

Mammalian Remains from the Isimila Prehistoric Site, Tanzania

HOWELL *et al.* have reported¹ the results of uranium-series dating of bone from the Isimila prehistoric site, Tanzania. Preliminary identifications of fragmentary mammalian remains recovered during the first excavations at the site (1957–58) were reported in the interim report on the site². These specimens, which are now housed in the National Museum Centre for Pre-history and Palaeontology, Nairobi (but will in future be preserved in the National Museum, Dar-es-Salaam), are discussed more fully here.

(1) Elephantidae (V. J. M.). The eighteen partial plates of elephant molars are very thin, with folded enamel and an index of hypsodonty in excess of 150. These characteristics exclude *Loxodonta* and suggest a rather progressive stage of *Elephas recki*. It might have resembled the Olduvai Bed IV or Ologesailie stage of that species, although it is difficult to be precise on such fragmentary evidence. Because of the lack of traceable *E. recki* material into the later Pleistocene, it is impossible, however, to give an upper age limit. The Isimila material does look more primitive than the terminal stage of the lineage, *Elephas iolensis*, of late Pleistocene age.

(2) Rhinocerotidae (D. A. H.). One fragmentary tooth, comprising the posterior portion of a worn right lower molar, is represented. It is referred to *Diceros bicornis*.

(3) Equidae (D. A. H.). Remains include a proximal metapodial, two teeth and some tooth fragments. Two molars suggest *Equus cf. burchelli*. An upper molar, presumably right M¹, 29 mm long and 30 mm wide, has concave ectoloph halves; the protocone is not markedly reduced anteriorly but not bilobate; there is a distinct pli prefossette, and a small pli caballine. An incomplete lower molar exhibits the flattened outer wall of the hypoconid which is characteristic of *E. burchelli*. The material is not sufficient for definite identification, but these remains cannot be distinguished from those of the bontequagga and are therefore referred to *Equus cf. burchelli* Gray.

(4) Hippopotamidae (S. C. C.). The remains are generally fragmentary and consist largely of isolated teeth (ten) or fragments of teeth (thirty-three). Exceptions are a portion of right maxilla with M^{2/3} and a portion of right mandible with M_{2/3}. These last specimens were part of an individual skeleton, including ribs and vertebrae but lacking extremities or the skull, in a clay underlying Sands 4 in the H.20 area of the site². There is no evidence for the presence of *H. gorgops* as suggested by Howell *et al.*². From the morphology and size of the teeth it is impossible to separate these remains from the living species, *Hippopotamus amphibius*.

(5) Suidae (J. M. H.; S. C. C.). This family is poorly represented. The extinct phacochoerine *Afrochoerus* is known from a left upper and a right lower tusk. The upper tusk is longer and flatter than that of *Metridiochoerus andrewsi* and the wear facet is closer to the base of the tusk. The torsion is less than in *Afrochoerus nicoli* from Olduvai. *Mesochoerus* (*cf. olduvaiensis?*) is represented by an incomplete right M₃, a right P₂, and a right I¹. Postcranial remains include the left and right astragalus, the distal portion of a metacarpal and the distal portion of a right humerus of a pig of similar size to the extant giant forest hog, plus the condyles of a right femur and an atlas vertebra of a somewhat larger suid.

(6) Bovidae (A. W. G.). Remains are infrequent and are generally poorly preserved. Of indeterminate affinity are a tooth fragment, first and second phalanges, immature first phalanx, several molar fragments and a partial left mandible. An incomplete right lower molar is assignable to Bovini, species indeterminate. A right upper molar is assignable to Antilopini, species indeterminate. Alcelaphini are represented by at least two species. *Parmularius angusticornis* (Schwarz), a species hitherto included in *Damaliscus*, is represented by a fairly complete cranium, with partial horn cores. A distal left humerus and a proximal right radius represent an alcelaphine

of this same size. *P. angusticornis*, which at Olduvai Gorge, Tanzania, is temporally restricted to the middle and upper levels of Bed II, also occurs at Laetoli and Peninj in Tanzania and at Kanjera in Kenya. Two other teeth, an unworn right upper molar and a scarcely fossilized lower molar, also represent an alcelaphine, of indeterminate species. A left proximal radius is also alcelaphine, but is larger than *P. angusticornis* and probably represents another species. An isolated lower molar represents a small bovid, either Neotragini or Cephalophini. Altogether at least five species of four tribes of Bovidae are represented in this collection.

(7) Leporidae (J. M. H.). This family is represented by a single left mandible fragment with P₄–M₁. The fragment includes that portion from the posterior edge of the P₃ alveolus to the anterior half of the M₂ alveolus. The occlusal surfaces of the teeth are badly weathered, making identification even to generic level unreliable. The teeth are distinctly smaller than those of *Lepus veter*, and slightly smaller than those of the extant *L. capensis*.

In addition to these fossil specimens, all of which derive from Sands 4, the collection contains a facial region, with left I to M³ and right I to M¹, of a rodent referred by one of us (J. M. H.) to the giant rat, *Cricetomys gambianus*. This specimen was recovered from Sands 1 in the K-14 area of the site. The bone seems to be recent and because the giant rat is a burrowing rodent it seems likely that it found its way into the Pleistocene sediments quite recently.

The mammalian taxa identified at the Isimila site still do not permit a much finer resolution of the age of the fossiliferous sediments. The elephant, suid and hippo remains suggest an age comparable with some part of Olduvai Bed IV and the Ologesailie succession. The equid remains are consistent with that interpretation. The only possible conflicting evidence is the occurrence of the extinct alcelaphine, *Parmularius angusticornis*, which at Olduvai is found only in the mid and upper parts of Bed II, but it is possible that this species continued to exist over a still more substantial time span.

There is now palaeomagnetic evidence³ which suggests that the Matuyama–Brunhes boundary, which has an age of ~0.7 m.y.⁴, occurs at or near the Olduvai Bed III/IV junction. If that is the case, then the results of the Uranium-series dating of Isimila bone, yielding values of > 170,000 and ~260,000 yr, is indeed quite reasonable.

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¹ Howell, F. C., Cole, G. H., Kleindienst, M. R., Szabo, B. J., and Oakley, K. P., *Nature* (in the press).

² Howell, F. C., Cole, G. H., and Kleindienst, M. R., in *Actes du IV^e Congrès Panafricain de Préhistoire et de l'Etude du Quaternaire* (Musée Royal de L'Afrique Centrale, Tervuren, Belgium), Sec. 3, 43 (1962).

³ Leakey, M. D., *Nature*, **232**, 380 (1971).

⁴ Cox, A., *Science*, **163**, 237 (1969).