A NEW NAME FOR THE ‘STANFORD SKELETON’ OF PALEOPARADOXIA
(MAMMALIA, DESMOSTYLIA)

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One of the most important and well-known fossil skeletons of the Miocene herbivorous, quadrupedal marine mammal Paleoparadoxia has been known informally for many years as the ‘Stanford skeleton,’ or the ‘Stanford Paleoparadoxia.’ Only recently has this specimen been formally referred to a named species of the genus. Unfortunately, that referral is tenuous, and it threatens nomenclatural stability and universality because it involves transferring a well-established name from one species to another. We propose to solve this problem by designating the ‘Stanford skeleton’ as the holotype of a new species bearing an unambiguous specific name.

On 2 October 1964, during construction of the Stanford University Linear Accelerator Center near Menlo Park, California, a nearly complete, articulated skeleton of a large adult desmostylian was discovered. Its excavation, collection, and preparation were supervised by the late Charles A. Repenning, then of the United States Geological Survey office in Menlo Park (Fig. 1), who undertook its preliminary study, referred it to the genus Paleoparadoxia (Repenning, 1965; Repenning and Packard, 1990), and promoted the distribution and exhibition of replicas of it (see also Panofsky, 1998).

The ‘Stanford skeleton’ (which lacks the cranium, the right dentary, and most of the denitition) has subsequently become widely known among marine mammal paleontologists, and it has been included in several comparative and functional studies. Replicas are exhibited in museums in several countries, and pictures of the skeleton in various poses have appeared in print (Repenning, 1965; Mitchell and Lipp, 1965; Romer, 1966:fig. 367 [after Repenning, 1965]; Inuzuka, 1982; Panofsky, 1998:1, fig. 56). Only recently, however, has a comprehensive, thoroughly illustrated formal description of the skeleton been published (Inuzuka, 2005).

The species nomenclature of the ‘Stanford skeleton’, nonetheless, remains in question. As was detailed by Inuzuka (2005), the type species of the genus Paleoparadoxia Reinhart, 1959, is P. tabatai (Tokunaga, 1939), the type material of which was a left m2 and a fragment of an upper tooth (possibly representing different individuals), found during construction of a tunnel between the towns of Sawane and Aikawa on Sado Island, Niigata Prefecture, Japan. Both of these teeth were destroyed during World War II. Subsequently, another Paleoparadoxia specimen from Honshu, Japan (known as the ‘Izumi skeleton,’ a subadult), was designated as the neotype of P. tabatai by Shikama (1957, 1966). This name, Paleoparadoxia tabatai, has for several decades been uniformly applied to the subadult ‘Izumi skeleton’ and to similar specimens until Inuzuka (2005) proposed the new species name P. media, having as its holotype the ‘Izumi skeleton.’

Inuzuka’s reason for this action was the recent rediscovery of another tooth (a left m3) which possibly represents the same individual as the lost left m2 of the original holotype of P. tabatai (the ‘Sawane specimen’). This rediscovery, as interpreted by Inuzuka (2005), automatically sets aside Shikama’s (1957, 1966) designation of the ‘Izumi skeleton’ as the neotype of Paleoparadoxia tabatai, and reinstates the ‘Sawane specimen’ as the holotype of P. tabatai (ICZN, 1999:Article 75.8). This rediscovered m3 that is possibly part of the type material of P. tabatai is considerably larger than the homologous tooth of the ‘Izumi skeleton,’ is geochronologically younger (16.5 Ma versus 18 Ma), and the two specimens most likely do actually represent different species.

The root morphology of the rediscovered large left m3 of the supposed type material of P. tabatai (the ‘Sawane specimen’) is compatible with the vacant alveoli of the missing m3 in the left dentary of the ‘Stanford skeleton’ (which at approximately 14 Ma is younger geochronologically than the holotype of P. tabatai by about 2.5 Ma). Thus, it was solely on the basis of root morphology of the otherwise unknown m3 of the previously unnamed ‘Stanford skeleton’ that Inuzuka (2005) referred that specimen to the approximately 2.5 Ma older species, P. tabatai.

A result of this decision by Inuzuka (2005) is that the species name P. tabatai, which for nearly half a century has been universally used for the ‘Izumi skeleton’ and others that have been deemed conspecific with it, has now been transferred to the much larger and geochronologically younger species that is represented by the ‘Stanford skeleton.’ This species transfer was done, moreover, on the tenuous basis of similarity in size and morphology between the roots of the m3 of the approximately 14 Ma ‘Stanford skeleton’ and of the m3 of the approximately 16.5 Ma ‘Sawane specimen,’ which is possibly the only surviving portion of the type material of P. tabatai.

Our view is that even if the woefully incomplete ‘Sawane specimen’ (the holotype of P. tabatai) and the wonderfully complete ‘Stanford skeleton’ could ever be proven to be conspecific, the transfer by Inuzuka (2005) of the name P. tabatai from one species to another is seriously destabilizing to nomenclature, and will create a stumbling block for persons consulting desmostylian literature in the future. As the Code emphasizes (ICZN, 1999:General Recommendation 1), “it is of especial importance that a name should not be transferred to a taxon distinct from that to which it is generally applied.”

Furthermore, it is now obvious that the family Paleoparadoxidiidae was taxonomically diverse. The oldest and most primitive known paleoparadoxids are species of the late Oligocene Behemotops from the Olympic Peninsula in Washington, U.S.A. (Domning et al., 1986; Ray et al., 1994; Barnes and Goedert,