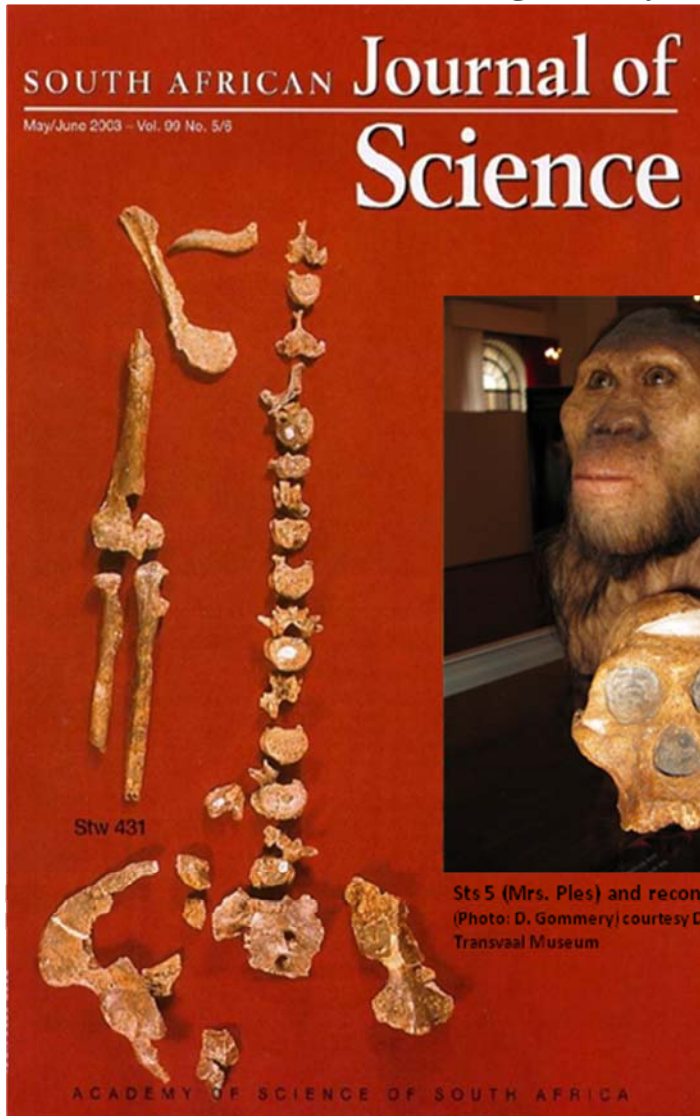


Linking morphology, behavior and ecology: how reliable are inferences from fragmentary hominin remains?



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Sts 5 (Mrs. Ples) and reconstructed bust
(Photo: D. Gommery) courtesy Dr. F. Thackeray,
Transvaal Museum

The late Miocene to early Pleistocene is one of the most exciting periods in hominin evolution, as it marks the key innovations in hominin morphology and behaviour, largely triggered by environmental changes. Elucidating these changes, processes and underlying causes is however fraught with problems, not least because of the sparse and fragmentary nature of the fossil record itself. Where sufficient material is available, phylogenetic and developmental constraints on morphology may mask behavioural changes already established (“form follows function”). Evolutionary anthropologists have therefore relied on broad comparative analyses of extant (and some extinct) taxa to infer evolutionary changes in morphology and behavior, or they have used modern analogues to deduce the behaviour of extinct species. In the case of hominins, chimpanzees are commonly used as such modern analogues given their close genetic relationship with modern humans. Whether chimpanzees are indeed suited for functional and behavioural inferences has been called into question however. Over the last few years it has become increasingly evident that early hominins may have been more comparable to gorillas in dietary adaptations and habitat exploitation, and may have differed from both chimpanzees and gorillas in positional behavior. Here we review the evidence and present a new analytical approach, which throws further light on the locomotor behavior of *A. anamensis* and *A. afarensis*.

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