

Milner's Encyclopedic Un-Encyclopedia

***Darwin's Universe: Evolution from A to Z*, by Richard Milner.
Berkeley: University of California Press, 2009, Pp. 487, H/b \$39.95.**

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Published online: 10 October 2009
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An encyclopedia is expected to provide or to be intended to provide information about a broad range of topics, including perhaps all those known, or all those known concerning a particular subject. A similar expectation obtains for the entries of an encyclopedia. One expects each to provide general information about its topic from the point of view of a discipline of study: historical events or periods as the historian would see them, visual fine arts as the painter or art historian would see them, theories of matter as the physicist would see them. One expects to find general principles and accounts of the conspicuous features of unique events for which they are best known. Most people recognize the distinctive style of an encyclopedia: a neutral voice, authoritative and unobtrusive, confidently delivering facts followed with interpretations, advanced tentatively as representative of scholarly or expert opinion.

As its title suggests, *Darwin's Universe* is indeed encyclopedic: It ranges broadly over a large number of central topics about evolutionary biology and its cultural impact from the late nineteenth century to the present day, including entries on related topics in the years before Darwin. Nonetheless, there is an important sense in which *Darwin's Universe* crosses, in a subtle but decisive manner, the boundaries of the encyclopedia as a genre described above. This departure from convention creates a startling effect that distinguishes the book from other general reference sources

about evolution. Indeed, Milner's selection of material for each entry together with his distinctive style marks out a unique space for it among information sources on evolution more generally and probably among reference works as a group.

Consider, for example, the entry on E. Ray Lankester, subtitled "Evolutionist, 'Ghost-Buster'." The entry details important facts about Lankester: He promoted acceptance of the view that natural selection is of central importance in evolution; as its director, he established the independence of the British Museum of Natural History from the British Museum Library; he recognized the importance of August Weismann's idea of the "germ plasm"; and he was a pioneer in the study of human evolution. This is not, however, all that one will find in Lankester's entry, which opens with an account of his legal battle with "spirit medium" Henry Slade. As well, the entry describes his children's book *Extinct Animals*, which "became the first standard introduction to dinosaurs and ancient animals, illustrated with pioneering reconstructions by artists working under his direction." These illustrations appeared "often simply lifted without further change" in Conan Doyle's 1915 *The Lost World*, "which became the first enduring dinosaur fantasy-adventure." Lankester's interest in human evolution and his willingness to identify Europe as humanity's place of origin reinforced his belief that the faked "Piltdown man" was "the earliest Englishman." Cross-references point readers to the entries entitled "Slade trial," "*Lost World*," "Piltdown Man (Hoax)," and "Weismann, August." As well, the reader is referred to an entry on what is known as the "degeneration theory," which Lankester supported. Like many others of his era, Lankester believed that there was a risk that the English might be "overtaken

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in the struggle for existence,” an idea he propounded at length in his 1880 *Degeneration: A Chapter in Darwinism*.

The Lankester entry is a microcosm of *Darwin's Universe*. There is no shortage of entries on important scientific topics, present and past, including orthogenesis, pure line research, punctuated equilibrium, transitional forms, Gondwanaland, and exaptation, to name a few. Entries on Darwinism and Darwin are particularly strong; so are those on evolution itself. Human evolution and the study of extinct and still-living primates are also given excellent treatment. Besides these scientific topics, however, a large proportion of entries concern the social and cultural impact of ideas about evolution and the impact of the former on the development and dissemination of evolutionary biology. These include entries on the Flat Earthers, the films *Jurassic Park* and *King Kong*, the coprolite industry in England, Adam and Eve, Fundamentalism, and the “killer ape theory.” Many entries of this type address darker moments in the study of evolution, for instance, hoaxes and frauds perpetrated against evolutionists, social Darwinism, “Nazis, evolutionary program of,” eugenics, the racist and nationalist rejection of Africa as place of humankind's origin (“cradle of humankind”), and the “fallacious ladder ... [which] arranged living species in an ‘ascending’ series ... placing a black man ‘one rung below’ a European” (“race”).

The consequence of integrating treatment of scientific topics with cultural and social topics and with accounts of the personal and public lives of scientists is striking, particularly when *Darwin's Universe* is considered as a whole. *Darwin's Universe* comes as close as may be possible to offering an account of the development of evolutionary science and its context and their mutual influences, *without abstracting away from either*. Entries about ideas and discoveries make

essential reference to people, places, and their wider relevance; entries about film, social movements, and other social and cultural pursuits make essential reference to ideas and discoveries about evolution. Milner's encyclopedic work—in the sense of comprehensiveness and breadth—is decidedly un-encyclopedic because it provides particulars and details outside the scope of any particular discipline of study. This accounts for the astonishing richness and compactness of the information in *Darwin's Universe*, and also accounts for the exciting, intriguing manner in which that information is presented. It transcends the genre, giving the reader a sense of the way evolution changed the lives of those in the past, and the way in which it creates intellectual and cultural controversy in the present day.

Source material for each entry is provided in an extended bibliography. An index directs readers to each occurrence of central terms, indicating those that appear as entry titles in bold face. Black and white photos, illustrations, sketches, and cartoons adorn almost every page.

Darwin's Universe is an essential work for any reference collection, although it should also include more conventional works which present a more general treatment of central topics. The integrated approach taken by Milner is best appreciated against a background of discipline-oriented accounts of different elements of evolutionary biology and its role in culture and society. Clarity can be obtained by focusing narrowly, even if the broader canvas is not taken in all at once, as it is by Milner. Scholars and scientists will enjoy reading it, and most will learn something new about the nature of evolution and its importance for people now and in the past. Milner's prose is eminently readable, precise and informative without using unexplained technical or scientific terms. Teens and pre-teens will find it accessible, as will adults without scientific or historical training.