IAN DUNCAN

Natural Histories of Form: Charles Darwin's Aesthetic Science

What is man before beauty cajoles from him a delight in things for their own sake, or the serenity of form tempers the savagery of life?

—Friedrich Schiller, *On the Aesthetic Education of Man*

I

IN *THE DESCENT OF MAN, AND SELECTION IN RELATION TO SEX* (1871), Charles Darwin sought to write the definitive version of an experimental genre of philosophical anthropology, the "natural history of man," pioneered—and disputed—in the late Enlightenment by the Comte de Buffon, Jean-Jacques Rousseau, Adam Smith, Adam Ferguson, Johann Gottfried Herder, Immanuel Kant, and other major thinkers as the realization of a universal science of man.[1] With the delivery of human species being to secular history and geography, the old question of human exceptionalism had come to bear with a new urgency on the point at which, and means by which, the human emerges from animal life and comes into its own. Friedrich Schiller's treatise *On the Aesthetic Education of Man* (*Über die ästhetische Erziehung des Menschen*, 1795) forged a crucial link between this philosophical anthropology and divergent traditions, scientific and humanist, of nineteenth-century aesthetic inquiry. Where the history of man splintered among competing disciplinary claims on scientific authority, Schiller's reframing of its main question, human becoming, as a project of individual

ABSTRACT Arguing that aesthetic preference generates the historical forms of human racial and gender difference in *The Descent of Man*, Charles Darwin offers an alternative account of aesthetic autonomy to the Kantian or idealist account. Darwin understands the aesthetic sense to be constitutive of scientific knowledge insofar as scientific knowledge entails the natural historian's fine discrimination of formal differences and their dynamic interrelations within a unified system. Natural selection itself works this way, Darwin argues in *The Origin of Species*; in *The Descent of Man* he makes the case for the natural basis of the aesthetic while relativizing particular aesthetic judgments. Libidinally charged—in Kantian phrase, "interested"—the aesthetic sense nevertheless comes historically adrift from its functional origin in rites of courtship. REPRESENTATIONS 151. 2020 ISSN 0734-6018, electronic ISSN 1533-855X, pages 51–73. DOI: https://doi.org/10.1525/rep.2020.151.3.51.

development—an education—established a program for the modern humanities or liberal arts. The humanist legacy of the *Aesthetic Education* is well studied. Less so is its anticipation of Darwin's key idea, that the aesthetic sense is the medium of a specifically human evolution, in *The Descent of Man.* More is at stake in the comparison between Schiller's and Darwin's conjectural histories of human emergence than an accounting of possible influence. Scrutiny of their common concerns and differences illuminates the originality of Darwin's own contribution—still insufficiently appreciated—to nineteenth-century aesthetic theory.

On the Aesthetic Education of Man posits an instinct or faculty Schiller calls the "play-drive" (*Spieltrieb*), which affords the full realization of human nature through the aesthetic apprehension of form. The last letters of the *Aesthetic Education* sketch a conjectural natural history of this coming-into-humanity. The play-drive originates in animal life, in the body, in the "sheer plenitude of vitality, when superabundance of life is its own incentive to action."[2] Overflowing physiological function, the life force manifests itself as play. In the case of humans, it springs beyond the determinations of biology (need) and anthropology (custom):

> Not content with introducing aesthetic superfluity into objects of necessity, the play-drive as it becomes ever freer finally tears itself away from the fetters of utility altogether, and beauty in and for itself alone begins to be an object of his striving. Man *adorns* himself. Disinterested and undirected pleasure is now numbered among the necessities of existence, and what is in fact unnecessary soon becomes the best part of his delight. (211)

Torn from the fetters of utility, beauty in and for itself alone: Schiller's conjectural history yields the dominant conception of the aesthetic in nineteenth-century writing—a crux, as we shall see, in recent accounts of sexual selection, the agency Darwin identified as shaping human evolution, by historians and philosophers of science.

Commentary on the *Aesthetic Education of Man* has downplayed Schiller's late turn to natural history, in which the aesthetic apprehension of form marks the transition from the animal to the human state. Discussions of the work's Victorian legacy tend to prioritize one of the terms of Schiller's title over the other, the aesthetic *or* education. The aesthetic *education* provides a disciplinary program for what Herder called a *Bildung der Humanität*, a "formation of humanity" or evolutionary perfection of human species being, in his most ambitious of late-Enlightenment philosophical anthropologies, *Ideen zur Philosophie der Geschichte der Menschheit* (Ideas for a philosophy of the history of mankind).[3] Pedagogical projects to foster and direct "the general harmonious expansion of those gifts of thought and feeling which make the peculiar dignity, wealth, and happiness of human nature"

in the individual person—constituting "our humanity proper, as distinguished from our animality"—supply the precondition for projects of social and political reform in the best-known Victorian version of the aesthetic education, Matthew Arnold's.[4] In *Culture and Anarchy* Arnold pays tribute to Schiller's legacy in the educational system bequeathed to the Prussian state by Wilhelm von Humboldt.[5] Later Victorian affirmations of the *aesthetic* reacted against its conscription into didactic programs and regulative systems. Schiller's Twenty-Second Letter became a "*locus classicus* for Victorian aesthetes," according to Angela Leighton, as they sought to repatriate aesthetic experience to individual sensuous life.[6] "In a truly successful work of art, the content should effect nothing, the form everything," Schiller wrote, defining "the real secret of the master in any art: *that he can make his form consume his material*" (155–57). The Oxford editors of the *Aesthetic Education* note that the biological metaphor implicit in Schiller's word *vertilgen*, "consume," that is, digest, metabolize, disappears in Victorian reformulations, which "make it sound as though Schiller wants to empty art of subject-matter if not of content" (267; clxxvi). "To make form obliterate, or annihilate, the matter will be the difficult, sometimes guilty, sometimes provocative, aim of Schiller's aestheticist followers," Leighton comments, citing Walter Pater and Oscar Wilde.[7]

The triumph of form over content or material in order to constitute it as the proper object of aesthetic attention points behind Schiller to Kant's *Critique of the Power of Judgment*, which prescribes form's purification from contingent sensuous interest. More decisively than Schiller, Kant wrested the aesthetic away from its earlier modern meaning of "sensitive cognition" or "sensuous knowledge" (Alexander Baumgarten's term), by positing sensuous intuition (the imagination) and cognition (the understanding) as distinct faculties, to prescribe the alignment of subjective perception with universal norms of judgment.[8] German idealism broke with a largely British empiricist tradition of scientific aesthetics, developed in eighteenth-century medico-physiological treatises, which grounded aesthetic effects in sensation and the body—in William Hogarth and in Edmund Burke, the sexed and gendered body.[9] The empiricist tradition, with its conception of aesthetic form as "a concordance between the human mind or body and the order of nature," continued however to flourish in nineteenth-century Britain.[10] Scholarship "has continued to under-estimate the importance of physiological and evolutionary aesthetics in shaping discussions of art and beauty in the 1870s and 1880s," writes Jonathan Smith, citing John Ruskin's late work *Proserpina*.[11] Benjamin Morgan recovers the links between canonical writers on aesthetics, including Ruskin and Pater, and Victorian scientific materialists, whose "aspiration to uncover a formal patterning in nature eventually extended to an interest in a physiological patterning of the body

and the nervous system, whose attunement or non-attunement to nature's forms provided one explanation for the experience of beauty or ugliness."[12]

Kevis Goodman draws attention to the formation of Schiller's own intellectual career in the medico-physiological tradition: trained as a military surgeon, he wrote three medical dissertations before achieving fame as a philosopher and poet. Goodman recovers the roots of the *Aesthetic Education*—specifically, its conception of the aesthetic as a "middle disposition" or "middle state"—in those medical dissertations, which posit the nervous system as mediator between sensation and thought and between the body and its environment. Schiller's commitment to this conception of the aesthetic as a mode of sensuous knowledge that mediates between physical and intellectual life and between the individual and the natural order comes into tension, if not collision, with the broadly Kantian schema of the *Aesthetic Education*, which requires, as we shall see, a leap or breach, a revolutionary change of state, for the transition from animal bondage to sensation to the free play of faculties that constitutes human being. "Beauty is valid only for human beings," Kant had asserted, since "beauty consists in our awareness of the free play of the imagination and the understanding," and humans are the only beings—at once animal and rational—that possess both of those faculties.[13]

Goodman, with other recent critics, looks to Erasmus Darwin as the major late-Enlightenment British exponent (keenly read by the Germans) of a biologically grounded aesthetics, synthesizing medical science and poetry as knowledge-bearing discourses: Schiller's equivalent, in this regard, as well as his contemporary.[14] The present essay makes the case for Erasmus's grandson as the most consequential inheritor of the empiricist project of a scientific aesthetics in nineteenth-century Britain.[15] An original theorist of the aesthetic and of form in his own right, Charles Darwin proposes a compelling alternative to the idealist tradition (in its pure and applied iterations) that we tend to think of as dominating nineteenth-century thought. The sophisticated critical attention that has come to bear on Darwin from literary scholars in the past three decades, following the work of Gillian Beer and George Levine, has largely overlooked his formulation of an aesthetic theory, with the exception of Jonathan Smith, whose *Charles Darwin and Victorian Visual Culture* locates Darwin at the origin of a late-century "physiological aesthetics" in competition (and in dialogue) with the formidable Ruskin.[16] The topic is distinct from (although it intersects with) Darwin's recourse to particular aesthetic techniques and effects to secure his argument, illuminated (notably) in Smith's study of Darwin's use of representational codes from the visual arts; from the thematic influence of Darwin's theory on Victorian poets, artists, and critics; and from conjectural reconstructions of the evolutionary formation of aesthetics as an

adaptive function in human prehistory.[17] It has fallen to recent work from outside literary studies—by a zoologist and a historian of science—to emphasize the key role of the aesthetic in sexual selection, the evolutionary agency Darwin promotes to quasi-autonomous status alongside (and in certain circumstances overriding) natural selection in *The Descent of Man*. Evelleen Richards summarizes Darwin's thesis in her magisterial reconstruction of its genesis across his career: "Human racial and sexual differences—not just physical differences, but certain mental and moral differences—[have] evolved primarily through the action of sexual selection."[18] Richard O. Prum coins the term "aesthetic evolution," driven by "sexual autonomy—the taste for the beautiful," to characterize the operation of sexual selection, in which "desire and the object of desire coevolve with each other . . . [and shape] each other over evolutionary time."[19]

These studies illuminate the erotic etiology and shaping force of "arbitrary and useless beauty" in human evolution according to Darwin's argument.[20] What remains overlooked is the key term highlighted in Schiller's treatise as the goal or object of aesthetic apprehension: "form." "Darwin invokes the word 'form' on almost every page" of *The Origin of Species* as something fluid and evolving, "an extrapolation from the particular, but not yet a general category," Leighton notes, without pursuing the topic; while Caroline Levine's recent typology of form does not attend to Victorian scientific discourse at all (which is not a defect, since Levine does not claim to be making a historical argument).[21] The topic is distinct (again) from Darwin's use of literary techniques to articulate—and think through—his scientific argument, such as plot, metaphor, analogy, personification, and so on, discussed by Beer, Levine, Devin Griffiths, and others. I shall argue that for Darwin the discrimination of formal affinities and differences within a unified, dynamic system—a quintessentially aesthetic praxis—characterizes the evolutionary process itself as well as the natural scientist's method of observation and interpretation. Mobilized libidinally in individual agents (insects, fish, and birds as well as humans) as sexual selection, this formal discrimination is the main motor of human evolution: whence it becomes available as a theory, a set of norms and practices subject to deliberation and modification.

This essay will sketch the development of Darwin's aesthetic science across his career to its full explication in *The Descent of Man*, a work contemporaneous with *Culture and Anarchy* and with Pater's formulation of his aesthetic credo. It will briefly consider the major works Darwin wrote for a nonspecialist public, the journal of his HMS *Beagle* expedition and *On the Origin of Species* as well as *The Descent of Man*, before returning, in the last part of the essay, to compare Darwin's conjectural history of human emergence through the aesthetic faculty with Schiller's. It is there, I suggest, that we can

bring Darwin's theory most productively to bear on artistic and literary conceptions of form. Darwin gives us a monistic, naturalistic account of aesthetic form as relatively and effectively autonomous that delivers us from the idealist mystification of art, on one hand, and from its vulgar reduction to an ideological symptom, a mere byproduct of some other system or practice, on the other.

II

At the outset of his career, on the voyage of the *Beagle*, Darwin came to recognize the close alignment between aesthetic and scientific modes of attention, to the extent that the aesthetic sense, governing the discernment of form in art and nature, is the matrix of scientific knowledge. On the last lap of the voyage, a few days away from England, Darwin writes up "a short retrospect of the advantages and disadvantages, the pains and pleasures, of our five years' wandering," evaluating his experience in aesthetic terms (pain and pleasure) rather than according to the acquisition of new knowledge.[22] Or rather, scientific knowledge is at the service of aesthetic pleasure:

> There is a growing pleasure in comparing the character of the scenery in different countries, which to a certain degree is distinct from merely admiring its beauty. It depends chiefly on an acquaintance with the individual parts of each view: I am strongly induced to believe that, as in music, the person who understands every note will, if he also possesses a proper taste, more thoroughly enjoy the whole, so he who examines each part of a fine view, may also thoroughly comprehend the full and combined effect. Hence, a traveller should be a botanist, for in all views plants form the chief embellishment. (502)

Darwin's recourse to the language of connoisseurship declares, no doubt, his gentlemanly independence from the official aims of the voyage, a hydrographic and chronometric survey of the South American coasts. At the same time, it is philosophically serious. Darwin calls for a disciplined rather than casual praxis of observation and discrimination, in which scientific knowledge refines an appreciation of "the full and combined effect" of individual parts that constitutes a formal totality. In *The Theory of Moral Sentiments* (a work Darwin knew, and would cite in *The Descent of Man*), Adam Smith had argued that the aesthetic tropism toward apperception of a totality—in his phrase, "love of system"—provided the motive principle for projects of economic improvement and social reform as well as scientific knowledge: "We take pleasure in beholding the perfection of so beautiful and grand a system, and we are uneasy until we remove any obstruction that can in the least disrupt or encumber the regularity of its motions."[23] Darwin invokes

Burkean and Kantian distinctions between the sublime and beautiful, and between different modes of the sublime, aligned with the major works of natural history he is reading on the voyage: Alexander von Humboldt's *Narrative of Travels to the Equinoctial Regions of the New Continent* (which inspired him with the desire to visit tropical countries) and Charles Lyell's *Principles of Geology* (the newly published volumes of which were mailed to him during the voyage). In the course of the journal Darwin harnesses aesthetic intuition to scientific cognition: the beautiful to a Humboldtian delight in the fecundity and variety of living forms in the Amazon rainforest, the sublime to a colder intimation of the "deep time" of Lyellian geohistory in the deserts of Patagonia.[24]

Sensuous intuition and scientific knowledge develop each other, in a relation of recursive reciprocal stimulation, until the disciplined observation of natural forms (stratigraphic, morphological, and so on) yields the apprehension of the world as a totality, a dynamic system of interactive elements: "a Cosmos, or harmoniously ordered whole, . . . animated by the breath of life," as Humboldt would later put it, after he had read (in turn) Darwin's *Journal of Researches*.[25] In this apperception of a formal totality the strong—eventful—categories of aesthetic discourse, the sublime and the beautiful, are contained and regulated by the diffuse, low-intensity affect, durational and hence temporally stable, of the "interesting," in which theoretical reflection and scientific knowledge gestate.[26]

"When we thus view each organic being [in the light of evolutionary theory], how far more interesting, I speak from experience, will the study of natural history become!" Darwin writes in the closing chapter of *The Origin of Species*.[27] And then, in the famous peroration:

> It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us. (426)

The complex interaction among parts yields a formal unity. Throughout *The Origin of Species* Darwin makes a strategic appeal to aesthetic criteria ("that perfection of structure and coadaptation which most justly excites our admiration," 13) to justify his "theory of descent with modification through natural selection" (303). Contemplation of the entangled bank, with its manifestation of uniform law through the interdependence of natural forms, ascends from the interesting to the beautiful and sublime:

> Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been

originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved. (427)

Darwin elevates the reader's gaze from the war of nature to a cosmic vision of the generation of "endless forms most beautiful and most wonderful": endless in that the process lacks a final cause, a design or purpose, as well as in being (therefore) infinite, inexhaustibly copious. An authentic scientific knowledge of the world, as George Levine argues, brings about its re-enchantment—recharging nature with wonder for the disciplined observer.[28]

Crucially, the "grandeur in this view of life" outshines its troubling ethical and political implications. Darwin's peroration sums up a rhetorical strategy of deflection that comes into force in the book's key third and fourth chapters. In chapter 3, "Struggle for Existence," Darwin flays "the face of nature, bright with gladness" of its smiling pastoral countenance (65)—indeed, he flays nature of a "face" altogether—to insist on the unrelenting slow violence of life on earth.[29] Then, at the close of the next chapter, "Natural Selection," he solicits the reader's wonder through the image of the "great Tree of Life, which fills with its dead and broken branches the crust of the earth, and covers the surface with its ever branching and beautiful ramifications" (124). A complex plenitude sublimates local, epiphenomenal events of death and suffering into pure form, as in Caroline Levine's baseline definition, "*an arrangement of elements—an ordering, patterning, or shaping.*"[30] The sublimation is implicit in Darwin's tautology, "branching and beautiful ramifications," which allegorizes both his rhetorical strategy and its referent, organic growth, in the Latinate repetition—beautifying by abstraction—of "branching" as "ramification."

Throughout *The Origin of Species* Darwin trains his readers to reproduce the evaluative scrutiny of minute formal variants, opening onto the intuition of a totality, which characterizes the operation of natural selection itself as well as the diligent observation of the naturalist. The book's opening chapter, on artificial selection, identifies the domestic animal breeder as a "connoisseur," expert in the discrimination of "extremely small differences" (44):

In Saxony the importance of the principle of selection in regard to merino sheep is so fully recognised, that men follow it as a trade: the sheep are placed on a table and are studied, like a picture by a connoisseur . . . so that the very best may ultimately be selected for breeding. (37–38)

Darwin brings this connoisseurial skill home to his readers by citing his own experience as a pigeon fancier: "By educating the reader in the minutiae of

pigeon breeding, Darwin set out to show that nature too might be viewed with the practiced eye of a breeder."[31] The most extravagant morphological signatures of different breeds, he insists, have their origins in minute degrees of divergence from the parent; distinct types emerge though "the slow and gradual accumulation of numerous, slight, yet profitable, variations" across generations (191). The fancier selects a particular trait in and for itself, according to local, comparative criteria, without concern for a final end, such as the improvement of the race. "When many men, without intending to alter the breed, have a nearly common standard of perfection, and all try to get and breed from the best animals, much improvement and modification surely but slowly follows from this unconscious process of selection" (98–99). Here we read a radically etiological revision of the Kantian principle of aesthetic autonomy as "purposiveness without purpose." Contrary to its being a priori, always already encoded in our cognitive apparatus, the virtual form of the breed or species is an unintended byproduct of local, contingent acts of judgment, parsing slight, successive degrees of difference in relation to each other rather than with reference to an ideal type.

Nature works this way too. Our instinctive preference for minor degrees of variation ("It is in human nature to value any novelty, however slight, in one's own possession," 44) expresses a greater law:

> It may be said that natural selection is daily and hourly scrutinising, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up all that is good; silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life. (82)

> Slow though the process of selection may be, if feeble man can do much by his powers of artificial selection, I can see no limit to the amount of change, to the beauty and infinite complexity of the coadaptations between all organic beings, one with another and with their physical conditions of life, which may be effected in the long course of time by nature's power of selection. (104)

Darwin's (notorious) personification of nature as a demiurgic connoisseur implants a fictitious perspective in his readers: attuning us heuristically to the discernment of fine individual differences in a dynamic system, "bound together by a web of complex relations" (74), and to the act of judgment that sorts those differences. Aesthetic discrimination on the grand scale, immanent in and dispersed across the complex whole that is its object, characterizes the work of nature. It is a work of discrimination that can plausibly be called autonomous, insofar as it is systemic, the effect of a totality of distributed interactions rather than of any local individual agent, and it has no final cause or end.[32]

III

In *The Origin of Species*, Darwin turns to the aesthetic to make his theory attractive to readers who may be disturbed by its ethical, political, and religious implications; and he enlists his readers in a practical labor of scrutiny and judgment that is homologous with the operation of natural selection. Expanding his argument to accommodate the human species in *The Descent of Man*, Darwin brings the aesthetic to his text's thematic surface, where it constitutes a theory of culture and of human evolution itself. *The Descent of Man* has a dual aim. First, Darwin sets out to dismantle the barricades of human uniqueness, abolishing any absolute distinction between us and other creatures; second, he offers a positive account of human development, explaining our species' emergence from a prehuman ancestral form and the subsequent production of racial and (what we now call) gender differences.[33] This is a dialectical process, in which the stabilization of a distinct form, *Homo sapiens*, generates as a consequence of its ascendancy the proliferation of varieties. (Darwin has explained this logic in *The Origin of Species*: as a species becomes ecologically dominant, expands its range, and disperses into regional populations, it begins to variegate.)

For the first of these aims, the undoing of human exceptionalism, Darwin's argument—resuming the ambitions of the Enlightenment natural history of man—systematically absorbs the disciplinary branches of the nineteenth-century human sciences (anthropology, ethnology, sociology, moral philosophy, comparative religion, and aesthetics) in order to demolish, one by one, the principles meant to separate us from other animals. So-called lower animals are capable of remembering, reasoning, grasping general ideas, and communicating in protolanguages. Animals have a moral sense, rooted in the "social instinct," comprising loyalty, bravery, compassion, and shame. *Contra* Kant, they appreciate beauty, and they possess the aesthetic "faculties of imagination, curiosity and wonder" (682), which form the basis (Darwin argues) of the religious sense.

However—turning to the second of Darwin's aims in *The Descent of Man*—humans are set apart from other creatures by a historical contingency: our domesticated or rather self-domesticating state. "Domesticated animals vary more than those in a state of nature; and this is apparently due to the diversified and changing nature of the conditions to which they have been subjected. . . . In this respect . . . the different races of man resemble domesticated animals" (46). (Darwin also writes that "savages" live under wild (nomadic) rather than domestic (settled) conditions.) To a limited but real extent, humans' ability to reshape their physical environments abates the hard struggle for resources that drives natural selection.[34] Instead Darwin proposes sexual selection, a "soft," ancillary agency he had sketched in

The Origin of Species, as the main engine of human development. "An extremely complex affair, depending, as it does, on the ardour in love, the courage, and the rivalry of the males, as well as on the powers of perception, the taste, and will of the female" (277), sexual selection supplements the work of natural selection among wild creatures. It assumes a leading role in domestic conditions, where, with mitigation of the raw struggle for existence, the feminine "powers of discrimination and taste" can predominate (248). Masculine rivalry becomes a matter of appearance or display (*Schein*, "semblance," in Schiller's vocabulary), more than of brute physical prowess. In this—putting on a show—it follows a feminine cue. Sexual selection's productive principle is, once again, the discrimination of fine formal variations, trained now on attractive appearance: it is, in Nancy Armstrong's phrase, "aesthetic selection," constitutive of the process Prum calls "aesthetic evolution."[35] And in the case of humans, the subjects of selection are also its agents.[36]

Sexual selection claims the field of formal redundancy constituted by the organic drive to variation, buffered by domestication from the rigors of natural selection. Where natural selection imposes "a limit to the amount of advantageous modification in relation to certain special purposes," no such limit binds the physical features formed through sexual selection, the "secondary sexual characters," which exhibit a "frequent and extraordinary amount of variability" (262). Sexual selection enjoys maximum autonomy, and in consequence a nearly infinite potential for formal variation, in human societies. "In this respect," Darwin writes, "man resembles those forms, called by naturalists protean or polymorphic, which have remained extremely variable, owing . . . to such variations . . . having thus escaped the action of natural selection" (229). In a recursive logic, man's status as self-domesticating animal allows for the categorical emergence of the aesthetic as a conscious motive principle—a purpose—and hence, by the logic of reflection, as a discipline, a science, with its local codes and canons.

Sexual selection generates "the differences in external appearance between the races of man," as well as the signatures of sexual dimorphism, explicitly on grounds of aesthetic preference.[37] Darwin reiterates a key point, that our desire expresses a general law of nature: "There is in the mind of man a strong love for slight changes in all things" (113), which, over time, by the slow accumulation of these slight changes, generates baroque extremities of formal divergence. Drawing on Victorian ethnography and travel writing, Darwin conflates skin color, body hair, and other physiological features with artificial decoration in a rhapsodic vision of the infinite variety of human standards of beauty. The relish with which he catalogs the diversity of personal adornment among "savages" eclipses, at least for the duration, the more conventional (prejudicial) references to hierarchies of

lower and higher, more and less advanced races, and so on, scattered throughout the *Descent*:

> In one part of Africa the eyelids are coloured black; in another the nails are coloured yellow or purple. In many places the hair is dyed of various tints. In different countries the teeth are stained black, red, blue, &c., and in the Malay Archipelago it is thought shameful to have white teeth "like those of a dog." . . . In Africa some of the natives tattoo themselves, but it is a much more common practice to raise protuberances by rubbing salt into incisions made in various parts of the body; and these are considered by the inhabitants of Kordofan and Darfur "to be great personal attractions." In the Arab countries no beauty can be perfect until the cheeks "or temples have been gashed." In South America, as Humboldt remarks, "a mother would be accused of culpable indifference towards her children, if she did not employ artificial means to shape the calf of the leg after the fashion of the country." In the Old and New Worlds the shape of the skull was formerly modified during infancy in the most extraordinary manner, as is still the case in many places, and such deformities are considered ornamental. For instance, the savages of Colombia deem a much flattened head "an essential point of beauty." (641)

Twenty years later, in a startling exaggeration of the logic of domestication—of artificially managed breeding—the naturalist W. H. Hudson presses Darwin's aesthetic ethnography to a fantastic extreme:

> When going about the world one cannot help thinking that the various races and tribes of men, differing in the colour of their skins and in the climates and conditions they live in, ought to have differently-coloured eyes. In Brazil, I was greatly struck with the magnificent appearance of many of the negro women I saw there; well-formed, tall, majestic creatures, often appropriately clothed in loose white gowns and white turban-like head-dresses; while on their round polished blue-black arms they wore silver armlets. It seemed to me that pale golden irides, as in the intensely black tyrant-bird Lichenops perspicillata, would have given a finishing glory to these sable beauties, completing their strange unique loveliness. Again in that exquisite type of female beauty which we see in the white girl with a slight infusion of negro blood, giving the graceful frizzle to the hair, the purple-red hue to the lips, and the delicate dusky terra-cotta tinge to the skin, an eye more suitable than the dark dull brown would have been the intense orange-brown seen in some lemurs' eyes. For many very dark-skinned tribes nothing more beautiful than the ruby-red iris could be imagined; while sea-green eyes would have best suited dusky-pale Polynesians and languid peaceful tribes like the one described in Tennyson's poem ["The Lotos-Eaters"].[38]

This imaginary genetic engineering of global populations wields the aesthetic attitude as supreme modality of the imperial gaze: even as Hudson's title, *Idle Days in Patagonia*, rescues natural historical observation from professional science for a neopastoral, seigneurial reverie of play.

Where Hudson imposes his ludic fancy upon the "races and tribes of men," Darwin evokes their own standards and practices, in a set piece that, no less festive than Hudson's, is far more aggressive toward Victorian readers.

Darwin gleefully parries his readers' anticipated revulsion with anecdotes of other races who find European features disgusting: "In the Malay Archipelago it is thought shameful to have white teeth 'like those of a dog'" (641); "The Chinese of the interior think Europeans hideous, with their white skins and prominent noses" (645); "The negroes rallied Mungo Park on the whiteness of his skin and the prominence of his nose, both of which they considered as 'unsightly and unnatural conformations.' . . . The African Moors, also, 'knitted their brows and seemed to shudder' at the whiteness of his skin. On the eastern coast, the negro boys when they saw Burton, cried out 'Look at the white man; does he not look like a white ape?'" (646). Such anecdotes reverse the racist trope of non-European people's resemblance to animal ancestors (which Darwin stoops to elsewhere: "The resemblance to a negro in miniature of *Pithecia satanas* with his jet black skin, white rolling eyeballs, and hair parted on the top of the head, is almost ludicrous," 673).

The cumulative effect of these examples is to estrange European canons of beauty and to relativize aesthetic judgment. "It is certainly not true that there is in the mind of man any universal standard of beauty with respect to the human body," Darwin affirms, summarizing, once more, his theory's key psychological principle:

> The men of each race prefer what they are accustomed to; they cannot endure any great change; but they like variety, and admire each characteristic carried to a moderate extreme. . . . If all our women were to become as beautiful as the Venus de' Medici, we should for a time be charmed; but we should soon wish for variety; and as soon as we had obtained variety, we should wish to see certain characters in our women a little exaggerated beyond the then existing common standard. (642)

Darwin alludes to David Ramsay Hay's demonstration, at the Edinburgh Aesthetic Club in 1851, of a universal ratio of the beautiful through metrical analysis of the limbs and contours of the Venus de' Medici: a pedantically literal regression to the presensationist protocols of Vitruvian neoclassicism.[39] Against this, Darwin re-embeds aesthetic pleasure in the sensuous apprehension of physical form. We shape our own populations over time much as farmers and fanciers shape domestic breeds by artificial selection. As in that case, the aesthetic tropism to variety, in which the local preference for minor differences in degree generates major differences in kind, refracts the universal logic of natural selection.

In addition to relativizing cultural norms, Darwin's catalogs of savage beauty inscribe aesthetic form on the body, where they effectively obliterate distinctions among genetic physical features such as skin color and facial hair; external adornments such as clothing, jewelry, and dye; and artificial bodily modifications such as tattooing, tooth extraction, and cranial molding. Indeed, the first two categories are collapsed into the last:

> As the face with us is chiefly admired for its beauty, so with savages it is the chief seat of mutilation. In all quarters of the world the septum, and more rarely the wings of the nose are pierced; rings, sticks, feathers, and other ornaments being inserted into the holes. The ears are everywhere pierced and similarly ornamented, and with the Botocudos and Lenguas of South America the hole is gradually so much enlarged that the lower edge touches the shoulder. In North and South America and in Africa either the upper or lower lip is pierced; and with the Botocudos the hole in the lower lip is so large that a disc of wood, four inches in diameter, is placed in it. . . . In Central Africa the women perforate the lower lip and wear a crystal, which, from the movement of the tongue, has "a wriggling motion, indescribably ludicrous during conversation." (642)

Natural feature and artificial ornament combine on the savage's disfigured face, where, with European canons of beauty, the categorical distinction between them—between nature and culture—disintegrates. It is here, on the sculpted and scarified surface of the savage body, that Darwin finds the origins of art, in practices of physical modification that are continuous with acts of preference directed at "natural" features and, hence, with the genetic modification of those features over generations that produces racial difference and amplifies gender dimorphism. Disfigurement is the topos not of an unnatural but of a wholly natural origin of art.

IV

Here we confront the difference between Darwin's aesthetic anthropology and Schiller's. For Schiller also, primitive self-adornment marks the origins of art and, hence, of humanity as such: "Man *adorns* himself." To recapitulate (and simplify) a complex argument: Schiller locates aesthetic appreciation in the play-drive, which transports us from the sense-drive, or animal state of bondage to sensation and physical need, to the form-drive, the free state of reason and moral law. It is through the play-drive, posited at first as an intermediary agency between these, that we enter fully into our humanity: "Man only plays when he is in the fullest sense of the word a human being, and *he is only fully a human being when he plays*" (107); in a more Kantian formulation, "Beauty alone do we enjoy at once as individual and as species, [that is], as *representatives* of the human species [*Gattung*]" (217). For this, the play-drive must transcend its functional origin in the imitative instinct: "As soon as the play-drive begins to stir, with its pleasure in semblance, it will be followed by the shaping spirit of imitation, which treats semblance as something autonomous" (195). We perceive form aesthetically, as form, once we are able to "[distinguish] semblance from reality, form from body" and, hence, to "abstract the one from the other" (195).

Insisting on this reflective abstraction of form from matter and from function, Schiller's argument also affirms a developmental continuity, since the play-drive is the escalator that lifts us from sensuous to intellectual existence. Beauty is a transitional stage in the passage from "mere life . . . to pure form," since "a sudden leap [would be] contrary to human nature" (185). Now, however, Schiller registers a fundamental discontinuity—a gap that must be jumped—at the point where man begins "to become truly human":

> Chained as he is to the material world, man subordinates semblance to ends of his own long before he allows it autonomous existence in the ideal realm of art. For this to happen a complete revolution in his whole way of feeling is required. . . . As soon as he ever starts preferring form to substance, and jeopardizing reality for the sake of semblance (which he must, however, recognize as such), a breach has been effected in the cycle of his animal behavior. (205)

Schiller's argument, in short, insists on the production of the "truly human" out of a radical breach, a "revolution," in our natural constitution, even as it mounts an evolutionary narrative of human emergence.

Schiller sketches that evolutionary narrative, a natural history of the play-drive, in the Twenty-Seventh Letter, the last of the series. The play-drive originates in animal life, in a redundancy of vital power over biological function: the lion fills the desert with roaring, gnats dance in the sun, birds sing, out of a sheer exuberance of physical energy—"the overplus which living things are entitled to squander in a movement of carefree joy" (207).[40] (These are classic behaviors of sexual selection, according to Darwin.) In humans the imagination too is gifted with an energy that exceeds practical use and, "[delighting] in its own absolute and unfettered power," overflows in the "free association of images" (209). It must make a leap beyond mechanical laws of association, however, if we are to enjoy true aesthetic play:

> From this play of *freely associated ideas*, which is still of a wholly material kind, and to be explained by purely natural laws, the imagination, in its attempt at a *free form*, finally makes the leap to aesthetic play. A leap it must be called, since a completely new power goes into action; for here, for the first time, mind takes a hand as a lawgiver in the operations of blind instinct, subjects the arbitrary activity of the imagination to its own immutable and eternal unity, introduces its own autonomy into the transient, and its own infinity into the life of sense. (209)

The violence of this leap, striving beyond the bonds of physical life, is reflected in the forms of primitive art:

> The aesthetic play-drive . . . will in its first attempts be scarcely recognizable, since the physical play-drive, with its willful wants and unruly appetites, constantly gets in the way. Hence we see uncultivated taste first seizing on what is

new and startling—on the colorful, fantastic and bizarre, the violent and the savage—and shunning nothing so much as tranquil simplicity. It fashions grotesque shapes, loves swift transitions, exuberant forms, glaring contrasts, garish lights, and a song full of feeling. (211)

The aesthetic sense, in other words, expresses its origin in a disruption of nature, a vehement break from bodily life, in primitive forms that are abrupt, jagged, garish, grotesque. The "tranquil simplicity" of classical form and of aesthetic contemplation succeeds later, once material need has been fully surmounted. "Uncoordinated leaps of joy turn into dance, the unformed movements of the body into the graceful and harmonious language of gesture; the confused and indistinct cries of feeling become articulate, begin to obey the laws of rhythm, and to take on the contours of song" (213). Homer's *Iliad*—founding work of the Western literary tradition—allegorizes this emergence: the onrush of the Trojan host ("with piercing shrieks like a flock of cranes") expresses "the exuberance of blind forces," while the silent advance of the Greek army ("with noble and measured tread") signals "the triumph of form and the simple majesty of law" (213).

For Darwin, in contrast, the forms of art are continuous with the forms of nature. Like them, they emerge through a gradual accumulation of subtle differences that only over time, across many generations, achieve extreme conformations. *Natura non facit saltum.* The grotesque and violent forms of savage beauty only appear so to European interlopers, onlookers from outside, who perceive them as unnatural because they have not grown up with them and are not accustomed to them. At the same time, Darwin's descriptions of savage norms of beauty hold on to—they scandalously insist upon—conventional European associations of savagery with the violent and grotesque. Like much in *The Descent of Man*, these passages are meant to shock the reader: to wound our thinking, in a sort of conceptual scarification. The aggression becomes overt in another ethnographic anecdote:

The wife of the chief of Latooka told Sir S. Baker that Lady Baker "would be much improved if she would extract her four front teeth from the lower jaw, and wear the long pointed polished crystal in her under lip." (643)

One scarcely imagines Lady Baker voluntarily submitting to such an operation, let alone undertaking it herself. Darwin poses a stiff challenge to Victorian readers, provoking them to read through the gruesome threat not just to English aesthetic standards but to an English lady, and to see that the chief's prescription, while conforming to a standard ethnographic topos of women's abject status in savage societies, also belongs to a greater ecology of naturalized forms of beauty and delight.

V

"Man still bears in his bodily frame the indelible stamp of his lowly origin" (689): likewise, the art forms of complex civilizations bear the stamp of their primitive origins as rites and accessories of courtship. Darwin traces music, song, and poetry back to the vocalizations of "singing gibbons" and "the half-human progenitors of man" (636), so that "the sensations and ideas . . . excited in us by music, or expressed by the cadences of oratory, appear from their vagueness, yet depth, like mental reversions to the emotions and thoughts of a long-past age" (638). The primitivist claim challenges idealist exaltations of music, especially, as a sublimation of art's material bonds: opening, it would seem, the broad path of contemporary evolutionary aesthetics, with its genetic insistence upon the adaptive function of artistic forms and techniques.[41] But we should attend precisely to Darwin's claim. The "vagueness, yet depth" of sensations and ideas excited by music and poetry *appear like* "mental reversions to the emotions and thoughts of a long-past age"—rather than actually instantiating such reversions. They are sentimental rather than naïve, to evoke the terms of Schiller's essay "On Naïve and Sentimental Poetry." Reflection has intervened, and the appearance may be a byproduct of their modernity—of art's capacity, in Kantian and Schillerian terms, to evoke (to fictionalize?) a unity of being in the current condition of its fragmentation. Darwin's suggestion, itself poetic, says nothing about the differences between particular artworks or genres, or the codes we apply to recognize and assess those differences, in the vernacular as well as scholarly connoisseurial practices that regulate everyone's aesthetic enjoyment.

According to the general logic of Darwin's theory, just as sexual selection develops its own formal momentum—and local grammars and vocabularies—under domestication, sheltered from the rough winds of natural selection, so too aesthetic formation and aesthetic pleasure drift apart from, evolve away from, their sexual etiology. They may bear its formal signature, like a morphological rudiment, and its libidinal charge, but they need no longer be functionally determined by it. Darwin cites instances of the detachment of (heritable) form from (adaptive) function in support of the theory of natural selection in *The Origin of Species*:

> A species may under new conditions of life change its habits, or have diversified habits, with some habits very unlike those of its nearest congeners. Hence we can understand, bearing in mind that each organic being is trying to live wherever it can live, how it has arisen that there are upland geese with webbed feet, ground woodpeckers, diving thrushes, and petrels with the habits of auks. (186)

The case of the swim bladder in fishes "shows us clearly the highly important fact that an organ originally constructed for one purpose, namely flotation,

may be converted into one for a wholly different purpose, namely respiration" (174). In short: "Any change in function, which can be effected by insensibly small steps, is within the power of natural selection; so that an organ rendered, during changed habits of life, useless or injurious for one purpose, might easily be modified and used for another purpose" (397). The logic applies still more forcefully to the imaginary affordances of sexual selection.

The repurposing of the aesthetic sense from rituals of courtship to other practices, objects, systems, and institutions, which recursively develop their own internal dynamics of variation, selection, and transformation, achieves by entirely different means the condition of autonomy claimed for aesthetic experience in Kant's and Schiller's wake. This autonomy—partial, historical, and contingent, not absolute—is an outgrowth of the contingent autonomy of sexual selection itself with respect to natural selection. Richard Prum goes so far as to posit "two distinct and frequently independent evolutionary mechanisms" (sexual selection and natural selection) against the utilitarian reduction of beauty to reproductive fitness by evolutionary psychology, with its "often fanatical commitment to the universal efficacy of adaptation by natural selection."[42] Drawing out the immanent logic of Darwin's theory, philosopher Elizabeth Grosz argues still more emphatically for the functional autonomy of sexual selection and its emancipatory provision of a libidinal free play of formal differences: "The laws of sexual selection are the principles of aesthetics, not the strategies of game theory. . . . Sexual selection may be understood as the queering of natural selection, that is, the rendering of biological norms, ideals of fitness, strange, incalculable, excessive."[43]

Thus the scientist and the philosopher of science reinstitute Schiller's conception of the aesthetic state upon the terrain of Darwin's theory. In a recent bid to reclaim the political project of the *Aesthetic Education*, Jacques Rancière explicates its "promise of a 'new art of living' of individuals and the community, the promise of a new humanity."[44] "Free appearance," in Rancière's summary, "becomes the product of a human mind which seeks to transform the surface of sensory appearances into a new sensorium that is the mirror of its own activity."[45] The aesthetic state realizes a wholly humanized world—reality transformed into a total human representation, a virtual human image or reflection. Perhaps it has become too easy to flip this humanist vision into its dystopian parody, the actual, material transformations of the earth by human agency that are currently degrading its complex living systems toward a drastically impoverished future. Grosz and Prum remind us of the key difference between Schiller's argument and Darwin's. Where the aesthetic education proposes a complete realization of humanity at the center of the world, Darwin's theory dethrones the human species

from nature and from history. We share aesthetic enjoyment—and everything else—with other creatures, such that our immersion in creaturely life is the condition of our enjoyment.[46] It may not be a trivial characterization of our current predicament to understand it as an aesthetic crisis: a threatened end to the material basis of free play and beauty in the diversity of living forms.

Notes

This essay develops work presented at the MLA Convention in Philadelphia, January 2017; at the conference *Victorian Form and Reform*, UC Santa Cruz, July 2017; in an article, "Aesthetics and Form in Charles Darwin's Writings," for the *Oxford Research Encyclopedia of Literature*, ed. Paula Rabinowitz (Oxford, 2017), https://oxfordre.com/literature, and in an essay, "Charles Darwin on the Aesthetic Evolution of Man," *Evolutionary Studies in Imaginative Culture* 1, no. 1 (2017): 55–57. I thank Supritha Rajan, Rae Greiner, Tricia Lootens, Elsie Michie, and Carolyn Williams for their generosity; audience members for their comments and questions; and Devin Griffiths, Deanna Kreisel, Jean Day, and my colleagues on the *Representations* editorial board for their criticism and support in the process toward publication.

1. See my discussion of the debates that constituted the new genre in *Human Forms: The Novel in the Age of Evolution* (Princeton, 2019), 31–53. Frank Palmeri makes the case for *The Descent of Man* as a Victorian iteration of "conjectural history," originating in Enlightenment protosociology: *State of Nature, Stages of Society: Enlightenment Conjectural History and Modern Social Discourse* (New York, 2016), 165–78.
2. Friedrich Schiller, *On the Aesthetic Education of Man in a Series of Letters*, ed. and trans. E. M. Wilkinson and L. A. Willoughby (Oxford, 1982), 207. Future references to this edition will be given in the text.
3. J. G. Herder, *Ideen zur Philosophie der Geschichte der Menschheit* [1784–1791], trans. Thomas Churchill as *Outlines for a Philosophy of the History of Man* (London, 1800), 123.
4. Matthew Arnold, *Culture and Anarchy and Other Writings*, ed. Stefan Collini (Cambridge, 1993), 61–62.
5. Ibid., 123–24.
6. Angela Leighton, *On Form: Poetry, Aestheticism, and the Legacy of a Word* (Oxford, 2007), 6.
7. Ibid.
8. See Benjamin Morgan, *The Outward Mind: Materialist Aesthetics in Victorian Science and Literature* (Chicago, 2017), 7–8.
9. See Kevis Goodman, *Pathologies of Motion: Medicine, Aesthetics, Poetics* (New Haven, forthcoming). On William Hogarth's "line of beauty" as an aesthetic principle specific to human adaptive needs see Abigail Zitin, "Fittest and Fairest: Aesthetics and Adaptation Before Darwin," *ELH* 82, no. 3 (2015): 845–68; on Edmund Burke's sensationalism see Aris Sarafianos, "Pain, Labor, and the Sublime: Medical Gymnastics and Burke's Aesthetics," *Representations* 91 (2005): 58–83.

10. Morgan, *The Outward Mind*, 36.
11. Jonathan Smith, *Charles Darwin and Victorian Visual Culture* (Cambridge, 2006), 165.
12. Morgan, *The Outward Mind*, 31.
13. Eckart Förster, *The Twenty-Five Years of Philosophy: A Systematic Reconstruction*, trans. Brady Bowman (Cambridge, MA, 2012), 135. Joseph Carroll comments on Schiller's reintegration of the Kantian faculties of reason and sensuous cognition within the play drive in his contemporary reconstruction of evolutionary aesthetics; *Evolution and Literary Theory* (Columbus, MO, 1995), 233.
14. Besides Goodman, *Pathologies of Motion*, chap. 3, see also, e.g., Amanda Jo Goldstein, *Sweet Science: Romantic Materialism and the New Logics of Life* (Chicago, 2017), 56–62, and "Nerve Poetry and Fiber Art: Biosemiosis and Plasticity in Erasmus Darwin," *Literature Compass* (forthcoming). Devin Griffiths argues that Erasmus Darwin lacked a formal schema adequate to his evolutionist intuitions; the analogical method of comparative historicism, pioneered in the Enlightenment natural history of man, supplied that schema, which his grandson developed via its technical refinement in nineteenth-century fiction; *The Age of Analogy: Science and Literature between the Darwins* (Baltimore, 2016), 52–82.
15. On Charles Darwin's extensive reading in the British aesthetic tradition (including David Hume, Joshua Reynolds, Edmund Burke, and Archibald Allison as well as Erasmus Darwin) see Barbara Larson, "Darwin, Burke, and the Ideological Sublime," in *Darwin and Theories of Aesthetics and Cultural History*, ed. Barbara Larson and Sabine Flach (Farnham, UK, 2013), 17–36; and Evelleen Richards, *Darwin and the Making of Sexual Selection* (Chicago, 2017), 97–125. This emphasis presses against Robert J. Richards's revisionist argument for Darwin's intellectual genealogy in German Romantic vitalism and *Naturphilosophie*: *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior* (Chicago, 1987).
16. Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* [1983], 3rd ed. (Cambridge, 2009); George Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction* (Chicago, 1992). See also Levine's recent *Darwin the Writer* (Oxford, 2011). "Darwin's work in the *Descent* and his botany books became a crucial part of a full-scale physiological aesthetics . . . disseminated by [later] popularizers like Grant Allen"; Smith, *Charles Darwin and Victorian Visual Culture*, 29.
17. Besides *Charles Darwin and Victorian Visual Culture*, see also Jonathan Smith's "Evolutionary Aesthetics and Victorian Visual Culture," in *Endless Forms: Charles Darwin, Natural Science, and the Visual Arts*, ed. Diana Donald and Jane Munro (New Haven, 2009), 237–52. David Kohn anticipates my theme with his claim that "Darwin's aesthetic, embodied in his oldest most expressive metaphor, shaped his most substantive scientific theory"; "The Aesthetic Construction of Darwin's Theory," in *Aesthetics and Science: The Elusive Synthesis* (Dordrecht, 1996), ed. Alfred Tauber, 14. Rather than addressing the conceptual formation of Darwin's aesthetic, Kohn tracks the development of one of his metaphors (the "entangled bank") as a psychoanalytic allegory. For evolutionist reconstructions of a "Darwinian aesthetics," see Ellen Dissayanake, *Homo Aestheticus: Where Art Comes From and Why* (New York, 1992); Denis Dutton, *The Art Instinct: Beauty, Pleasure, and Human Evolution* (New York, 2009), 9.
18. Richards, *Darwin and the Making of Sexual Selection*, xviii.
19. Richard O. Prum, *The Evolution of Beauty: How Darwin's Forgotten Theory of Mate Choice Shapes the Animal World—and Us* (New York, 2017), 8, 18, 28. See also

Prum's earlier formulation of his argument, "Aesthetic Evolution by Mate Choice: Darwin's *Really* Dangerous Idea," *Philosophical Transactions of the Royal Society B: Biological Sciences* 367, no. 1600 (2012): 2253–65.

20. Prum, *The Evolution of Beauty*, 27.
21. Leighton, *On Form*, 81; Caroline Levine, *Forms*: *Whole, Rhythm, Hierarchy, Network* (Princeton, 2015).
22. Charles Darwin, *Journal of Researches into the Geology and Natural History of the Various Countries visited by H.M.S. Beagle* (London, 1839), 602. Future references to this edition, unless otherwise indicated, are cited in the text.
23. Adam Smith, *The Theory of Moral Sentiments*, ed. D. D. Raphael and A. L. Macfie (Oxford, 1976), 185. See also Smith's unpublished "History of Astronomy," *Essays on Philosophical Subjects*, ed. W. P. D. Wightman, J. C. Bryce, and I. S. Ross (Oxford, 1980), 39–47.
24. See my fuller discussion of this, "On Charles Darwin and the Voyage of the *Beagle*," in *BRANCH: Britain, Representation and Nineteenth-Century History*, ed. Dino Franco Felluga; extension of *Romanticism and Victorianism on the Net*, 2012, http://www.branchcollective.org/?ps_articles=ian-duncan-on-charles-darwina-and-the-voyage-of-the-beagle-1831-36.
25. Alexander von Humboldt, *Cosmos: A Sketch of the Physical Description of the Universe*, trans. E. C. Otte (New York, 1858), 1:23–24. On Darwin and Humboldt see James Krasner, "A Chaos of Delight: Perception and Illusion in Darwin's Scientific Writing," *Representations* 31 (1990): 118–41.
26. "Interest" and the "interesting"—Darwin's own terms—bear the positive charge Sianne Ngai sees emerging in Romantic-period writing (associated with Friedrich Schlegel's poetic theory and the novel); Sianne Ngai, "Merely Interesting," *Critical Inquiry* 34, no. 4 (2008): 777–817.
27. Charles Darwin, *On the Origin of Species*, ed. William Bynum (London, 2009), 423. Further references to this edition will be given in the text.
28. George Levine, *Darwin Loves You: Natural Selection and the Re-Enchantment of the World* (Princeton, 2008).
29. "The face of Nature may be compared to a yielding surface, with ten thousand sharp wedges packed close together and driven inwards by incessant blows, sometimes one wedge being struck, and then another with greater force"; Darwin, *Origin of Species*, 69. See Beer's discussion, *Darwin's Plots*, 65–66.
30. Levine, *Forms*, 3; emphasis in original.
31. Richards, *Darwin and the Making of Sexual Selection*, 161.
32. Darwin's logic here is Kantian, according to the regulative (as opposed to constitutive) operation of teleological judgment: the purpose implicit in "selection" (scrutinizing, rejecting, preserving) is an effect of our cognition of it, not of the process itself. Darwin's evolutionary theory, in Jennifer Mensch's characterization, conscripts "reason's transcendental principle of affinity . . . into double service as a constitutive principle" as well as a regulative one; Jennifer Mensch, *Kant's Organicism: Epigenesis and the Development of Critical Philosophy* (Chicago, 2014), 149–52.
33. Charles Darwin, *The Descent of Man, and Selection in Relation to Sex*, ed. James Moore and Adrian Desmond (London, 2004), 18. Future references to this edition are given in the text.
34. Compare Johann Friedrich Blumenbach, *On the Natural Variety of Mankind* [1795]: "Man is a domestic animal. . . . Other domestic animals were brought to that state of perfection *through him*. He is the only one who brought *himself* to perfection"; cited in Jenny Davidson, *Breeding: A Partial History of the Eighteenth*

Century (New York, 2008), 97. Blumenbach's English disciple William Lawrence echoes the formulation; see Richards, *Darwin and the Making of Sexual Selection*, 147.

35. Armstrong argues that the shift of emphasis from natural selection to sexual selection replaces the zero-sum dynamic of rivalry between "winners and losers" with "the subtler difference between actual and potential manifestations" of variable form; Nancy Armstrong, "On Charles Darwin's *The Descent of Man*, 24 February 1871," in *BRANCH: Britain, Representation and Nineteenth-Century History*, ed. Dino Franco Felluga; extension of *Romanticism and Victorianism on the Net*, June 23, 2016, http://www.branchcollective.org/?ps_articles=nancy-armstrong-on-charles-darwins-the-descent-of-man-24-february-1871.
36. Beer's claim that with sexual selection Darwin reintroduced individual agency—elided in the long-term, population-scale dynamics of natural selection—into the evolutionary process (*Darwin's Plots*, 184) has provoked a tradition of critical reflection on the problematic status his argument grants female agency, played out in the courtship scenarios of Victorian fiction: see, e.g., Nancy Armstrong, *Desire and Domestic Fiction: A Political History of the Novel* (New York, 1987), 221–24; Ruth Bernard Yeazell, *Fictions of Modesty* (Chicago, 1991), 219–28; Elisha Cohn, "Darwin's Marriage Plots: Unplotting Courtship in Late Victorian Fiction," in *Replotting Marriage in Nineteenth-Century Literature*, ed. Jill Galvan and Elsie Michie (Columbus, OH, 2018), 40–41. Rosemary Jann argues that Darwin naturalizes Victorian social hierarchies, positing "male agency and choice" upon "woman's biological and intellectual inferiority"; "Darwin and the Anthropologists: Sexual Selection and Its Discontents," *Victorian Studies* 37 (1994): 288. George Levine offers a more optimistic account of Darwin's theory as opening a potentially radical affirmation of female agency, reflected in the work's largely dismissive nineteenth-century reception; Levine, *Darwin Loves You*, 176–99. See also Elizabeth Grosz, *The Nick of Time: Politics, Evolution, and the Untimely* (Durham, NC, 2004), 70–76. The recent scientific studies of sexual selection by Prum and Richards endorse the positions of Levine and Grosz. As Levine puts the case: "[Darwin's] theory itself forces a break with just those prejudices that produced it . . . his thought outleaped the culture that helped form it" (*Darwin Loves You*, 190).
37. Alys Eve Weinbaum characterizes Darwin's "racist theory of racial formation" as one "in which female reproductive agency produces aesthetic differences visible to the observer as racial in character"; *Wayward Reproductions: Genealogies of Race and Nation in Transatlantic Modern Thought* (Durham, NC, 2004), 156. To my view, Darwin's account of an aesthetic production of signs of racial difference makes available a powerfully nonracist theory of racial formation—antiracist, indeed, in that it dispenses with universal norms of beauty and fitness.
38. W. H. Hudson, *Idle Days in Patagonia* (London, 1893), 195–96. On Hudson and Darwin see Cannon Schmitt, *Darwin and the Memory of the Human: Evolution, Savages, and South America* (Cambridge, 2009), 50–52, 139–46.
39. See Morgan's detailed analysis of David Ramsay Hay's project in *The Outward Mind*, 56–63.
40. Schiller's argument informs Goethe's reflections on animal beauty and its disruption of classical aesthetic norms in his late morphology notebooks. The apprehension of animal form as beautiful, Goethe suggests, requires our ignorance of its biological necessity, so that we misread its motions as expressive of free will: see Eva Geulen, *Aus dem Leben der Form: Goethes Morphologie und die Nager* (Berlin, 2016), 132–33; and Eva Geulen, "Morphologie und gegenständliches

Denken," *Goethe Yearbook 26*, ed. Patricia Anne Simpson (Rochester, 2019), 3–15. I thank Niklaus Largier for the reference.

41. For a nuanced account (mediating between broad adaptive functionalism and fine contingency); see Dutton, *The Art Instinct*: on the one hand, "a Darwinian aesthetics will achieve explanatory power . . . by showing how [art forms'] existence and character are connected to Pleistocene interests, preferences, and capacities" (96); on the other, since they are "*products of prehistoric contingency*" (204), "aesthetic tastes and interests do not form a rational deductive system but look rather more like a haphazard concatenation of adaptations, extensions of adaptations, and vestigial attractions and preferences" (219).
42. Prum, *The Evolution of Beauty*, 25–26, 35–52, 227.
43. Elizabeth Grosz, *Becoming Undone: Darwinian Reflections on Life, Politics, and Art* (Durham, NC, 2011), 118, 123–42 (131, 132). Compare Richard C. Sha's argument that the dissociation of pleasure from (instrumental or reproductive) purpose provides a common ground for aesthetic autonomy and queer sexuality in Romantic poetics; *Perverse Romanticisms: Aesthetics and Sexuality in Britain, 1750–1832* (Baltimore, 2008).
44. Jacques Rancière, *Dissensus: On Politics and Aesthetics*, trans. and ed. Steven Corcoran (London, 2010), 176.
45. Ibid., 116.
46. Prum's call for "reframing aesthetic philosophy to remove humans from the organizing center of the discipline" (*The Evolution of Beauty*, 358) lags behind Grosz's proposal for a "new understanding of the humanities" that would "adequately map this decentering that places man back within the animal, within nature, and within a space and time that man does not regulate, understand, or control" (*Becoming Undone*, 25). Before both, see Georges Canguilhem, *La Connaissance de la vie*, first published in 1952: "Science presents itself as the general theory of a real, that is to say, inhuman milieu" and so requires "the disqualification, as illusions or vital errors, of all subjectively centered proper milieus, including that of man"; Georges Canguilhem, *Knowledge of Life*, ed. Paola Marrati and Todd Meyers, trans. Stefanos Geroulanos and Daniela Ginsberg (New York, 2008), 119.