

Late Middle Eocene primate from Myanmar and the initial anthropoid colonization of Africa

Abstract

Reconstructing the origin and early evolutionary history of anthropoid primates (monkeys, apes, and humans) is a current focus of paleoprimatology. Although earlier hypotheses frequently supported an African origin for anthropoids, recent discoveries of older and phylogenetically more basal fossils in China and Myanmar indicate that the group originated in Asia. Given the Oligocene-Recent history of African anthropoids, the colonization of Africa by early anthropoids hailing from Asia was a decisive event in primate evolution. However, the fossil record has so far failed to constrain the nature and timing of this pivotal event. Here we describe a fossil primate from the late middle Eocene Pondaung Formation of Myanmar, *Afrasia djijidae* gen. et sp. nov., that is remarkably similar to, yet dentally more primitive than, the roughly contemporaneous North African anthropoid *Afrotarsius*. Phylogenetic analysis suggests that *Afrasia* and *Afrotarsius* are sister taxa within a basal anthropoid clade designated as the infraorder Eosimiiformes. Current knowledge of eosimiiform relationships and their distribution through space and time suggests that members of this clade dispersed from Asia to Africa sometime during the middle Eocene, shortly before their first appearance in the African fossil record. Crown anthropoids and their nearest fossil relatives do not appear to be specially related to *Afrotarsius*, suggesting one or more additional episodes of dispersal from Asia to Africa. Hystricognathous rodents, anthracotheres, and possibly other Asian mammal groups seem to have colonized Africa at roughly the same time or shortly after anthropoids gained their first toehold there