

A Member of Our Lineage

The Evolution of *Homo erectus*. Comparative Anatomical Studies of an Extinct Human Species. G. PHILIP RIGHTMIRE. Cambridge University Press, New York, 1991. xii, 260 pp., illus. \$44.50.

From the 1890s through the 1930s, several significant discoveries of fossil human remains were made in Java and China. These remains, now generally regarded as members of the taxon *Homo erectus*, were considered by most contemporary scholars to be the most primitive representatives of the human lineage then known to science. As such, these fossils were central to discussions bearing on the origin of the human line throughout the first half of this century. Furthermore, primarily as a result of the work of the paleoanthropologist Franz Weidenreich (1873–1948), they were also considered critical to understanding the nature of the origin of modern people and their geographic variation.

With the general acceptance of the even more primitive human status of the australopithecines in the late 1940s and early 1950s and the increasing focus on Neandertals and their contemporaries as the key in deciphering modern human origins, interest in *Homo erectus* waned. Thus, despite some notable exceptions, *Homo erectus* has lately been considered little more than a rather uninteresting link between the australopithecines and later humans. For many, *Homo erectus* became simply the “muddle in the middle.”

One of the scholars who began to refocus attention on *H. erectus* in the late 1970s and early 1980s is G. Philip Rightmire. In a series of papers describing *H. erectus* remains from Olduvai Gorge, evaluating the pattern and rate of temporal change in *H. erectus* morphology, and assessing the relationship between *H. erectus* and early “archaic” *H. sapiens*, Rightmire emphasized the contributions that renewed study of *H. erectus* could make to the investigation of the nature and course of human evolution. *The Evolution of Homo erectus* is essentially a summary of Rightmire’s interpretation of this taxon and its importance, based on his own detailed analysis of the pertinent fossil samples from Asia, Africa, and Europe. The book draws heavily on its author’s earlier publications, and except for some interesting discussions of the species concept in paleoanthropology

there is not much that is new in it. Indeed, more detail on many of the issues raised is to be found in Rightmire’s individual papers (and those of others) on these various topics. What the book does, however, is bring all this information together into a cogent, clearly written synthesis of current scientific knowledge about *H. erectus*. There are several volumes that do this for the australopithecines and several for “archaic” and early “modern” *H. sapiens*. Despite the fact that it provides only one scholar’s perspective, there is now such a book that does this for *H. erectus*. In my opinion, this is the major contribution of this volume.

Rightmire states that the focus of the book is how the taxon *H. erectus* “should be defined and how this extinct species evolved in relation to other groups of *Homo*” (p. 2). In order to evaluate these issues, he devotes approximately half of the book to morphometric descriptions of selected *H. erectus* specimens. Mainly, Rightmire focuses on cranial and mandibular features that he subsequently uses to compare samples or specimens across geographic regions and ultimately to provide both phenetic and broadly cladistic definitions for the taxon *H. erectus*. For a nonspecialist, this will be difficult reading, complicated by the lack of labeled drawings or photographs. However, as the author states, this book is not intended for the morphological beginner. Useful summary tables of craniofacial, mandibular, and dental metric data on the individual specimens used in this study are provided, as are very general discussions of the geological and chronological frameworks for the sites.

Throughout the book, but particularly in the more interpretative second half, Rightmire attempts to deal with virtually all of the major controversies concerning *H. erectus*. Utilizing a modified cladistic approach, he argues that *H. erectus* can be defined on the basis of nine presumably apomorphic cranial features and that the species represents a distinct evolutionary entity and not just a morphological “grade” or an arbitrary segment of a lineage. From the same analysis, he concludes (contra a number of other workers) that both African and Asian specimens, traditionally classified as *H. erectus*, can indeed be included in this single taxon. Rightmire also concisely outlines his reasons for including the possibly late Pleistocene

Ngandong (Solo) sample from Indonesia in *H. erectus* and for excluding any European specimens (such as Mauer, Petralona, Bilzingsleben, or Arago) and such African remains as Broken Hill and Nduutu from that taxon. In Rightmire’s view, these latter African specimens, along with the earliest European human remains and possibly some Asian remains (for example Dali), represent a taxon exhibiting more advanced features than *H. erectus*. He designates this more advanced taxon *Homo heidelbergensis* (the taxonomic name given in 1908 to the Mauer mandible, found near Heidelberg, Germany) and suggests that it originated (presumably from *H. erectus* stock) in either Africa or Europe, then radiated, and ultimately gave rise to *H. sapiens*. Rightmire carefully presents the case that *H. erectus* in Asia and Africa remained essentially static during the species’ life span, exhibiting no statistically significant trends of morphometric change from its inception until its extinction. Rightmire’s assessment paints human evolution as a decidedly punctuational process, and his interpretations of *H. erectus* are obviously central to this line of thinking regarding the tempo and mode of human evolution in general.

As Rightmire himself notes, not everyone will agree with many of his conclusions about *H. erectus* in this book. Some will be disappointed by the cursory discussion of postcranial anatomy, the exclusion of such material as Vertésszöllös and Bilzingsleben from serious consideration, and the rather offhand dismissal of objections to his analysis of temporal stasis in *H. erectus*, among other things. His rationale for separating out *H. erectus* and *H. habilis* material in East Africa and his arguments for inclusion of Ngandong but exclusion of any European specimens from *H. erectus* will not be convincing to all. For example, how can specimens morphologically so similar as Olduvai hominid 22 (*H. erectus*) and Mauer (type specimen for “*H. heidelbergensis*”) possibly be placed in two different morphologically defined species?

But these types of disagreements are to be expected and should not detract appreciably from the significant scholarly effort this book represents. Rightmire has done an excellent job of presenting his perspectives on a number of complex and important issues, relating not just to *H. erectus* but to paleoanthropology in general. Consequently, this volume will certainly serve as an essential reference for those interested in making further contributions to sorting out the “muddle in the middle.”

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