Reviews

Moral Development, Moral Education, and Kohlberg. Edited by BRENDA MUNSEY. Birmingham, Ala.: Religious Education Press, 1980. 478 pages. $9.95 (paper).

The publisher promotes this volume in a cover blurb as a "collection of original essays carefully examining Kohlbergianism from a variety of complementary perspectives: philosophical, psychological, religious, and educational." Kohlbergianism? Should we be inoculated? Fortunately the book's editor avoids such undiscriminating language; she and most of her authors address themselves precisely to Lawrence Kohlberg's research, theory, and educational applications in the field of moral reasoning development. So, even at the volume's most interesting points, there is no danger of contagion.

The essays are original for the most part; that is to say, all the essays—with the exception of the first of the Kohlberg pair—are appearing in print for the first time. Among these some are more "original" than others in a different sense. D. Boyd's piece on "The Rawls Connection" in Kohlberg's theorizing is an especially welcome addition to the discussion of Kohlberg's understanding of justice. Also welcome is the further explication of the relationship between morality and religion/faith offered in the dialectically related essays of J. Fowler and E. Wallwork. Kohlberg's brief closing chapter, "Educating for a Just Society: An Updated and Revised Statement," also advances the moral development discussion—in this case by redefining the goals of his moral education program. Kohlberg reviews his efforts in this area and explains the reasons for his retrenchment from stage-6 goals (1968) to stage-5 goals (1976) to the present stage-4 goals of civic education (which he is willing to describe as not only Socratic and developmental but also "indoctrinative").

After an opening introductory chapter which explains the editor's intention and organizational plan for this multidisciplinary volume, we are presented with the book's one reprint: Kohlberg's lengthy (eighty-three pages) 1968 essay, "Stages of Moral Development as a Basis for Moral Education." The scope of this wide-ranging paper and especially its focus on education explain the editor's selection of it for this volume easily enough. It is a clearly defensible choice, if one wants what Munsey calls the "classic" Kohlberg position. There are advantages to seeing 1968 as well as 1980 Kohlberg. It is one way of emphasizing that Kohlberg's project in research, theory, and education is ongoing. An alternative plan would have included one of Kohlberg's more recent comprehensive essays. Such a piece would have provided a more direct dialogue partner for the other authors. Evidently the authors did not have access to the short essay Kohlberg wrote for this volume, which is, in any case, restricted to the limited issue of educational projects. On the other hand, any author in touch with Kohlberg's ongoing project will not be dialoguing principally with 1968 Kohlberg but with Kohlberg of more recent vintage. So their points are made about an absent Kohlberg.

The Fowler and Wallwork essays mentioned above are good examples of complementarity in the volume. Unfortunately some attempts at complemen-

[*Zygon*, vol. 16, no. 3 (September 1981).]
 0044-5614/81/1603-0009$00.75

tary perspectives result mostly in repetition. For instance, essays by Brenda Munsey, B. Rosen, and I. E. Aron are meant to be critical views of Kohlberg on the metaethical issue of formalist rule versus pragmatic act theories from the perspectives of psychology, philosophy, and education, respectively. All three take the pragmatic act side against Kohlberg's formalism. Along with B. Puka's defense of Kohlberg on the point, these essays constitute about 25 percent of the volume. The issue is important, interesting, and difficult, but the reader would have been better served by one clear essay on the point. And that would have left space for serious consideration of—and not just passing references to—the many other important criticisms of Kohlberg on such issues as male bias, liberal ideology, the role of affectivity, ethnocentric bias, as well as the very validity of his research method and empirical claims.

Despite my reservations about several aspects, this is a basically well-conceived and fairly balanced collection. Though often demanding in its style and level of argument, it offers much to many readers. In addition to those already mentioned, there are essays by J. Rest on the degree to which research findings have supported Kohlberg's fundamental concepts of structural organization, developmental sequence, and interactionism; by J. Wilson on philosophical difficulties with the notion of moral development; by L. Rosenzweig and J. B. Macdonald on classroom and curriculum models; and by B. Chazan and J. M. Lee on religious education, with Chazan finding Kohlberg's theory incompatible with or irrelevant to different forms of Jewish religious education, and Lee finding Kohlberg valuable for Christian religious education when that is conceived in terms of a social-scientific rather than theological approach (here "theological" is unfortunately identified with an extrinsicist supernaturalism). Chazan and Lee, like Fowler and Wallwork, make explicit the relationship between developmental psychology and religion, the implications of which run through Kohlberg's entire project. Many *Zygon* readers will find this book a useful place to continue their pursuit of the religion-and-science connection. But, they are to be warned, in the area of moral development this pursuit, if not this book, may be contagious!

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The Darwinian Revolution: Science Red in Tooth and Claw. By MICHAEL RUSE. Chicago: The University of Chicago Press, 1979. 320 pages. $20.00.

Michael Ruse writes that he undertook this book "as a synthesis of the Darwinian Revolution, using the most recent findings and interpretations, for readers like myself who have a serious interest in the history of science and who want to dig beneath the glib generalizations and stark dramatizations, but who do not have the specialized knowledge and aims of the professional scholar." In this endeavor Ruse has succeeded admirably.

At first glance this book appears to be the undergraduate text now so long overdue. All of the standard pre-1875 topics are dealth with: catastrophism versus uniformitarianism, Jean Baptiste Lamarck, Charles Lyell, the *Beagle* voyage, Robert Chambers, the path to the *Origin*, an analysis of Charles Darwin's great work, and more. Ruse collates all the recent scholarship on the

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numerous related issues, both technical and general, to present a definitive summary statement of considerable merit. However, the book is too thorough in analysis and detail to attract any but the best of undergraduates. The reader must indeed have a serious interest in the history of science.

This observation is, of course, hardly a criticism of Ruse's book. In addition to providing a convenient compendium of relevant detail, the author is not afraid to use his philosophical mind to interpret broad trends. He sorts out the contributions of men like John Herschel and William Whewell to Darwin's philosophy of science, and he sets forth an intriguing suggestion to explain why most Victorians, including scientists like Lyell and Herschel, were unable in the last analysis to rid the biological world of final cause while Darwin was. "Darwin," writes Ruse, "simply cared less about religion than many other men." That is not to say that Darwin was an atheist. Ruse joins numerous authors of late who have discussed Darwin's theism, based as it was on Darwin's belief in the need for a foundation for the existence and possibility of scientific law. As for religion in general, Ruse cites no fewer than four ways in which religion aided the coming of evolutionism—even Darwin's version.

Finally, Ruse's interest in the scientific community of nineteenth century Britain provokes questions about why scientists had rejected Chambers's *Vestiges* but switched to evolutionism after Darwin's *Origin*, and why many of the scientists who became evolutionists could not embrace totally the mechanism of natural selection. Was it merely that Chambers really made no attempt to provide a *vera causa* for evolution while Darwin had tried to satisfy contemporary canons of scientific excellence? While Ruse does consider such intellectual criteria, he also is quick to point out that there were good scientific objections to give scientists pause and that one must not overlook social factors or institutional structures as essential features of the Darwinian Revolution. His somewhat anticlimactical conclusion, that the Darwinian Revolution cannot be considered a single thing but had many sides, is no less true for its being unexciting. After all, Ruse asserts, that is what we should have expected.

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The Post-Darwinian Controversies. By JAMES R. MOORE. Cambridge: Cambridge University Press, 1979. xi + 502 pages. $37.50.

More than a century has passed since John William Draper published his *History of the Conflict between Religion and Science* in 1874. This not very good book was followed in 1896 by Andrew Dickson White's classic, *A History of the Warfare of Science with Theology in Christendom*. In substituting *theology* for *religion* White raised the intellectual level of discussion, but in changing *conflict* to *warfare* he lowered it. The military metaphor is with us to this day though it is, says James R. Moore, not very apt. However, "clever metaphors die hard. Their tenacity of life approaches that of the hardiest of micro-organisms. Living relics litter our language, . . . their present fascination seldom impaired

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by the confusions they may create. . . . When once a catchy phrase, a memorable name, or a colourful concept enters the common language, it never fails to make history" (p. 19). The impact of Moore's concluding words is heightened if we give the word "make" its vulgar sexual interpretation.

Moore agrees with Charles E. Raven who, in 1943, inveighed against the use of the military metaphor in discussing the chameleon changes in the post-Darwinian conflicts between religion and science: "Warfare is always disastrous as a method of solving problems; for both parties to it emerge with their ideas narrowed and distorted and their characters inevitably warped" (p. 57). The proverbial "Man from Mars" surely would be astonished at the pervasiveness of military images in earthly approaches to nonmilitary problems. "Onward Christian soldiers, marching as to war" seems a curious way to promote what purports to be a religion of love and peace. By what logic do we perceive the tedious, detailed and logical analysis of the interactions of hormones, antibodies, nucleic acids, viruses and human cells as a "War on Cancer" or a "Fight against Multiple Sclerosis"? Aggressive impulses surely must be deeply rooted in human nature if such language is the best motivater available. Historians, when they fall back on the military metaphor, are being only human. Nevertheless it is a healthy thing when a revisionist historian such as Moore avers that "the captivating metaphor of Draper and White has made historians prisoners of war" (p. 48).

This thorough and scholarly work convincingly shows that the conflict of competing ideas had no one-to-one correspondence with the institutions of science and religion. The same battles were fought within both camps. As Neal C. Gillespie has put the matter:

> Historians have increasingly and properly stressed that Victorian scientists, as a group, were not hostile to religion; that Thomas Henry Huxley and John William Draper were not typical in their polemics. This is true. But what must not be overlooked is that many Victorian scientists were uneasy and skeptical about the role of religion *within science*, and as the century wore on their numbers grew. This was the focal point of the conflict, and it turned on the question of knowledge. The epistemic shift under consideration did not require the repudiation of religion as such. It only required its rejection as a means of knowing the world (*Charles Darwin and the Problem of Creation* [Chicago: University of Chicago Press, 1979], p. 13).

At all times, no matter how "positivistic" and hardheaded scientists think they are, their science includes a considerable burden of nonscientific concepts—paradigms, to use Thomas S. Kuhn's term—some of which may be shared with religion. Nineteenth century biology was shot through and through with implicit assumptions of "design in nature," ideal "types" (related to philosophical realism), Aristotelian purpose, and the sort of inner-directed evolution that was later called orthogenesis. Men of religion were sometimes harder-headed than professional and amateur scientists. The *Natural Theology* of William Paley, published seven years before Darwin's birth, furnished schoolboy Charles with an essential element of his mature thought, namely the central dogma that no species is "designed" (selected) for the exclusive good of another species. This is a hardheaded idea. Tennyson was shocked by "nature red in tooth and claw," but the Reverend Charles Kingsley saw great beauty in the process of "survival of the fittest." At the same time Alfred Russel Wallace, the biologist who independently discovered evolution by natural selection, drew back from fully applying the idea to the human species, and in his later years became an antivivisectionist, a believer in phrenology and spiritualism, and an opponent of vaccination against small-

pox. The polarization "science versus religion" is largely in the eyes of the beholder. Unfortunately a perceived polarization can breed a real one. By 1920 a real polarizarition inspired the creation of the word "Fundamentalist" to stand for the minority of churchmen who were consistently opposed to Darwinian evolution (p. 70).

A major point of dispute, inside science and without, is the nature of explanation. That scientists and mathematicians are driven by a nonscientific urge toward "elegance" and beauty in their explanations is generally admitted and has been splendidly argued by G. H. Hardy in *A Mathematician's Apology*. "Elegance" is inescapably bonded to "simplicity." But what is simplicity? To many men of religion an omniscient, omnipotent god is the simplest, most elegant of all explanations of the natural world (p. 198). Evolutionists deny this and stand in awe before the almost unlimited power of natural selection, operating on an array of random inheritable variations to create a world of some ten million different species at the present time and perhaps as many as a billion different species over all of geological time (G. G. Simpson's "guesstimate"). In the final words of Darwin's *Origin of Species*, from so simple a mechanism "endless forms most beautiful and most wonderful have been, and are being evolved."

To a scientist, the concept of an omnipotent god who can do anything by a snap of his fingers is not elegant but messy. Only in the twentieth century have scientists been furnished language adequate to explain their revulsion at this sort of simplicity. Karl R. Popper is principally responsible for this advance. To be scientific, a hypothesis must be falsifiable by some sort of experiment or test. Evolution by natural selection is a scientific hypothesis because it predicts, for example, that exposure of pathogenic bacteria to a sublethal dose of antibiotic will result in the evolution of an antibiotic-resistant strain—as indeed it does. If it did not, the hypothesis would be disproved.

The hypothesis of an omniscient god who creates according to his (humanly) unknowable whims cannot be falsified by any observations whatsoever. An omnipotent unknowable cause is a "waterproof hypothesis," because no observations can undermine it. Its supposed strength is in fact its fatal weakness. To put the matter another way, God-the-cause-of-everything-in-the-world is a panchreston—an explain-all (analogous to panacea, a cure-all). Science categorically rejects panchrestons.

Such is the deviousness of the human mind that in every generation someone creates a new panchreston and tries to insinuate it into the body of science. "Protoplasm" was such a panchreston; it interfered with the progress of cell biology until the 1950s when the falsifiable hypotheses of molecular biochemistry were developed. Earlier in this century Henri Bergson had tried to shackle evolutionary thinking with his *Creative Evolution* (New York: Henry Holt and Co., 1911) which introduced the term *élan vital* as an "explanation" of an unstoppable urge toward variation in the living world. Julian Huxley disposed of this panchreston neatly. Huxley pointed out that saying that evolution is driven by an *élan vital* is like saying that a railroad locomotive is driven by an *élan locomotif*.

The impulse to create panchrestons will probably remain with us forever, to break out whenever intellectual courage ebbs. If there was a significant difference between science and religion in the nineteenth century—and Moore's book shows how slight this difference was—this was largely because the scientific community was only a few decades ahead of the religious community. By now the difference has been pretty well erased. The simplicity of explanation sought by the religionists of our day is scarcely different from the simplicity

sought by scientists. The rumble of the heavy artillery is over: only the periodic popping of the small arms of the Fundamentalists is heard in the land.

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