Darwinism and Moral Purpose

Darwin and the Emergence of Evolutionary Theories of Mind and Behavior. ROBERT J. RICHARDS. University of Chicago Press, Chicago, 1988. xviii, 700 pp., illus. $29.95. Science and Its Conceptual Foundations.

Not since the publication of Michael Ghiselin's *The Triumph of the Darwinian Method* has there been such an ambitious, challenging, and methodologically self-conscious interpretation of the rise and development of evolutionary theories and Darwin's role therein as Robert Richards advances in the present work. Besides presenting a clear and readable historical narrative, Richards sets out (i) to elaborate a theory of historical method modeled on the theory of natural selection, (ii) to defend evolutionary ethics and expound his own version of Darwin's ethical theory, (iii) to rehabilitate Herbert Spencer as a major figure in the development of evolutionary psychology, epistemology, and ethics, and (iv) to present psychologist-philosophers like William James, George Romanes, C. Lloyd Morgan, and James Mark Baldwin as the true successors to Darwin and Spencer and thus to explode the picture of Darwin and Darwinism advanced by Michael Ghiselin, Ernst Mayr, Richard Lewontin, and others—a picture that represents Darwin as favoring a materialistic and mechanistic view of man and nature.

Richards begins by placing the theories of the early evolutionists, from Erasmus Darwin, Cabanis, and Lamarck to Charles Darwin and Herbert Spencer, in the context of the sensationalist psychology and epistemology stemming from the writings of John Locke. From Locke's notion that species are unreal, that ideas are merely "imaged sensations" and thinking simply a matter of associating ideas, these thinkers drew the conclusion that there could be no sharp division between animal and human intelligence, that habit could transform intelligent actions into instinctive ones, that new habits produced by new circumstances could alter instincts and anatomical structures, and that these processes could lead to the modification of species and the perfection of human nature. Richards then shows how Darwin reflected this tradition in his transmutation notebooks, how he drew on the works of William Paley, John Abercrombie, Harriet Martineau, and James Macintosh (all "sensationalists") in developing his own evolutionized version of Macintosh's theory of ethics in relation to the moral sense, and how he developed the idea of "community selection" to meet the challenge to the habit-into-instinct theory (and his own developing theory of natural selection) that was implicit in the descriptions of the instinctive behavior of neuter insects by various natural theologians.

Herbert Spencer is then introduced into the picture as the founder of evolutionary psychology and epistemology and as an ethicist who constructed his evolutionary theory in accordance with the demands of his ethical principles. Then, after expounding Darwin's fully developed theory of ethics and the moral sense as set forth in *The Descent of Man*, Richards portrays Romanes, James, Morgan, and Baldwin as the legitimate intellectual heirs of Darwin and Spencer, as thinkers who used the theory of natural selection to prove that consciousness and mind have been dynamic forces in evolution, that nature is neither mechanistic nor amoral, and that morality, religion, and human freedom have a basis in nature. Finally, Richards explains how this true-blue Darwinian image of man and nature was undermined and transformed in the 20th century by the rise of behaviorism, the spread of environmentalist theories in the social sciences, the "taint" of eugenics, and the misrepresentations of Darwin and Darwinism by modern biologists and historians of science.

There is much truth in Richards's analysis, and not a little exaggeration and error as well. On the positive side, he deserves much credit for calling attention to the pervasive influence of sensationalist psychology and epistemology on the development of evolutionary theories of mind, instinct, behavior, and ethics; for bringing comparative psychologists like Romanes, James, Morgan, and Baldwin into the evolutionary picture and showing how they developed the ideas of Darwin and Spencer in new ways; for raising some much-needed questions about current conceptions of Darwin and Darwinism; and for making crystal clear his own theories of historiography and ethics. On the cautionary side, however, there are several points to be made. In stressing the importance of habit-into-instinct theories in the rise of evolutionary perspectives, Richards fails to distinguish between the considerations that led these writers to adopt an evolutionary view of nature and those that induced them to stress habit as the primary means by which species are modified. Lamarck specified his researches in geology as the decisive factor convincing him that species must be mutable in a constantly changing environment; Darwin stressed the geographic distribution and paleontological succession of species as decisive for him. Richards rightly calls attention to the importance of sensationalist doctrines in early evolutionary theory, but he pushes his argument too far.

Likewise one can be grateful to Richards for rehabilitating Herbert Spencer as a major figure in evolutionary thought. Spencer was the first thinker to view every aspect of nature and society in evolutionary terms. His *Principles of Psychology* (1855) won praise from Darwin himself and played an important role in the subsequent development of comparative psychology. But Richards's suggestion that Spencer's evolutionism was dictated by ethical concerns will not bear close scrutiny. Spencer's ambition, he wrote to John Fiske, was "the interpretation of all concrete phenomena in terms of the redistribution of matter and motion"—scarcely an ethical project. In social theory Spencer aspired to ground British *laissez-faire* political economy in the nature of things, and his evolutionary theory, combined with 19th-century optimism and his early deistic faith that the Creator had designed the laws of nature and human nature so as to ensure perpetual progress, supported him in the belief that nature-history was moving ineluctably toward perfect happiness, individual and social. Disillusionment followed when Europe turned toward militarism and the welfare state after 1870, and Spencer himself eventually admitted that his ethical principles and social theory did not require evolutionary biology as a foundation. Richards makes a good case for Spencer as a major contributor to evolutionary psychology and ecology and as an important British philosopher, but his claim that Spencer's system was "philosophically powerful and in its general structure perfectly sound, even morally admirable" seems extravagant.

As for Darwin's idea of the identity of the moral good and the biological (evolutionary) good, an idea based on his conviction that reflective intelligence would ratify and strengthen the demand of the "social instincts" that members of the society act for the "general good" (defined as that which maintains "the greatest number of individuals in full vigor and health, with all their faculties perfect"), do these ideas merit the accolade Richards bestows on Darwin for being an ethical theorist of "extraordinary power and sophistication"? One wonders.

From a biological point of view it is doubtless good for the members of a group or species to be maintained in full health and vigor with all their faculties perfect. Hitler wanted as much for the German nation. But a worthwhile ethical system requires more than this. It requires some idea of a possible perfection of human nature, both individual and social—an ideal that commands allegiance by its intrinsic appeal. But both Darwin and Spencer labored under the delusion that human beings possessed moral faculties that could and would be perfected biologically by natural selection and the inherited effects of moral training and conduct, with the result, as Darwin put it, that he and Spencer and Lyell would some day be looked back on as "mere barbarians" by a surviving race of men perfected in their mental and moral faculties by the beneficent processes of organic evolution. It remained for Darwin's cousin Francis Galton to suggest that the process could be hastened by human intervention. Why wait for the millennium if you can produce it by eugenic measures?

Finally, what about Richards's contention that the true successors of Darwin were writers like Romanes, Morgan, James, and Baldwin who found mind and morals at the heart of nature and erected metaphysical foundations for this view of things? It is an interesting argument, but not one that squares well with what we know about Darwin, who confessed that he had "no head for metaphysics." The Darwin of the *Origin*, a Darwin barely mentioned by Richards, was content with an evolutionary deism (much like his grandfather's) which viewed the laws of nature as "laws impressed on matter by the Creator" and designed to ensure adaptation and improvement in nature. The Darwin of *The Descent of Man*, however, was a much gloomier and much more perplexed man, unable to reconcile his conviction that competitive struggle was essential for human progress with his deeply felt humanitarian sentiments or to square his "inward conviction" that the universe and "the wonderful nature of man" could not be the result of mere chance with his growing doubt that the human mind, so recently evolved from that of some ape-like creature, could penetrate the riddle of the universe—"A dog might as well speculate on the mind of Newton."

All praise, then, to Robert Richards for his well-researched, thought-provoking, ably argued, and highly readable history of evolutionary theories of mind and behavior, accompanied by appendixes setting forth his own theories of historiography and ethics. Some readers will find comfort in Richards's assurance that Darwin, far from adumbrating Michael Ghiselin's misanthropic views, laid the foundations for a profound monistic metaphysics and an accompanying evolutionary ethics and even opened the way for a scientific historiography of science in his theory of natural selection. Others, including the present reviewer, while readily conceding Darwin's greatness as a scientist, will continue to look elsewhere for moral, spiritual, and historiographical guidance, believing that history belongs irretrievably among the humanities. Human nature has dimensions that escape, and must forever escape, the abstractions of science.

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The Archean

The Young Earth. An Introduction to Archaean Geology. E. G. NISBET. Allen and Unwin, Winchester, MA, 1987. xviii, 402 pp., illus. $60; paper, $34.95.

The Archean eon constitutes the first 2000 million years (43 percent) of our planet's history. Its surviving geological record is fragmentary, altered, difficult to interpret, and quite possibly biased. The same might be said of our current understanding of this period. Nonetheless, Archean rocks hold the answers to some of the most fundamental questions that can be asked about the earth; therefore there are potentially great rewards in the painstaking effort of unraveling Archean history. In *The Young Earth*, E. G. Nisbet has crafted a stimulating discussion of the earth's formative years.

Nisbet appropriately centers his discussion on rocks rather than theories. The difficult job of mapping complex terrains lies at the heart of interpretation, and Nisbet presents illuminating summaries of key field areas that effectively define the dimensions of fruitful inquiry. The powerful analytical tools that can be trained on ancient rock samples are discussed in detail, and the reader is provided a frank evaluation of both the insights to be gained from such analyses and the pitfalls of naïve interpretation. Models are seen as stimulating ways of thinking about data but are not to be confused with data per se (a verity often lost sight of in the literature). In the final analysis, rocks must be the arbiters of controversy in Archean geology.

Archean tectonics and the growth of early continents claim a major portion of this book. A few hard facts such as the presence of detrital diamonds in Late Archean sediments and the petrological relationships observed in ancient crustal profiles sharply constrain theory; whatever else we care to believe, we are stuck with the fact that 3000 million years ago continents were as thick as they are today (if less extensive in area) and, at least locally, subcrustal lithosphere extended downward 150 kilometers or more. Komatiites, highly magnesian lavas that are as distinctively Archean as anything one can name, also receive extended discussion. Nisbet favors the idea of an early komatiitic ocean crust; but he treats his own hypotheses with the same evenhanded criticism that he applies to others'. The economic significance of Archean rocks is summarized well, with gold appropriately occupying center stage.

Although most of his book focuses on crustal and tectonic evolution, Nisbet does delve into biological issues, rightly recognizing that thinking on the origin and early diversification of life is not independent of thinking about crustal development. His brief discussion of the geological evidence for Archean life stresses stromatolites, with rather less attention given to microfossils or (unfortunately, I think) isotopic geochemistry. Paleobiology provides the nontrivial information that life was already present when the oldest negligibly metamorphosed sedimentary rocks were deposited. Geology also places constraints on early metabolic diversity through the elucidation of early environmental conditions, but Nisbet correctly looks to molecular phylogeny for fuller evidence of Archean evolution. Phylogenetic trees based on 5*S* ribosomal RNA, ferredoxins, and phenotypic characters are illustrated, but, unfortunately, the mutual incompatibilities of these trees go unnoted. Given their relative reliability as guides to deep phylogenetic relationships, 16*S* ribosomal RNAs might well have received more attention.

Nisbet presents an unabashedly Gaian discussion of early atmospheric evolution, stating without equivocation that "today, and throughout the geological record, the CO_2 level [in the atmosphere] is set by life." This uncritical acceptance contrasts strongly with his lawyerly accounts of petrological and geophysical issues. Surely the notion that life regulates CO_2 levels is at least as controversial as the idea that the early oceanic crust was komatiitic.

Perhaps Nisbet's most enlightening contribution to life science is his advocacy of hydrothermal vent systems as primary sites of chemical evolution. Most research has assumed a quite different set of environmental conditions for the origin of life, and the chemical-evolution research community has in general been hostile to or dismissive of the rift vent hypothesis, originally suggested by