

In *The Cambridge Companion to Darwin*, eds. J. Hodge and G. Radick
(Cambridge: Cambridge University Press, 2003), pp. 92-115

Darwin on Mind, Morals, and Emotions

Robert J. Richards

From the beginning of his theorizing about species, Darwin had human beings in view. In the initial pages of his first transmutation notebook, he observed that “even mind & instinct become influenced” as the result of adaptation to new circumstances.¹ Considering matters as a Lyellian geologist, he supposed that such adaptations would require many generations of young, pliable minds being exposed to a changing environment. Captain FitzRoy had attempted to “civilize” the Fuegian Jemmy Button by bringing him to London and instructing him in the Christian religion; but back in South America, Button reverted to his old habits, demonstrating to Darwin that the “child of savage not civilized man”—transmutation of mind was not the work of a day.² Darwin, though, had quickly become convinced that over long periods of time human mind, morals, and emotions had progressively developed out of animal origins. As he bluntly expressed it in his first transmutation notebook: “If all men were dead, monkeys make men.—Men make angels.”³ Presumably the transmutation of human beings into those higher creatures remained far in the future.

From July 1837, when he jotted these remarks in the first few pages of his *Notebook B*, to the early 1870s, with the publication of his *Descent of Man* and *Expression of the Emotions in*

Man and Animals, Darwin gradually worked out theories of the evolution of human mentality that, in the main, we still accept. In the case of moral behavior, he produced a theory of its evolution that stands as a most plausible empirical account, and displays the range and subtlety of his genius. Examination of this history reveals that his conception of human mind had roots traversing a large swath of native ground, with some, though, penetrating to quite foreign soil, namely, German romanticism.

I. On the Beagle with Humboldt

Darwin's conception of nature as well as his estimate of that smaller nature found in human beings took definite shape during his five-year voyage on the *Beagle*. His experiences during the journey occurred within a framework already prepared by his enthusiastic reading of Alexander von Humboldt's *Personal Narrative of Travels to the Equinoctial Regions of the New Continent, 1799-1804*, a multi-volume work that originally sparked his desire to sail to exotic lands.⁴ Indeed, while a student at Cambridge he took to copying out long passages from the *Personal Narrative* and reading them to his rather patient friends. When he got the opportunity to embark on the *Beagle*, he brought along Humboldt's volumes as his vade mecum. Humboldt, a protégé of Goethe and friend of Schelling, represented nature not as a stuttering, passionless machine that ground out products in a rough-hewn manner but as a cosmos of interacting organisms, a complex whose heart beat with law-like regularity, while yet expressing aesthetic and moral values. Darwin did not plunge far below the surface of Humboldt's thought; but he nonetheless felt the power of the German's representations, which he remarked in his diary during the voyage back to England: "As the force of impression frequently depends on preconceived ideas, I may add that all mine were taken from the vivid descriptions in the

Personal Narrative which far exceed in merit anything I have ever read on the subject.”⁵

Humboldt’s name litters Darwin’s diary and the book he made out of it, his *Journey of the Voyage of the Beagle* (1839). That adventurer’s romantic conception of nature would lie at the foundation of all the Englishman’s later work on species and especially on the human species.⁶ The creative force of nature would often, in Darwin’s estimate, work through that most mundane yet transcendent faculty—instinct.

II. Early Theories of Instinct, Emotion, and Reason

The phenomenon of animal instinct would serve Darwin as the ground for understanding its outgrowth in human reason and moral behavior. He initially employed the conception of instinct, however, more generally in his explanation of species change. Prior to having read Malthus, he had formulated several theories to account for heritable modifications, the most prominent of which depended on the notions of use-inheritance and its result, instinct. Darwin assumed that in a changed environment, an animal might adopt habits that would accommodate it to the new conditions. Over many generations, these habits would, he believed, become instinctive, that is, expressed as innately determined behaviors. Such instincts, in time, would slowly alter anatomy, producing adaptive alterations, or so he supposed. This “view of particular instinct being memory transmitted without consciousness” had the advantage, he thought, of distinguishing his explanation of species change from Lamarck’s, which he interpreted as appealing to a *conscious willing*—“Lamarck’s willing absurd,” he told himself.⁷ Even after Darwin adopted natural selection as the principal means for producing species change, he still retained use-inheritance in his explanatory repertoire: it would become one of those sources for variation on which natural selection might work; and in some instances, he would simply credit

use-inheritance as the cause of an attribute that could not easily be explained by natural selection.

After he had returned from his voyage, Darwin often visited the Zoological Society, where he had deposited for analysis and classification many of the animal specimens he had brought back on the *Beagle*; he thus had frequent occasion to visit the Society's menageries. During April 1838, he spent some time watching the apes and monkeys at the gardens; and he reflected on their emotional out-bursts, which seemed to him quite human-like. He was especially interested in an orangutan that "kicked & cried, precisely like a naughty child" when teased by its keeper.⁸ In his notebooks, he placed such typical reactions within the framework of his theory of instinct: "Expression, is an hereditary habitual movement consequent on some action, which the progenitor did, when excited or disturbed by the same cause, which <<now>> excites the expression."⁹ So, for example, Darwin speculated that the emotional response of surprise—raised eyebrows, retracted eyelids, etc.—had arisen by association with our ancestors' efforts to see objects in dim light; now when the analogously unexpected object or event confronted us, we would react in an instinctual way, even though the light was perfectly adequate.¹⁰ In this construction, the expression of emotion thus had no particular usefulness; it was understood, rather, as a kind of accidental holdover from the customary behavior of ancestors. Darwin would retain this basic notion about emotional display for the account he would later develop in the *Expression of the Emotions in Man and Animals* (1872). Emotional expression had its roots in instinct, and, in Darwin's view, reason did as well.

In August 1838, Darwin began reading David Hume's *Inquiry Concerning Human Understanding*.¹¹ Hume's representation of ideas as less vivid copies of sensations perfectly accorded with Darwin's intuitions about the continuity of animal and human mentality: for if

ideas were copies of impressions, animals would be perfectly capable of thought. Darwin developed this sensationalist epistemology in his *Notebook N*, where he proposed that simple reasoning consisted in the comparison of sensory images and that the recollection of several such images producing a pleasant state was of the very nature of complex thought.¹² And just as Hume understood reason to be a kind of “wonderful and unintelligible instinct in our souls,”¹³ so Darwin as well thought of intellectual activity to be a “modification of instinct—an unfolding & generalizing of the means by which an instinct is transmitted.”¹⁴ Human intelligence was thus not opposed to animal instinct but grew out of it in the course of ages.

In finding the antecedents of human rationality in animal sources, Darwin really opened no new epistemological ground. Carl Gustav Carus, Goethe’s disciple and an author whom Darwin read in early 1838, asserted the decidedly romantic thesis that mind and matter ran together throughout nature. Adopting Carus’s language, Darwin contemplated a nature alive with mind. He reflected that “there is one living spirit, prevalent over this world. . . which assumes a multitude of forms according to subordinate laws.” And like Carus, he concluded that “there is one thinking . . . principle intimately allied to one kind of matter—brain” and that this thinking principle “is modified into endless forms, bearing a close relation in degree and kind to the endless forms of the living beings.”¹⁵ Darwin’s assumption of cognitive continuity between men and animals would not even have offended the religiously minded among his own countrymen. Several natural theologians whom he read during the late 1830s and early 1840s—John Fleming, Algernon Wells, and Henry Lord Brougham, for instance—did not blanch to find some glimmer of reason exhibited even among the lower animals.¹⁶ But no animal, in the estimation of these British writers, gave evidence of any hint of what was truly distinctive of

human mind—namely, moral judgment. If Darwin were to solidify his case for the descent of man from lower animals, he would have to discover the roots of moral behavior even among those creatures. And so he did.

III. Moral Theory Prior to the *Origin of Species*

Darwin's own moral sensitivities received considerable assault during his South American travels, especially from the Brazilian slave trade. His family cultivated strong abolitionist sentiments, which originated with both of his grandfathers; and his sisters kept him informed about the efforts in Parliament to emancipate the slaves in the British colonies.¹⁷ Darwin had his convictions reinforced by the many observations Humboldt himself had made about the loathsome trade in human beings.¹⁸

Darwin's own fury could be barely suppressed when he witnessed African families being separated at slave auctions and slaves being beaten and degraded. When finally the *Beagle* left Brazil, he rejoiced that "I shall never again visit a slave-country." He perceived immediately that utilitarian motives would do little to restrain this kind of evil: "It is argued that self-interest will prevent excessive cruelty; as if self-interest protected our domestic animals, which are far less likely than degraded slaves, to stir up the rage of their savage masters. It is an argument long since protested against with noble feeling, and strikingly exemplified, by the ever illustrious Humboldt."¹⁹ This last remark about the deficiencies of utilitarian considerations to adjudicate moral responsibility came in the revised edition (1844) of Darwin's *Journal of Researches*. Prior to this time, he did make an effort to found an initial hypothesis about the evolution of morals on utilitarian grounds.

Darwin knew quite well William Paley's *Moral and Political Philosophy* (1785) from his undergraduate days at Cambridge. Now, while exploring the various branches of his developing theory in early September 1838, he momentarily adopted Paley's central rule of "expediency."²⁰ This rule grounded moral approbation in what, in the long run, would be useful, that is, beneficial either to an individual or a group and, as a consequence, would supply the pleasure God intended for mankind.²¹ Darwin gave this rule a biological interpretation:

Sept 8th. I am tempted to say that those actions which have been found necessary for long generation, (as friendship to fellow animals in social animals) are those which are good & consequently give pleasure, & not as Paley's rule is then that on long run *will* do good.—alter *will* in all such cases to *have & origin* as well as rule will be given.²²

Darwin here suggested that those habits that preserved animals—such as friendship and nurture of young—must have been practiced over many generations and so became instinctive. What we call "good," then, are those long-term, beneficial instincts that have proved necessary for social cohesion and development. Hence, Darwin supposed that what Paley took to be a forward looking rule—act to achieve general utility in the *future*—might be transformed into one describing instincts that arose from social behaviors which had been beneficial over long periods in the *past*. But this biologized Paleyan ethics receded from Darwin's purview after he examined a volume containing a more penetrating analysis of morals—James Mackintosh's *Dissertation on Progress of Ethical Philosophy* (1836).

In his *Dissertation*, Mackintosh objected to Paley's notion that selfish pleasure ultimately motivated right action. He rather sided with the likes of Shaftesbury, Butler, and Hutchinson,

who believed that human nature came outfitted with a deep sense of moral propriety. Human beings, Mackintosh believed, acted spontaneously for the welfare of their fellows and immediately approved of such actions when displayed by others. Yet he did not deny the utility of moral conduct. In a cool hour we could assess moral behavior and rationally calculate its advantages; but such calculation was not, he thought, the immediate spring of action, which lay coiled in the human soul. Mackintosh thus distinguished the *criterion* for right conduct—utility—from the *motive* for such conduct—an innate disposition.

This analysis fit rather smoothly into Darwin's developing conception of moral behavior, a conception that both appreciated the utility of ethical behavior and recognized its deep biological roots as well. Darwin's notes on Mackintosh's *Dissertation* reveal, however, that he discovered a jarring patch in the original theory but one which he believed his own biological approach could pave over. The difficulty was this: What explained the harmony of the criterion for moral conduct and the motive for such behavior? Why were we moved to act spontaneously in a way that we might later, in a moment of reflection, recognize to have social utility? Not impressed with Mackintosh's faint appeal to a divine harmonizer, Darwin suggested that the innate moral knowledge we harbored was really an instinct acquired by our ancestors. The instinct did, indeed, have social utility; but like all instincts, it had an urgency not connected with any rational calculation of pleasures and pains. Such instincts, Darwin thought, would be sufficiently different from our other more abrupt and momentary instincts in that they would be persistent and firm and thus evoke a more reverential feeling.

Darwin moved with alacrity along this line of thought because in this instance, as in many others, he found that his theory of biological development solved a problem that remained

loose and frayed in the humanistic literature. On 3 October 1838, a few days after Malthus furnished the key stimulus to the idea of natural selection, the young biologist reformulated his theory of moral conscience along the lines suggested by Mackintosh. Darwin assumed that habits of parental nurture, group cooperation, community defense, etc., would be sustained over many generations, driving such habits into the heritable legacy of a species, so that they would be manifested in succeeding generations as instincts for moral conduct. These instincts would be distinguished from fleeting inclinations and less persistent impulses, which might occur in one generation and depart with the next. When an individual with sufficient intelligence recalled, in a cool hour, a behavior elicited by these deeply ingrained dispositions, he or she would feel renewed satisfaction and also would be able to perceive on reflection the social utility of the behavior. Darwin thus solved the problem of the coincidence of the moral motive and the moral criterion.

Darwin worked out the basic framework of his moral conception without the aid of that theory he had recently formulated, namely that of natural selection. When he began to apply the device of natural selection to explain instincts, however, he stumbled at the brink of a yawning conceptual abyss, which threatened to swallow his entire theory of evolution by natural selection. The crucial difficulty was this: the social instincts most frequently gave advantage to the recipients of moral actions, not to their agents; but natural selection preserved individuals because of traits advantageous to themselves, not to others. Darwin first met this difficulty when studying the social insects in the 1840s, when the problem became even more complicated.

Soldier bees and ants displayed anatomical traits and instinctive behaviors that served the welfare of their colonies, not directly themselves. Indeed, a soldier bee might defend the hive at

the cost of its own life. Moreover, these insects were neuters, consequently they could not in the first instance pass beneficial adaptations to succeeding generations. How then could their other-regarding traits be explained, and, more generally, how did the attributes of neuters arise?

Darwin worried about this problem for sometime, fearing it would allow the Creator a return to those provinces from which he had been lately banished.²³ Only during the first months of 1858, while laboring on the manuscript that would become, in its abridged form, the *Origin of Species*, did Darwin discover the solution to his problem:

I have stated that the fact of a neuter insect often having a widely different structure & instinct from both parents, & yet never breeding & so never transmitting its slowly acquired modifications to its offspring, seemed at first to me an actually fatal objection to my whole theory. But after considering what can be done by artificial selection, I concluded that natural selection might act on the parents & continually preserve those which produced more & more aberrant offspring, having any structures or instincts advantageous to the community.²⁴

Thus the soldier bee that sacrificed its life for the hive would have had its instincts honed over generations, not by individual selection, but by natural selection preserving those hives that had individuals with traits that profited the entire community. With this account, which he reiterated in the *Origin of Species*, Darwin had the key to the puzzle of human moral action: as he would argue in the *Descent of Man*, altruistic impulses would give tribal clans advantages over other clans, and thus such instincts would become characteristic of evolving human communities.

IV. Moral Structure of Nature in the *Origin of Species*

Darwin is usually taken to have introduced into biology a thoroughgoing mechanism. In the words of one set of scholars: “Natural-selection theory and physiological reductionism were explosive and powerful enough statements of a research program to occasion the replacement of one ideology—of God—by another: a mechanical, materialistic science.”²⁵ This sort of cold-blooded Darwinism, it appears, left man morally naked to the world, since nature, bereft of the divine stamp, became “morally meaningless”—or so it is commonly believed.²⁶ But did Darwin believe it?

A straightforward reading of the *Origin of Species* indicates that Darwin hardly had a machine in mind as the model for nature. Rather, he articulated nature so as to display its moral spine. This should not be surprising if one recalls that Darwin had looked upon wild nature during the *Beagle* voyage through Humboldtian eyes—eyes that had a romantic glint.

Even the surface of the *Origin*'s conceptions ripple with moral suggestion. Consider Darwin's construction of the very idea of natural selection. He compares it with man's selection, to the moral advantage of the former:

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 . . . 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 working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life.²⁷

Nature works altruistically for the advantage of “the being which she tends,” while man acts selfishly, selecting only for his own good. Can it be any wonder, then, that the productions of nature are “far ‘truer’ in character than man’s productions”? They plainly manifest, in Darwin’s resonant phrase, “the stamp of far higher workmanship.”²⁸

The lilting poetry of these phrases might be taken as merely decorative metaphors, not harboring real substance. But if one traces the formulations back through the several manuscripts whence they derived, their more profound and, indeed, romantic meaning becomes obvious. In the corresponding passage from his essay of 1844, Darwin strove to make clear to himself, through images and metaphors, the conception of a selecting nature toward which he was groping:

Let us now suppose a Being with penetration sufficient to perceive differences in the outer and innermost organizations 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 should 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.²⁹

The being that Darwin here imagines has those qualities characteristic of the recently departed Deity. Acting with preternatural intelligence, it sees into the future, cares for the welfare of its creatures, and selects them for their beauty and progressive adaptations. This being, in more muted colors, continues to operate in the *Origin of Species*, where the guarantee is issued that since "natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress toward perfection."³⁰ Even despite the more reserved individual he had become, Darwin yet portrayed nature in the *Origin of Species* in the manner that he had absorbed from his Humboldtian experiences during his youthful voyage of adventure, namely, nature as having a moral and aesthetic intelligence. It is, then, not surprising that when he turned specifically to consider the distinctive character of human beings, he did not leave them bereft of those traits he accorded nature.

V. The Problem of Human Evolution, 1859-1871

In the late 1860s, Darwin initially approached the problem of human evolution quite modestly. He had originally intended to consider human beings only from the point of view of sexual selection, which he thought could explain the different attributes of males and females of the many races of mankind. He engorged the second part of *The Descent of Man and Sex in Relation to Selection* (1871) with detailed discussions of sexual selection throughout the animal kingdom, with only the last two substantive chapters devoted to human sexual dimorphism and racial differences. He argued that male combat for females among our ancestors would have

contributed to the male's larger size, pugnacity, strength, and intelligence. The particular features of female beauty in the different races—generally hairless bodies, cast of skin, shape of nose, form of buttocks, etc.—he thought would have arisen from male choice. Women generally displayed the tender virtues; but their intellectual attainments would be largely due, Darwin thought, to inheritance from the male parent. In a letter to a young American female college student, he did venture that if women went to university and were schooled over generations as the sons of the gentry were, then they would, via use-inheritance, become as intelligent as men. But were this to happen, “we may suspect that the easy education of our children, not to mention the happiness of our homes, would in this case greatly suffer.”³¹

Several events occurred during the 1860s that caused Darwin to alter the limited intentions he had for his book. Early in the decade, his great friend Charles Lyell waded into the undulating opinions forming about human evolution in the wake of the *Origin*. But the hedging argument of his *Antiquity of Man* (1863), which displayed a style cultivated at the Old Bailey, drove Darwin to distraction. Though Lyell admitted the physical similarity of human beings to other primates, he yet argued that the mental and moral constitution of humans placed them far above any other animals in the scale of being. Linguistic ability in particular demonstrated the wide gulf separating the mind of man from that of animals. This was no chasm that could be bridged in “the usual course of nature.” The move from animals to man, Lyell intimated, had to be carried on the wings of a divine spirit.³²

Wallace initially stood ready to combat Lyell's theological construction of human mind and morals. In a lecture delivered to the Anthropological Society in 1864, he produced an ingenious defense of the naturalistic position. He argued that natural selection, operating on our

animal forbearers, produced the various races of men, though not yet their distinctive mental and moral characters. Only after these races appeared would natural selection operate on the various clans and tribes, preserving those groups in which individuals displayed sympathy, cooperation, and “the sense of right which checks depredation upon our fellows.”³³

Three features of Wallace’s account of the evolution of human mind and morals stand out. First, he conceived the selective environment to be other proto-human groups—which would have an accelerating effect on the evolutionary process, since social environments would rapidly change through responsive competition. Second, he proposed that selection worked on the group, rather than the individual—which allowed him to explain the rise of altruistic behavior, that is, behavior perhaps harmful to the individual but beneficial to the group. In his original essay on the transmutation of species (1858), Wallace conceived of the struggle for existence to occur among *varieties* instead of individuals.³⁴ He continued to think in such group terms when considering the evolution of moral behavior. Finally, in a note to the published version of his talk to the Anthropological Society, he mentioned that he was inspired to develop his thesis by reading Herbert Spencer’s *Social Statics*.³⁵ Spencer’s own early brand of socialism had pulled Wallace to his side. In *Social Statics* (1851), Spencer had envisioned a gradual and continual adjustment of human beings to the requirements of civil society, with individuals accommodating themselves to the needs of their fellows, so that eventually a classless society would emerge in which the greatest happiness for the greatest number would be realized.³⁶ Spencer assumed that the inheritance of useful habits would be the means by which such evolutionary progress would occur, while Wallace believed natural selection to be the agent of that progress.

Darwin welcomed Wallace's solution to the evolution of human morality, since he himself had developed certain views about community selection in social insects congenial to his friend's position. Darwin would emphasize, however, that the members of small tribes, of the sort Wallace envisioned, would likely be related; and so a disadvantage to a given individual practicing altruism would yet be outweighed by the advantage of the practice to recipient relatives. Ultimately, however, Darwin would drop this qualification, and simply embrace group selection as operative in human (and animal) societies.³⁷

Wallace's faith in a naturalistic account of human evolutionary progress, however, succumbed to the evidence of higher powers at work in the land. Though raised as a materialist and agnostic, Wallace had chance to attend a séance, which piqued his empiricist inclinations. Shortly thereafter, in 1866, he hired a medium in order to investigate the phenomena usually attendant on the invocation of the spirit world. Wallace, gentle soul that he was, became a true believer (unlike Darwin, who regarded spiritualism as rubbish). Wallace's new conviction focused his attention on certain human traits—naked skin, language, mathematical ability, ideas of justice, and abstract reasoning generally—that would confer no biological advantage on individuals in a low state of civilization. Indeed, Wallace believed that for sheer survival, human beings need a brain no larger than that of an orangutan, or perhaps one comparable to that of the average member of a London gentleman's club. Such traits as abstract reasoning and moral sensitivity, therefore, could not be explained by natural selection. Yet in both aboriginal and advanced societies, individuals displayed these qualities. While his friend Herbert Spencer regarded such properties as explicable only through use-inheritance,³⁸ Wallace found a unique explanatory mode of selection that his new faith could provide.³⁹ In his estimation, distinctively

human traits had been artificially selected for us: “a superior intelligence,” he proposed, “has guided the development of man in a definite direction, and for a special purpose, just as man guides the development of many animal and vegetable forms.”⁴⁰ We were thus like domestic animals in the hands of higher spiritual powers, and they artificially selected distinctively human traits for our advantage.

When Darwin learned of Wallace’s turnabout, he was dumb-founded: “But I groan over Man—you write like a metamorphosed (in the retrograde direction) naturalist, and you the author of the best paper that ever appeared in the *Anthropological Review*! Eheu! Eheu! Eheu!”⁴¹

Though Wallace’s flight to other powers than nature was fueled by his new faith, the crux of his argument had force: since natural selection operated only on traits that provided some immediate biological advantage, how might one explain human traits that seemed not particularly useful at all?

Another writer, friendly to the Darwinian cause, yet spied a comparable problem in the assumption of human evolutionary progress. William Ratherbone Greg, Scots moralist and political writer, discovered that a keen moral sense might spread seeds of wicked growth. A highly civilized society, he remarked, would be inclined to protect not only the physically weak from the winnowing hand of natural selection but the intellectually and morally degenerate as well. So protected the inferior types would have opportunity to out breed their betters. Greg, a Scots gentleman of refined sensibility, regarded the case of the Irish as cautionary:

The careless, squalid, unaspiring Irishman, fed on potatoes, living in a pig-sty, doting on a superstition, multiplies like rabbits or ephemera:—the frugal, foreseeing, self-respecting, ambitious Scot, 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 leaves few behind him. . . 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.⁴²

The profligate and degenerate Irish yet seemed to be winning the evolutionary race in the trait that counted—reproduction. The considerations of Lyell, Wallace, and Greg spurred Darwin to expand his intended volume on sexual selection to tackle these apparent barriers to a naturalistic understanding of human evolution.

VI. Mind and Morals in the Descent of Man

In the face of Greg’s argument, Darwin collected in the *Descent* considerable evidence about the fortunes of the reprobate. On the basis of this evidence, he maintained that many natural checks to the less fit would ultimately forestall their advance: the debauched would suffer higher mortality, criminals would sire fewer offspring, and the bad would likely die young.⁴³ Yet it could be that the likes of the Irish, though decidedly less able, would simply crowd out the British. After all, though evolutionary progress was general, it was “no invariable rule.”⁴⁴

In his response to Greg’s concern, Darwin made an implicit distinction between the *meaning* of fitness—i.e., certain properties, like high intelligence, moral judgment, etc.—and the *criterion* of fitness—i.e., survival and reproductive success. Were meaning and criterion collapsed into one, then the principle of natural selection would have devolved into a tautology: the fit survive and by the fit we mean the survivors. Darwin’s original conception of natural

selection asserted that fitness traits had causal consequences, i.e., survival. But his conception certainly allowed that those causal consequences might, for contingent reasons, fail. Progress is no invariable rule.

Lyell's and Wallace's objections to the application of natural selection in the case of man proved more difficult than that of Greg, but they brought Darwin to several ingenious solutions to the problems posed. Linguistic ability stood chief among the features of intelligence that had to be considered. In dealing with this problem, Darwin reverted to a theory he had initially entertained in his *Notebook N*, which he kept between 1838 and 1839. There he sought to develop a naturalistic account of the origin of language. He supposed that our aboriginal ancestors began imitating sounds of nature (e.g., "crack," "roar," "crash") and that language developed from these simple beginnings.⁴⁵ In the late 1860s, while working on the *Descent*, Darwin made frequent inquiries of his cousin, the linguist Hensleigh Wedgwood, about the origin of languages. Wedgwood had allowed that it was part of God's plan to have man instructed, as it were, by the natural development of speech. He argued that language began from an instinct for imitation of sounds of animals and natural events, which under "pressure of social wants" developed into a system of signs.⁴⁶ Darwin embraced this confirmation of his original ideas, though, of course, dispensing with the theological interpretation.

Darwin also relied on another book in formulating his thesis about the function of language in human evolution. This was by a German linguist, August Schleicher, a friend of Ernst Haeckel and a new convert to Darwinian theory. In his *Die Darwinsche Theorie und die Sprachwissenschaft (Darwinian theory and the science of language, 1863)*, Schleicher maintained that contemporary languages had gone through a process in which simpler

Ursprachen had given rise to descendent languages that obeyed natural laws of development.⁴⁷ He argued that Darwin's theory was thus perfectly applicable to languages and, indeed, that evolutionary theory itself was confirmed by the facts of language descent. And in a subsequent pamphlet, Schleicher himself constructed the kind of argument that Darwin would employ in the *Descent*, that is: "the formation of language is for us comparable to the evolution of the brain and the organs of speech."⁴⁸ Schleicher maintained that the several languages of mankind produced the various types of mind displayed by the different races. Ernst Haeckel took up this argument in his *Naturliche Schöpfungsgeschichte* (*The natural history of creation*, 1868), which Darwin read while composing the *Descent*. Darwin wrote to a friend after reading Haeckel's work that it was "one of the most remarkable books of our time."⁴⁹ Darwin's notes and underlining in the book are quite extensive. He was particularly interested, as shown by his scorings and marginalia, in Haeckel's account of Schleicher's thesis that the evolution of language was the material side of the evolution of mind.⁵⁰ Here then Darwin had a counter-argument to Wallace's, one by which he could solidify an evolutionary naturalism.

Darwin conceded that Wallace had been correct: for sheer survival, our animal ancestors had sufficient brain power. But he could now blunt the further implication of his friend's argument. Citing Schleicher, he argued in the *Descent* that developing language would rebound on brain, producing more complex trains of ideas; and constant exercise of intricate thought would gradually alter brain structures, causing a hereditary transformation and, consequently, a progressive enlargement of human intellect beyond that necessary for mere survival.⁵¹

Darwin's general theory of the rise of human intellect thus depended on the inheritance of acquired characteristics, or at least that is one of the strands of argument he employed. Yet, it

was not the only strand. Darwin's explanations in the *Origin* and the *Descent* were rhetorically robust—if the reader did not like one line of consideration, the author was ready with another line. His second strand of argument relied on community selection. In the *Descent*, Darwin contended that if a tribe of our aboriginal ancestors contained among its members some mute, inglorious Newton, an individual who through inventiveness and intellectual prowess benefited his tribe in competition with other tribes, then he and his relatives would survive and reproduce:

If such men left children to inherit their mental superiority, the chance of the birth of still more ingenious members would be somewhat better, and in a very small tribe decidedly better. Even if they left no children, the tribe would still include their blood-relations; and it has been ascertained by agriculturists that by preserving and breeding from the family of an animal, which when slaughtered was found to be valuable, the desired character has been obtained.⁵²

Darwin enunciated here an idea that in our time has become known as “inclusive fitness.” A heritable trait that confers little or no benefit on an individual but sufficiently advances the cause of relatives will be persevered and spread along with the group. Darwin first developed this theory of community selection to solve the problem of the evolution of the social insects; it now became the key to understanding the evolution of social human beings.

In the first volume of the *Descent*, the question of human moral judgment occupied the greatest measure of Darwin's attention. Moral sense was by common consent that attribute most distinctive of human beings. Both Lyell and Wallace could not conceive that a refined moral sense might have arisen naturally from animal stock. After all, moral behavior did not prove particularly beneficial to those exercising it—hence natural selection could not account for it. In

explaining the rise of moral behavior, Darwin again moved from the individual as the object of selection to the community. He put it this way:

It must not be forgotten that although a high standard of morality gives but a slight or no advantage to each individual man and his children over the other men of the same tribe, yet an increase in the number of well-endowed men will certainly give an immense advantage to one tribe over another. There can be no doubt that a tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to give aid to each other and to sacrifice themselves for the common good, would be victorious over most other tribes; and this would be natural selection. 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.⁵³

Community selection proved an ingenious way to understand the evolution of human altruism. It yet had its own difficulty: How do these moral traits arise *within* one tribe in the first place? After all, as Darwin noted, it is not likely that parents of an altruistic temper would raise more children than those of a selfish attitude. Moreover, those who were inclined to self-sacrifice might leave no offspring at all.⁵⁴ Darwin employed his device of use-inheritance to explain the origin of such social behaviors within a given tribe. He proposed two related sources for such behaviors. The first is the prototype of contemporary theories of reciprocal altruism. Darwin observed that as the reasoning powers of members of a tribe improved, each would come to learn from experience “that if he aided his fellow-men, he would commonly receive aid in

return.” From this “low motive,” as he regarded it, each might develop the habit of performing benevolent actions, which habit might be inherited and thus furnish suitable material on which community selection might operate. The second source relied on the assumption that “praise and blame” of certain social behaviors would feed our animal need to enjoy the admiration of others and to avoid feelings of shame and reproach. This kind of social control would also lead to heritable habits.⁵⁵

One salient objection to any theory of the biological evolution of moral conduct points to the often very different standards of acceptable behavior in various cultures. Darwin recognized that what might be approved as moral in one age and society might be execrated at a different time and place. The Fuegian Indians might steal from other tribes without the slightest remorse of conscience, while an English gentleman would regard such behavior with contempt. But members of these vastly different cultures would, nonetheless, commonly endorse the obligation to deal sympathetically and benevolently with members of their own particular group. The English gentleman and lady—or, perhaps, their descendants—with more advanced intellects would have learned that tribal and national differences were superficial; and thus they would have perceived a universal humanity underlying inessential traits. Their own instinctive sympathies would have thus been trained to respond to all human beings as members of a common tribe. In Darwin’s conception, then, evolution would have molded the most primitive human beings to react altruistically to brothers and sisters; but over the ages, cultural learning, coupled with increased intelligence, would reveal just who those brothers and sisters might be.⁵⁶

“Philosophers of the derivative school of morals” (e.g., Bentham and Mill), Darwin observed, “formerly assumed that the foundations of morality lay in a form of Selfishness; but

more recently in the ‘Greatest Happiness principle.’”⁵⁷ Virtually all scientists and philosophers who have considered the matter have located these utilitarian principles at the foundation of an evolutionary construction of ethics. Michael Ghiselin provides the prototypical example. He has argued that, according to Darwin’s theory, since an altruistic act furthers the competitive ability of self and family, that act is “really a form of ultimate self-interest.”⁵⁸ Richard Dawkins, a defender of Darwin, yet warned “that if you wish, as I do, to build a society in which individuals cooperate generously and unselfishly towards a common good, you can expect little help from biological nature.”⁵⁹ These sentiments, quite obviously, do not reflect Darwin’s own view. Our moral instincts, he believed, would urge us to act for the benefit of others without calculating pleasures and pains for self. And since such altruistic impulses, at least in advanced societies, would not be confined to family, tribe, or nation, he confidently concluded that his theory removed “the reproach of laying the foundation of the most noble part of our nature in the base principle of selfishness.”⁶⁰

VII. The Expression of the Emotions

Though Darwin believed our intelligence and moral responses had their roots in animal mind, he granted these faculties had yet developed far beyond those of our progenitors. By contrast, he considered human emotions and their display not to have comparably progressed. The fear displayed by his little dog over a wind-blown parasol differed little, he thought, from that of the native who trembled because invisible spirits might be causing a lightening storm—or, as Darwin intimated, from the Christian’s fear of the wrath of an unseen God.⁶¹ Certainly few English sportsmen would have difficulty reading human-like emotions off the expressions displayed by their dogs. The belief that humans shared comparable emotions and expressions

with animals accorded with a common intellectual tradition that can easily be traced back to Aristotle. Yet Darwin's own evolutionary analysis in his *Expression of the Emotions in Man and Animals* (1872) has a peculiar and, for us, an unexpected contour, which can only be understood in light of an unusual theory worked out by one of his contemporaries.

Sir Charles Bell's *Expression: Its Anatomy & Philosophy* (1844) displays a research physician's detailed knowledge of facial anatomy and a devoted humanist's understanding of emotional depiction in art and literature. Bell argued that the smiles and frowns, laughs and sighs, beams and grimaces of the human countenance functioned as a natural language by which one soul communicated with another. Ultimately this repertoire of signs, he asserted, referred back to its divine author, who "has laid the foundation of emotions that point to Him, affections by which we are drawn to Him, and which rest in Him as their object."⁶² Thus according to Bell, the expression of the emotions served for communication, human and divine.

Darwin read Bell's book with considerable interest. He focused on the physician's precise descriptions of the structure and operation of facial muscles during the expression of emotions. He denied, however, the theological foundation for emotional expression that Bell divined. But in rejecting Bell's particular conception of the utility of emotional response, he rejected completely all notions of utility for the emotions. Emotional display, to be sure, had an evolutionary history. Darwin's many comparisons of facial patterns in children, adults, the insane, as well as in apes, dogs, and cats—done with the aid of photography and sketches—showed similarities across ages, sexes, and mental capacities. This kind of comparative evidence bespoke a common origin for emotional expression. But since he could discover no social or communicative function in these emotional reactions—unlike contemporary neo-Darwinians—

he could not employ his conception of natural selection to give them account. As a consequence, he fell back on his notion that instinctive reactions could derive from practices that had been, by dint of exercise, scored into the heritable substance. He argued that among our ancestors, if an emotion originally elicited by an appropriate cause produced a certain feeling and consequent expression, then later renewal of the feeling alone could produce the reaction—e.g., the turning away and the wrinkled nose of disgust, elicited originally by sight of some repulsive object, might again be displayed due to the feeling alone. Darwin called this the “principle of serviceable associated habits” and used it to explain variously frowning, dejection, smiling, etc.⁶³ He formulated two more principles to handle other kinds of expression. The “principle of antithesis” specified that when certain actions were connected with a particular state of mind, an opposite state would tend to elicit an opposite action. For instance, a hostile dog will stand rigid with tail stiff and hair erect, while a docile, happy animal will crouch low with back bent and tail curled. Finally, there was the principle (borrowed from Herbert Spencer), according to which a violent emotion might spill over to adjacent nerve pathways and produce an outward effect—when, for example, great fear caused trembling.⁶⁴

VIII. Conclusion

Among the many sources for Darwin’s ideas about nature, German romanticism supplied one of the deeper and more powerful currents. Richard Owen served as one especially important conduit for this tradition. His Goethean morphology and Schellingian archetype theory, suitably reconsidered, formed staples of Darwin’s own intellectual repertoire. The doctrine of embryological recapitulation, a fundamental feature of German romantic biology, became a main supporting pillar of Darwin’s general theory.⁶⁵ Perhaps the deepest personal source for romantic

conceptions of nature came from Humboldt. Darwin modeled his *Researches of the Voyage of the Beagle* on Humboldt's *Personal Narrative*; and Humboldt, that doyen of German science in the first half of the century, returned the compliment by singling out in his book *Kosmos* the merits of the young English adventurer.⁶⁶ Humboldt conceived nature as an organism exhibiting interacting parts; and Darwin, rejecting the clockwork universe of his English heritage, discovered many ingenious ways of tracing out those organic interactions in the *Origin*. Humboldt's nature had those aesthetic, moral, and creative properties characteristic of the retired Deity; and, as I have tried to show in this essay, these are exactly the features exhibited by natural selection. Darwin initially kept the English God unemployed in the background of the *Origin*, where he remained on the dole, ceding the creative work to nature. We usually take the measure of Darwin's ideas, looking back from the photo by Julia Cameron, who portrayed Darwin as a sad English prophet. But in his youth, this fixture of the Victorian establishment sailed to exotic lands, became intoxicated with the sublimity of their environs, and tested his mettle against the forces of man and nature. Like many of the romantics, he also discovered the human core of that nature, and continually reckoned with it as he constructed his general theory of evolution.

Mind, morals, and emotions occupied Darwin's attention in his early notebooks and found place even within the *Origin of Species*, which ostensibly avoided the problem of human evolution. His argumentative strategy in the *Descent* and in the *Expression of the Emotions* continued that of the *Origin*. He employed vast amounts of empirical evidence gathered from many different sources and was able to show that when properly juxtaposed, evolutionary consequences quite naturally fell out. But he did not simply rely on the observations of others.

He, of course, made use of his own experience on the *Beagle* voyage, especially his knowledge of tribal life among the Indians of South America and his encounters with the slave trade. Further, he stuffed these books with experiments and mathematical calculations of his own devising. The language of his arguments and experiments did not have the dry, crusty sound of many of the empirical studies from which he drew. His prose had a poetic lilt and his tropes, such as nature scrutinizing the internal fabric of organisms, allowed the reader to feel the more comfortable presence of a larger power watching over all of life. But his metaphors carried a more significant burden. Their evocative surface encased a deep conceptual grammar that structured his thinking about nature so as to represent it as an intelligent, moral agent, one that finally intended “the most exalted object we are capable of conceiving, the production of the higher animals.”⁶⁷ In this respect, as well, he took his lesson from Humboldt, who supposed that aesthetic judgment might provide an approach complementary to the analytic for understanding nature.

Many of Darwin’s arguments had the multiply dependent structure of nature herself. He would advance several possible causes to explain the same event, holding those events in a tangled bank of organic relations. Thus, not only did he account for man’s big brain by appeal to group selection, he had the inherited effects of language by which to reinforce his naturalistic theory. He secured human moral character with the interacting forces of community selection, reciprocal altruism, and inculcated habit. The principal force, community selection, along with an evolving intellect, would ensure that human nature might preserve an authentic moral core. As he interpreted his own accomplishment, his theory thus escaped the reproach of grounding human moral capacity in “the base principle of selfishness.” Darwin’s subtle, artistic effects,

along with his voluminous evidence and compelling arguments, have rendered his conclusions powerful even today for the supple of mind.

Notes

¹Darwin, 1987, 171 (Ms p. 3).

²Darwin, 1987, 171 (Ms p. 4).

³Darwin, 1987, 213 (Ms p. 169) and 224 (Ms p. 215).

⁴Humboldt and Bonpland, 1818.

⁵Humboldt and Bonpland, 1818, 443.

⁶For a more detailed discussion of Humboldt's contribution to Darwin's conception of nature, see Richards, 2001b.

⁷Darwin, 1987, 292 (Ms p. 171) and 259 (Ms p. 63).

⁸Charles Darwin to Susan Darwin (1 April 1838), in 1985, 2: 80.

⁹Darwin, 1987, 545 (Ms p. 107). Double wedge-brackets indicates a later insertion into the entry.

¹⁰Darwin, 1987, 542 (Ms p. 95).

¹¹See Darwin, 1987, 545 (Ms p. 104) and *Darwin's Reading Notebooks*, in 1985, 4: 438 (DAR *119: 3v).

¹²Darwin, Darwin, 1987, 569 (Ms 21e).

¹³Hume, 1888, 179. Darwin refers to this passage in 1985, 591 (Ms p. 101), and remarks "Hume has section (IX) on Reason of Animals . . . he seems to allow it is an instinct."

¹⁴Darwin, 1987, 576 (Ms p. 48).

¹⁵ Darwin, 1987, 305 (Ms p. 210e). I read “world” for the transcription “word.” Darwin studied Carus in translation. See Carus, 1837.

¹⁶See especially: Fleming, 1822, 1: 220-22; Wells, 1834,20; and Brougham, 1839, 175. Darwin’s copy of Fleming, with annotations, is held in the Manuscript Room of Cambridge University Library. His notes on Brougham and Wells are, respectively, in 1987, 580 and 582-84 (Ms, pp. 62 and 68-72). He wrote: “Lr. Brougham... says animals have abstraction because they understand signs.—very profound.—concludes that difference of intellect between animals & men only in Kind [sic, degree].”

¹⁷See Susan Darwin to Charles Darwin (3-6 March 1833), in 1985, 1: 299.

¹⁸See Humboldt and Bonpland, 1818, 3: 3.

¹⁹Darwin, 1962, 497.

²⁰Paley, 1806, 1: 89-90.

²¹Paley, 1807, 1: 76.

²²Darwin, 1987, 552 (Ms p. 132e).

²³This problem and other aspects of the development of Darwin’s moral theory are more extensively discussed in Richards, 1987, chaps. 2 and 5.

²⁴Darwin, 1975, 510.

²⁵Lewontin et al., 1984, 51.

²⁶Cannon, 1978, 275.

²⁷Darwin, 1859, 83-84.

²⁸Darwin, 1859, 84.

²⁹Darwin, 1909, 85.

³⁰Darwin, 1859, 489.

³¹Charles Darwin to Caroline Kennard (9 January 1882), in DAR 185, the Darwin Papers, Cambridge University Library.

³²Lyell, 1863, 505.

³³Wallace, 1864, clxiii.

³⁴Wallace, 1891b.

³⁵Wallace, 1864, clxx.

³⁶Spencer, 1851. Spencer's own trajectory moved from an early, youthful enthusiasm for radical socialism (with land held in common) to the *liaise-faire* individualism of his later years. See Richards, 1987, chaps. 6-7.

³⁷Darwin generalized his concept of community selection to include what we would call group selection—that is, selection of groups of individuals for traits that benefit the group, even if its members are not related. By the sixth edition of the *Origin* (1872), in a passage that underwent gradual change through the editions, he asserted: “In social animals it [natural selection] will adapt the structure of each individual for the benefit of the community; if the community profits by the selected change.” For the several passages, see Darwin, 1959, 172.

³⁸Spencer contended that the higher mental powers required delicate co-adaptation of

elemental traits that themselves could have provided no advantage singly. Moreover, many mental powers—aesthetic preference, for instance—had no survival value at all, and could not, therefore, have arisen by natural selection. See Spencer, 1884, 1: 454-55.

³⁹Wallace wrote Darwin (18 April 1869) to say that his altered view about human evolution derived from his empirical testing of the medium's power. See Marchant, 1916, 1: 244.

⁴⁰Wallace, 1891a, 204.

⁴¹Charles Darwin to Alfred Wallace (26 January 1870), in Marchant, 1: 251.

⁴²Greg, 1868, 361. Darwin quotes this passage with some relish in Darwin, 1871, 1: 174.

⁴³Darwin, 1871, 1: 174-80.

⁴⁴Darwin, 1871, 1: 177.

⁴⁵See Darwin, 1987, 581 (Ms, p. 65). See also, Richards, 2001a.

⁴⁶See Wedgwood, 1866, 13-14 and 129.

⁴⁷Schleicher, 1863. See also Taub, 1993, and Alter, 1999, 73-79.

⁴⁸Schleicher, 1865, 21.

⁴⁹Charles Darwin to William S. Dallas (9 June 1868), in DAR 162, held in the Manuscript Room of Cambridge University Library.

⁵⁰Darwin's copy of Haeckel, 1868, is held in the Manuscript Room of Cambridge University Library.

-
- ⁵¹Darwin, 1871, 1: 57.
- ⁵²Darwin, 1871, 1: 161.
- ⁵³Darwin, 1871, 1: 166.
- ⁵⁴Darwin, 1871, 1: 163.
- ⁵⁵Darwin, 1871, 1: 163-65.
- ⁵⁶Darwin, 1871, 1: 100-101.
- ⁵⁷Darwin, 1871, 1: 97.
- ⁵⁸Ghiselin, 1973, 967.
- ⁵⁹Dawkins, 1976, 3.
- ⁶⁰Darwin, 1871 1: 98.
- ⁶¹Darwin, 1871, 1: 67-68.
- ⁶²Bell, 1873, 78.
- ⁶³Darwin, 1965, 28.
- ⁶⁴Darwin, 1965, 28-29.
- ⁶⁵See Richards, 1992, 91-166.
- ⁶⁶Humboldt, 1845, 2: 72.
- ⁶⁷ Darwin, 1859, 490.