

able to suggest an answer to two difficult questions—How are intermediate links so often absent? and how are new types kept from the blending effects of interbreeding?

Robert Chambers (1802–1871), the anonymous author of *Vestiges of the Natural History of Creation* (1844, 10th ed. 1853), expounded the evidences of evolution forcibly, though not always accurately, and sought in the environment not only the immediate prompting cause of modification, but the agency which directs and limits the progressive impulse with which he supposed all life to be endowed. He was well acquainted with contemporary writers, and expresses a combination of Buffon's and Geoffroy St. Hilaire's emphasis on environmental modification with Aristotle's doctrine of a perfecting principle.

As Darwin's brother remarked, the idea of natural selection is logically so simple that "someone must have thought of it before". And we have seen that it was at least hinted at by various writers from the time of Empedocles. It is necessary, however, to distinguish between the mere recognition of elimination and the working out of the idea of selection as the mechanism of progressive adaptation. The whole credit of developing the idea of selection into a complete working hypothesis belongs to Darwin and Wallace, though they were undoubtedly and avowedly anticipated as regards the suggestion of the idea.

Thus Darwin notices the paper read by Dr. W. C. Wells in 1813 and published in 1818, in which the idea of natural selection is clearly applied to races of mankind and to the origin of single characters. Darwin also recognizes that Patrick Matthew, who hid his treasure in an appendix to a work entitled *Naval Timber and Arboriculture* (1831), "clearly saw the force of the principle of natural selection". The idea is also said to have been anticipated by Etienne Geoffroy St. Hilaire, and by the veteran French botanist Charles Naudin (1852).

Darwin did three chief services to evolution-doctrine.
(a) By his patient, scholarly, and pre-eminently fair-