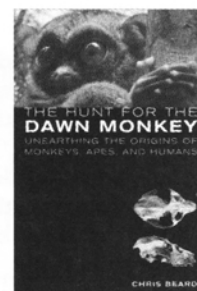


BOOKREVIEWS



THE HUNT FOR THE DAWN MONKEY: UNEARTHING THE ORIGINS OF MONKEYS, APES, AND HUMANS

by Chris Beard
Berkeley (CA): University of
California Press, 2004. 348 pages

Reviewed by Eric Delson

Modern humans, *Homo sapiens*, are one of many species belonging to the zoological order Primates, in turn one of several dozen such major subdivisions of the mammals. Among other living primates are the apes, monkeys of Africa and Asia, monkeys of Central and South America, tarsiers of Southeast Asia, lemurs (or lemuriforms) of Madagascar, and loriforms of Africa and southern Asia. There is abundant research on our fossil relatives throughout the Old World from South Africa to England to Indonesia, and the latest discoveries appear in the pages of journals such as *Nature*, *Science*, the *Journal of Human Evolution* and the *American Journal of Physical Anthropology*. Excellent less technical summaries of the state of this field, paleoanthropology, are provided by Ian Tattersall (2008; 2009), for exam-

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ple. Far fewer books written for non-specialists survey the long history of primate evolution from the time the last dinosaurs disappeared through the diversification of modern groups in the past 10 million years. This book by Chris Beard fills part of that gap neatly: clearly and engagingly written by a leading scholar for the general reader, it concentrates on the search for fossils documenting the middle third of primate history and role of these species in the emergence of the monkey predecessors of humans.

Beard provides a good review of both the evolutionary development of early primates and the history of their discovery. At the time he wrote, Beard and most other paleontologists considered that the earliest primates were the lemur-like adapiforms and tarsier-like omomyiforms of the early Eocene (about 55 Ma [million years ago]). These animals are best known from fossils from the western US and western Europe, with more fragmentary remains known in Indo-Pakistan, China, and North Africa collected beginning in the 19th century.

Modern analyses of new fossils from the even older Paleocene time period (65–55 Ma) show that at least some plesiadapiform mammals shared anatomical features such as grasping hands and feet with later primates and should be included within the order Primates; this view refutes one of Beard's ingenious but apparently incorrect hypotheses, which allied plesiadapiforms with a distant relative of primates, the Southeast Asian colugo or "flying lemur", and he has unfortunately not moved on to the current consensus.

The central point of this book, as I mentioned, is the search for the ancestry of anthropoids. Beard

describes well the history of study at the world-famous Fayum fossil site in northern Egypt, which has yielded remains of nearly two dozen species of early primates. Elwyn Simons of Duke University and his colleagues have demonstrated that some of these fossil species are definite anthropoids, close to the common ancestral stock of humans, apes, and the monkeys of Africa and Asia.

Other forms are more distant relatives, some close to the ancestor of all living anthropoids and others farther away from the modern branch of the anthropoid evolutionary tree. The oldest of these known when Beard wrote lived perhaps 35 Ma, but in fact new forms have recently pushed the Fayum record back to 37 Ma. Another North African species possibly related to some Fayum forms may be as old as 45 Ma, but the anthropoid nature of that species has recently been rejected by Rodolphe Tabuce and his colleagues (Tabuce and others 2009).

This brings us to Beard's own work in China, where he has found remains of an animal he has named *Eosimias* (dawn monkey in a mixture of Greek and Latin). *Eosimias* was first recognized by fragments of lower jaw with a few loose teeth, but in a later expedition, Beard and his colleagues recovered a nearly complete lower jaw and later still some fragments of skull and isolated limb bones.

In one of my favorite passages, Beard recalls how he examined that lower jaw in the Institute of Vertebrate Paleontology and Paleoanthropology in Beijing and asked if anyone there had a copy of *Evolutionary History of the Primates*, my 1979 book with Fred Szalay which illustrated all the fossil primates then known. Based on this analysis, he determined that *Eosimias* had the front teeth of an

anthropoid: small but vertical incisors something like our own, as opposed to the procumbent ("forward-leaning") incisors of various early and lower primates. Beard then spends a lot of time and words explaining why *Eosimias* is the earliest known anthropoid, living before all the Fayum species and convincing him to replace Africa with Asia as the ultimate home of higher primates.

There are two related problems with this conclusion. First, is it correct? Beard presents his conclusion without offering the reader a chance to weigh the alternatives. He also offers a somewhat disingenuous (or disrespectful) interpretation of the motives of several scholars with whose views he disagrees, such as Simons and Beard's French contemporary Marc Godinot. They want to prove Africa as the source area, Beard suggests, because they have found early African primates that might qualify as protoanthropoids, so they and others have rejected Beard's true protoanthropoid *Eosimias*; Beard himself is the white knight of unfettered true science, fighting to be recognized for the value of his ideas ... and so on.

In fact, there are alternative interpretations of *Eosimias* which I find more convincing than Beard's. I have seen some of the original specimens and replicas of others, and I am impressed by Szalay's (2000) brief suggestion that this and other Asian species are in fact closest to the ancestry of living tarsiers. I am not convinced by any of the purported protoanthropoids recovered in recent years from Pakistan, Thailand, Myanmar, or China. Many of those appear to me (and a number of other specialist colleagues) best interpreted as relatives of non-anthropoid primates; none appears to be a protoanthropoid much less already an anthropoid, as are the Fayum species.

But science is really about putting down one's ideas on paper and holding them up to scrutiny by colleagues. That is what Beard has done, here and in numerous technical papers. We are not always correct, and most of us recognize that. What makes science different from other explanatory systems is that

we accept the idea of criticism from our peers and work to convince them by reason and logic, rather than by revealed truth of any kind. Beard's book is successful in presenting relatively novel views and especially in doing so in a framework of scientific detail that will entice the reader to learn more about this exciting field.

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