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George Levine: Darwin Loves You

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CHAPTER 1

Secular Re-enchantment

The gentle gentleman Charles Darwin, who was buried in Westminster Abbey, lives in public consciousness within an adjective describing a brutally competitive and mechanistic world, and as the author of a controversial theory that has made him to many the Antichrist. He has survived not only as the icon of a revolutionary shift in the way we think about origins and humanity but as an unpleasant idea. And for those who think about such things, in extending naturalistic explanation even to human behavior, he is seen as perhaps the most striking embodiment of that scientific rationalism that, in Max Weber's terminology, "disenchanted" the modern world. Evolution by natural selection seems to have removed both meaning and consolation from the world; those who discovered it and who now argue for it often engage in a kind of triumphal rationalism that treads all affective and extramaterial explanation underfoot. It is one thing to believe that science can explain the movement of the stars or even the composition of matter; it is quite another to believe that science can explain human nature itself, and all the disorderly intricacies of human life.

Certainly, Weber's reading of the disenchantment of the world was consistent with the responses of many Victorians to the progress of science. As against the scientific naturalists, T. H. Huxley, John Tyndall, and W. K. Clifford, who exuberantly advertised the power of science to transform the world, W. H. Mallock, among their most brilliant and witty antagonists, noted of the world in a book significantly called *Is Life Worth Living?* that "in a number of ways, whilst we have not been perceiving it, its objective grandeur has been dwindling."¹ Instead of finding that the new knowledge enspirits and enlivens, Mallock claims that "in the last few generations man has been curiously changing."

And the change is the result of too much knowledge, too much reflection. Man “has become a creature looking before and after; and his native hue of resolution has been sicklied over by thought” (19). Mallock’s formulation of the Victorian experience can serve as a strong example of Weber’s point that the authority of scientific explanation drives meaning and value from the world.

And the Victorian struggle over this problem takes an even starker shape today. One of the more popular scientific books of recent years is called, not immodestly, *How the Mind Works*, and its author, Stephen Pinker, recognizing its immodesty, begins on an uncharacteristic “note of humility” by confessing that “we don’t know how the mind works.” But, Pinker says, we are on our way, arguing that our understanding of how the mind works has been “upgraded” from a “mystery” to a “problem.”² And it is precisely the fact that Pinker’s project is recognized as a legitimate enterprise of science—the upgrade from mystery to problem anticipates another upgrade to resolution—that, according to Weber, marks modern culture’s understanding that science can indeed explain everything. Weber contends that meaning drains out of the world precisely as we come to believe that “if one wished one *could* learn” virtually anything; “there are no mysterious incalculable forces.”³

There is widespread agreement that this is the case. Pinker’s project has deep roots, but in the nineteenth century, particularly in the work of the positivists and scientific naturalists, the enterprise of producing a full scientific description of all phenomena had gained enormous energy. When William James contemplated the project in 1902, he registered a response that confirms Weber’s later thesis. “When we read . . . proclamations of the intellect bent on showing the existential conditions of absolutely everything,” he asserts with something like contempt, “we feel—quite apart from our legitimate impatience at the somewhat ridiculous swagger of the program . . . menaced and negated in the springs of our innermost life.”⁴ He talks of “cold-blooded assimilations” that “threaten . . . to undo our soul’s vital secrets,”

and of the “assumption that spiritual value is undone if lowly origin be asserted” (12–13). James’s project is to open the way to a recognition of the importance and validity of the religious experience, but to do that he also makes plain the inadequacy for personal and spiritual satisfactions of this scientific “program.” He describes, in effect, the condition of disenchantment, about which Weber was to write, and he feels obliged to engage immediately with what is certainly a fundamentally Darwinian project, the explanation of origins in “lowly” terms.

James mocks the pretensions of those who claim to be on their way to describing “the existential conditions of absolutely everything,” but that program is not dead. Nor is it self-evident that it’s not worth attempting. In effect, it is the program of evolutionary psychology for which Pinker argues, and the outlines of the debate have remained roughly the same over the course of a century, though the technical understanding has changed.

Pinker explains that the mind “is a system of organs of computation designed by natural selection to solve the problems faced by our evolutionary ancestors in their foraging way of life” (x). There is Darwin again, his theory being used here not to explain how species emerge from other species but to explain what is thought to be most distinctive about the human species: mind. It is not a romantic or religious conception that Pinker offers. The mind is a “system,” not the seat of the soul; there are problems in its working, but no mysteries. Not only, then, does the use of Darwin imply a disenchanted world, but also (and here is where much modern controversy develops) a world in which morality itself ceases to be a mystery and becomes—again I invoke Pinker—only a problem. As James put it about his contemporary version of evolutionary psychology, the project threatens to undo the soul’s vital secrets. The primary problem is that, since Darwin’s theory seems to imply that natural selection “acts solely by and for the good of each,” that is, it works only on individuals, not on groups or species, it seems impossible to account for “altruism”—the hot issue for sociobiologists and evolutionary psychologists.⁵ This is not the place to join the

altruism wars of recent theory, but what is clear is that modern uses of Darwin further propagate that sense of him and his work as offering us a world debased because it is explained in terms of lowly origins—as though it were certain that such explanation is somehow degrading. Evolutionary psychology gives us once again a godless nature red in tooth and claw, ruthless competition, survival of the fittest—and now algorithmic social theory and the biologizing of everything human.

When James confronts these arguments, he dismisses the question of “origins” entirely. That is, the quality of an idea, or a work of art, or a person, depends not on its origins but on its effects. It is Jamesian pragmatism carried over into consideration of religion. As for Darwin humankind is not demeaned because we can trace its origins to apelike ancestors, for James religion is not disqualified because we can trace the origins of belief back to some physiological basis. Although I do not want to dispute that Weber was describing a real phenomenon in registering the dispirited reaction of a culture to the power of rational, naturalistic, scientific explanation, my argument here is Jamesian in that I do not believe that disenchantment follows from naturalistic explanation. James insists on the legitimacy of belief, on willingness to make the bet on the validity of religious experience. My reading of Darwin, in the chapters that follow, points to an entirely secular but similarly satisfactory response. Disenchantment does not follow from a full description of the existential conditions of absolutely everything; and—putting aside the absurdity of the idea that such a description will ever be produced—one does not need to turn to religion to avoid it. Enchantment, of a sort, follows positively, quite naturally, from intense engagement with the entirely secular, and produces—or can produce—a strong equivalent to the condition that James so sensitively describes.⁶

From the outset, Darwin’s theories have spurred ideas about the way life is or should be lived. A world of organisms developed from unexplained, apparently random variations, some of which are preserved because of further random alterations in

environment—weather, geological transformations, invading species, and so on—seems to yield us a merely chance-driven world, from which the traditional notion of “meaning” has been banished. It was this world against which such clever late Victorians as Samuel Butler and George Bernard Shaw rebelled, and which, I venture to argue, has never been comfortably assimilated by a culture that would yet confess that Darwin was probably right about evolution. The very absence of meaning has seemed to provoke an almost infinite variety of interpretations, and despite Pinker’s particular take on natural selection, Darwin has been absorbed into theological as well as atheistical views of nature and life; he has been enlisted for socialism, rampant capitalism, individualism, communal living, natural theology, you name it.

Despite the current upsurge of religious fundamentalisms (itself perhaps a reflex of the “disenchantment” Weber described), continuing and innumerable invocations of Darwin further emphasize the way that “science” has become the most powerfully authoritative language of modernity. Show that an idea is scientific, dress up an actor like a doctor in a television ad, and your claims carry weight. Darwin (along with his popularizers, particularly T. H. Huxley) was a critical figure in the rise of the authority of scientific language. And yet, far from presenting to the culture an unambiguous set of facts about the the origin of species, from the start his arguments provoked alternative interpretations. The problem is not the language’s authority but establishing exactly what it is being authoritative about. “Signs,” wrote George Eliot in *Middlemarch*, “are small measurable things, but interpretations are illimitable.”⁷ Darwin’s theory is a sign, perhaps not small, but largely measurable. The interpretations to which the theory has been subject are truly illimitable, for it has been invoked for virtually any social or political project.

Scientists have wrangled, and continue to wrangle, over what exactly Darwin meant and what his theory implies, but in the long history of the “development” theory—of descent by modification through natural selection, as Darwin originally termed

it—it has been impossible for scholars and social and literary critics to avoid reading his science as ideological.⁸ “There is,” argues John Durant, “a characteristic tone of moral concern detectable in the writings of almost everyone who is interested in Darwinism at anything beyond the level of the narrowest technicalities.”⁹ The tendency is uncharacteristic of most other scientific theses, but Darwin and evolution remain hot topics at virtually every level of scientific and cultural discourse, and even at the very technical level they seem to entail that “tone of moral concern.”

I

How could they not? As Mary Midgley asserts at the very outset of her essay in Durant’s *Darwinism and Divinity*, “Evolution is the creation-myth of our age.”¹⁰ It is a myth, not in the sense of being untrue, but in the sense that “it has great symbolic power, independent of its truth” (154). And as such it significantly affects how we think about the world in nonscientific contexts, and how we think about ourselves. The power of Darwin’s theory to affect directly all of our lives, manifest in that long series of interpretations and reinterpretations of it and its cultural significance, by scientists, of course, but also by philosophers, by social critics, and by theologians, entails yet further attention. It matters too much to be relegated entirely to science! It is hard to be neutral about Darwinism and hard not to regard every interpretation as rife with ideological and moral significance. A lot is at stake.

Darwin knew it and ducked it as long as he could, but from the very start he understood that he would have to find ways to ease the pain his arguments might inflict on his audience; it is clear that he felt the pain himself and with his various apologetic gestures was not merely defending himself. It is notorious that when he was driven at last to publish his theory, he tried in the first instances to avoid talking about cultural and social im-

plications. And when he began talking about them overtly, in *The Descent of Man*, he was not entirely consistent about their human application and usually sought to soften the most disenchanting implications of his ideas. Even in the *Origin* there is a bathetic and feeble anticipation of the spiritual pain he assumed most people would feel in confronting a world operating in such ruthless and mindless ways. The conclusion to the chapter entitled "Struggle for Existence" confronts the horror, recognizing the need for consolation: "we may console ourselves with the full belief, that the war of nature is not incessant, that no fear is felt, that death is generally prompt, and that the vigorous, the healthy and the happy survive and multiply."¹¹

That this won't do is obvious. Others who engaged with his theory had either to find alternative consolations or reread it in such a way as to reinsert value and meaning, after all, and because of Darwin's ambiguity, particularly on the question of cultural implications, the possibility of variations in interpretation were multiplied. As Diane B. Paul has put it, "Darwin's followers found in his ambiguities legitimation for whatever they favoured: laissez-faire capitalism, certainly, but also liberal reform, anarchism and socialism; colonial conquest, war and patriarchy, but also anti-imperialism, peace and feminism."¹² Nevertheless, the dominant reading, the one that seems to be implied by almost every colloquial or journalistic use of "Darwinian," takes Darwin's argument as a justification for an unrestrained capitalist individualism, a mechanically utilitarian ethics, and a hierarchical structure of races and classes. En route to dispelling the notion that "disenchantment" is the only possible consequence of Darwin's thought, this book will attempt to modify this dominant reading.

Entering into these endless (rarely for me tedious, though often deeply annoying) debates, I have my own distinctly non-neutral moral agenda. Darwin's thinking about nature and the world remains important; its misuse and abuse have consequences. I hope I will not be misusing Darwin; and I certainly will not be abusing him. Appropriation of Darwin is, after all,

part of the great tradition of Darwin studies, in which contending philosophers and theorists claim to tell us exactly what it is that Darwin meant and proceed to use “Darwin” to support their own theories and moral programs. Although I understand that every appropriation has its rationale and that it is dangerous to claim that some are “merely ideological” (though in fact I think many are) while others are scientifically objective and value-free, I do believe, and will occasionally argue, that some interpretations are better than others, that some theorists have simply missed Darwin’s point or have focused too exclusively on one aspect of a complex argument. Without aiming at an overall synthetic exegesis of what Darwin said or meant to say, I try in this and the chapters that follow to get close to it by attending carefully to one part of what he meant and means that is little attended to and that runs counter to interpretations of his work that focus on its heartless and mechanistic implications.

I will stray some off the beaten paths of technical and literal explication of his views by looking at some of the things he didn’t say, by looking at aspects of his life, by considering what others have claimed that he said, and by filtering out from his writing something that he surely meant but didn’t say overtly. I will want to be “reading” Darwin with the eye of a literary critic, attending to rhetorical moves in the midst of technical arguments and to the aspects of language that are not literal. The Darwin I will be describing here will not be all of Darwin, by any means, and I suspect some may contend that it’s not Darwin at all. Nor will he be entirely “scientific.” Although I bear in mind the danger of turning science and Darwinian theory into a kind of religion in its own right, reproducing in mirror image tendencies he struggled throughout his career to resist, I want primarily to argue for the cultural, spiritual, and ethical value of seeing the world with Darwinian eyes. So I am going to appropriate Darwin, in the end, to a set of positions that, I believe, derive directly from things he said or implied; but I do not want to pretend, as I do so, that these are positions that he himself would consistently have supported. But I believe that the Darwin I am

filtering out from his complex, contingent and very Victorian being is important for us, a model of possibilities, rarely until now addressed as “Darwinian,” for the way we might address the natural world and our society.

I recognize how tricky this enterprise is, how easy it would be to “filter out” everything I don’t like about Darwin and attribute to him only the things I do like, thus turning him into something of an intellectual saint utterly removed from any possible reality. Many years ago, in an essay that attempted to account for the paucity of literature about “Social Darwinism,” except for elaborate and strong arguments dissociating Darwin from his apparent ideologically ugly inheritor, Steven Shapin and Barry Barnes complained about the developing critical tradition of “purification.”¹³ It is crucial to my argument that this book not be seen as a return to the literature of purification, a nostalgic effort to whitewash Darwin. My argument throughout is not at all that Darwin is ideologically innocent. How could one say this about a young man who, making a list of reasons why (or why not) to marry, comically, but seriously enough, notes, “better than a dog anyhow”?¹⁴ Rather, I want to build on the reality of his intricate social and cultural involvement with the prejudices of his moment. I want also to move beyond the question of his “innocence” here, to respond to the fact that he has been used for many ideological purposes other than those of “Social Darwinism,” and to indicate ways in which his work contains the potentiality also—as great literature usually does—for alternative, humanly satisfying and heuristically promising meaning. My emphasis throughout will not be on the ways he “transcends” his culture but on ways his implication in the very texture of his culture becomes a helpful and creative condition of his work. The Darwin toward whom I am aiming may, in the end, seem rather like the Darwin who Shapin and Barnes claim is the object of the “literature of purification,” “an ideally constituted producer of knowledge,” and my project like the effort they describe and denigrate as “nothing but a way of making Darwin out as the ideal-type of a modern scientist” (136). But my point is

different: not that Darwin was this “ideal type,” but that studying him attentively might help open out the possibility of reconsidering *our own* relation to the natural world, our own sense of value and personal satisfaction, and our own sense of the possibilities of enchantment that—no doubt about it—Darwin’s arguments sometimes make it very difficult to sustain.

No doubt, there *is* a clear connection between Darwin’s science and rampant, dog-eat-dog capitalism.¹⁵ But a continuing part of my position will be that, as I have argued recently in another volume, and as Oscar Kensher has convincingly shown, the connection is not *intrinsic* but contingent; the social consequences do not inevitably accompany the scientific idea wherever it goes.¹⁶ This is not to suggest that Darwin was innocent of the ideological predispositions historians have increasingly found in him. No doubt his way of thinking was driven partly by ideological imperatives. Certainly, outside of *The Origin of Species*, certainly in *The Descent of Man*, and in other places rather erratically, he sometimes sounded exactly like the Social Darwinists who followed him. Scholars have been able to trace in his own public and private writings evidence of the way his theory was linked to particular sets of social and ideological systems fundamental to his moment and his class. The connection of Darwin’s “scientific” theory with Malthus is well known, and the problem of Darwin’s hesitation in publishing his theory has attracted much attention. Adrian Desmond and James Moore, as they describe Darwin’s progress toward the theory of natural selection, draw the parallel between the theory and politics: “Darwin’s biological initiative matched advanced Whig social thinking. That is what made it compelling. At last he had a mechanism that was compatible with the competitive, free-trading ideals of the ultra-Whigs.”¹⁷ They handle the subject much more directly in their impressive introduction to a new edition of the *Descent*, where they trace the expression of Darwin’s racist and sexist attitudes. “Science is a messy, socially embedded business, Darwin’s particularly so.” The historian’s responsibility, as they see it, is to trace the contingencies that radically affect, perhaps even

largely determine, the way the scientist will develop ideas. “In Darwin’s case,” they say, “Malthusian insights, and middle class mores were central to his theorizing.”¹⁸ Although this constitutes a claim rather than a proof, Desmond and Moore make a powerful case for the view that as Darwin struggled to work out the problem of species, his satisfaction with the theory of natural selection had much to do with its ideological compatibility with Whig social theory and politics, and that by the time of the *Descent*, after holding back for many years on direct discussion of the place of the human in the evolutionary scheme he had projected, he brought his deep interest in race—he was passionately antislavery—and his preconceptions about women to the forefront. He was driven, they say, by “abolitionist fervor” (lvii), but equally by assumptions about the superiority of his own class and the superior powers of men as they have, through sexual selection, battled for dominance and possession of the female.

Much current “use” of Darwin exploits confidently the possible laissez-faire connection, and with a kind of tough-minded indignation insists, as Pinker does, on the dominant significance of natural inheritance. One of the better known popularizers of this way of looking at the world is Matt Ridley. Ridley’s kind of biologism makes an excellent example for the argument that biologism radically impedes programs for social reform and improvement, giving the sanction of nature to inequalities and injustices that might well be remedied through social intervention. The battle between “nature” and “nurture” has turned nasty, and on the “nature” side one hears in different voices, with different degrees of intensity, the argument, made with some acerbity by Ridley, that “the reason we must not say that people are nasty is that it is true.”¹⁹

Moving from an analysis of the way human nature is conditioned—as scientific and anthropological studies have, to his satisfaction, demonstrated—by self-interest, Ridley goes on to attack cultural theories and theorists who, with a utopian faith in the goodness of people or their governors, propose government

intervention as the way to improve the human condition. “So the first thing we should do to create a good society,” he says with irony, “is to conceal the truth about humankind’s propensity for self-interest, the better to delude our fellows into thinking that they are noble savages inside” (261). With a proper dose of self-irony, Ridley rushes into his own political arguments in a chapter he subtitled, “In Which the Author Suddenly and Rashly Draws Political Lessons.” It is at least salutary to have a writer on the “nature” side of the battle admit to the rashness; my point is simply that the political inferences, too often unself-consciously or disingenuously implied, are not inevitable at all. Ridley’s argument is that the less we impose governmental control, the more likely we are to get ourselves out of our current moral, social, and political messes. Despising the utopianism of statisticians, he utopianly takes some of their findings as evidence that nature can pretty much create the good society on its own.²⁰

He takes a recognizably Darwinian position, reimagining the process of natural selection in his description—to take a single example from his richly developed arguments—of how the Balinese, on their own, worked out rice farming. Before the intervention of the “Green Revolution in the form of the International Rice Research Institute,” the Balinese did very well with their rice. Afterward there was a disaster, and it took further scientific investigation to figure out that before the intervention of “Leviathan” and planning, the Balinese (almost like Darwin’s bees, as I understand it), had naturally worked out a system of alternating use of the fields, of the water, and of fallows that avoided the strains imposed by outside regulations and efforts at improvement. Who, asks Ridley rhetorically, was the ingenious person who worked out the traditional Balinese system?

He was nobody. Order emerges perfectly from chaos not because of the way people are bossed about, but because of the way individuals react rationally to incentives. There is no omniscient priest in the top temple, just the simplest of conceivable habits. All it requires is that each farmer copies any neighbour who does better than he did. . . . All without the slightest hint of central authority. (238)

My point is not to argue about rice in Bali or even about the validity of this implicitly utopian extrapolation of the Darwinian processes, but only to indicate how easy it is to draw direct political conclusions from “scientific” understanding of human behavior, and how critical, in any move from Darwinian theory to cultural theory, is the “nature”/“nurture” distinction (and of course, implicitly, what constitutes nature and nurture in any particular situation). The move from is to ought, or from ought to is, remains problematic. Watching Ridley make that move provokes, in me at least, a shudder, since he extrapolates his conclusions about Bali to suggest that state intervention anywhere is destructive. And this even as he has delightedly shown that people are inherently nasty so that, on his narrative account, on the way to the utopian solution by nature that his Bali rice growers had previously achieved, there will have to be a lot of brutal knocking down and killing, and so on. The less moralized point is that one could take the same assumptions about the workings of nature as Ridley does and come up with a radically different political solution.

The battle over such issues echoes through the history of Darwin’s ideas and reputation, and we can think immediately of T. H. Huxley’s insistence, at the end of the “Prolegomena” to *Evolution and Ethics*, that however improbable and impossible the task, humans must resist the “cosmic process” that works with such brutal amorality through nature. John Stuart Mill’s powerful attack on “nature,” in “Nature,” as a proper moral model makes the attempt to identify “virtue” with the “natural” monstrous and dangerous. But in modern versions of reductionist biologizing, “nature” sneaks back as a moral model, or at least as a condition that can’t be morally attacked or socially addressed. Since there can be no “ought” if nature makes the injunction impossible, what “is” begins to become the moral norm. To be fair, Ridley is as suspicious as I am of such moves, but when he argues to politics from nature, lugging in the authority of science to justify his assault on state intervention, he is making the same sort of move. If nature makes it that way, it’s

absurd to try to change it. *The Bell Curve* looms low over the horizon of this sort of thinking, many believe. What, in fact, did Darwin think about the relation of his theory to the work of culture? Does he imply an absolute and permanent connection between human behavior and biological descent or does he allow for the work of culture *upon* the givens of natural selection? Many Darwinians, both left and right, both eugenicists and evolutionists who think eugenics is potentially monstrous, believe that natural selection has been short-circuited by civilization.

Herbert Spencer, in Darwin's own time, took evolutionary theory in the same direction as Ridley does today. Certainly, Darwin's work, as many of the following chapters understand it, was entirely of its moment, a point that the biographical studies of Janet Browne in addition to those of Moore and Desmond have demonstrated.²¹ But, I will need to reiterate, it was also brilliantly, doggedly resistant to certain aspects of its moment, original in its capacity to crack old assumptions and take up evolutionary explanation of "species" in ways his predecessors had by and large failed to do. Most originally, of course, Darwin imagined in natural selection the means by which evolution might work. But it is important to remember that "natural selection" did not convince the scientific community until well into the twentieth century. By the second decade of the twentieth century, the idea was almost dead among serious scientists, and only the "new synthesis," a blending, as it were, of Mendel with Darwin, resurrected it. Nevertheless, Desmond argues with impressive historical contextualizing that Darwin's primary fear was that he would be linked through his theory to atheistic and radical materialist revolutionaries who had long since adopted evolution, particularly Lamarckian. Darwin must have "realized," argues Desmond, "how ripe his theory was for exploitation by the extremists."²² And he feared being connected, as Desmond puts it, with "Dissenting and atheistic lowlife" (413).

Although the Desmond/Moore version of Darwin's fears and class consciousness is persuasive, it certainly is not the whole story; the problem of the history of Darwin's ideas and the uses

to which they were put is quite another thing. Despite the ease with which recent cultural criticism has been able to locate acquiescence in the dominant ideology by writers ostensibly dissenting from that ideology, there is no question, first, that they were *in their moments* perceived as dissenting, and second, that even from the perspective of our present, they took positions distinct from those of most of their contemporaries. This applies particularly strongly to Darwin. There is no doubt that Darwin turned evolutionary thought away from what had been its initial direction, among radical antigovernmental thinkers. But the genealogy of evolutionary thought is after all still a genealogy of dissent and resistance to at least some of the varying powers that were, and there is no clearer sign of this than the caution Darwin exercised in publishing his theory and defending it. James Secord has brilliantly and exhaustively demonstrated the way Robert Chambers, in *Vestiges of the Natural History of Creation*, in effect paved the way for Darwin, having changed the conversation about evolution so that it was no longer beyond the pale of serious scientific or polite conversation.²³ Secord's work in developing the evidence for this argument is enormously important, impressive, and convincing, but Darwin's theory, published less than two decades later, remained "revolutionary" in more than trivial ways. Dissenting elements appear as thickly in Darwin's theory, despite his efforts to purge many of them, as do the "ultra-Whig" ones.

Darwin looked for exceptions, for what didn't work, didn't quite make sense—a strategy that ran on the whole against the grain both of the dominant modes of taxonomy and the biblical and natural-theological view of the world as harmoniously designed. Lamarck before him, conceiving of an absolute genealogical continuity in the development of species, had already noted apparent aberrations. But for Darwin, the most interesting aspects of any organism were the "rudiments, echoes of the past, traces of vanished limbs, soldered wing cases, buried teeth—all that conglomeration of useless organs that lie hidden in living bodies like the refuse in a hundred year old attic."²⁴ Darwin did

indeed begin by seeing the world with Paleyan eyes,²⁵ extremely sensitive to “adaptation,” an absolutely key element in his theory and in later uses of it. But in that he allowed himself to focus so centrally on maladaptation, he broke with the tradition of natural theology. As William James was to say, in the light, surely, of Darwin’s own writing, “there are in reality infinitely more things ‘unadapted’ to each other in this world than there are things ‘adapted’ ” (*Varieties*, 478). It was another way of looking at what everyone was seeing, but looking for what didn’t work in the dominant explanatory scheme, not for what did. Darwin’s ideas gathered their cultural power, not only because they developed out of and reinforced the givens of his moment and the ideological commitments of many who first read him, but because they managed to bring something to the argument that allows them to survive their particular history and feed other, even contradictory, uses. Obviously, the fact of maladaptation was known before Darwin; the drift toward coming to terms with this fact and assimilating it to a coherent story of development and biological life is distinctly post-Darwinian.

“The power of any text,” argues Secord, “is not intrinsic, but is always mobilised in particular readings,”²⁶ and on this view the very idea of “escape” from history is absurd. No idea, I agree, “escapes” history. But it is not wrong to think about the greatness of Darwin’s writing or the genius of his conception. It is perhaps true that greatness inheres only in the historical contingency: who is around to read and understand, and under what social circumstances? But it doesn’t, then, matter whether greatness is an intrinsic, dare I say, Platonic essence or an achievement limited by the terms of the only history we know. In any practical sense, some writers remain greater than others.

As Derek Attridge has recently argued in a discussion of what it is that constitutes creativity, “the complexity of a cultural field or an idioculture [the sum of cultural forces contained within a single individual] is something we can barely fathom.”²⁷ Originality entails coming to terms with the complexity and dividedness of this fathomless “culture,” exerting pressure on its poten-

tial contradictions, recognizing some of its repressions and exclusions (as, for example, the failure of Darwin's contemporaries to account adequately for aberrations and vestiges). The new (or the "Other" as Attridge richly analyzes the subject) emerges through the incoherences and "cracks" in the culture as the artist, or scientist, more or less consciously recognizes them (25).

It isn't, then, necessary to see Darwin's arguments as in any way outside of history to recognize their special post-Darwinian authority. After all, originality can *only* be understood historically and comparatively. On the one hand, we know that most of Darwin's ideas were already out there for him to assimilate; on the other, we know that Darwin's thought, as it has "survived" into the twenty-first century, has been twisted in many ways. The divisions among Darwinians—most strikingly embodied in the now famous Dawkins/Gould conflicts²⁸—make it absurd to argue that there is one clear and correct Darwin who has "survived." It is not, as Secord argues, a case of Darwin being "precisient," but it is the case that, however contentious, his ideas have continued to be useful to scientists and have led to new ways of thinking about an enormous range of important subjects. Moreover, it is clear that Darwin's intense and persistent examination of details, of barnacles as well as birds, of caterpillars as well as apes, his work in dissection, his endless questioning of colleagues around the world, allowed him to shape the dominant ideas of his time into new conformations that have contributed ultimately to a reimagination of the basic myths of our culture and a rethinking of the relation between biology and human nature.

Although I will develop this point more fully in chapter 7 as an aspect of my overall argument, Darwin survives in another way—as did the great prose writers of the nineteenth century, like Arnold, Newman, and Pater—because his work is so interesting. Whether we are committed to his idea or not, he represents perhaps the fullest engagement with the natural world among all Victorian writers and one of the most imaginative conceptions of it that we can find. It is no accident that his ideas and

writings were taken up by so many literary people and transformed into poetry and narrative. To call Darwin's prose "beautiful" may be excessive. He struggled with it always, and there are signs of that struggle on virtually every page. But it is dazzlingly imaginative in its metaphorical work; it is rich with "mind experiments" that force readers out of the comfortable niches of their thought; it implies a vast historical imagination; and perhaps most important for my arguments in this book, in the precision of its particular engagements with nature, it implies a passion for it at least the equivalent of perhaps the most antithetical (to him) of Victorian writers, the obsessively realistic Ruskin, whose "realism" flowed into the most glorious prose of his time.

Like Ruskin, but perhaps less willingly, Darwin is never uncontroversial. To take a most obvious example, the progressivism that operated in Robert Chambers's *Vestiges of the Natural History of Creation*, is challenged by, if not entirely absent from, *On the Origin of Species*.²⁹ And yet some of the most interesting work on Darwin demonstrates that progress lurks in the *Origin*, and progressivism has, of course, been read back into Darwin many times. It is central to the meaning of the word "Darwinian" to this day. Darwin was rigorous in insisting that the improvement of species depended on the whims of context, and yet his arguments are sufficiently ambiguous about the possibilities of constant progress that interpretations can go either way. Escaping the progressivist tendencies of his own time in constructing his theory, he remained close enough to them to allow progressivist interpretations to this moment. And when he came, in *The Descent of Man*, to the development of humans, it is reasonable to infer that he thought of that development, and thereafter the development of "civilized" humans, as clearly progressive.

In any case, the theory has stayed alive because, by and large, it has worked in almost all of the contexts in which it has been applied. And whether this is an "intrinsic" quality of the theory or a condition of the kinds of readings that scientists have been able to use (barring the period in the early twentieth century be-

fore the “modern synthesis”) becomes a kind of metaphysical question. Darwinians now know much that Darwin didn’t know, have rejected his notion of blending inheritance and its offshoot, the theory of “pangenesis,” have incorporated DNA into the evolutionary scheme to answer (partly) some of the questions Darwin couldn’t. Darwinism was, indeed, on the ropes until the Mendelian theory of particulate inheritance replaced Darwin’s own mistaken one of blending inheritance.³⁰ Critics from Fleeming Jenkin in Darwin’s own time, to scientists well into the twentieth century asked how individual inherited characteristics could avoid being blended back into the norm of the mass. Darwin had the mechanism wrong; the blending theory, as opposed to the theory of particulate inheritance with the possibility of recessive genes, was vulnerable to Jenkin’s finely conceived objections. Darwinism—and belief in natural selection—has thrived since the new synthesis, and most modern Darwinians are far more “Darwinian” than Darwin himself, who always continued to believe that Lamarckian inheritance had at least something to do with speciation. Who is to say, then, that Darwinians now, scientific Darwinians, are truly Darwinian? History is as complicated as Darwin described it, and whatever the ultimate truth of Darwin’s arguments, his theories, in some form or other, lie behind the disciplines of evolutionary biology.

The extraordinary multiplicity of interpretations of Darwin’s ideas and the abundant and diverse uses of his theory are—at least for the purposes of this book—more interesting as intimations of the theory’s power than as evidence for the position that all discourse is endlessly interpretable. The rush, and the persistence, of efforts to make Darwinian theory do ideological work reflect its inescapability and authority. As long as Darwinian theory works in helping us to understand nature, history, ourselves, there will be efforts to assimilate it to strong, ideologically impelled ethical or political programs. Because the theory works, philosophers, scientists, social theorists, politicians all find it necessary to understand it in ways that will support their own particular take on culture, history, and politics.³¹ So the multiplicity

of interpretations one encounters through history and across cultures is the surest indication of the power of Darwin's theory to survive the limits of his moment and of his first audiences.

Moreover, as I argue throughout this book, at the very moment of their inception, perhaps as a condition of their inception, Darwin's ideas took shape partly in resistance to the conditions that were so important to producing them, partly in exploiting the incoherences in the ultimately "fathomless" variety of his culture. It is a truism of criticism at this moment that every writer, even the greatest, can be understood as in a certain sense an embodiment of cultural forces, an "idioculture," perhaps.³² But in the end, that truism fails to say anything very specific about a given writer or work unless it is accompanied by meticulously detailed historical research into the peculiar contingencies operating at the moment of the writing: "culture" is simply too big to be reduced to a single set of beliefs and attitudes.

To take only one complex example of the variations within any given "culture" or, for that matter, within any given segment of that culture, when Desmond attempts to analyze the reasons for Darwin's hesitation in publishing his theory, already drafted by 1842, he points out that by then evolutionary and even strictly materialist ideas had achieved in certain contexts and in certain forms thorough respectability; but he also shows that materialism and evolutionary theory were primarily connected with revolutionary thinkers. And yet a tension developed, because some conservative thought was also intricately implicated in evolutionary ideas. So, Desmond points out, "even though the street evolutionists hated the Malthusian weak-to-the-wall thesis, many would still have reveled in the sight of the Anglicans' interfering Deity bound up by law" (412).

Without, then, disputing the connection between "Darwinism" and "ultra-Whig" free-trade liberalism, or suggesting that Darwin did not struggle to make his theory respectable and preserve himself from the dislike of his class and of his fellow scientists, I want to insist that nothing in Darwin's theory *requires* the particular interpretation that leads to Social Darwinism. That is,

while Social Darwinism certainly is inferrable from much that Darwin wrote, and I don't mean to "excuse" Darwin from the connection, it has been possible to infer quite different social programs as well. The contingencies of history and the peculiarities of those who interpret ultimately determine the way Darwin's ideas are interpreted.

Robert Young long ago argued that "Darwinism *is* social,"³³ even if he argued the point with enormous impatience that it still *had to be* argued. Young points to many passages, particularly from the *Descent*, that give aid and comfort to future Social Darwinists. And he was unquestionably right. My argument, however, is that Darwin's theory has also given aid and comfort to those, like Kropotkin, for example, who opposed Social Darwinism. Kropotkin or Malthus? Dawkins or Gould? There is evidence for all of them. Whichever social interpretation gets chosen, there is one thing certain about Darwin's theory, and that is the focus of my interest in this book: it unequivocally and unarguably gave support to the idea that the fundamental elements of life, and particularly of human life, are explicable in terms of natural processes. Darwin's theory—though, yes, it has also been put to the service of religion, as I shall be pointing out in later chapters—is a radically secular one. Its primary thrust is that the world can be explained by causes now in operation, that transcendental, supernatural forces do not enter into life. The theory drives toward an explanation of all things, physical and spiritual, by means of natural law.

Spiritual issues are always entangled with biological ones, and that entanglement has continued to the present day, in such enterprises as sociobiology and evolutionary psychology and ecology (of which Darwin is as much the patron saint as of Social Darwinism). But attending to the ways his theory has in fact been interpreted and noticing the ideological swings and possibilities is a first step to the recognition that there is nothing *intrinsic* to the theory that requires the particular political turns that Young rightly emphasized, and there is much in it that suggests alternatives.

This book, then, has two fundamental projects. The first is the point I have been affirming thus far, to discuss some of the many ways Darwin has been invoked and to demonstrate, through discussion of these ways and through interpretation of his texts and aspects of his life, that there is no necessary connection between Darwin's thought and the conventional cultural assumptions about it, and that its cultural and ideological implications and applications are historically contingent.³⁴ Working within a set of current contingencies, I will, in the following pages, suggest a reading of Darwin that, rather than constraining us to live within dominant ideological systems, can be positively liberating. Stephen Jay Gould, in a discussion of what's wrong with "ultra-Darwinism," as he and Niles Eldridge call a total commitment to adaptationist explanations, argues that "Darwin's system should be viewed as morally liberating, not cosmically depressing."³⁵

The second project of this book is, I suppose, both less historical and more personal. I have tried to suggest it already in the preface. It is an attempt, by way of that primary recognition of the contingency of the uses to which Darwin's arguments have been put, to offer yet another way to use him, one designed both to counter the conventional understanding of him as a primary disenchanter of the world and to suggest its reverse, that Darwin's work can be read as contributing to a radical *re*-enchantment of the world. This book, then, is part of a larger project to affirm the possibility and the necessity of that alternative to the sense of the bleak, rationalist world to which I have already alluded, the possibility of what William Connolly calls "nontheistic enchantment."³⁶

II

Far, then, from attempting to disentangle Darwin from what Attridge would call his "idioculture," I am eager to see him inside it, partly to make sure that a fair reading of Darwin takes into account the human context of a theory often regarded as ruthlessly

inhumane. It is critical to my argument that the very varied “uses of Darwin” be understood as culturally constrained, and since the contexts for other arguments are from different perspectives, different times, different people, the cultural constraints on these arguments will also be different. I intend my contextual reading to serve a second purpose: transformation of the popular word “Darwinian” into an icon of a value-laden secularism.

Weber’s narrative of disenchantment is built on his argument that the modern world, beginning with the Protestant reformation but increasingly through Enlightenment secularization, has been bureaucratically “rationalized.” One of the most prominent forces in this increasing rationalizing (and routinizing) of life has been and is the work of science. For Weber, the bureaucratizing of the world, the impersonality, routinization, and mechanization that mark the efficient and rationally organized structures upon which modern Western societies depend, leads to the replacement of the “cultivated man” by “the specialist type of man” (Gerth and Mills, 243). Although Weber is rigorously, perhaps excessively, careful to avoid value judgments in his work, there is no doubt that he is registering a loss. His narrative of the rationalization of modern society is precisely the narrative of disenchantment, the narrative of the disappearance of the sacred and mysterious from this world. Disenchantment, Weber insists, consistently affirms that without magic, without God, without teleology, enchantment is purged from the world, and, with it, the world’s meaning and the world’s value. In the “intellectualization of the world,” Weber says, “scientific progress is a fraction, the most important fraction” (Gerth and Mills, 139). Weber’s narrative of disenchantment leaves only these options: either a value-laden world infused with transcendental meaning, or an amoral world from which all value is drained as it is subjected to scientific investigation.

Who, more than Darwin, subjected nature to naturalistic and materialistic explanation? Who was more important in making the human the subject of scientific investigation and explanation? Putting Darwin’s work in the context of Weber’s narrative,

I recognize how neatly, at first reading at least, Darwin fits. As Daniel Dennett puts it (and I will discuss his views of the matter in chapter 7), the theory of natural selection can be recognized as an “algorithm,” a kind of recipe that works with mechanical certainty but on the basis of mindless developments in the material world. The resistance to Darwin that is growing so powerful and effective in contemporary American society is clearly a rejection of the mechanistic impersonality such a view entails. A mindless algorithm replaces an intelligent creator, and the world empties out of meaning.

My own argument throughout this book is based on a triple vision of Weber’s “disenchantment” narrative. First, that Weber is right to recognize the power of “rationalization” to demoralize. Second, that the demoralization produced by rationalization is far from universal. And third, that some alternative to traditional reliance on the transcendent and the teleological to sustain value and give meaning to life is a genuine human need.

My object in rethinking Darwin here is to attend to this central aspect of human experience and belief, and thus to propose an alternative Darwinian world: a world “bereft” of transcendental spirit that is yet laden with value and entails a deeply emotional, a “visceral,” response to the workings of nature. As he tried to wrest the world from theological to scientific explanation, Darwin did not, I want to argue, wrest it away from value or from the kinds of consolations that religion has for the most part been called upon to provide. The very act of trying to understand the world materially and naturalistically entailed right from the outset of his career the attitude of wonder that is so central, on all accounts, to the experience of enchantment.

Natural theology, the explanation of “adaptation” that Darwin was determined to displace, is a kind of theodicy: it justifies the ways of God to man by showing that the world answers, as the Bridgewater Treatises were to formulate it, to “the Power, Wisdom, and Goodness of God.” It demonstrates that God must exist and that a careful look at his creation will show that the evil within it is part of a loving plan for mankind. Darwin’s theory,

on the other hand, is what I'll call a geodicy, a demonstration that the world in all of its wonderful diversity and stark contrasts makes sense entirely on its own terms, although without taking the satisfactions of human desire as its primary goal. It does not prove the world's love of mankind (far from it); it is not built for human benefit but rather includes humans within its family. The world is thick with value because human perception is intrinsically a mode of feeling as well. Connolly, citing the work of Joseph LeDoux, talks of "the several human brains involved in our thought-imbued emotional life" (28); our capacity to think is never separate from the activity of feeling. Darwin's theory does not pretend to avert the evil that even the most enchanted among us must experience and confront, but in the midst of the clear-eyed, often pained perception of natural processes, it sustains the enchantment of the material world.

In such a world, enchantment is not easy or constant. It is never worth having without an awareness, as Jane Bennett puts it, of "the world's often tragic complexity,"³⁷ which can never be justified. But it allows for the possibility (in fact, I would argue, it is a condition of the possibility) of caring for, or loving the world, even with all its "tragic complexity." The importance of secular enchantment is nicely suggested by Connolly: "attachment to the world," he says, "provides an invaluable source for participation in the politics of social justice" (16). As we follow Darwin's tough geodicy we find ourselves in a world of wonders, a world worth loving; we become participants and observers in a life larger than any of us, and more meaningful.

Without then falling into the camp of hagiographers who find no faults in Darwin's ideas or life, I want to filter out of their complexities and contradictions a kinder, gentler Darwin. Of course, Darwin saw himself as a scientist and aspired to the condition of scientific work that he read about and admired in John Herschel's *Preliminary Discourse on the Study of Natural Philosophy* (1830). But that book itself was thick with a Romantic passion for knowledge, a sense of the divine significance and richness of the natural world. And so Herschel claims that the

scientist, “accustomed to trace the operation of general causes, and the exemplification of general laws, in circumstances where the uninformed and unenquiring eye perceives neither novelty nor beauty, . . . walks in the midst of wonders.”³⁸ Informed and enquiring scientists, then, in Herschel’s view, have a virtually clerical position, just because they are so much more aware of the “wonders” of the natural world. “The uninformed and unenquiring eye” fails to recognize the beauty that is all about and that a refined and intense attention will reveal. For Herschel as, I claim, for Darwin, the scientific attitude does not merely rationalize the world, explain it away, but opens it up, and makes its wonders available where they have been hidden from less inquiring consciousnesses. For Darwin, the project of establishing the theory of evolution by natural selection was not so much the affirmation of a mindless and godless world, as the revelation that we walk in the midst of wonders; it was an act of loving engagement with the natural world that allows and fosters, even without gods and traditional forms of consolation, enchantment.

I recognize that the project of enlisting Darwin on the side of the angels is a tricky business. There is an enormous danger here of merely sentimentalizing both him and nature, and of diverting attention from the kinds of anomie, mere instrumentalism, and social demoralization and exploitation that have indeed been part of the experience of modernity. The position I am taking up is, perhaps, consistent with the sort of relation to nature that Charles Taylor describes as one aspect in the development of the modern sense of identity; and of course, the position is limited and in some ways incomplete. Taylor contrasts the fundamentally “instrumental” relation to nature that is associated with Enlightenment thought with a Rousseauvian and Romantic one. “Efficacy,” he explains, “is valued” in the instrumental view of nature, “as the fruit and sign of rational control,” and that control was taken as “a realization of man’s spiritual dimension.”³⁹ The Romantic relation to nature constitutes a critique of the instrumental one, of its exploitation of man and nature, its

denial of community (276). But, as Taylor points out, the Romantic relation to nature tends to be an aspect of private rather than public life, and the instrumental one, consistent in many respects with Weber's description of the world disenchanted by science, is fundamental to public life. Both, Taylor claims, imply a fundamental valuing of something beyond the merely material. But both, in different ways, move toward the spiritual only by means of nature.

The Romantic relation to nature, as Taylor describes it, approximates the sort of re-enchantment I suggest is facilitated by Darwin, or perhaps by my reading of Darwin:

discerning the demands of nature involves identifying my true sentiments, setting aside the false (because unnatural, heteronomous) passions. It requires a kind of intuition, of attunement. If we want to speak of reason in this context, it cannot be instrumental reason, but a form of rationality which can grasp intrinsic value. It is not *Zweckrationalität*, but a kind of *Wertrationalität*, to use Weber's terms. Further, in a stance of disenchantment, we seek only *de facto* goods, things that are satisfying to our *de facto* desires. But what we are looking for . . . is our yearning for the intrinsic good. (270)

I do not want to suggest that Darwin's relation to nature was strictly Rousseauvian, for he had no doubts that nature is full of horrendous, even nauseating, phenomena, and, as we shall see, he has some stern Victorian words for it. But that he found in it "intrinsic" value is unquestionable. Nor do I want to suggest that adopting Taylor's version of the Romantic relation to nature fully re-enchants the world. The point is certainly not to ignore or minimize the alienation and sense of loss that have accompanied so much of modern experience, but to suggest that the experience of enchantment inheres within modernity. Instrumentalism is as central to modern experience as any exploration of its "intrinsic" worth; in all too many respects, the experience of enchantment I am discussing here is available primarily to those who have sufficient time and money in their private lives to connect with nature in noninstrumental ways. As in the development of Romanticism itself, with its vogues of "view-hunting," and its tourist's-eye view of the Alps, for example, a modern,

naturalist re-enchantment threatens to be an evasion rather than a reengagement with modern experience.

A lot of bad stuff happens out there, quite naturally; some of the ideology to support that bad stuff derives from interpretations of Darwin. To imitate nature in its ruthlessness becomes a moral injunction, but to do so is of course profoundly immoral. As John Stuart Mill put it famously, "In sober truth, nearly all the things which men are hanged or imprisoned for doing to one another are nature's everyday performances."⁴⁰ The argument here is not an invitation to "follow nature" in any of the ways Mill exposes as meaningless or mad, and for which Darwin himself had to apologize at the end of the chapter entitled "Struggle for Existence." Nor does it invite an uncritical submission to nature's ways (whatever that may mean) and a silently awed reverence for its working. Our awe at nature needs to be tempered by knowledge of it and a recognition that human culture is usually in some ways at odds with nature, fending it off with air-conditioning and fire and television and computer technology (all of which, of course, are also using nature), making it easier, ideally, for at least one species to live in it. But in the face of the myth of disenchantment, which implies that meaning and value go out of the world as soon as it can be explained rationally and naturalistically, I want to support such explanation and at the same time assert that value inheres *in* the world so described, just because of our relation to it.

The excitement that follows upon understanding the instincts that drive birds to migrate (and this requires no mystification or invocation of transcendental spirit), the astonishment that follows upon recognizing the overwhelming complexity of the eye's functioning (even despite the flaws in the mechanism that are clear evidence that there is no intelligent design behind the construction of the eye), the recognition that living organisms are mutually dependent in ways that only the most delicate and careful investigation can discover—these and all the various knowledges that scientific study of nature and the human has been producing are elements of new forms of enchantment. The

consequence of such knowledge is not—or should not be—the determination to do as nature does, whatever that might mean. Nor should it entail ignoring the dangers and deadening implications of mere instrumentalism. But surely the consequence is not to give up on the world because somehow it has lost its meaning—it is stunning, beautiful, scary, fascinating, dangerous, seductive, real. It offers itself as the occasion for enchantment that Weber and others have thought might only be experienced in a world imagined as teleological and transcendently grounded.⁴¹

Darwin's relationship to nature may in this respect be taken as exemplary. He approached nature, yes, with Herschel's kind of Enlightenment intensity of rational curiosity and ambition to "explain," but with something else that only occasionally is attended to when the various "users" of Darwin set to work on their scientific or social programs. I want to suggest that Darwin's prose is extremely sensitive to the emotional effect both of what he is trying to argue and of the phenomena of nature with which he is continually engaged. That effect, or "affect," is not only reverential toward nature, but it emerges from a constant struggle with it to yield its secrets, and a detailed recognition of its perfidies (I use the term precisely because it seems so Victorian, as nature did to Darwin). To know, in Darwin's prose, is in a very important sense to feel. And no one more than Darwin (who couldn't stand the sight of blood and recognized natural horrors when he saw them) knew and felt the variety and beauty of nature and its almost infinite possibilities for growth, form, connection, and interaction. The disenchantment narrative is implicitly based on the assumption, so important in Weber's thinking, that fact and value are entirely distinct, that facts do not entail moral action.

The philosophical maxim that "is" cannot translate into "ought" is certainly an important one, and the failure to attend to it has led to some of the grossest misuses of Darwin. But on the other hand, in most practical circumstances, the division between fact and value is extremely artificial. Hilary Putnam has recently

reconsidered the fact/value dichotomy, arguing that there is no “notion of *fact* that contrasts neatly and absolutely with the notion of ‘value’ supposedly invoked in talk of the nature of all ‘value judgments.’”⁴² “Value and normativity,” he says, registering the views of the pragmatists, with whom, on this issue, he largely agrees, “permeate *all* of experience” (30). It permeates without apology the language of Darwin. If, as Putnam says, “*theory selection always presupposes values*” (31), it is not unreasonable to suppose, as Desmond and Moore have shown with historical evidence, that Darwin’s “selection” of a theory was infused with values (although of course the nature of his “theory” is different from the sort of theory Putnam is discussing). But so too is his selection of details from nature to support his theory.

What I am proposing here in suggesting an “enchanted” use of Darwin is that while he too aspired to objectivity, his language entangles fact and value from the very start, not merely in the epistemological sense that it entails the selection of a theory to justify them, as all “scientific” arguments must, but in the sense that what Darwin looks at strikes him, as that language consistently reveals, as valuable and usually as morally loaded. My project in this book, then, is to develop a kind of heuristic for further explorations of the human satisfactions that Darwin’s kind of materialism and secularism might produce in a world that on the one hand seems to have bought the narrative of disenchantment and, on the other, seems, yet more dangerously, to have gone slightly mad in its quest for transcendental consolation.

I will, then, take the risk of being sentimental about Darwin, his ideas, and his potentiality for cultural good. The sentimentality will, I hope, be offered with more than a little tough-mindedness, that is, without losing sight of Mill’s recognition of the horrors that nature perpetrates, or of the kinds of critique implicit in Desmond and Moore’s understanding of how the theory was developed, or of the understandable distrust of aesthetic satisfactions that has come to characterize much theorizing on the left: “any expression of attachment to the world,” says Connolly, “is . . . chastized by being treated as incompatible

with a commitment to social justice" (10). That chastising is what I, like Connolly, want to reject. Although this book will focus almost entirely on Darwin and his readers, underlying its arguments is the reverse assumption: that in fact, the injunction to be tough-minded and see the world with the cynical skepticism that it deserves is inadequate to motivate action for social justice. Seeing value where we have missed it, *feeling* value where we have not felt it, is a condition of pursuing value. Readings of Darwin that ignore the affective elements of his writing—and for the most part, these are the readings we are getting⁴³—leave us with just the sort of disenchanted world that Weber describes and that, for example, Pinker's prose reinforces. But it is impossible to read Darwin without recognizing in him the deepest possible "attachment to the world."

Part of the very moving story of late Victorian literature and culture is the persistent effort by many of the most important intellectuals to come to terms with what was felt to be the bleakness of a world that apparently offered no compensation for the pains it always inflicted. Absolute secularism was a hard pill to swallow, and many strong secularist movements sought some of the spiritual solace that religion had previously seemed to provide. It wasn't easy for Darwin, either, as we have already seen. But the tendency to understand Darwin's world as providing no affective or even rational compensation is, from the point of view of this book, another of the "misuses"—although perhaps an inevitable one—of Darwin. Darwin's business was not consolation, of course, and yet in rewriting the Western myth of origins, translating it into evolution by natural selection, his writing attends with loving care to the particulars of organic life and bespeaks a profound passion for the world and its minutest denizens. Darwin's religion was in nature. His son William wrote that his "deep sense of the power of nature may be called in his case a religious feeling . . . he had no religious sentiment."⁴⁴ The texture of this feeling, deeply secular and intense, reveals that Darwin's work of sweeping away the teleology of natural theology and subjecting all biological phenomena to

scientific explanation was nevertheless fully compatible with a sense of a world deeply infused with value, enchanted.

In this argument, I align myself with thinkers like Connolly and Jane Bennett, who have tried to rethink secularism beyond the Enlightenment tradition of pure rationality that has for centuries now been its intellectual armory. It was clear to the Victorians themselves that Enlightenment rationalism was not adequate to the real human needs of a culture from which the supports of traditional religious beliefs were being driven. Among them, the experience of religious loss evoked a wide range of responses, the best known being positivism itself. And yet Peter Allan Dale was certainly right when he claimed that positivism was perhaps the most important Victorian manifestation of the Romantic quest for “an adequate replacement for the lost Christian totality.”⁴⁵ To be sure, even at its height, the “Positivist Society” could count among its London members only ninety-three people. George Eliot, though she was at times an enthusiast for Comte, and composed the famous Positivist hymn, “O May I Join the Choir Invisible,” would not attend the Positivist Church. T. R. Wright reports the contemporary joke about the schism within the Positivist Society, that “they had come to Church in one cab and left in two.”⁴⁶ The Comte whom Mill ultimately came to criticize and from whom Lewes partly withdrew quite literally transformed his system into a church and projected an authoritarian political structure, more or less on the model of medieval Catholic theocracy, and antithetical to Mill’s liberal, democratic beliefs. But the story of the Positivist Church is perhaps the most forceful challenge to arguments for the possibility of a “nontheistic enchantment,” that is, the attempt to imagine a fully secular enchantment.

Victorian Positivism was rationality gone berserk, one might say. But, so the narrative of disenchantment goes, only something like a berserk rationality could transform the hard news of a world gone secular into something inspiring. “Who,” asks Max Weber, “who—aside from certain big children who are indeed found in the natural sciences—still believes that the find-

ings of astronomy, biology, physics, or chemistry could teach us anything about the *meaning* of the world?"⁴⁷ Here is Weber, as he builds his narrative of a disenchanted world, insisting typically on the fact/value dichotomy that Putnam attempts to explode: there is and must be, in the classroom and in practice, a radical division between scientific thought and political, ethical, and aesthetic value. Weber argues that science, precisely as it asserts that "there are no mysterious incalculable forces that come into play," expels "meaning" from the world. "One need no longer have recourse to magical means in order to master or implore the spirits, as did the savage, for whom such mysterious powers existed." This, Weber says, "means that the world is disenchanted" (5).

Turning to the nature that science reveals for "meaning" of the sort that matters to human life and its conduct is, for Weber, a chimerical enterprise. The alternative to disenchantment is not to be found in the world in which rationality is a determining value but in religion, an option impossible for secularists and for a sophisticated modernity. Weber doubts that "religious interpretations" add to the dignity of moral acts. "The fate of our time is characterized by rationalization and intellectualization and, above all, by the 'disenchantment of the world'" (11). If, then, we accept the terms of Weber's argument, we must see my effort in this book as the work of a "big child," for indeed I am trying to suggest that Darwin's writing, read with literary attention, can facilitate a form of nontheistic enchantment, without having "recourse to magical means in order to master or implore the spirits."

But there is a significant history, leading up to contemporary efforts like Putnam's, to locate meaning and value in the world of facts, early positivism—not logical positivism—having been one of them. Positivism failed in its aspiration to rational enchantment in part because it didn't deal adequately with the oxymoronic quality of its effort, and the later positivism of the Vienna Circle simply set reason and feeling so radically apart that a Weberian disenchantment was the only possible resolution. In response to the spirit of triumphant rationality that he

found in the writings of the exuberant secularist W. K. Clifford, William James insisted that human beings need something more than this thin gruel, and that the “rational” is not the supreme value for most of us. The rational, he argued, is always bound up with human need and desire. He takes up Clifford’s dictum (he calls Clifford “that delicious *enfant terrible*”) that “It is wrong always, everywhere, and for every one, to believe anything upon insufficient evidence.” James insists on the human complication of belief, the inevitable admixture of “will,” of “such factors of belief as fear and hope, prejudice and passion, imitation and partisanship, the circumpressure of our caste and set.”⁴⁸ For James, in the end, this is not a failure of human intelligence but a condition of it, and rational choice is always involved with desire and need; it makes no sense without it. The split between the intellectual and the affective, which is central to Weber’s thesis, does not operate for James, since all intellection is involved in the whole person thinking. “There is in the living act of perception always something that glimmers and twinkles and will not be caught, and for which reflection comes too late” (*Varieties*, 497).

A large part of what we confront each day is not decidable on rational grounds alone, and when people choose among rationally undecidable options, it simply doesn’t make sense to choose the bleaker one. “The thesis I defend,” James says, “is, briefly stated, this: *Our passionate nature not only lawfully may, but must, decide an option between propositions, whenever it is a genuine option that cannot by its nature be decided on intellectual grounds*” (*Will to Believe*, 11). And for all but a very few propositions, purely intellectual grounds won’t do. James’s concern with the texture of human feeling and need in the heart of the deepest philosophical and scientific questions was his nonpositivist response to the disenchantment of modern naturalism and secularism. On this account of the work of “thinking,” which, as I have noted, has been updated by Connolly and his talk of the “amygdala,” Weber’s disenchantment is simply a misdescription.

Connolly pursues the question in James’s vein, challenging

the secularism that Weber so confidently and bleakly describes. One of the quandaries of secularism, he claims, “is that its forgetting or depreciation of an entire register of thought-imbued intensities in which we participate requires it to misrecognize itself and encourages it to advance dismissive interpretations of any culture or ethical practice that engages the visceral register of being actively” (29). There is here a Jamesian revulsion from the rigorous intellectual priorities of a W. K. Clifford,⁴⁹ and Connolly’s critique of secularism entails the broad recognition that “argument, rationality, language or conscious thought” are “always accompanied and informed to variable degrees by visceral intensities of thinking, prejudgment, and sensibility not eliminable *as such* from public life” (36). The “scientific” claim that one is free from these things is a dangerous invitation to a disguised authoritarianism, exactly the reverse of what an Enlightenment secularist would ostensibly want.

The point for my argument is that for Connolly and James there are, in the midst of the world from which the transcendent has been expelled, “little spaces of enchantment” (17). Weber does not describe such moments or their possibility, and his account of the disenchantment of modernity allows him to commit himself to precisely the sort of secularism about which Connolly complains. Certainly, he describes a real cultural and attitudinal change in modern Western culture, but he takes for granted the idea that enchantment is, as Jane Bennett points out, dependent on a teleological view of the world and a “divine creator” (12).⁵⁰ For Bennett, it is not only the natural world that provides those moments of enchantment that give the world value; nor does she believe that “enchantment” can be a permanent and total condition. It is rather a “peculiar kind of mood” (34). “I pursue a life with moments of enchantment,” she says, “rather than an enchanted way of life” (12). It might be appropriate to call the moods of enchantment “spots of time,” moments that, while they can be relatively rare in one’s life, fill it with meaning and value, and evoke memories and connections that themselves, in the Wordsworthian tradition, become richer and fuller. The

argument for enchantment then is not a reassertion of the enchanted world, Taylor's world of the "sacred," which Weber regards as lost; it is not a nostalgic claim that a culture dominated not by the claims of rationality but by premodern ideals of community and coherence and religious significance is somehow happier, more fulfilled and fulfilling, resident in a state of permanent enchantment. This is no place to debate the reality of that ideal past. Nor do I want to argue (neither do Bennett or Connolly) that those spots of time, those little spaces of enchantment, return one to the organic and pervasive enchantment supported by traditions and beliefs no longer possible to modern people. My argument is only that the world deprived of medieval ideals can be rich with value and lovable, at least partially, at least sometimes.

Bennett's description of what it is to be enchanted is worth attending to since I am claiming that Darwin's writing and experience, and our possible experience of Darwin and, through him, of the natural world, open up possibilities of enchantment. "To be enchanted is to be struck and shaken by the extraordinary that lives amid the familiar and the everyday" (7). "The mood I'm calling enchanted," she says, "involves . . . a surprising encounter" that contains "the pleasurable feeling of being charmed by the novel and as yet unprocessed encounter," and a "feeling of being disrupted or torn out of one's default sensory-psychic-intellectual disposition." Its effect is "a mood of fullness, plentitude, or liveliness, a sense of having had one's nerves or circulation or concentration powers tuned up or recharged—a shot in the arm, a fleeting return to childlike excitement about life" (5). There we are, if unapologetically, back to Weber's "big children."

I cite Bennett at length here because hers is among the strongest of the efforts, as yet rare, to make a strong case for the possibility of valuing the world without faith in "transcendental design, teleology, or a divine creator." Bennett wants to "erode the belief that an undesigned universe calls above all for a cold-eyed instrumentalism" (34). Searching for value *in* the natural world need not take us to the bleak and cruel vision that Mill de-

scribes in “Nature,” or to the merely formulaic, heartless world in which morality depends on the “prisoner’s dilemma”—bound as we are by the ethics of natural selection. All altruism need not be reciprocal; real altruism, as many of even the sternest sociobiologists concede, is possible to us.⁵¹ Following her claim that “you have to love life before you can care about anything” (4), Bennett argues that the “cultivation of an eye for the wonderful becomes something of an academic duty” if, as is often argued, it “can foster a laudable generosity of spirit” (10). It is not merely an aesthetically self-indulgent condition she is trying to describe. Bennett, like Connolly, is a political philosopher, and her concern with enchantment follows upon Weber’s construction of the narrative of disenchantment and is aimed not at some solipsistic aestheticism, a museumlike experience of the wonders of nature or of technology, but at the cultivation of social generosity. The narrative of disenchantment, she claims, is not merely “a story,” but an act in the world. It has consequences.

From my point of view, its major consequences are two. First, it leads to a consistent undervaluing of contemporary experience, a sense that the new—product of technology, science, social planning, and the rest—constantly drifts away from the great traditional values that gave meaning to life in premodern times, and a sense that nature itself has been drained of significance. (It also implies a “golden age” view of history, a deep nostalgia for a past that might never have been as “golden” as retrospect and contemporary frustrations imply.) Second, it assumes that all meaning and value derive from religion, and from a teleological view of the world. Without them the world is doomed to a breakdown of community against the forces of instrumentalism, rapacity, social confusion, globalization and homogenization: an ultimate Weberian meaninglessness. These attitudes are in a sense self-confirming, for acting as though there is nothing valuable out there but the instrumental is likely to foster the dog-eat-dog sort of world that has so often been called “Darwinian.”

Although Darwin too was uneasy enough about the possible implications of his theory that he opened the door wide to the idea of progress (at least for the life of humanity), his argument in *On The Origin of Species* seems to preclude it. There is a chilling paragraph near the end of *Descent* that suggests something of the imperfection of the world Darwin imagines, of the possibilities for perfection that it allows, and the deep human significance that inheres in it and his relation to it.

As natural selection acts by competition, it adapts the inhabitants of each country only in relation to the degree of perfection of their associates; so that we need feel no surprise at the inhabitants of any one country, although on the ordinary view supposed to have been specially created and adapted for that country, being beaten and supplanted by the naturalised productions from another land. Nor ought we to marvel if all the contrivances in nature be not, as far as we can judge, absolutely perfect; and if some of them be abhorrent to our idea of fitness. We need not marvel at the sting of the bee causing the bee's own death; at drones being produced in such vast numbers for one single act, and being then slaughtered by their sterile sisters; at the astonishing waste of pollen by our fir-trees; at the instinctive hatred of the queen bee for her own fertile daughters; at ichneumonidae feeding within the live bodies of caterpillars; and at other such cases. The wonder indeed is, on the theory of natural selection, that more cases of the want of absolute perfection have not been observed. (472)

There is perhaps nothing in the passage that closes out finally the possibility of "perfection" and progress, a kind of teleology, for the "naturalised productions of other lands" might constantly press toward an increasingly perfect adaptability that would ultimately make further invasions "from other lands" unsuccessful. And yet that is a story Darwin does not tell, and this initial statement seems implicitly to disown these possibilities. Adaptation, which in Paley always implied perfection, is "only in relation to the degree of perfection of their associates." Changes in the "associates," changes in the climate, detour evolutionary development, cut off some species, start producing others. Teleology here seems a very remote conception. And "absolute perfection," which the passage implicitly suggests is possible and even common—a concession to a Paleyan vision?—

becomes self-contradictory, since all species are “perfect” only to the degree that they occupy an entirely stable and unchanging habitat. That Darwin understood the fragility of this “perfection” is clear from the self-protective way he avoids, in the *Origin*, talking about the most perfect species, humans.

But more striking than the explicit argument is the texture of the catalogue of horrors and monstrosities the rest of the paragraph provides. For while on the one hand, this is hardly an “enchanted” litany, it has a characteristic Darwinian resonance of the sort this book will be most interested in detecting and discussing. In the first place, it is important to register the degree to which the paragraph depends upon and appeals to feeling and to fundamental human relations and expectations. The framing sense of the list to come is “surprise,” which, to be sure, Darwin is ostensibly intent here on discouraging: “we need feel no surprise.” But we do feel it, Darwin knows it, and he feels it too. The Paleyan reader, who holds the “ordinary view,” won’t know how to cope with the list. “We ought not to marvel,” says Darwin, who is almost always marveling, and he then proceeds to list a series of “marvels”: the self-destructive bee, “the astonishing waste,” the dreadful parasites. The language is almost aggressively anthropomorphic, as if to emphasize both the fact of consanguinity with the human and the moral horror that marks so much of the natural world: the drones are “slaughtered,” “the queen bee feels instinctive hatred for her fertile daughters.”

It is not a pleasant vision, but the fact that it is registered as so powerfully moralized is significant. If, on the one hand, such a passage can encourage the notion of a natural world that lives out the “red in tooth and claw” vision so common to readings of Darwin, on the other, it gives us a sense of the world as thick with value. It is not empty and meaningless, but startling, frightening, entangled in ethical value and ethical struggle. All of these things, moreover, are wonders, as they extend our sense of the possible, and shock us.

The list Darwin offers is, he notes, “abhorrent to our ideas of fitness.” As virtually everywhere in his work, Darwin takes for

granted the importance and even the inevitability of what he regards as his culture's assumptions. His approach to the natural world is entirely from the point of view of a Victorian gentleman, and while this has often been taken as a mark of the ideological complicity of his science with the dominant conservative powers of Victorian society, I want to suggest that this way of seeing also opens possibilities for fresh and creative thinking, infuses the world with value, implies the ethical significance of natural phenomena, and leaves the world fundamentally enchanted. Darwin does not scrupulously depersonalize his writing, although he certainly strains to give to his arguments and descriptions an objective substance; he writes like a scientist *and* like a caring, loving, conventional, and reverent man whose relation to nature is intense and charged with feeling. Fact and value hang together in the rhetoric and in the scientific imagination.

He does so even as he increasingly moves away from the religion that he had more or less conventionally accepted in his youth. This chilling list of nature's monstrosities suggests in its detail how his deep valuing of life in all of its complexity did not entail a radical sentimentalizing, but rather incorporated into itself the full possibility for nastiness in nature that Mill was to describe as criminal. In the parts of his *Autobiography* that were originally omitted by Emma Darwin, Darwin talks about religion. There he argues that happiness and enjoyment of life are not incompatible with "belief in natural selection." In fact, natural selection helps explain, as religion never satisfactorily could, the suffering in the world that so disturbed Darwin. It is not, of course, a justification, but it helps one understand—it *means*. Natural selection "is not perfect in its action, but tends only to render each species as successful as possible in the battle for life with other species, in wonderfully complex and changing circumstances."⁵² Imperfection and wonderfully changing circumstances are the conditions of Darwin's world.

While there is perhaps some little casuistry in Darwin's attempt to argue that natural selection guarantees the predominance of happiness over suffering, he surely is straightforward in his

view that natural selection accounts for why the world is so full of suffering and horrifying activities, like those of the ichneumonidae. In the intensity of his engagement with the natural world, Darwin offered to his readers one of the very richest possible compensations for the imperfections, cruelties, and indifferences that his studies seemed so often to reveal. Reading his work with care, one will find, as Robert Richards has recently argued, that far from proposing a world that mechanistically functions without spirit or moral compass, Darwin's writing belongs to a great tradition of romantic literature and thinking that imagines nature, with all its obvious horrors, as essentially benevolent and altruistic—quite the reverse of what many modern uses of “natural selection” describe.⁵³ The point for me is not to urge assent to the vision of this kinder, gentler Darwin but to understand how his writing becomes an excellent model for the collapse of the fact/value dichotomy and a major indication that caring about the world, feeling its powers of enchantment, is fully compatible with a scientific approach that refuses to move beyond naturalistic explanation.

Darwin is not kidding when he claims that “When I view all beings not as special creations, but as the lineal descendants of some few beings which lived long before the first bed of the Silurian system was deposited, they seem to me to become ennobled” (*Origin*, 489). Nowhere in Darwin does one find the revulsion from things in this world that makes worldliness seem immoral. He never felt disturbed that his ancestors were the “lower” animals; the imagination of that development was, instead, thrilling. Darwin's world, while it points always toward that naturalistic explanation, pushes frequently also toward the sublime, toward that dizzying vision of endless time, of staggering complexity, of interdependence and paradox, that replaces the “enchantment” that a divinely constructed nature has been said to produce.

Jane Bennett's project of insisting on the possibility of spaces of enchantment in this “disenchanted” world does not confine itself exclusively to nature. While Darwin's prose is obviously

not related to modern technology, it might be useful (because, I think, it is in the Darwinian mode) to consider her arguments about modern enchantment beyond “nature.” Enchantment for Bennett is particularly an effect of the sort of metamorphoses that historians and philosophers like Donna Haraway and Bruno Latour describe. “Late modern morphings and Paracelsian interminglings are uneasy admixtures of organic, fantastic, commercial, scientific, and moralizing forces. By drawing parallels between these two sets, the enchantment effect of the contemporary morphings might be enhanced” (50). The world of disenchanted modernity, on Bennett’s accounting, turns out to be a world of transformations.

Darwin’s is a world of transformations. He does not, of course, offer us cyborgs, but after the *Origin* the culture had to confront the possibility that humans bore within them the genealogy of nonhuman beasts and that they, like all other living creatures, were potentially in a condition of transformation. Early in *The Descent of Man* Darwin inserts a pair of illustrations. The first shows the embryo of a human, just above the embryo of a dog. Darwin counts on the shock of juxtaposition, the startling similarity between the two. It is as though the one “morphs” into the other, and Darwin quotes Huxley: “the mode of origin and the early stages of the development of man are identical with those of the animals immediately below him in the scale.”⁵⁴ That Darwin insisted on human descent from “lower” organisms is now a familiar point, of course, but it needs to be set here in juxtaposition with Bennett’s argument, which locates moments of possible enchantment in the constantly morphing conditions of modernity.

The second illustration has a similar, if somewhat subtler, psychological effect, but its power of fascination remains as strong now as in Darwin’s day. It is an illustration of a human ear with an arrow pointing to “a little blunt point, projecting from the inwardly folded margin, or helix.” Darwin shows that other anthropoids have similar points, and since, as he claims, “every character, however slight, must be the result of some definite

cause," he regards the "point" as "a vestige of formerly pointed ears" (23). Everyone I know who has read the passage and all my friends on whom I have tried it out reach immediately for their ears, rub the point, and feel their connection with pointy-eared ancestors. It is the felt character of this movement that I find so striking. If the feeling is not enchantment, I am not sure what to call it, that instant of surprise, and the extraordinary visceral sense that one is somehow in contact with a past that reaches back millions of years and at the same time connects one with all other living humans and all other mammals, too. But the moment comes to us in the cool, objectivist language with which Darwin develops his arguments, and is methodologically connected with other moments when anthropomorphism and unrestrained affect enter overtly. "Must be the result of some definite cause" in this sequence suddenly explodes into the visceral connection with the deep past.

Darwin's world of change and crossings, where essential categories are constantly disrupted, is a world that includes those spaces for enchantment that Bennett discusses. And in such a world, matter, so often set up in a dichotomy with spirit, comes alive. "The problem of meaninglessness," Bennett says, responding to Weber's notion that science drains meaning from the world, "arises only if 'matter' is conceived as inert, only as long as science deploys a materialism whose physics is basically Newtonian." But in Darwin's language, as in Bennett's narrative of re-enchantment, "matter has a liveliness, resilience, unpredictability, or recalcitrance that is itself a source of wonder for us" (64). If Darwin is taken as the kind of patron saint of a dog-eat-dog, ethically meaningless world, he needs to be seen as well as the patron saint of a world where matter is in constant motion, constantly transforming, constantly producing variations and surprises, manifesting stunning connections. The transformations that I see as deriving from a Darwinian understanding of time, organism, and change are for Bennett precisely the sort that open up modern experience to enchantment. In her discussion of natural phenomena—plants and aphids and ladybugs

(170), for example—she focuses on interrelations and transformations that closely resemble those that Darwin studied, although Darwin does not enter into her discussion. “Nature enchants,” she says, “but so do artifacts.”

Darwin does not deal with the artifacts, nor will I. But he deals with contrivances and morphings and disturbances of the ordinary, and, as we know, “there is grandeur in [t]his view of things.” Darwin demonstrates as richly as any writer in the language the ways in which affect and intellect, value and fact, are aspects of the same phenomena. His natural world breaks down the absolute borders that separate species from each other, puts the world in motion, opens sublime vistas of past and future, ennobles a humanity that constantly threatens to denigrate the body (a product of millions of years of complex development) and submit itself to some noncorporeal Other beyond the reach of time and change. Darwin’s world—which is our world—is an enchanted one, if we would allow ourselves to look with his eye for detail and aberration, movement and connection, and his reverence for living things; if we could detect the serpent in the bird, the woman in the man or the man in the woman, the caterpillar in the moth; if we could learn to read in the facts of the moment traces of the past and intimations of a future; and if we acquired the strength to confront without metaphysical equipment the astonishing richness of the material world. Darwin loved his dog, his pigeons, his garden, his family, and the world, and we are all part of that world.