Book Review

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Evolutionary Biology of the New World Monkeys and Continental Drift

Plenum Press, New York 1980 XVI + 528 pp.; US \$ 49.50

This volume is a significant contribution to the primate biology literature. It focuses attention on one of the most perplexing aspects of primate evolution, namely, the origin and dispersal of platyrrhine primates. As the editors and numerous contributors point out, the emerging evidence of plate tectonics in the South Atlantic have revolutionized paleontological thinking regarding platyrrhine origins.

The 'traditional' view has been that New World monkeys had a North American origin and dispersed into South America by late Eocene times. A slight variation on this theme has the 'protoanthropoids' arising in Asia and then dispersing first across the Bering Straits to North America and then into South America. Since the question of the day concerns the presence of platyrrhines in South America, I consider the above alternatives logically equivalent. The third alternative requires rafting directly from West Africa to South America, a view that would have been held in derision a few years ago before the evidence of continental drift began to accumulate. A fourth alternative, Hershkovitz's 'vicariance-origin' model, was not seriously considered by any of the contributors but was reviewed in the excellent summary chapter by the editors. As far as I can judge, of the 23 contributions, 9 favored an African origin (Tarling, Lavocat, Hoffstetter, Bugge, Luckett, Martin and Gould, Chiarelli, Sarich and Cronin, Ciochon and Chiarelli), 6 favored a North American origin (McKenna, Wood, Gingerich, Orlovsky, Perkins and Meyer, Delson and Rosenberger), and the remainder either candidly admitted or implied that their data did not permit strong preference either way (Rosenberger and Szalay, Kay, Gantt, Maier, Cartmill, Falk, Baba et al.). Thus, one is in very good company no matter what, if any, conclusions are reached.

The volume was organized in a very appealing way such that opposing viewpoints (often based on the same evidence) were placed back to back (e.g. Wood – Lavocat; Gingerich – Rosenberger and Szalay; Kay – Orlovsky; Sarich and Cronin – Baba, Darga and Goodman). The reader got some sense of the 'dynamic tension' that surrounds major issues in primate paleontology.

A key element here is whether or not Omomyidae are ancestral to 'higher primates'. To those who answer in the affirmative, the comparisons are routinely made with Tarsius. What is often overlooked is the implausibility of omomyids being ancestral to Fayum forms which are universally accepted as 'anthropoids'. To me, the cranial and postcranial adaptations of known omomyids preclude their ancestry to Fayum anthropoids. Why Teilhardina or Ourayia models are used as ancestral anthropoid morphotypes is beyond me. They are both known only dentally and I am more firmly convinced than ever that dental comparisons have been overrated and overused in phylogenetic studies (Kay's contribution is very candid on this point). I think the cranial studies by Szalay, Cartmill, Bugge and others will prove in the long run to be much more valuable for phylogenetic analyses. I am also convinced, along with Gingerich and others, that

the fossil record is the ultimate arbiter of phylogenetic questions. If a Parapithecus jaw turns up in a deep sea core along the Walvis Ridge, I will be a believer. None of the contributions have shaken my belief that the ancestral 'anthropoid' still lies buried in the African Paleogene [1].

Indeed, that conclusion seems almost inescapable.

This is an excellent, timely volume which has been edited meticulously. It deserves to be widely read.

Reference

1 Conroy, G.C.: Ontogeny, auditory structures, and primate evolution. *Am. J. phys. Anthrop.* 52: 443-451 (1980).

Glenn C. Conroy, Providence, R.I.