CERCOPITHECID BIOCHRONOLOGY OF SOUTH AFRICAN PLIO-PLEISTOCENE HOMINID LOCALITIES, Eric Delson, Department of Vertebrate Paleontology, American Museum of National History and Department of Anthropology, Lehman College and the Graduate School, City University of New York, U.S.A.

The fossil record of *Australopithecus* was first elaborated in South Africa, and although recent discoveries in the eastern part of the continent have somewhat outshone the southern fossils, the latter are still of great importance both as type samples and large, fairly restricted populations. Five South African localities have produced fossils of *Australopithecus*: Makapan (mainly mbr. 3), Sterkfontein (mbr. 4), Taung, Swartkrans (mbr. 1) and Kromdraii (B). In addition, specimens generally termed *Homo* cf. *habilis/erectus* have been recovered from Sterkfontein (mbr. 5) and Swartkrans (mbr. 1). These six site units are now widely thought to fall in the order listed, with Sterkfrontein mbr. 5 late but uncertainly placed with respect to the others. The determination of more precise ages for these site units is important as a basis for

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statements about contemporaneity of taxa within southern Africa, by comparison to better-dated eastern site units and in terms of observed differences being due to temporal factors or ecological factors at a single time level. Moreover, for those researchers (not including myself) who employ age as a major component in phylogeny-building, accurate dates for the hominids and other taxa are of primary interest.

Because most southern African site units are not responsive to geophysical dating methods, I have been working toward the development of a temporal framework for Plio-Pleistocene African site units based on the biochronology of fossil Old World monkeys (Cercopithecidae). Late in 1984, I published an interim report on this project (Courier Forschungsinstitut Senckenberg, 69: 199-218), but part of the underlying calibration for that work must be revised after recent work by Frank Brown and colleagues (in Ancestors: The Hard Evidence, pp. 82-90, ed. E. Delson; Liss, New York, 1985).

Magnetostratigraphy continues to suggest that Makapan mbrs. 3 and (lower) 4 are contemporaneous with "Lucy" in the lower KH member at Hadar, 3.0-2.9 m.y. old. Sterkfontein mbr. 4, correlated with Omo mbrs. C-D, may be older than 2.5 m.y. while Taung (cf. Omo E-F) now appears close to 2.3-2.4 m.y. This is in direct contrast to the recent views of Partridge and Vogel (in Hominid Evolution: Past, Present and Future, ed. P.V. Tobias; Liss, New York, 1985), who have continued to argue for a date of around 1 m.y. for Taung. We do seem to be in agreement that the monkeys and hominid from Taung are contemporaneous, however. Similarly, Vrba and I agree that Swartkrans mbr. 1 and Kromdraii B are the youngest sites (I cannot comment on Sterkfontein mbr. 5), but differ on their sequence: Kromdraai appears younger to me, but not securely so. If this view is correct, it implies that the morphocline in "robust" australopiths, with Swartkrans more derived than Kromdraai but more conservative than East African *boisei*, is directly opposed to the temporal position of the site samples. The same situation may prevail with early *Homo*, if the more conservative specimens from Sterkfontein mbr. 5 are (as Vrba suggests) younger than the more derived Swartkrans *Homo* cf. *erectus*. This is an important lesson, warning us that the determination of polarity from temporal evidence is based on an assumption which may collapse just when we most need its support.