

An article of faith

Darwin: Discovering the Tree of Life

By Niles Eldredge,
W. W. Norton, 256pp, \$49.95

From So Simple a Beginning: The Four Great Books of Charles Darwin

Edited, with introductions,
by Edward O. Wilson,
W. W. Norton, 1706pp, \$59.95

Hiram Caton

ON Charles Darwin's death in 1882, a circle of highly placed friends intervened to thwart his wish to be buried modestly on his estate. Such an interment, they felt, would deprive England of the privilege of honouring one of its great men. So it was that the professed agnostic was buried with high ceremony in Westminster Abbey.

Canon Frederic Farrar's oration assured worshippers that the teaching of the deceased did not menace the Crown with the obstreperous materialism promoted by the free-thought press. Darwin's lifelong service to his parish, and his occasional acknowledgments of the creator, were proofs of his



Illustration: John Tiedemann

trans-Atlantic cable and of the physics of the steam engine, did.

In the biological sciences, real science focused on cellular biology, microbiology, biochemistry and neurology using constantly innovating experimental equipment and processes. It poured forth a stream of practical and profitable innovations, the most celebrated being the control of infectious agents, especially vaccination against contagious diseases.

Darwin the country gentleman was in complete disconnect with this world. His ceaseless pursuit of evolution questions resulted in not a single empirical discovery of interest to experimental biologists on the cutting edge. The contrast might be put this way. Darwin made no discovery of Nobel Prize calibre, whereas France's leading biologist, Louis Pasteur, made at least two such discoveries.

The disconnect is especially telling in Darwin's failure to make any contribution to the science of heredity. He lavished attention on domestication, conducting many plant and animal-breeding experiments, because he believed that such induced changes were evolution in miniature. The lead chapter of

solidarity with the establishment.

The canon's adroit evasion of uncomfortable facts was not the beginning of the Darwin legend, but it was a landmark in his sanctification as the presiding spirit of scientific enlightenment. Signs abound that the celebration of the bicentennial of his birth will reverberate with hymns and hosannas. Celebrations began with the opening of the splendid Darwin Exhibition at New York's American Museum of Natural History in November. In June, the exhibition will move successively to museums in Boston, Chicago and Toronto before opening in the London Natural History Museum in time for the bicentenary of Darwin's birth on February 12, 2009. (For those not in those parts of the world, a quality online version of the exhibition is at www.amnh.org.)

Darwin: Discovering the Tree of Life is an intellectual biography by the exhibition's curator, Niles Eldredge, intended to interpret the exhibition.

Not content with this, his publisher has pulled together in one book Darwin's four principal publications: *The Voyage of the Beagle* (1845), *On the Origin of Species* (1859), *The Descent of Man* (1871) and *The Expression of Emotions in Man and Animals* (1872). This massive tome, *From So Simple a Beginning*, is lavishly produced with no cost spared on typography, layout and graphics. W. W. Norton also recruited the world's leading naturalist, Edward O. Wilson, as editor and to write glosses on the "four great books".

The hosannas of these two distinguished scientists provoke awe and adulation. We learn that the *Origin* is the "greatest scientific book of all time" that "fully explained" the struggle for existence (Wilson). The *Voyage* "is today regarded as intellectually the most important travel book of all time" (Wilson).

Darwin "demonstrated without a shadow of doubt that life evolved"; "no idea in science has shaken society so much as evolution"; and "Darwin did more to secularise the Western world than any other single thinker" (Eldredge).

The sanctification continues: Darwin revolu-

tionised the biology of his day; so profound was his insight that his thought remains relevant to contemporary biology; he fashioned a new concept of humankind; he challenged basic philosophical and religious ideas about the nature and meaning of life. These surpassing achievements constitute a revolution equal in importance and originality to the Copernican revolution. Smitten with reverence, my eye falls on the dust jackets to contemplate the photo of the aged Darwin: yes, he looks like a prophet.

As is the wont with preaching, no evidence for this Darwin legend litany is offered: evidence implies its evaluation, hence critical scrutiny. But outside the Darwin cathedral, my old habits return. What grading system ranks *Origin* as the greatest book in science? What titles were runners-up? What were Darwin's discoveries in biology, and what is the story of their uptake? What was his new concept of humankind? Did it support the actively canvassed idea of sexual equality? What exactly was the secularising element of Darwin's thought and how did it relate to the influence of scientific naturalism, industrialisation, engineering marvels, the free press, socialism, positivism and the notorious laissez-faire doctrine of survival of the fittest?

These questions are not asked because answering them requires returning Darwin to his social context, which the legend must disregard to achieve its effect. Let me consider just one question: Darwin's relation to the science of his day.

Darwin was a sometime geologist and a full-time naturalist. The very readable *The Voyage of the Beagle* exemplifies both and adds the attraction of adventure. This formula was a winner in England of that time. Amateur botanists, birdwatchers and rock collectors were numerous; travel books provided vivid impressions of the new worlds of commerce and emigration.

But in the science status hierarchy, this wasn't "real" science. Real science was the sort of thing that Lord Kelvin, the maestro of the

Origin argues this case.

But, in a singular demonstration of the limits of even great minds, he didn't notice that domestication evidence contradicted his theory. It disproved his key premise that continuous selection of a single trait would evolve a population of better adapted organisms. Domestication shows, on the contrary, that selection for a single trait results in changes in numerous traits, changes that are usually deleterious.

Domestication also provided abundant documentation of events that Darwin unreservedly declared could not happen: single generation leaps, such as the two-headed calf and other "sports of nature", that disprove his gradualist theory of organic change.

The correct conception of inheritance was published in 1866 by Gregor Mendel. His carefully controlled experiments on hybrid peas enabled him to formulate two laws of inheritance. It was the beginning of genetics and the beginning of mathematical analysis in biological studies. Mendel believed his discovery disproved Darwin's theory. He was right.

Mendel's publication had no public uptake whatever in his time. His discovery enjoyed none of the hype of "revolutionary change". Yet in time hard biology rediscovered his work and Darwinians, initially very much against their grain, eventually made genetics the basis of evolution theory.

The Darwin Exhibition doesn't mention Mendel and Pasteur, although they must rank among the top five of the 19th century's great biologists. This silence quietly confirms Darwin's disconnect from hard biology and his entrenchment in the amateur science of the *Beagle* voyage. That in turn underscores the faith-based orientation of the Darwin bicentenary, together with the implication that science is based on authority. Creationists, alas, will probably conclude that the exhibition's symphony to the legend confirms their belief that to refute evolution, one need but refute Darwin.

One way to disabuse them of this nonsense is to discard the legend, which in any case has no business in science.