AFTER DARWIN

Literature, Theory, and Criticism in the Twenty-First Century

EDITED BY

DEVIN GRIFFITHS

University of Southern California

DEANNA KREISEL

University of Mississippi

CAMBRIDGE
UNIVERSITY PRESS

GEORGE LEVINE is Professor Emeritus at Rutgers University, and winner of Guggenheim, Rockefeller Foundation, and National Endowment for the Humanities fellowships. He was the founder and director for twenty years of the Rutgers Center for Critical Analysis. His books include *Darwin Loves You* (2008), *Darwin and the Novelists* (1988), *Darwin the Writer* (2011), *The Realistic Imagination* (1981), *Dying to Know* (2002), and *Reading Thomas Hardy* (2017); he is also the editor of *The Cambridge Companion to George Eliot* (2011).

ALLEN MACDUFFIE is an associate professor at the University of Texas at Austin. His book, *Victorian Literature, Energy, and the Ecological Imagination* (2014), won the Sonya Rudikoff Prize from the Northeast Victorian Studies Association (NVSA). He has published articles in *Representations, ELH, Victorian Studies, PMLA, Cultural Critique*, and other venues.

NIKOLAJ NOTTELMANN is the author of one monograph, *Blameworthy Belief* (2007), and the editor of an edited volume, *Belief: Constitution, Content and Structure* (2013). He has published a number of articles in premier philosophy journals, including *Mind*, *Philosophical Studies*, and *Synthese*, and contributed several chapters to edited volumes.

ANGELIQUE RICHARDSON is a historian of science and medicine, and Professor of English at Exeter. Her books include *Love and Eugenics in the Late Nineteenth Century* (2003), *After Darwin: Animals, Emotions, and the Mind* (2013), and *Women Who Did: Stories by Men and Women* (2005), and she writes regularly for a wide public.

HAUN SAUSSY teaches in the departments of East Asian Languages and Civilizations, Comparative Literature, and Social Thought at the University of Chicago. He is the author of *Great Walls of Discourse* (2001), *The Ethnography of Rhythm* (2016), *Translation as Citation* (2017), *Are We Comparing Yet?* (2019), and *The Making of Barbarians: China in Multilingual Asia* (2022).

JESSE OAK TAYLOR is an associate professor of English at the University of Washington in Seattle. He is the author of *The Sky of Our Manufacture: The London Fog in British Fiction from Dickens to Woolf* (2016), which won both the Association for the Study of Literature and Environment Book Award in ecocriticism and the NVSA Sonya Rudikoff Prize for a first book in Victorian Studies. He is also coeditor of *Anthropocene Reading: Literary History in Geologic Times* (2017).

CHAPTER 1

Introduction
After Darwin: Ecology, Posthumanism, and Aesthetics in the Twenty-First Century

Devin Griffiths and Deanna Kreisel

Why Darwin *now*?

In the past two centuries, the world has seen radical change. With cultural and technological revolution came catastrophic alterations to the Earth itself, from the wholesale destabilization of the climate system to the devastation of environments that once awed Darwin. To live in the wreckage of the Anthropocene – as Anna Tsing and her collaborators so eloquently put it – is to live among the "ghosts" of broken environments, and amid the "monsters" created by our entanglement with other forms of life (Tsing et al., 2017).

What can Darwin tell us about the problems that haunt the world now? Even biology, the science most changed by Darwin's discoveries, has been dramatically altered since his time by the DNA revolution and the revelations of the microbial world. Speaking at Darwin College, Cambridge, on the sesquicentennial of the 1859 publication of *On the Origin of Species*, the philosopher John Dupré gave a succinct answer to this question: we should admit that Darwin was a scientist, not a soothsayer; "we should not expect him to tell us 150 years later what we should think today .... Darwin is part of history, not [the] present" (Dupré, 2009).

Yet if Darwin *was* a scientist, he has *become* much more. The essays included in this book explore the profound and continuing influence of Darwin's theories well beyond the biological sciences, from his contributions to critical understandings of human difference, including race, sex, and gender; to aesthetic theory and philosophy; and, above all, to the complex interrelations of people, their societies, and nonhuman nature. To paraphrase Adam Phillips, whether or not we read Darwin, he still reads us, and we still use a version of his language (Phillips, 1999: 13). Darwin helps us see that we are ourselves part and parcel of the world around us. He asks us to confront our deep entanglement with the living world and

its radical uncertainties, including its histories of violence and dispossession: to accept that we are born of both ghosts and monsters.

The essays in this collection, in their dexterous engagement with the myriad possibilities of Darwin's writings and philosophy, engage a different side of the Darwinian legacy than is provided by standard histories of his life or by orthodox readings of the history of science – that is, the Darwin beyond or behind what Janet Browne (2018) terms the "Darwinian tradition." His importance today, these essays argue, does not rest upon his status as a representative and flawed figure of Victorian science, nor even as the co-discoverer – with Alfred Russell Wallace – of the theory of natural selection. Many previous collections have studied Darwin both as a figure in the history of science and as an influence on the creative imagination, from Cambridge Companions to recent collections exploring his legacy in psychology, genres of speculative fiction, and art history (Hodge and Radick, 2009).[1] They show that it is possible to consider Darwin's flaws without reducing him to a modern Pandora – releasing all subsequent evils, including social Darwinism, eugenics, and the Holocaust, from the box of human biology.

Building on that work, the present collection asks: what comes *after*? How might we look beyond natural selection for the wider possibilities of Darwin's thought, particularly as a resource for critical humanism? Darwin himself saw that natural selection was inadequate to explain the complexity of life, especially social life. After 1859, he placed increasing emphasis on various other mechanisms that might explain the complex relations within and between species, including sexual selection, Lamarckian inheritance, symbiosis, and what he termed "pangenesis." These explorations have often been treated as accessories to his theory of evolution by natural selection, but in fact they point to Darwin's more foundational attempt to understand – given the precariousness of life and the lack of a higher power or master design – how life, in its full complexity, *hangs together*, as a complex network of relations that keeps going and keeps changing. Darwin had more than one dangerous idea. His works should be approached less as a unified system, orbiting any single conceptual center, than as a constellation of sometimes competing, sometimes cooperating concepts – an intellectual ecology of sorts.

Darwin's account of what he termed the "struggle for existence" is a good point of departure. Often treated as an alternative to Herbert Spencer's "survival of the fittest," or as a more casual paraphrase of natural selection itself, the struggle for existence in fact points toward the essential precarity of life. In the chapter of the *Origin* that explores

its character, Darwin begins not with competition between individuals, but rather with the "exquisite adaptations of one part of the organisation to another part, and to the conditions of life, and of one distinct organic being to another being" – that is, to the *ecological* adaptations that align organisms internally and with their environment. As examples, he gives the "beautiful co-adaptations ... in the woodpecker and missletoe ... in the structure of the beetle which dives through the water; in the plumed seed which is wafted by the gentlest breeze" (Darwin, 1859: 60–61).[2] Darwin's wonderment in this passage marks his own effort to amplify the significance of life's prehensile condition, its struggle to hold on, and the resulting conceptual challenge "constantly to bear this ... in mind" (62).

Darwin knew his readers would, like Augustin de Candolle and Thomas Hobbes, tend to interpret "struggle" as a battle between individuals, as when two dogs "struggle with each other which shall get food and live" (62). Yet all struggle, he cautions, is more fundamentally about *dependency*, not *competition*: "But a plant on the edge of the desert is said to struggle for life against the drought, though more properly it should be said to be dependent on the moisture" (62). Here, as elsewhere in his writing, Darwin struggles with language itself, attempting to wrestle, from any story's tendency to slip into narratives of competition and division, a more extensive tale of precarious need and interdependence.[3] Struggle, in this larger vision, names the fragile condition of living. Its challenge precipitates change and interconnection; living is hard, but life struggles *together*. In the face of this essential dependency, this mendicant life, living things develop "co-adaptations," learn to work together, forge interspecies alliances, care for their young, even build societies. That is, they coevolve.

If we are still struggling to understand the complexity of these interactions, the ecologies that support both human and more-than-human life, this difficulty underscores the scale of the conceptual and descriptive challenge Darwin presented nearly two centuries ago. Karl Marx privately criticized natural selection as a projection of capitalist competition onto nature, but Marx also greatly admired the "epoch-making" nature of Darwin's fundamental insight into the evolution of interdependence and the deeply material relation between natural and human history (Marx, 1990: 1:461 fn. 6).[4] As we seek to better grasp the interaction of natures and cultures, and the collapse (as Dipesh Chakrabarty [2009] observes) of the distinction between human and natural history, perhaps it is time to return to the ecological side of Darwin's thought.

1.1 Humanism and Literary Studies

We hope this collection will provide inspiration to any reader interested in the wider possibilities of Darwin's work, but it is especially intended to develop new theoretical resources for students and scholars in the humanities, especially literary studies. Darwin has a unique place in scholarship on the relation between science and literature. The publication of Gillian Beer's *Darwin's Plots* (1983) and George Levine's *Darwin and the Novelists* (1988) initiated a sea change, transforming how literary scholars interpreted scientific works and their legacies. Earlier critics and historians of ideas studied the influence of science on societies and their literatures, or less commonly, the beauties of scientific prose. The revitalized field of science and literature set out by Beer and Levine, by contrast, gave equal attention to the influence of specific literary works, genres, and modes of description upon the core work of science: producing new, factually grounded accounts of the natural world. As Beer famously put it, studies of the "traffic" between science and literature would now be "two-way" (Beer, 2000: 6).[5]

Why did Darwin provide a fulcrum for this pivot? For one, his writings have had a massive impact on virtually every aspect of the modern imagination of nature, being, and time, and pose lasting problems for how people think about morality, religion, and human society. Major reinterpretations of his theories have kept Darwin in the headlines and in the minds of literary scholars and historians: the development of eugenics in the later nineteenth century; the "modern synthesis" of genetics and evolution at the turn of the twentieth; the mid-century formulation of the "central dogma" of biology in wake of the discovery of DNA; more recent critiques of the neo-Darwinian dogma; and periodic controversies over the place of natural selection in public education, which reached fever pitch in the 1980s, 1990s, and 2000s. Darwin remains an object of troubled fascination.

Yet the imaginative nature of his work asserts a more immediate claim to humanist attention. Creative storytelling is the beating heart of Darwin's science. Given the extraordinarily long timescales he postulated for evolutionary change, the fragmentary evidence of the geological record, and the unclear connections between existing species, Darwin relied as much on speculative fiction as on direct empirical proof to support his account of how life changed over time. The agenda he set for evolutionary biology was necessarily *retrospective* and *descriptive*, in contrast to *experimental* and *predictive* sciences like physics.[6]

All of Darwin's writings drew on a mountain of information gleaned from a worldwide network of scientific research and correspondence, along with Darwin's own painstaking observations. But they hinge on moments in which Darwin steps back from this mass of information and asks his reader to imagine *how* specific patterns came to be over time, spinning yarns filled with protagonists and antagonists, crises, triumphs, and tragedies.

From the beginning of his publishing career, critics have mocked this facet of Darwin's writing as a species of "romance," that is, the fabulation of imaginative fictions on par with the fables of Scheherazade's *Arabian Nights* or the "historical romances" of Walter Scott (Wilberforce, 1860). Yet Beer and Levine, in teasing out the imaginative weave of Darwin's science and demonstrating the power of his narratives, clued scholars in to the modes of imagination and literary expression that thread through the more general practice of science.[7] Darwin's writing brims with literary devices like metaphor, analogy, and personification, as well as complex strategies of plotting and focalization, alongside powerful moments of aesthetic reverie, wonder, and disenchanting despair. It is writerly science. And in this way, Darwin's works furnish a paradigmatic case for the capacity of literary analysis and humanist study to explore the inner workings of science and its complicated relation to other modes of human experience. They undermine the generic and conceptual contrast between fact and fiction, and expose how fictions help equip science with useful facts, which flourish in the creative interplay of observation and imagination. Darwin helps us recognize fiction not as the antithesis of stable fact, but as a process of making and of discovery.

His fictions also forged striking new possibilities for the interpretation of human societies, their relation to natural environments, and the forces shaping their practices. Darwin's deeply historical and materialist reading of the natural world and the place of humanity within it overturned Enlightenment schemas of human reason, history, and the orderliness of nature. For this reason, he was essentially the first modern to answer classic problems regarding human nature and perception in terms of relatively irrational, contingent processes. In the years since, many have taken up some of his interpretations and reworked them until they have developed into well-traveled avenues of thought. We return to Darwin today with an eye toward roads not taken – trails of thought blazed but not pursued. In what follows, we trace three tracks in Darwin's thinking that merit further exploration: process philosophy, the critique of human distinction, and aesthetics.

1.2 Darwin as Philosopher

Despite Darwin's unease with the title "philosopher" (he went to great effort to present himself as a sober empiricist), his manuscripts demonstrate a deeply speculative and wide-ranging imagination.[8] His printed works continue to prove a rich resource for what Louis Althusser once termed the "spontaneous philosophy of the scientists" (Althusser, 1990: 114–115). Darwin's core ecological insight – that life is deeply interdependent and contingent – marks an ontology rooted in relation and constant change. This vision has had considerable (if unrecognized) impact in the field of speculative thought known as "process philosophy," a way of reading the complexity of both natural systems and human behavior that has become increasingly important in gauging the manifold complexity of the Anthropocene. In her *Minimal Ethics for the Anthropocene* (2014), Joanna Zylinska explains how process philosophy offers a moral and philosophical perspective on the way "humans are making a difference to the arrangements of what we are calling 'the world'" (Zylinska, 2014: 20–21). And in their "Manifesto for a Processual Philosophy of Biology" Dupré and Nicholson (2018: 21) describe how process philosophy reads the interdependencies of the living world, in which "organisms persist by virtue of the intricate webs of relations they maintain with one another" in much the same way that "ecological communities or consortia, such as biofilms, holobionts, and superorganisms, are not collections of relatively autonomous things but deeply entangled meshes of interdependent processes."[9]

Histories of process philosophy generally overlook Darwin's contribution to this thinking, tracing it to classical philosophers like Heraclitus, German thinkers like Leibniz and Hegel, and more recent speculative theorists like Gilles Deleuze and Alain Badiou (Zylinska, 2014: 37). Yet modern process philosophy is essentially a response to Darwin's work and the challenge of the eventful, contingent, yet patterned nature he revealed. The key commitments of this tradition – a focus on process over stable things or "substances"; the continuity of mind and cognition with material operations; the idea that human meaning is historical and contingent – are central components of Darwin's vision.[10] If Darwin's influence on process philosophy is generally overlooked, it may be because other important contributors to modern process philosophy, especially Friedrich Nietzsche, Henri Bergson, and Alfred North Whitehead, were explicitly hostile to specific implications of Darwin's theories – especially the mindlessness of natural selection. Complaining that Darwin "forgot the mind," Nietzsche responded by formulating a dynamic philosophy that made

space for human self-creation as an ennobling, progressive force (Nietzsche, 1990: 87).[11] Bergson's *élan vital* similarly replaced the "mechanistic" theory of natural selection with an immanently creative evolutionary force on par with our own consciousness (Miquel, 2007). And Whitehead, for his part, was dismayed by the theological implications of Darwin's unthinking nature, and worked to formulate a process theism that could reconcile process theory with metaphysics – a path taken by later writers like Gregory Bateson and Charles Hartshorne (Lucas, 1985).

Darwin's place in this genealogy matters because it can help us get past the organicist impasse in process thinking. Organicism remains one of the dominant modes of imagining the way collectives work together; for this reason, as Nicholson and Dupré note, it is a major component of modern process theory. Yet organicism assumes that part and whole are tightly locked in an instrumental relation through which, as Kant (2001: 247) originally put it, "everything is an end and reciprocally a means as well." Organicism engrafts teleology – a preconcerted purpose – into the tissues of the body and into the logic of a system's parts. In this way organicism, as Denise Gigante points out, is not so much the *antithesis* as the synthetic *culmination* of mechanistic thinking: it interprets natural systems as the internalization of the instrumental structure of the machine, in a closed loop of ends and means (Gigante, 2009). This leaves it ill-equipped to describe the essential messiness of nature, the way its relations exceed instrumental utility. Nature, in the organicist view, is reduced to grist for instrumental reason – simply a means to our ends – with disastrous repercussions for the environment: "a wholly enlightened earth radiant with triumphant calamity" (Horkheimer and Adorno, 2007: 1).[12]

Like Donna Haraway, Anna Tsing, and Stacy Alaimo, we see the need for a more open reading of ecologies and bodies, a way of reading living creatures and their environments as not simply means for other's ends or in terms of their instrumental value, whether to humans or other creatures (Alaimo, 2016; Haraway, 2016; Tsing, 2017). The time is ripe for such thinking. The "Anthropocene is marked by severe discontinuities" not only in the climate system, as Haraway explains, but in the way "assemblages of organic species and of abiotic actors make history, the evolutionary kind and the other kinds too" (Haraway, 2015: 159, 160). As Jesse Oak Taylor and Allen MacDuffie discuss in Chapters 2 and 5, respectively, Darwinian thinking remains crucial for understanding the scale of humanity's impact on the environment and the destructive nature of human species being. And as Caroline Hovanec writes in Chapter 3, Darwin's work is important for activists and environmentalists fostering a better understanding of

the animal kingdom and forging more just and ecological patterns of life. In order to read these histories and knowledges "in a moment when models of political collectivity seem to be buckling and failing daily," what we really need, Ella Mershon proposes, are collective theories of *inorganicism* (Mershon, 2020: 280).

It is time to return, with fresh eyes, to Darwin's earlier vision of nature and society as a "seamless spectrum of degrees of intertwining" and see what it might offer to this inorganic thought (Nicholson and Dupré, 2018: 21). If, as we have argued elsewhere, Darwin's ecological vision was forcibly wrenched into an organicist paradigm by later ecologists, it's worth reconsidering how his study of the fragile dependencies of nature might dismantle strictly instrumental analyses (Griffiths and Kreisel, 2020). In 1872, Darwin added a passage to the *Origin of Species* that summarized the expansive sweep his ecological vision took over time:

> [W]ith organic beings we should bear in mind that the form of each depends on an infinitude of complex relations ... and this depends on the surrounding physical conditions, and in a still higher degree on the surrounding organisms with which each being has come into competition, – and lastly, on inheritance (in itself a fluctuating element) from innumerable progenitors, all of which have had their forms determined through equally complex relations. (Darwin, 1872b: 101)

The relational and dynamic reading of organisms set out here looks like a relatively orthodox summary of process biology. The key question is whether "organisms" are understood in strictly organic terms, and whether their "complex relations" and dependencies are strictly governed by the logic of means and ends.

We propose that this passage, often cited for its deeply ecological flavor, should be read as a kind of speculative proposition – a statement of theory that underlines Darwin's philosophical commitment to the *inorganic* dimensions of living forms. Organisms, in this view, are not tightly integrated parts and wholes, because their network of dependencies in fact extends well beyond their bodies, to an "infinitude of complex relations" to other beings and to the physical world. Their environment teems with accidents and errant encounters. Life is a process of radical interaction and fluctuation, a process of continual, uncertain change. It is a world in which things fail as often as they work, a world filled with the useless as well as the useful.

This fertile failure is evident if we consider how the "fluctuating element" of inheritance draws upon Darwin's ongoing speculations about the deep contingency of reproduction and growth. The theory of "pangenesis"

is sometimes treated as an embarrassing cul-de-sac in Darwin's thinking, but we think it should be taken much more seriously as a window into Darwin's reading of all living processes. As M. J. S. Hodge has shown, it marked the culmination of decades of private speculations on the nature of growth, reproduction, and organic differentiation – speculations that predate the theory of natural selection (Kohn et al., 2014). Published as a hypothesis for the mechanism of inheritance in his 1868 study *Variation under Domestication*, pangenesis posits that all of the individual parts of an organism emit "gemmules," small particles that together communicate heritable information to descendants. This theory decomposed the organism into a messy assembly, "a host of [smaller] self-propagating organisms" (Darwin, 1868: 2:404).

Rather than interpreting his gemmules as organic components of the body itself (and thus relocating organicism to a lower level of organization), Darwin emphasized the radical *uncertainties* and continual *failures* of this process, comparing living bodies to "a bed of mould [i.e. plot of soil] full of seeds, most of which soon germinate, some lie for a period dormant, whilst others perish" (Darwin, 1868: 2:404). The seedy plot offers a radically inorganic way to read living bodies, including our own. And it suggests that all living assemblies, from organs to organisms to ecologies, have not one purpose or end, but many, with many relations exceeding purpose entirely. In this view, all creatures are feral, unruly assemblages, no more organized (and just as dependent, uncertain, and rangy) as the ecologies within which we live. Our interest does not depend on the accuracy of this theory of inheritance (although we note not only the fact that Hugo de Vries drew upon pangenesis in formulating modern gene theory, but also the recent revival of epigenetic theory). Rather, it is precisely *because* pangenesis was such a speculative leap that it opens a window into Darwin's wildly inorganic imagination of the living world.

1.3 Darwin's Difference

The anti-organic dimension of Darwin's reading of process is, to crib a phrase from Bateson, the difference which makes all the difference in his philosophy (Bateson, 1992: 445). To our knowledge, it has not been noted that pangenesis's vision of the complex autonomy and independence of the elements making up the human body is incompatible with essentialist theories of sex, gender, or race: its implication is that all of the distinctions that individual societies associate with categories of the human are relatively autonomous, contingent, and inessential. In recent years – and

despite the many classist, racist, and sexist judgments incorporated into works like *The Descent of Man* – a range of philosophers and humanists have found, within Darwin's writings, critical elements for more equitable, anti-racist, gender-positive frameworks of analysis.

There is a long tradition, as S. Pearl Brilmyer notes, of "Darwinian feminisms" that derived, from Darwin's writings, strategies that "brought human traditions and norms under the critical gaze of science," including critiques – explored in Chapter 9 by Carol Colatrella – of Darwin's own sexism (Brilmyer, 2017: 32). Feminist philosopher Elizabeth Grosz has done more than any other thinker to highlight how Darwin's reading of "difference, pure biological difference, as the very matter of life itself" (Grosz, 2004: 46) offers the conceptual grounds for a "nonessentialist understanding ... of sexual dimorphism" — and polymorphism (Grosz, 2004: 67).[13] Darwin's analysis of sexual selection, in its focus on unruly aesthetics of desire, has been particularly important as a framework for recognizing the radical potentiality of sexual life. For this reason, trans studies scholar Eva Hayward sees in sexual selection a potent formulation of the self-altering "forces" impelling "trans-sex dynamics ... the expressive overspilling of sensoriums, a passionate rapport that advances a creature's further transformation" (Hayward, 2010: 235–236). As Kathleen Frederickson argues in Chapter 8, Darwin's theory of domestication can also furnish an important resource for queer theory, both as it bridges sexual and natural selection and as it demonstrates the importance of aesthetic criteria within the economy of nature.

There has been an even more extensive discussion of the anti-racist commitments of Darwin's science. Darwin's interpretation of race was more complex than is often acknowledged. On the one hand, he subscribed to a belief in the cultural superiority of the "civilized [i.e. white] races" and was disturbed, as Cannon Schmitt observes, that his commitment to a common history of the human species necessitated kinship to populations like the "barbarous" Indigenous people of Tierra del Fuego (Schmitt, 2013). Yet Darwin was horrified by his encounters with African slavery in the Americas, and remained a staunch and active abolitionist. Adrian Desmond and James Moore identify this commitment as the "*moral* passion firing his evolutionary work," including his lifelong effort to prove that humanity was a single species descended from a common human ancestor (Desmond and Moore, 2009: xviii). His ultimately successful efforts to refute the racist theory of polygenesis (the thesis, advanced by Louis Agassiz, Ernst Haeckel, and others, that different human races were either independently created or separately evolved) extended throughout

his career. As Gregory Radick has shown, the argument for monogenesis was a central focus not only of the argument in *The Descent of Man*, but of the architecture of *The Origin of Species* and the evidence gathered for *The Expressions of Emotion* (Radick, 2018).[14]

An equally important objective in the *Descent* is to show that the differences between human populations are largely superficial, physiologically unimportant, and inconsistent (Darwin, 1871: 1:214). In arguing that these differences were the generally idiosyncratic results of sexual selection, rather than fit adaptations to specific climates and environments (as racial theorists had long argued), and in documenting the wide variations of aesthetic judgment in distinct societies, Darwin went a long way toward demonstrating that racialized aesthetics and race itself were rooted in cultural norms. Darwin's continued efforts to develop, refine, and defend the theory of sexual selection, as Evelleen Richards notes, was in part motivated by this attempt to explain (and partly explain away) racial distinction (Richards, 2017). For this reason, Kwame Anthony Appiah reads Darwin's analysis as a turning point in the slow dismantling of biological theories of "racial essence" (Appiah, 1994). As Irene Tucker observes, in Darwin's analysis "the arbitrary racial sign and its critique come into being with one and the same gesture" (Tucker, 2013: 199).

Sylvia Wynter's work provides one of the most extensive efforts to wrestle with the conflicting readings of race offered in Darwin's writings. If she sometimes simplifies Darwin's perspective (for instance, asserting in several places that Darwin insisted that natural selection was "the only directive agency of evolution"), Wynter also came to see her own lifelong project as a "meta-Darwinian" theory of how human societies evolve beyond the selective pressures of natural selection, and ultimately, beyond prejudicial readings of what that history implies about racial being (Wynter, 2015: 198 fn. 18 and 22). More recently, Arun Saldanha has turned to Darwin's ecological thought to sketch a critical geography of race as the intersection between phenotype – produced by the interaction of "genetic endowments, environmental conditions, exercise, hormones, diet, disease, ageing" – and the languages that "*charge*" phenotype, and so "circumscribe what it is capable of doing" (Saldanha, 2006: 18). However, as B. Ricardo Brown argues in Chapter 7, Saldanha's argument is symptomatic of the way human sciences have continued to deploy race as an organizing concept, despite Darwin's interventions, and even as those interventions have furnished an important resource for ongoing antiracist work. In a similar fashion, and as explored by Travis Chi Wing Lau in Chapter 6 and Wai Chee Dimock in Chapter 10, Darwin's evolutionary redescription of human diversity has provided

grounds for contrasting analyses of the status of disability, from cognitive ablism to neurodiversity. In Chapter 14, Angelique Richardson similarly explores how Darwin's emphasis on interdependence can counter authoritarian disregard for the vulnerable and disadvantaged. And in Chapter 11, Ian Duncan reads Darwin's divided legacy with his own account of empire and moral evolution, demonstrating how "social instinct," which Darwin characterizes as the human capacity to imagine past, present, and future states as well as others' points of view, impels human becoming as an uncertain struggle between imperial genocide and the global extension of sympathy across the boundaries of kinship and nation.

1.4 Darwin's Aesthetics

In *The Descent of Man*, an expanded account of sexual selection transforms the perception of beauty into a key mechanism of human evolution and a central axis of social organization – including, as Alexis Harley explains in Chapter 13, the development of human language. In this way, Darwin awarded vast significance to aesthetics as a "distribution of the sensible" essential not only to art, but also to custom and political life. In this way, he provided, as Jacques Rancière (2014: 32) puts it, "the germ of a new humanity, of a new form of individual and collective life." As Ian Duncan has explained, Darwin was not the first to organize human evolution around sensibility (Duncan, 2020). Decades earlier, Friedrich Schiller had proposed the "free play" of art as the evolutionary leap that lifted humanity above animal nature. But Darwin radically altered that account in momentous ways, arguing *both* that aesthetics is part of the texture of ecological relations beyond the human (from the link between flowers and their pollinators, to the evident attraction between animal sexes) *and* that human aesthetic judgment does not respect a universal standard set by an idealized man (as Kant had argued).

Darwin's aesthetic revels in wildly various and idiosyncratic tastes; this "love of excitement or novelty" is what continues to afford his aesthetic account its revolutionary potential (Darwin, 1871: 1:65). Moreover, in the fascinated attention Darwin gave to the range of the aesthetic sensorium, from the lilting qualities of birdsong – as explored by Miranda Butler in her discussion of Darwin and sound studies in Chapter 4 – to the "pleasure" we take in a "sweet perfume," from the various flavors of floral scents to the "music" of the spoken word, he gave beauty its fullest sensory amplitude (Darwin, 1872a: 198). Darwin challenged the priority that contemporaries gave to vision and specular experience. His complex aesthetic

influence extended well beyond his own time; as Haun Saussy discusses in Chapter 15, neo-Lamarckians in turn-of-the-century France protested the reduction of inheritance to features of the gene by drawing vital analogies between aesthetics and the sciences of biology, chemistry, and psychology. At a moment when many scholars are questioning the mixed legacies of the Enlightenment, it is worth recognizing how Darwin's writings tolled the demise of normative reason, recasting both cognition and aesthetics as both profoundly irrational and imminently meaningful. As Patrick Fessenbecker and Nikolaj Nottelmann argue in Chapter 12, Darwin's theories had a significant impact on moral philosophy, permanently untethering the existence of moral feeling from divine design. Darwin, in forging the sort of "illiberal humanism" Kandice Chuh has recently called for, still has much to say to humanists concerned with the role of taste, perception, and pleasure in mundane and political life (Chuh, 2019).

Darwin's unruly aesthetic gives the lie to ostensibly "Darwinian" interpretations of literature, art, and beauty that insist that certain behaviors or modes of thought were programmed by an earlier evolutionary advance in human development, and are thus fixed for the present. The field of evolutionary psychology, for example, has come under intense scrutiny for its "narrow" tendency to assume a modular, hard-coded model of mind, and its simplification and even neglect of the methodological challenge of distinguishing learned and innate human behaviors (Grossi et al., 2014). In an aligned critique of Darwinist aesthetics and theories of art's evolution, Matthew Rampley notes the failure of evolved and universal aesthetic predispositions to explain the radical differences in art practices between cultures and across historical time, highlighting the "vulgar and shallow interdisciplinarity" of such approaches (Rampley, 2017: 105). And Jonathan Kramnick, in a review of literary Darwinists who assert that the pleasures and components of literature (like language itself) are adaptive traits, skewers accounts that fail to demonstrate the "adaptive function" of literature as such, and thus fall back on more general claims about literature's capacity to cultivate imagination or sympathy (Kramnick, 2011: 331).

Yet few have pointed out how evolutionary-psychology approaches, in judging social behavior and aesthetics in terms of evolutionary or cultural "fitness," ignore Darwin's insistence that aesthetics, which originates in *sexual* not *natural* selection, is not governed by fitness or function. Sexual selection, as Grosz explains, "unhinges the rationality of fitness that governs natural selection ... selecting according to terms other than those related to fitness – beauty, appeal or attractiveness" (Grosz, 2011: 132).

Darwin, as much as anyone, was committed to the notion that art and pleasure can exist for their own sake, that aesthetics operates as a "mode of enhancement," not survival. As humanists, working on and with Darwin, the easiest way to avoid "vulgar and shallow" interdisciplinarity is to actually *work with Darwin*: read his works, in their complexity, within historical perspective, and with the aid of an extensive body of scholarship written to help us interpret his aims.[15]

1.5 Conclusion

We live after Darwin, yet in a world that Darwin recognized: a simultaneously natural and cultural world of deep entanglement and uncertainty, defined by complex networks of care as well as violence, a world constantly changing, and threatening to fall apart. Darwin gave the first truly modern account of an Earth stripped of design and intent. In doing so, he delivered responsibility for this planet into our hands. The climate crisis is the ultimate test of that charge. It is also a race to complete his work. Darwin's struggle was to explain how we can both be part of nature *and* have developed capacities that radically remake that nature. Our challenge looking forward is to square the manifold pleasures we take in this world with the struggle for it (and so for us) to survive.

Notes

1 For an account of non-Darwinian evolutionary thinking, see Lightman and Zon (2017). For more on Darwin, aesthetics, and psychology, see Larson and Flach (2013), Richardson (2013), and Voigts-Virchow et al. (2014). For more focused studies of the reception of Darwin in different national and regional contexts, see Engels (2014), Saul and James (2011), and Gianquitto and Fisher (2014).

2 Further references given by page.

3 In a classic essay that raises the stakes of this challenge, Amitav Ghosh observes the failure of contemporary novels to narrate the complexity of the climate crisis (Ghosh, 1992).

4 That same note belies Marx's critique of analogies drawn between capitalism and nature, insisting on the deep continuity between organic evolution and the interlocking development of machinic labor. In one of his many introductions to *Capital*, Marx approvingly quotes a reviewer who comments that "Marx treats the social movement as a process of natural history ... analogous to the history of evolution" (Marx, 1990: 1:100).

5 For a more detailed genealogy of Darwin and the field of science and literature, see Griffiths (2018).

6 For discussion of the narrative structure of evolutionary explanation in the philosophy of science, see Grimaldi and Engel (2007), Gallie (1964), Beatty (2016), and Gould (2002).

7 For now-classic discussions of the literary dimensions of Darwin's writing, see Hyman (1962), Beer (2000), and Levine (1988; 2011).

8 Most of his printed works, as well as his manuscripts, are published at "Darwin Online": darwin-online.org.uk. And a majority of his known correspondence can be found at the "Darwin Correspondence Project": www.darwinproject.ac.uk.

9 As Grosz (2004: 10) puts this, "Nietzsche is perhaps more Darwinian than he would like to admit.... He ontologizes and moralizes Darwin; he makes his own version of Darwinism the beginning of a philosophy of becoming."

10 As Seibt (2018) observes, "the early phase of process philosophy was mainly motivated by an effort to come to terms with the far reaching philosophical implications of the Darwinian theory of evolution" – more precisely, the wider implications of a Darwinian *philosophy*.

11 See discussion in Birx (1991).

12 For an analysis of the problem of instrumental value in environmental ethics, see Sarkar (2010).

13 Grosz's initial analysis of the gender binary, as many have noted, tended to underline and essentialize the male–female dichotomy, and overlooked Darwin's more basic insistence on radical uncertainty and his deep engagement with modes of differentiation beyond the binary – for example, his fascination with plants that have more than two sexes, or with hermaphroditic sea life (a point Grosz herself acknowledges in later work) (Grosz, 2011).

14 Along similar lines, Sarah Winter has explored how the "biosemiotic" analysis proposed in the *Expressions* "prefigures a postracial science" by arguing for the universal character of human communication (Winter, 2009: 131).

15 Jonathan Smith's *Charles Darwin and Victorian Visual Culture* is a foundational consideration of Darwin's own artistic sensibilities, while two excellent collections have done much to set Darwinian aesthetics in a wider historical and disciplinary context: Diana Donald and Jane Munro's *Endless Forms* and Barbara Larson and Sabine Flach's *Darwin and Theories of Aesthetics and Cultural History* (Smith, 2006; Donald and Munro, 2009; Larson and Flach, 2013).