A Cercopithecid Tooth from the Pliocene of Malawi

A cercopithecid tooth which was recovered from Pliocene deposits in northern Malawi is described and identified here as cf. *Parapapio* sp. This is the first evidence of this taxon in the geographic corridor between the East and South African hominid bearing sites.

In recent years numerous fossils of late Pliocene to early Pleistocene age have been recovered from the Chiwondo Beds of the Karonga District in Northern Malawi by the Hominid Corridor Research Project (HCRP) with the intention to characterize this enigmatic paleobiogeographic corridor between the East and South African fossil bearing sites (Bromage et al., 1985). The fossil sample is similar in many ways to those from contemporary sites in East and South Africa and includes one cercopithecid monkey, which we describe here. This is one of the first reports of Pliocene Cercopithecidae in the geographic center between East and South Africa.

An estimate of the age of the Chiwondo Beds must presently rely on correlation with radiometrically dated biostratigraphic units in East Africa. Kauflu et al. (1981) linked suid and bovid species of the Chiwondo Beds to the faunal assemblages of Sterkfontein Member 4, Makapansgat Member 4, Olduvai Bed I, Omo Members B-G of the Shungura Formation, the Hadar Formation and the Laetoli Beds and indicated an age for the deposits of 3.0–2.5 Ma. The vertebrate fossils subsequently recovered include suid, bovid, elephantid and equid species which are consistent with this age (Bromage et al., n.d.; Schrenk et al., n.d.).

As a result of J. Desmond Clark’s pioneering work on the Chiwondo Beds in the 1960s, a few poorly preserved and fragmentary remains attributed to *Papio* were recorded. The first of these was a distal humerus from Uraha, south of the Karonga District, reported by S. C. Coryndon (Clark et al., 1966). J. E. Mawby subsequently reported the discovery of a molar tooth and incisor as well as some limb bone fragments (Clark et al., 1970). Unfortunately, these finds did not draw the attention they deserved nor were they confirmed or studied beyond these initial and interim reports.

More recently, in an exposure of Chiwondo deposit not far from the latter discoveries, the authors discovered a relatively well preserved right molar crown and associated mandibular corpus fragment of a cercopithecid on a steeply eroding surface near the Ruasha River (field catalogue number HCRP-128) (Figure 1). On discovery, the molar (128b) had only a tenuous and delicate connection, on its mesial aspect, to the mandibular...
Figure 1. Lingual (top) and buccal views of the HCRP-128 mandibular corpus fragment and M2. The connection between the corpus fragment and the tooth is not approximated. Occlusal view of the M2 positioned with the buccal side facing up and the mesial aspect facing left. The scale bar is 1 cm.

fragment (128a); this link disintegrated upon collection. In the specimen’s original context, it could be seen that the mesial margin of the tooth was 2–2.5 cm from the coronal plane of the mental foramen, suggesting that the tooth was probably an M2 rather than an M1. The corpus is 11.8 mm thick mesial to the tooth (at the level of the distal root alveolus of M1) and is 15.7 mm deep, at this same level, above the broken inferior margin. The alveoli of P3–M1 are partially preserved and the mandibular corpus fossae are weakly developed. The M2 is 11.1 mm long, 9.2 mm wide across the mesial lophid and 9.0 mm wide across the
distal. Both lingual cusps are worn strongly, but the buccal cusps are little worn. The lingual notch is shallow, which suggests an attribution to the Cercopithecinae, but excludes the Theropithecina. Moderate lateral flare of the tooth excludes allocation to the Cercopithecini and indicates Papionini.

The conservative nature of "typical" papionin mortar crowns makes precise identification of worn, isolated teeth difficult but it has been possible to make some educated guesses. Delson (1984) has recently listed cercopithecid taxa known from a number of sub-Saharan African Pliocene localities, and in the 3.0–2.5 Ma interval there are several species of *Papio* and *Parapapio*. Of these taxa the HCRP-128a tooth is in the size range of *Papio izodi/angusticeps* and *Parapapio ado*, *Parapapio broomi* and *Parapapio jonesi* (Freedman, 1957 et seq.: see Szalay & Delson, 1979; Leakey & Delson, 1987). The lack of well excavated mandibular corpus fossae on HCRP-128b suggests that the specimen is better identified as cf. *Parapapio* sp. (see Szalay & Delson, 1979). This taxon existed earlier in time at Laetoli and East Turkana and subsequently spread north and south until its preponderance in East and South African sites led Delson (1984) to refer to the time of around 2.5 million years ago as the *Parapapio* "acme-zone".

Many of the fossil specimens recovered from the Chiwondo Beds to date confirm a certain faunal continuity between East and South Africa of the Plio-Pleistocene. To this faunal assemblage we add *Parapapio*. We can expect, therefore, that other cercopithecoids including species of *Theropithecus*, *Papio*, *Cercopithecoides*, *Paracolobus* and *Rhinocolobus* may be discovered. We must also expect, however, that the East and South African Plio-Pleistocene faunal communities were unique in some ways and that the geographic region between them, represented by the Chiwondo Beds, may also have been unique. We have already confirmed the southernmost extent of Pliocene impala in Africa. Another as yet undescribed bovid taxon appears to be a new genus and/or species, similar in some respects to *Menelikia lyrocera* (Vrba, pers. comm.).

Our searches of the Chiwondo Beds have been conducted according to a surveying and collecting strategy that has improved the probabilities of finding well preserved fossil material (Bromage et al., n.d.; Bromage & Schrenk, in prep.) and the sample has been put into an accurate geological context thanks to the efforts of Zefe M. Kafulu. Our new faunal sample recovered from the Chiwondo Beds of northern Malawi joins the East and South African faunal communities and is therefore crucial to our understanding of the paleobiogeography of the Plio-Pleistocene in Africa.

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References


