

David Quammen, *The Reluctant Mr. Darwin* (Atlas (Norton), New York, 2006), 304pp., ISBN 0-393-05981-2, \$22.95

Quammen begins his compact biography of Charles Darwin at the end of Darwin's *Beagle* voyage, which he says led Darwin to continue the Copernican revolution of dethroning humanity from its central position in the universe and shifted the revolution from cosmology to biology. This began when Darwin realized that biological species could not be immutable, which was the paradigm by which they were viewed in his day. But, as Quammen later recounts, even into his fourth notebook Darwin hadn't developed a mechanism to explain transmutation. This did not come until after he had read the sixth edition of Malthus' *Essay on the Principle of Population*, which provided, along with hereditary continuity across multiple generations and incremental variations among offspring, the "first full outline of the three causal conditions for natural selection" in November 1838 (p. 50). By the summer of 1842 this had grown into a 35-page outline of what would become *Origin of Species* and eventually into a 189-page manuscript in 1844, as the result of Darwin's correspondence with Joseph Hooker, a kindred spirit whom Darwin had engaged to analyze plant specimens from the *Beagle*.

The anonymous publication of *Vestiges of the Natural History of Creation* in October 1844 broached the idea of transmutation of species in public, but it further delayed Darwin's publishing his own theory. Instead, he turned to an investigation of barnacles collected during his *Beagle* voyage that would occupy him another eight years. Yet Darwin's objection to an apparent attempt to preempt his barnacle research showed that he did care about reclaiming credit for priority.

On the other hand, reading *Vestiges of the Natural History of Creation* motivated Alfred Russel Wallace to finance an 1848-1852 trip to the Amazon as a specimen collector. During a follow-up trip to what is now Indonesia in 1854, he wrote "On the Law Which Has Regulated the Introduction of New Species." On 18 June 1858 Darwin received Wallace's manuscript, "On the Tendency of Varieties to Depart Indefinitely from the Original Type." On 1 July 1858 excerpts from Darwin's 1844 essay and Wallace's 20-page paper were read to the Linnean Society, with neither author present, but the significance of what was read was not realized until it was published. Quammen expresses gratitude that Wallace's threat of preemption made Darwin write *Origin of Species* fast and recommends that the first (of six) edition is the one to read.

Two post-publication developments cited by Quammen are also worthy of inclusion here. One is that although the idea of the evolution of species gained acceptance, natural selection as its mechanism did not, because it precluded the role of a Creator. "Selection is directional; variation, offering raw material to the selective process, is not directional." (p. 208) But Darwin's theory did not challenge the existence of God; it challenged the belief that humans are specifically ordained by God.

The other is that the organisms studied by Darwin *et al.* did not have simply-determined traits that peas did, and Mendel had discovered the pattern of inheritance in peas only six years after *Origin of Species* was published. But, like the reading of Darwin and Wallace to the Linnean Society, Mendel's work did not make an immediate impression -- possibly because 1) Mendel "offered answers to questions that hadn't yet been clearly enough asked," 2) Mendel was

isolated from the larger scientific community, 3) he published only one paper, 4) he followed his work on peas with the more complicated hawkweeds, and 5) he was elected abbot of his monastery.

This book is in the Great Discoveries series.

- John L. Roeder