

ABSTRACT

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TAXONOMY OF THE STERKFRONTEIN FOSSIL CERCOPIITHECINAE: THE PAPIONINI OF MEMBERS 2 AND 4 (GAUTENG, SOUTH AFRICA)

At Taung, the discovery of fossil baboons drew the attention of Raymond Dart, in effect leading to the first discovery of *Australopithecus* remains. Since then, fossil cercopithecoids have served as useful taxa indicating the presence of hominid fossils in South African cave sites and providing valuable evolutionary data from the African Pliocene.

The aim of this study was to conduct a complete taxonomic reanalysis of the fossil cercopithecoids from Sterkfontein, focusing upon the craniodental remains of the Papionini from Members 2 (~3.3 Ma) and 4 (~2.6 Ma). This analysis included all specimens attributed to *Parapapio* and *Papio*, genera closely related to modern mangabeys and baboons, respectively.

Morphological data, mainly craniodental, were analyzed and classified to genus-species, if possible. Assessments of inter- and intra-specific variation among the primates were completed in order to determine the relative frequency of each species. Upon re-evaluation of the papionin taxonomy, the data were used to re-evaluate South Africa cercopithecoid biochronology via paleontological statistical techniques, such as Unitary Associations and Correspondence Analyses.

This analysis identified a suite of morphological characters that can be reliably used to identify the fossil papionin species. Results suggest the existence of three sympatric papionin species during the accumulation of Members 2 and 4, rather than the six to seven species suggested by earlier analyses. Overestimates of primate biodiversity were found to result from two conditions: (1) an artificial bias in the pre-1966 primate collections (i.e. poor provenance) and (2) simple misidentifications of fragmentary specimens. In the biochronological framework developed here, Sterkfontein Member 2 was found to represent the oldest papionins in South Africa.

The results of this analysis have far-reaching implications for primate, including hominid, evolution. The fossil evidence for the origin of modern baboons, as presented here, is now in agreement with current genetic models. Additionally, as shown here, papionins may prove to be useful indicators of hominid speciation events; perhaps, providing insight into the ‘robust’ clade debate. And lastly, this analysis shows that papionins may be used broadly as biostratigraphic indicators providing an alternative means of dating South African sites in the absence of more absolute dating methods.
