

Darwin's place in the history of thought: A reevaluation

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Scholars have usually given Darwin's theory a neo-Darwinian interpretation. A more careful examination of the language of Darwin's notebooks and the language of the *Origin of Species* indicates that he reconstructed nature with a definite purpose: the final goal of man as a moral creature. In the aftermath of the *Origin*, Darwin, however, became more circumspect.

Descent of Man | moral purpose | *Origin of Species* | teleology

Even before the publication of the *Origin of Species* in 1859, Darwin had begun his ascendancy to a premier place in the history of biology, and he has yet to cede that position. When we examine the list of those great scientists who have transformed our vision of the world, we discover that Darwin has few rivals: Aristotle, Harvey, Copernicus, Galileo, Newton, Einstein—the pantheon is not large. And if it comes down to individuals who have altered our understanding of who we are, what we have been and, perhaps, what we can become, then, I think, Darwin stands alone. And if the concept of revolution still carries conceptual weight, which I believe it does, he staged a singular revolution in thought, as Michael Ruse and Daniel Dennett have argued in this symposium. Darwin accomplished this revolution, however, not so much by discarding the older framework as by reconstructing from within it.

The danger of Darwin's ideas resides in the extraordinary way he used rather traditional conceptions. The usual assumption is that Darwin killed those barren virgins of teleology and of purpose, scorned moral interpretations of nature, and strode into the modern world escorting the stylish concepts of modern materialism and secularism. I believe, on the contrary, that Darwin's theory preserved nature's moral purpose and used teleological means of doing so. Darwinian evolution had the goal of reaching a fixed end, namely man as a moral creature. This is something Darwin implied in the peroration at the end of the *Origin*, when in justifying the death and destruction wrought by natural selection, he contended that “the most exalted object we are capable of conceiving” is “the production of the higher animals” (ref. 1, p. 490). To understand Darwin's place in history, I think we must first consider what his theory actually entailed.

In the argument that follows, I will assume what might seem like a pedantically obvious principle, namely that Darwin's theory is embedded in his language. The principle contends that the conceptual import of Darwin's language—particularly the deployment of tropes, metaphors, and other linguistic and logical devices—constitute the operative theory advanced in the *Origin*. Darwin began formulating this language in his early notebooks and essays; and his constructions form the bedrock of the sometimes altered versions in his book. This means that it will occur that the language of Darwin's theory will at times say more—or less—than he himself might reflectively have wished to say. I will argue this position in the spirit of the 1950s New Criticism—the movement that prized the well-wrought urn as an autonomous aesthetic object.

Darwin's Early Life

Most are familiar with the trajectory of Darwin's career, but to set the context of his work, let me briefly fill in the broad outlines of his early life.

Darwin's place in human thought could hardly have been predicted from the fortunes of that young boy who went to Edinburgh Medical School at age 16, following in the footsteps of his famous grandfather Erasmus Darwin, his father Robert Waring Darwin, and his older brother Erasmus. However, his prospects were not golden. In his *Autobiography*, Darwin recounts the attitude of that distant self, and his father's own estimation of his son's abilities:

I believe I was considered by my [school] masters and by my Father as a very ordinary boy, rather below the common standard in intellect. To my deep mortification my father once said to me, “You care for nothing but shooting, dogs, and rat-catching, and you will be a disgrace to yourself and all your family.

Darwin (ref. 2, p. 28)

Darwin, however, adds to that recollection: “But my father, who was the kindest man I ever knew, and whose memory I love with all my heart, must have been angry and somewhat unjust when he used such words.”

Darwin came down from Edinburgh after 2 years, being unable to tolerate the medical curriculum. His father decided that the only place for a younger son of the gentry with few prospects would be a country parsonage, and so Darwin went to Cambridge University in 1828 with the professional goal vaguely in mind of entering the ministry. Although he did not doubt the literal truth of the Bible, he later remarked of his acquiescence in the decision: “It never struck me how illogical it was to say that I believed in what I could not understand and what is in fact unintelligible” (ref. 2, p. 57).

During the 3 years he spent at Cambridge, he did become acquainted with the rudiments of botany and a bit of geology, but he judged the time mostly wasted. He occupied himself with beetle collecting and dinner parties—not unknown to Cambridge students today, except for the beetle collecting.

Of course, Darwin's life dramatically changed in 1831 when he got a chance to ship out on the surveying vessel *H.M.S. Beagle*. He was inspired to attempt the effort because of the book in which he had been engrossed during his last year at university: *Personal Narrative of Travels to the Equinoctial Region of the New Continent, 1799-1804* (3). It was a scientific travel adventure written by Alexander von Humboldt, the German romantic and friend of the poet Johann Wolfgang von Goethe.

Humboldt told of his own 5-year voyage to South and Central America, with a concluding trip to the wilds of Eastern America to speak with Thomas Jefferson. The tale filled the 21-year-old Darwin with enthusiasm for exotic travel. On the *Beagle*, Darwin

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packed into his very small quarters several of Humboldt's other books, which he consumed on the outward voyage—in between bouts of debilitating sea-sickness and retching over the side of the ship.

Humboldt's own conception of both science and nature would seep deeply into Darwin's later theory of evolution by natural selection. This German Romantic scientist portrayed a nature that was fecund and creative, and not standing in need of Divine agency. During the course of his later research, Darwin would receive several more booster shots of German Romanticism, such that his theory would become resistant to the usual interpretations imposed by neo-Darwinian scholars (4).

There is no substantial evidence that Darwin doubted the stability of species while on his 5-year voyage. However, his own heritage and reading of his Grandfather's book *Zoonomia* (5) and the works of Jean Baptiste de Lamarck—both the elder Darwin and Lamarck argued for the transmutation of species—they would have primed him to be conscious of the possibility of species mutation, a possibility rejected at the time by virtually all naturalists of standing in England.

It seems that it was only after his return in October 1836, while cataloguing his specimens from the voyage the following March, that he began seriously to entertain the hypothesis of species transformation (6). It was the mockingbirds he brought back from the Galapagos that tripped a mind at the ready. Then from spring of 1837 through summer of 1859, he labored in putting together his theory. His notebooks and manuscripts reveal the less than certain path he traveled.

Darwin's Construction of his Theory

Initially Darwin tried several devices of a Lamarckian character to explain the alteration of species—especially the direct impact of the environment and the inherited effects of habit. Both of these devices were retained in the *Origin* and used as well in *The Descent of Man*. Darwin never relinquished his belief in the inheritance of acquired characters and even formulated a theory of heredity to explain that phenomenon. On September 28, 1838, he read Thomas Malthus's *Essay on the Principle of Population*, which, as he declared in his *Autobiography*, gave him a theory by which to work (ref. 2, p. 120). What Malthus supplied was the notion of population dynamics, population pressure. Darwin already had the idea that the breeder's picking would produce transformations in domestic organisms; now he understood, although vaguely, how it might occur in nature. The vagueness, I believe, has to be emphasized, because it still took several years for the idea to take the shape with which we are today familiar.

Moral Purpose of Evolution

One recurring problem that Darwin faced, from the very first page of his initial transmutation notebook, was the explanation for sex (ref. 7, p. 170). It was a problem his grandfather had introduced in *Zoonomia* (5). The purpose of sex, as Darwin quickly appreciated, was to adjust organisms to the features of the environment that would produce progress. Sexual generation had the purpose of eliminating changes that were only locally adaptive while adjusting them to slow, Lyellian alterations leading to continued progress. As Darwin put it a few days after reading Malthus:

The final cause of sexes to obliterate differences, final cause of this because the great changes of nature are slow. If animals became adapted to every minute change, they would not be fitted to the slow great changes really in progress.

Darwin (ref. 7, p. 386)

Thus, there is sex for the purpose of adjusting organisms to future, long term changes. However, Darwin quickly came to

specify what the ultimate object or purpose of that progressive development might be: namely, man as a moral creature. At the beginning of November, 1838, he put it this way:

My theory gives great final cause «I do not wish to say only cause, but one great final cause . . . » of sexes . . . for otherwise, there would be as many species, as individuals, . . . we see it is not the order in this perfect world, either at the present, or many anterior epochs.—but we can see if all species, there would not be social animals . . . hence not social instincts, which as I hope to show is «probably» the foundation of all that is most beautiful in the moral sentiments of the animated beings. If man is one great object, for which the world was brought into present state . . . & if my theory be true then the formation of sexes rigidly necessary.

Darwin (ref. 7, p. 409;
wedge quotes indicate later additions)

Darwin's final-cause explanation goes this way: Sexual generation exists for the purpose of bringing social animals into existence; and the final cause or purpose of social animals is to bring into existence animals with moral sentiments, namely human beings. Darwin concluded this final-cause consideration with: "Man is [the] one great object" of nature. In Darwin's early construction, then, sex thus developed in ancient animals so that moral creatures might eventually appear. As one can see, Darwin's theory, as he himself construed it, was hardly inimical to teleology, even in the vulgar sense of that term. And as he considered it, the goal of nature's species transformations was eventually man as a moral creature.

Within a day or two of formulating this teleological argument, Darwin opened up his *N Notebook*, in which he began constructing his theory of human moral evolution. As the above passages indicate, he considered moral behavior to be a species of social instinct. One difficulty he recognized immediately was that the social instincts benefited not their carriers but their recipients. This meant that his new device of natural selection would not appear to provide their account, which is probably why Darwin initially relied on the inheritance of acquired habit to explain these innate behaviors. Darwin would apply his device of natural selection to explicate moral behavior only after he had solved a significant problem that threatened to overturn his entire theory—or at least he so judged.

He encountered the problem while reading works in entomology. The several castes in social-insect colonies had distinctive traits. Soldier bees, for instance, displayed aggressive instincts and body shapes that were different from the workers. They were also neuters and did not reproduce. However, natural selection operates on individuals to give them a survival advantage, thus allowing them to reach reproductive age and pass on their traits to offspring. Neuter bees and ants leave no offspring. How then could natural selection account for the evolution of social-insect castes? Darwin was still fumbling with that problem while composing the *Origin of Species*. In the throes of working on his chapter on instinct, he hit upon the solution: Selection operates on the whole hive or community of insects. Later, in *The Descent of Man*, he would advance precisely the model of the social insects to explain the human acquisition of innate, altruistic impulses.

Natural Selection as an Intelligent and Moral Force

No expression of Darwin's principle of evolutionary change comes more trippingly to our lips than "the mechanism of natural selection." But it's a phrase that did not pass Darwin's lips, because he had anything but a mechanistic conception of the actions of selection. Indeed, the terms "mechanical," "mechanism," or "machine" never appear in the *Origin* as in any way

characterizing the operations of natural selection. The model of natural selection is not a Manchester spinning loom, but mind as an intelligent and compassionate force (8).

In the early 1840s, Darwin wrote 2 essays, one in 1842, the other in 1844, that outlined the book he would publish a decade and a half later (9). In these essays, as in the *Origin*, he looked to artificial selection to get a purchase on selection in nature. He thought that variation in nature, as in the domestic situation, would be generally available, even though it might occur only occasionally over a great period. However, what might perform the role of the breeder in nature? He asked himself in the first essay: “Is there any means of selecting those offspring which vary in the same manner, crossing them and keeping their offspring separate and thus producing selected races?” (ref. 9, p. 5). There are 2 issues here: What in nature is comparable with the picking or selecting done by the domestic breeder; and what in nature will prevent the swamping out of any favorable trait through crossing with organisms that lack the trait? The breeder prevents backcrosses by segregating his favored animals and allowing only them to breed. To deal with these questions, Darwin immediately, in both essays, formed for himself a model for the selecting activity of nature. In the 1844 essay, he wrote:

Let us now suppose a Being with penetration sufficient to perceive the differences in the outer and innermost organization quite imperceptible to man, and with forethought extending over future centuries to watch with unerring care and select for any object the offspring of an organism produced under the foregoing circumstances; I can see no conceivable reason why he could not form a new race (or several were he to separate the stock of the original organism and work on several islands) adapted to new ends. As we assume his discrimination, and his forethought, and his steadiness of object, to be incomparably greater than those qualities in man, so we may suppose the beauty and complications of the adaptations of the new races and their differences from the original stock to be greater than in the domestic races produced by man’s agency.

Darwin (ref. 9, p. 85)

The model by which Darwin attempted to explain to himself the operations of natural selection was that of a very powerful, intelligent being that manifested “forethought” and prescience, as well as moral concern, for the creatures over which it tended. Thus, as Darwin initially conceived natural selection, it hardly functioned in a mechanical or machine-like way; rather, it acted as an intelligent and moral force.

The difficulties the model was meant to solve were ultimately three. I’ve just mentioned the problem of what does the selecting and the problem of swamping out. The third difficulty is that of the general moral trajectory of the entire theory—that is, how nature could have a moral purpose. I’ll return to these problems as they appear and are handled in the *Origin*.

After composing his essays in the early 1840s, Darwin continued to work on various aspects of his theory. He also became preoccupied with barnacles. He had intended to deal with the curious structure of one species in 1846, but by the time he finished his investigations, he had described all of the known species of barnacle, extant and fossil, concluding his labors with 4 large monographs on the subject in 1851 and 1854. Then in 1856, he started work on a book he intended to call *Natural Selection*, which was to be the public expression of his theory of descent (10). However, 2 years later, he got Wallace’s letter and quickly turned to summarizing what had grown into a very large manuscript. He hastily compressed the already existing chapters and composed what he had planned as the remaining chapters. The *Origin of Species* debuted in November of 1859. Let me now

sketch the lineaments of those ideas about natural selection and the moral trajectory of nature as they subtly structured Darwin’s book.

Origin of Species. In the *Origin of Species*, Darwin devotes 2 chapters—Chapters 3 and 4—to a discussion of natural selection. Chapter 3 is on the struggle for existence, and furnishes the analogue for his model of the prescient, intelligent selector. Competitive struggle, as a real-world force, seems to act viciously and without the kind of compassion suggested by Darwin’s original model in the early essays. At the end of the third chapter, however, Darwin ameliorates the apparent brutality of nature:

When we reflect on this struggle, we may console ourselves with the full belief that the war of nature is not incessant, that no fear is felt, that death is generally prompt, and that the vigorous, the healthy and the happy survive and multiply.

Darwin (ref. 1, p. 79)

In the fourth chapter of the *Origin*, the intelligent, compassionate being that Darwin had described in his earlier essays reappears. It reassuringly manifests the wisdom and moral concern that Darwin had originally supposed. In this respect, its behavior is far superior to that of the human breeder.

Man can act only on external and visible characters: nature cares nothing for appearances, except in so far as they may be useful to any being. She can act on every internal organ, on every shade of constitutional difference, on the whole machinery of life. Man selects only for his own good; Nature only for that of the being which she tends. . . . Can we wonder, then, that nature’s productions should be far “truer” in character than man’s productions; that they should be infinitely better adapted to the most complex conditions of life, and should plainly bear the stamp of far higher workmanship?

Darwin (ref. 1, pp. 83–84)

At one level, the Biblical cadences of these passages had an assuaging effect on Darwin’s Victorian readers. Some, like Asa Gray (11), would yet find the mysterious hand of the Creator still stirring in the depths of Darwin’s language. So his audience might have been initially shocked by the audacity of the *Origin*’s claims but oddly soothed by the familiar resonances. Where Lamarck could make little headway and Chambers was scorned and Spencer ignored, Darwin began to convince. A sophisticated reader could accept Darwin as harbinger of the modern world while still taking comfort in the verities of the ancient world. One of Darwin’s first reviewers, T. V. Wollaston, thought he had been unconsciously seduced by the language of the *Origin* (12). Part of Darwin’s success must be attributed to his skillful, albeit intuitive, use of compelling linguistic constructions. However, the impact of Darwin’s model reached far below what might seem surface rhetoric.

Consider, for example, Darwin’s claim in the above passage that, unlike the human breeder who acts for selfish ends—selecting animals for his own good—Nature selects only for the good of the being which she tends. But, of course, nature, at least as we would understand her operations, hardly works for the good of each being in her selections—she destroys most of the beings which she tends. Darwin’s formulation, however, is not a slip of his pen. In the same section of the *Origin*, he reiterates:

It may be said that natural selection is daily and hourly scrutinizing, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up all that is good; silently and insensibly work-

ing, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life.

Darwin (ref. 1, p. 84)

The conceit that nature is working for “the improvement of each organic being” is repeated several more times throughout the *Origin* (ref. 1, pp. 149, 194, 201, and 489). Despite the ravages of natural selection, the nature that appears in Darwin’s theory nonetheless expresses compassion and altruistic concern—and thus hardly acts as a mechanical, indifferent force.

Darwinian evolution, under the aegis of natural selection, is also progressive. As Darwin expresses it in the penultimate paragraph of the book: “And as natural selection works solely by and for the good of each being, all corporal and mental endowments will tend to progress toward perfection” (ref. 1, p. 489). This kind of progress is not merely local. In chapter 10 of the *Origin*, for instance, Darwin asserts that “the more recent forms [of creatures] must, on my theory, be higher than the more ancient; for each new species is formed by having had some advantage in the struggle for life over other and preceding forms” (ref. 1, pp. 336–37). This is a universal proposition, not confined to a local population. He then provides an operational test—at least in imagination—of this consequence. If Eocene creatures adapted to a particular environment were put in competition with modern animals, Darwin conjectures, “the Eocene fauna or flora would certainly be beaten and exterminated” (ref. 1, p. 337). He assumes that the accumulation of improvements would give the advantage to more progressive (i.e., recent) creatures—even if compared with animals adapted to the same environment. This presumption of cumulative adaptational advantage, of course, does not play a role in neo-Darwinian theory. But then, as I’ve pedantically argued, Darwin was not a neo-Darwinian.

Stephen Jay Gould (13, 14) and others have assumed that any acquiescence in the idea of global evolutionary progress would suggest a teleological structure to biological history. I don’t think that logically follows. Michael Ruse has found that many leading evolutionary biologists in the 20th century, as secular in their orientation as one could desire, yet harbored the conviction that evolutionary history evinced a progressive character, as vague as the idea of progress might be (15). For Darwin, the conviction of progress was a deeply embedded part of his theory. And he does seem to have believed that this progress had a definite trajectory. He may have succumbed to some of the traps that Francisco Ayala has identified (16); but the idea is nonetheless part of his theory.

Let me approach this line of thought a bit indirectly. I’ve already indicated Darwin’s early views as to the purpose of sexual generation, ultimately for the production of moral creatures. Now let me come at it from the other temporal end, Darwin’s considerations in *The Descent of Man*. In *The Descent*, Darwin devotes 2 chapters to his theory of the evolution of morality. For the British reader, the barrier between animals and human beings was not erected on man’s luminous intellect. The British empiricists had maintained that ideas were but faint sensory images and that reasoning amounted to the association of ideas. Of course, animals would be quite capable of both. This attitude even infected British idealists, such as F. H. Bradley, the great metaphysician, who once confessed to Conwy Lloyd Morgan: “I never could see any difference at bottom between my dogs & me, although some of our ways were certainly a little different” (ref. 17, p. 105). But man was a moral creature, and that singular trait seemed to be denied of every animal. Hence, Darwin had to give an evolutionary account of man’s distinctive acquirement, if his theory were to be successful and if its ultimate concern should be realized.

The Descent of Man. Most contemporary interpreters of Darwin’s accomplishment presume that evolutionary theory left man morally naked to the world. Michael Ghiselin, for instance, in a fit of overheated hyperbole, asserted: “Scratch an altruist and watch a hypocrite bleed” (18). Had Ghiselin scratched the master himself, he would have found the blood of naturalized compassion; Darwin thought his theory removed “the reproach of laying the foundation of the most noble part of our nature in the base principle of selfishness” (ref. 17, pp. 185–242, and ref. 19, Vol. 1, p. 98). He opposed his own theory of moral conscience to that of utilitarians, like Jeremy Bentham and James Mill. I doubt he would have found Ghiselin’s characterization any more agreeable.

In *The Descent of Man*, Darwin applied the conception of community selection, which he first developed to account for the traits of social insects, to construct a theory of human moral behavior. Those proto-human tribes whose members had the instinct for cooperation, fidelity, sympathy, and altruistic impulse would have the advantage over other tribes, even if members bearing those traits would be at a disadvantage within their group. As he concluded: “At all times throughout the world tribes have supplanted other tribes; and as morality is one element in their success, the standard of morality and the number of well-endowed men will thus everywhere tend to rise and increase” (ref. 19, Vol. 1, p. 166). Although moral impulses would initially be confined to tribal members, cultural evolution and progressive learning, Darwin believed, would gradually instruct our ancestors that we were all part of the same human family; so that now, at least among members of advanced civilizations, moral instincts would be activated by any and all human beings. The Biblical story told of a fall from grace. By contrast, Darwin’s conception proposed a gradual advance from a lower to a higher state; and compared with the ancient narrative he contended that his theory was “truer and more cheerful” (ref. 19, Vol. 1, p. 184).

But to this progressivist and cheerful British view, there appeared one salient objection: the Irish. Richard Rathbone Greg, a Scots political theorist who was an advocate of the new Darwinian theory, pointed out in an article published 3 years before *The Descent*, that natural selection had been thrown out of gear. He mounted an argument that Darwin took extremely seriously. Greg, the dour Scotsman, wrote:

The careless, squalid, unambitious Irishman multiples like rabbits: the frugal, foreseeing, self-respecting, ambitious Scott, stern in his morality, spiritual in his faith, sagacious and disciplined in his intelligence, passes his best years in struggle and in celibacy, marries late, and leave few behind him. Given a land originally peopled by a thousand Saxons and a thousand Celts—and in a dozen generations five-sixths of the population would be Celts, but five-sixths of the property, of the power, of the intellect, would belong to the one-sixth of Saxons that remained. In the eternal ‘struggle for existence,’ it would be the inferior and less favoured race that had prevailed—and prevailed by virtue not of its good qualities but of its faults.

Greg (20)

Darwin immediately understood the force of Greg’s argument. The British had identifiable, superior fitness traits, but the propagational race—that is, the race that counts for Darwin—was going to the less fit. It looked like natural selection had been disengaged. This would not be the trajectory that nature apparently designed for man.

In *The Descent*, Darwin analyzed the situation carefully; and based on a raft of statistics, he ascertained that a good many Irish men wound up in jail; that and drunkenness, he felt, would put

a check on generation. And, moreover, infant mortality was very high among the Irish. That meant, in Darwin's estimation, the Irish actually were not increasing at a rate in excess of the British rate. But, as he concluded, progress was not an intrinsic, necessary feature of nature, but only an extrinsic, general feature by reason of natural selection (ref. 9, p. 47, and ref. 19, Vol. 1, p. 177). Darwin's concluding analysis suggested that the promise of the *Origin* could indeed be realized despite the Irish. However, let me conclude by more carefully specifying that promise and what has been made of it.

Conclusion

When Darwin traveled through the interior of South America, he always stuck in his saddlebags his well-worn copy of Milton's *Paradise Lost*, a favorite of both English and German Romantics. In Milton's great poem, he pictures Satan approaching the Garden of Eden, although the evil one is stopped by an entangled bank:

Now to the ascent of that steep savage hill
Satan had journeyed on, pensive and slow,
But further way found none, so thick entwined,
As one continued brake, the undergrowth
Of shrubs and tangling bushes had perplexed
All path of man or beast that passed that way...
Thence up he flew, and on the Tree of Life,
The middle tree and highest there that grew,
Sat like a cormorant, yet not true life
Thereby regained, but sat devising death
To them who lived, not on the virtue thought
Of that life-giving plant, but only used
For prospect what, well-used, had been the pledge
Of Immortality.

John Milton, *Paradise Lost*, 4.ll.172–301

With the Fall, Milton yet foresees the coming of the Redeemer whose own death will transform the world and bring a transformed life.

At the end of the *Origin*, Darwin as well imagines an "entangled bank, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth" (ref. 1, p. 489). He wishes his reader to reflect that these very different forms have been produced by laws acting on them, the

chief of which is natural selection, the struggle for life. Darwin then concludes:

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.

Darwin (ref. 1, p. 490)

Darwin is here justifying, as Milton did, the death and destruction that has entered the world. Those evils, Darwin suggests, had an exalted object, the most exalted we were capable of conceiving. That most exalted purpose could only be human beings with their moral sentiments.

Now would Darwin admit to this teleological and moral construction that I've given his theory? I suspect that immediately after the completion of the *Origin*, he would have. Certainly the language in which his theory is expressed supports this interpretation. The language, however, was often ignored by both friends and then by enemies, and finally by Darwin himself. Huxley rather quickly started shaving off features of Darwin's theory in his first review in 1860. The slow, gradual, and progressive character that the *Origin* projected, Huxley thought unwarranted, and insisted on a more mechanical, jumpy kind of evolution. Huxley, for quite personal reasons, rejected the sort of moral theory that Darwin—and Spencer—had proposed. In his Romanes Lecture "Evolution and Ethics," he maintained that human beings had to "fight against the cosmic process" that evolution represented (ref. 17, pp. 316–18). He located morality in the hidden recesses of man's nature, which he tried to seal off from natural selection. Darwin's great champion in Germany, Ernst Haeckel, also deracinated Darwin's theory, representing the theory in the kind of aggressive, mechanistic language that the master himself never used (21). Asa Gray, in the United States, did respond to the language, but by emphasizing the role of a personal God, which Darwin could not accept. Finally there was the cofounder of evolution by natural selection, Alfred Russel Wallace. Wallace, during the late 1860s, converted to spiritualism, and began engaging mediums to contact the spirit world. He then discovered features of human nature that only higher spiritual powers could account for. Darwin was aghast.

Darwin gradually came more and more to view the operations of natural selection much as did Huxley and Haeckel, and in friendly opposition to Gray and Wallace. At that point, Darwin became a neo-Darwinian.

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