

problem of the differentiation of the early loroid stock. As Simpson has shown, there seems to be no single cranial or dental criterion by which the Lorisinae can be distinguished from the Galaginae when dealing with these fossil forms. It now seems that the Miocene loroids were represented by two genera (*Komba* Simpson, 1967, with two species, and *Progalago* MacInnes, 1948, with three species), and that they still possessed the primitive *Galago*-like morphological habit, both cranially and post-cranially (postcranial remains of the Miocene Lorisidae of East Africa are now known³). There is a little evidence to suggest that *Progalago* has more loroid characters and *Komba* more galagine characters, but these aspects can, perhaps, be over-emphasized. It may be, as karyological⁴ and immunochemical⁵ evidence suggests, that the two sub-families do not represent a single basic split of the early loroid stock, but that species with the loroid morphological habit were evolved several times from the more primitive *Galago*-like, early loroids. Some species of *Galago* may be more closely related to some loroids than they are to other *Galago* species. With our present state of knowledge it seems that the major division or divisions of the Lorisidae into the two sub-families probably took place in Africa during or just after the Miocene.

I thank Professor G. G. Simpson for reading this communication. He has asked me to state that he agrees with my interpretation.

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Possible Identity of Miocene Tali from Kenya

Day and Wood have very elegantly shown that three hominoid tali from the early Miocene of Kenya are functionally similar to those from the living pronograde quadrupedal African apes, *Pan* and *Gorilla*, and unlike modern bipedal man¹. Two of the tali (CMH 145 from Songhor and CMH 147 from Rusinga) were described first by MacInnes² and later more fully by Le Gros Clark and Leakey³; Le Gros Clark subsequently described a second talus from Rusinga⁴. I have some tentative suggestions concerning their identification.

In the early 1950s three medium sized pongid species to which these tali might belong were known from the East African Miocene: *Proconsul nyanzae*, *P. major* and *Sivapithecus africanus*⁵. Simons and I subsequently transferred all three species to *Dryopithecus*⁶, the last to *D. sivalensis*. Alternatively Leakey has reclassified "*S. africanus*" as "*Kenyapithecus africanus*", a species he believes to be a hominid ancestral to the late Miocene hominid "*K. wickeri*"⁷. I have argued elsewhere⁸, as have others⁹, that "*K. wickeri*" is a *Ramapithecus*, and that "*K. africanus*" is a *Dryopithecus* probably not ancestral to *Ramapithecus*.

Le Gros Clark and Leakey stated initially³ that the tali belonged most probably in *Dryopithecus* (*Proconsul*) *nyanzae*, although they did point out that these bones might just possibly belong to the very rare "*S. africanus*". The possibility that they might represent *D. (P.) major*, also rare, was not considered. In 1952, Le Gros Clark stated definitely that the tali belonged in *D. (P.) nyanzae*⁴. Since 1952, many more specimens of *D. (P.) major* have

been discovered or recognized^{9,10}, and the possibility that the three tali are not all *D. (P.) nyanzae* should now be considered.

The canonical analysis¹ showed that the Miocene tali are close to *Pan* and *Gorilla*. One striking feature of the canonical plots, however, is that the three bones do not form a homogeneous cluster. The two from Rusinga fall close together, lying some 2 standard deviations from the mean of *Pan* on plots of both variates I and II, and II and III. They lie outside the 2 standard deviation areas of *Gorilla*. In contrast, the Songhor talus lies well away from the Rusinga specimens, 2 standard deviation units or more away on both plots. The Songhor and Rusinga samples are farther apart than are the means of *Pan* and *Gorilla* (and also more disparate in these terms than the hominid tali from Olduvai and Kromdraai which are assigned to two separate species by almost all students¹¹). In the plot of variates I and II, the Songhor talus lies within the 2 standard deviation range of *Gorilla* and on the edge of that range for *Pan*; in the plot of II and III the Songhor specimen is closer to the *Gorilla* mean while the Rusinga sample is closer to that of *Pan*.

Although the samples are minimal, it seems quite likely therefore that these three tali are drawn from two species, one represented at Songhor and another at Rusinga. CMH 145 from Songhor and CMH 147 from Rusinga were illustrated comparatively by Le Gros Clark and Leakey³, and a careful examination of the plates reveals morphological contrasts between the two (including some features not utilized in the canonical analysis).

What of the identity of these two species? By far the most abundant medium sized primate recovered from Rusinga is *D. (P.) nyanzae*^{3,4,9,10}, and the Rusinga tali can be assigned with some confidence to that species, as Le Gros Clark suggested⁴.

D. (P.) major, only poorly known from Rusinga, is well represented at Songhor. This species was on average larger than *D. (P.) nyanzae*, although the two overlap in size. I have suggested that several so-called *D. (P.) nyanzae* from Songhor and elsewhere are females of *D. (P.) major*, and that this species may well be the most common large primate in the Songhor deposits^{9,10}. A phylogenetic relationship between *D. (P.) major* and *Gorilla* has also been proposed following a detailed analysis of dental, mandibular and facial morphology^{9,10}. Walker and Rose, in describing a *D. (P.) major* lumbar vertebra from Moroto in Uganda, state that there are no vertebral features which would rule *D. (P.) major* out of *Gorilla* ancestry¹². Because the Songhor talus seems not to be *D. (P.) nyanzae* it is probably *D. (P.) major*, and its close similarity to *Gorilla* rather than to *Pan* then provides additional supporting evidence in favour of an evolutionary relationship between *D. (P.) major* and *Gorilla*. Whether or not such a relationship is eventually proven, Day and Wood's analysis shows that large pongids with several resemblances to the living African apes had differentiated in Africa during the early Miocene.

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