



A database of North American Tertiary mammals

Janis, C.M., Scott, K.M., & Jacobs, L.L. (eds.) 1998. *Evolution of Tertiary Mammals of North America. Volume I: Terrestrial Carnivores, Ungulates, and Ungulatelike Mammals*, i–x, 1–691. Cambridge University Press, Cambridge, UK. Price 165 pounds.

Paleomammalogy per continent already has *Evolution of African Mammals* (V.J. Maglio & H.B.S. Cooke, eds., Harvard University Press, Cambridge, Mass., 1978). For North America, whose mammalian fossil record is richer than Africa's, there is *Pleistocene Mammals of North America* by B. Kurten and E. Anderson (New York: Columbia University Press, 1980). The volume under review is devoted to the Tertiary; it's meticulously, superbly done, and its usefully uniform structure is likely to set the presentation standard for works to come. An inviting mix obtains, of textual (or numeric) and visual information (tables, cladograms, restorations). Researchers whose geographic interests lay outside of North America will nevertheless want to read this book. Old World paleo- and even neontologists will find here discussions of groups that appear to have originated in North America, or that, instead, spread to it; sometimes the systematics is revised according to such considerations on occurrence across the continents. Moreover, treatments such as MacFadden's on *Equidae* (chapter 37) have a more general methodologic interest, especially the discussion of Cope's rule.

In the rest of this review, a sample is given of how relationships to the Eurasian fauna are found throughout the book. Taxonomic groupings within the chalicotheres obtain in North America from different migrations. Or, then, for the Holarctic rhinocerotoids, these are 'traditionally thought to have had a semiaquatic mode of life', yet their habits 'were more diverse' (p. 583); we are told that while 'Asia appears to be the center of origin of the family' (p. 587), greater taxonomic diversity in Asia is perhaps an artifact because some Asiatic taxa are perhaps not valid. The North American '*Amyndontopsis* is more closely related to the Asiatic genera *Sianodon* and *Cadurcodon* than to any North American amyndontids' (p. 587). Two other North American genera, closest on that continent, nevertheless each have an even closer Asiatic sister taxon. And then again, when broadly discussing the Paleocene-Eocene *Pantodonta* (chapter 18), Lucas specifically takes issue with findings in China and South America; it crucially affects them. The focus is much narrower when, in chapter 17, 'Tillodontia', Lucas and Schoch 'consider *Kuanchuanius shantunensis* Chow, 1963 from the middle Eocene of Shandong, China, to be a small species of *Trogosus*', a North American, superficially bearlike genus, out of reasons they state.

The contrast of ursids (and the oldest arctoids) and canids is one in which mutual enlightenment obtains between research into the Palearctic, and Nearctic findings. In Oligocenic France (at Quercy), 'we find a rich sampling of ancestral ursids, amphicyonids, mustelids and procyonids, but not canids' (p. 176), these being at the time endemic to North America, 'and this geographic separation between the oldest arctoids and the canids lends credence to the recognition of a basic arctoid-cynoid dichotomy among the early caniform carnivorans' (p. 176). The *Agriotherium*, a member of *Ursinae*, *Ursavini* which in North America is of the late Hemphillian, also had species in Eurasia and in Africa. In recent decades, both the European and the

North American chronostratigraphy has undergone revisions, and for the European Miocene it's rejuvenated vis-à-vis its counterpart across what is now the Atlantic, thus pushing the Hemphillian (named after a town in the Texas Panhandle, and that used to be considered 'middle Pliocene by the Wood Committee) into the late Miocene' (p. 21).

For the artiodactyl groupings, too, the North American contribution is unique.

'The pattern of artiodactyl evolution in North America contrasts with that seen in the Old World', "the 'success story' bovids have always been a primarily Old World group, and in the late Miocene their diversification was paralleled by equids in North America" (p. 337), where the camelids, endemic there, were quite diverse. *Camelidae* were endemic to North America, until their dispersal to Eurasia (and then Africa) in the late Miocene, or Plio-Pleistocene, and to South America as well. *Camelidae* apart, 'Tylopods were either exclusively Old World in their distribution... or exclusively North American' (p. 337). *Suidae* are Old World, *Tayassuidae* (peccaries) North American, the status of reported Old World fossil 'tayassuids' being controversial. Among ruminants, blastomerycines were uniquely North American, yet are 'probably related to *Moschus*, the living musk deer'. 'Antilocaprids are known only from North America, but their origin must lie in the Old World because there are no pecoran ruminants in North America prior to the early Miocene'.

Major recapitulations and general revisions such as the book under review are most useful, for all of the state of the art being fluid. (Here and there, last-minute remarks were incorporated into the book.) How necessary such broad yet punctilious revisions are, is exemplified by *Subhyracodon*, 'the commonest larger Chadronian and Orellan rhinocerotid' (p. 599): "For over a century, the invalid name '*Chaenopus*' (Cope, 1880) has been attached to this rhino, and it still appears in recent works [in the 1980s]... because there has been no comprehensive systematic work since Scott (1941)".

Comprehensiveness apart, the book is to be commended also for the felicitous choice and quality of the restorations that grace the first page of each chapter. The uniform structure of all taxonomic chapters enables the reader to access the data more predictably and quickly. Yet, the presentation is enticing for through reading. For the present reviewer at least, reading this volume from cover to cover proved both feasible and rewarding.

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