light of cultural biology—the idea that human and nonhuman cultures reciprocally impact each other, as "matrices"—or, as Darwin had it, a web of complex relations.

Chapters

The following chapters focus on four critically significant works that represent major literary movements of the modern era, Voltaire's *Candide*, Shelley's *Frankenstein*, Woolf's *Orlando*, and Kincaid's *A Small Place*. Candide enters culture by way of an Edenic garden, from which he is cast out for "original" sin with Cunégonde: "Their lips met, their eyes glowed, their knees trembled, their hands wandered. The Baron of Thunder-ten-tronck came around the partition and, seeing this cause and effect, drove Candide out of the castle" (Voltaire 43). In *Frankenstein*, a similar garden of domestic happiness precedes Victor Frankenstein's removal from Geneva to Ingolstadt, his intellectual isolation and unsuccessful struggle to return to community. All Frankenstein and his Monster can do is separate, die, or float off into "darkness and distance." Orlando too leaves a secure garden-estate, of which he is lord and master of land and beast, darling of Majesty and Empire: "His fathers had been noble since they had been at all. They came out of the northern mists wearing coronets on their heads … From deed to deed, from glory to glory, from office to office he must go" (Woolf 11–12). Positioned rhetorically as a naïve tourist, "you," the reader of *A Small Place,* travel to Antigua only to learn that you always carry your home with you, that you are another colonist, that everything here (as at home) is on your terms, that as you stop to admire beauty, which to you has no history and which you cannot understand, you are an "ugly" thing. Driven from the rationalizations of imperialism and global capitalism, the reader is cast into the Other's experience of the dominated world. These narratives of arrival and development in humanist culture critique the metanarrative of Western culture's origin and value.

Chapter 2 demonstrates the way in which an ecocritical approach to Voltaire's *Candide* complicates Marxist materialism's (specifically Horkheimer and Adorno's in *Dialectic of Enlightenment*) approach to Enlightenment texts while enabling the spirit of its critique. Through a close reading of Mary Shelley's *Frankenstein* (alongside Percy Bysshe Shelley's "Mont Blanc"), Chapter 3 does the reverse, examining the way in which a dialectical approach to culture both complicates and completes ecocritical readings of Romantic literature. These chapters focus on texts that are themselves philosophically significant and representative of their intellectual age—*Candide* is, in many respects, the quintessential Enlightenment narrative, just as "Mont Blanc" and *Frankenstein* are exemplary texts of literary Romanticism.

Contrary to generalizations of the Enlightenment, a clear link exists between Voltaire's critique of rationalism and ecological critiques of rationalism. *Candide* repeatedly demonstrates that we are neither the masters of the earth nor of our fate—and yet Voltaire ultimately casts his assertion of the limits of reason, knowledge, and human power in positive terms. Candide's education concludes with the first exercise of his newly gained wisdom: he insists, "*mais il faut cultiver notre jardin*."[38] His injunction responds not only to Pangloss's blind optimism

[38] Translation: "but we must cultivate our garden."

and Martin's visionless pessimism, and to systematic theorizing altogether, but also to the natural and social crises witnessed on his voyage. In the context of a tale that insists on the inescapability of material reality, and in the historical context of Voltaire's own commitment to cultivation, it makes little sense to read Candide's dictum as mere metaphor or transcendental ideal; whatever else it may signify, the garden must also signify a real, material garden. Although *Dialectic of Enlightenment* identifies and traces the nexus of rationalism and power that dominates nature from Bacon to the culture industry (and even suggests that this domination of nature may come to mean the end of culture), the text follows the movement of history *solely as human history* when, in fact, human history is always already inextricably interwoven with and embedded in nonhuman histories.

Chapter 3 examines *Frankenstein* not only as a critique of scientific technology and imperialism, but also as an articulation of anxiety, similar to Percy Bysshe Shelley's "Mont Blanc" (originally published in Mary and Percy Shelley's joint record of their trip to the Alps during which the first draft of *Frankenstein* was written, *History of a Six Weeks' Tour*). The narrative structure of *Frankenstein* embeds human activity in, quite literally, a sea of connections. The novel is surrounded by the Arctic Ocean and, within each concentric narration, a body of water serves as the background for the novel's most dramatic action; either Lake Leman, the North Sea, or the Arctic surround the meetings between Victor and the monster. Here, expanses of water function as sublime landscapes in their own right, as unfathomable immensities and/or impenetrable depths. A dialectical approach to ecocritical concerns in the text reveals an important connection between these natural bodies of water and the produced body of the monster. Victor's drive to transcend human nature and culture, to transcend the limitations of the human body and human knowledge is akin to Robert Walton's drive to transverse the Arctic Ocean. In both cases, materiality becomes an obstacle to overcome, rather than the fabric of existence. The constant narrative proximity to bodies of water and its parallel in the body of the monster serve to remind us of our bodies, and the human place in the material weight of the world.

Of course, Shelley's novel is not about human bodies alone. Our experiences of the world (of the nonhuman and, indeed, the human) may be negatively inscribed, or unconscious, in culture. "Positively" and "negatively" inscribed responses to nonhuman nature, somewhat analogous to photographic images recorded as negatives and developed as positives, coexist in the text simultaneously. Reading "negatively," then, suggests attending to both aspects of a text; it is an imperfect analogy, but one not wholly unlike Marx's *camera obscura* in *The German Ideology*.[39] This critical position and methodology suggests that the nonhuman not only encompasses and impacts human culture, in ways that we can and cannot see,

[39] "Consciousness can never be anything other than the conscious being, and the being of men in their real life process. If, in all ideology, men and their relationships appear upside down, as in a *camera obscura*, then this phenomenon stems just as much from their historical life process as the inversion of objects on the retina stems from the processes of direct physical life" (*Marx: Early Political Writings* 124–5).

but that it also might serve as an intervention in human culture, in ways that we both can and cannot understand. There is much negatively inscribed in *Frankenstein*, what the text means but cannot always understand or say. Sometimes, as Macherey suggests, "the work cannot speak of the more or less complex opposition which structures it; though it is its expression and embodiment. In its every particle, the work *manifests*, uncovers, what it cannot say" (84). Inversely, the monster or the monstrous is that which speaks but isn't allowed to "mean." Monstrosity is constituted by meaningful acts of anything, anyone *not human*; the monster, the ultimate Other in Western culture, serves to deny the existence of this worldly nonhuman agency, to relegate it to the shadows and the fantastic. And yet, while the monster signifies many things (including the unsignifiable itself), he is also the voice of humanist culture betraying its fear of nonhuman agency.

Chapter 4 examines a "high" Modernist text to investigate Modernism's critique of modernity. *Orlando*, in part a mock-biography of Vita Sackville-West, journeys beyond the male literary canon and Carlyle's formulation that "history is the story of great men" by challenging Freud's claim that "anatomy is destiny." As a treatise against patriarchal history and biological determinism, *Orlando* offers an alternative vision of biography and biology, an ecological vision of human consciousness and material interconnectedness. As an experimental modern novel, it is an apt case study for an ecocultural approach because it represents a movement that has traditionally been difficult for both ecocriticism and Marxist materialism (cultural materialism and Frankfurt Theory) to theorize. *Orlando* presents a unique opportunity to consider a text that relentlessly moves a character through time and space but with the result, I argue, of making environment (human and nonhuman) central to the text. Alongside aesthetic differences, one of the characteristics used to define Modernism has been its international cosmopolitanism or, in contrast to Romanticism, its seeming placelessness. The chapter argues that the supposed "placelessness" of Modernism is itself a placeholder for anxiety about modernity, in all its fast-paced fragmentation and concentrated urban confusion. An ecocultural materialist examination of *Orlando* suggests that this quality of placelessness expresses modernity's negation of place as a locus of meaning and its broader anxiety about the agency of the more-than-human world.

Through Orlando's travel to the East,[40] change of gender, and supernatural experience of history, the novel takes as its subject the false duality of nature and culture in Western thought and representation. Read alongside *To the Lighthouse* and another radical Bildungsroman, a biography of Elizabeth Barrett Browning's spaniel *Flush*, *Orlando* is especially suited to a rethinking of prevailing critical approaches to Western culture.

Chapter 5 focuses on Jamaica Kincaid's *A Small Place*, a narrative of the colonial history and postcolonial life of Antigua. In the context of *Annie John* and *Lucy*, her traditional Bildungsromane, I argue that *A Small Place* may be read as

[40] I will refer to İstanbul throughout the text as Constantinople, as Voltaire does in *Candide* and Woolf in *Orlando*. İstanbul became the official name of the city in 1930.

a new form of the genre in two connected senses. First, positioned rhetorically as a tourist in Antigua, the reader "comes into culture" as a naïve consumer and leaves an interpreter. "You" (the reader) are lead to recognize false histories and ideologies of Western culture, constructions masquerading as "nature," through the past and present of Antigua and its inhabitants. This lesson, echoing the didactic roots of the genre, juxtaposes the experience of "you" the tourist with the experiences of native Antiguans. Second, while a traditional Bildungsroman often depicts an individual leaving home to travel or traveling to learn or work, *A Small Place* uses the conceit of the reader as tourist to dramatize the fate of someone else's home, of an entire place and people. It uses travel to tell a story about those that have been invaded and relocated, those that are too poor to travel and "too poor to live properly in the place they live" (19). In this way, the narrative links the genre's trope of travel and individual development (examined in eighteenth-, nineteenth-, and early twentieth-century Bildungsromane in Chapters 2 through 4) to the current ecological and socio-economic realities of tourism and the maldevelopment of the postcolonial world. Read as the Bildungsroman of the reader-as-tourist, and the Bildungsroman of an actual place and people forced into the global economy, Kincaid's narrative echoes and pushes the traditional boundaries of the genre.

Chapter 5 concludes with an examination of Kincaid's 2005 travel narrative *Among Flowers* as a companion to *A Small Place*, but one in which the political anger of the latter is nowhere to be found. The narrative embodiment that rescues the violence of *A Small Place* from callous abstraction (the voice of the perpetrator of violence speaking as a human voice, in history) is entangled with depoliticizing embodiments of the tourist/colonizer in *My Garden (Book):* and *Among Flowers*, from Kincaid's own anxiety of human embodiment to her "animalizing" view of other native peoples, nonhuman animals, and ecosystems. While Kincaid's work generally critiques Enlightenment thought and ideas, it is also entangled with its most foundational error.

Chapter 6 concludes the book with a consideration of the issues of dehumanization raised in Chapter 5 through an examination of the connection between dehumanization, animalization, and ideas of empathy. Both the philosophy of the biology of dehumanization and the mainstream science of empathy participate in an unexamined discourse of animality. I argue that our ideas about empathy are bound up with this discourse and vice-versa, a connection that reveals a cultural fantasy of detachment. In the West, this fantasy of detachment is in fact the very definition of the human (as free will, the freedom to surpass nature, the freedom to master) and the beast (as unrestrained drives, as instinct without empathy). Positioning other animals as agents without empathy allows us to imagine them outside the ethical community, depriving them of our sympathy, keeping them outside the polis, denying them politics. The humanist discourse of culture, then, is not simply, or only, about the uniqueness of human reason, but also about the uniqueness of human social feeling. Political relations, the hope of sharing together the polis we live in, requires more than discourses of interest and

rights; it requires a challenge to the fantasy of the human itself, the discourse of animality that fuels the animalization of human and nonhuman beings.

The last chapter ends with a return to the idea of origins. Eden is, for the Western tradition, the "original" origin story. For the Bildungsroman, it is not only the garden to which all others must refer, the origin story of human supremacy over the rest of nature (as Lynn White Jr.[41] and so many others have noted), it is also the Ur-plot of human "development," the expulsion from childhood into adulthood, from nature into culture. It is, in this way, also the framework for the humanist origin story of culture—of its creation of itself from what Donna Haraway calls "the soil of nature." Revisiting Kincaid's *Among Flowers* and *My Garden (Book):* (examined in Chapter 5) permits a consideration of "gardening" in the broadest sense in the previous texts. Contrasting Jacques Derrida's refutation of "the animal" with Slavoj Žižek's argument against nature allows a critique of the latter in the context of the implications of the biological idea of culture.

Again, although we are *not* the only species that uses culture to alter our environment, we are at the moment the only one endangering the existence of almost everyone else. For true intervention in this historical, ecological crisis, we need that which Kafka attributed to the best literature, "an axe to break the frozen sea within us"—a critical edge to change our conception of the human and the nonhuman. For the humanities, this means a new concept of culture.

The Cultural Unconscious

> Whether we grant animals culture is ultimately a human cultural question.
> —Frans de Waal, *The Ape and Sushi Master*

Ecocultural materialism diverges most significantly from Marxist materialism by rejecting the notion that "nature" is simply mediated by "culture." In keeping with cultural biology, this old idea of mediation is replaced with a greater skepticism about human uniqueness, an openness to the world as a true "web of complex relations," in which "nature" and "culture" mediate each other as complexes of co-creating nonhuman and human naturecultures. In this sense, the immanent world is perhaps "immediate" after all—that is, mediation is itself the fabric of the world. While Horkheimer and Adorno repeatedly stress that any appearance of immediacy is false, and assume other animals have no "selves," only compulsions (*Dialectic* 205), they also suggest that the process and perception of mediation has the potential to heal the human dominated world:

> Only mediation, in which the insignificant sense datum raises thought to the fullest productivity of which it is capable, and in which, conversely, thought gives itself up without reservation to the overwhelming impression—only mediation can overcome the isolation which ails the whole of nature. Neither the certainty untroubled by thought, nor the preconceptual unity of perception

[41] See "The Historical Roots of Our Ecological Crisis."

> and object, but only their self-reflective antithesis contains the possibility of reconciliation. (*Dialectic* 156)

Without this dialectical reflection, reason turns back upon itself, and "humanity's sharpened intellectual apparatus is turned once more against humanity, regressing to the blind instrument of hostility it was in animal prehistory, and as which, for the species, it has never ceased to operate in relation to the rest of nature" (*Dialectic* 156). Horkheimer and Adorno warn that, on our present course, "the human species will tear itself to pieces or it will take all the earth's flora and fauna down with it" (*Dialectic* 186).

To argue that culture mediates nature (as a one-way process) or to assert that everything is nature (in an undifferentiated way) erases true political relations between human and other animal beings. The human experience of the world is mediated by our cultures, but these cultures are mediated by what we call nature: overlapping sets of human and nonhuman cultures amid wind, rain, and rock. The social networks and practices of myriad species transform the material conditions of life for themselves and the other inhabitants of the planet every day. Not only is everything and everyone in *some sense* interconnected, we all materially and culturally impact each other.

This book, however, is not a study of animal cultures. It is an attempt at an analysis of human culture informed by the existence of nonhuman cultures. It is an effort to take biology and ecology seriously, to integrate key notions of culture from the sciences and humanities to examine the stories humanist culture tells about itself. As Adorno teaches, art may reveal what ideology hides. In this case study, the Bildungsroman reveals an awareness of nature's agency, and human and nonhuman similarity. An anxiety about other animal subjectivity is underneath the resentment of the study of humans as animals and the conditioned dismissal of nonhuman subjectivities and cultures. It is an anxiety about the lie of human superiority and the fragility of power. It is the chief target of ecocultural analysis and the reason for this book.