

203932, on the other hand, there is evidence of transient oscillations, as has been noticed in some other roAp stars.¹²

- Warner D. and Wickramasinghe D.T. (1991). *Mon. Not. R. astr. Soc.* 248, 370.
- Warner B. (1990). *Astrophys. Space Sci.* 164, 79.
- O'Donoghue D., Chen A., Marang F., Mittaz J.P.D., Winkler H. and Warner B. (1991). *Mon. Not. R. astr. Soc.* 250, 363.
- Fairall A.P., Palumbo G.G.C., Vettolani G., Kauffmann G., Jones A. and Baiési-Pillastrini G. (1990). *Mon. Not. R. astr. Soc.* 247, 21P.
- Kauffmann G. and Fairall A.P. (1991). *Mon. Not. R. astr. Soc.* 248, 313.
- Martinez P., Kurtz D.W. and Kauffmann G.M. (1991). *Mon. Not. R. astr. Soc.* 250, 666.
- Martinez P. and Kurtz D. W. (1991). *Inf. Bull. Var. Stars* 3553; Martinez P. and Kurtz D.W. (1991). *Inf. Bull. Var. Stars* 3611; Martinez P. (1991). *Inf. Bull. Var. Stars* 3621.
- Martinez P. and Kurtz D.W. (1990). *Mon. Not. R. astr. Soc.* 242, 636.
- Kurtz D. W., Shibahashi H. and Goode P.R. (1990). *Mon. Not. R. astr. Soc.* 247, 558.
- Kurtz D.W. (1991). *Mon. Not. R. astr. Soc.* 249, 468.
- Kreidl T.J., Kurtz D.W., Bus S.J., Kuschnig R., Birch P.B., Candy M.P. and Weiss W.W. (1991). *Mon. Not. R. astr. Soc.* 250, 477.
- Martinez P., Kurtz D.W. and Heller C.H. (1990). *Mon. Not. R. astr. Soc.* 246, 699.

Early hominid fossils discovered at Gladysvale Cave, South Africa

L.R. Berger

The discovery of an early hominid tooth on 5 April this year made the Plio-Pleistocene cave site of Gladysvale only the seventh site south of the Zambezi River to have yielded the remains of early man, and the first early hominid site to be discovered in South Africa since 1948. To date, two isolated hominid teeth, probably belonging to a member of the species *Australopithecus africanus*, have been recovered from the breccias of the cave fill. A detailed description of these specimens is currently in preparation.

The Gladysvale Caves are located on the Nascot Game Reserve, approximately 10 km east of the Kromdraai Valley hominid-bearing localities of Sterkfontein, Kromdraai, Swartkrans and Coopers. The cave has been known to science for almost 60 years, being one of the first sites that Robert Broom explored in his search for an adult australopithecine.¹ Since Broom's brief exploration of the breccias of Gladysvale, at least two other groups have collected fossils from the cave, one being the 1947 B.Sc. III class from the University of the Witwatersrand, under the direction of P.V. Tobias,² and the Peabody expedition from the University of California a few years later.³⁻⁵ Although these expeditions yielded a large amount of fauna from Gladysvale, no systematic exploration of the deposits was conducted, and no ape-man fossils were discovered.

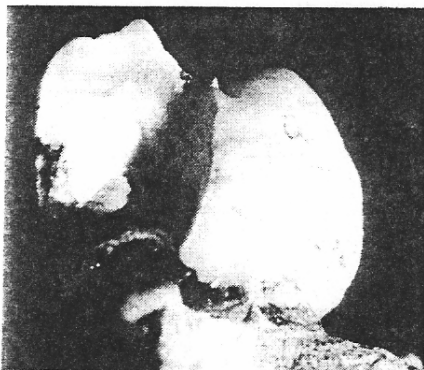


Fig. 1. GVH-2, the second hominid specimen discovered from Gladysvale, an upper molar of an australopithecine.

The current Gladysvale excavation was begun in October 1991 on a part-time basis with the express purpose of systematically collecting the Gladysvale fauna. Small crews of volunteers concentrated on sorting the large external breccia dumps left by early 20th-century lime-mining operations. During a short field season conducted in April 1992, the first hominid specimen, an unerupted upper third premolar, was picked up from a dump by a B.Sc student, Michelle Erasmus. Seven days later, on 12 April, a second hominid tooth, an unworn upper second molar, was recovered from the same dump by Joe DeBeer. These specimens certainly belong to a member of the genus *Australopithecus*, and it appears that their morphologies ally them most closely to the gracile lineage of southern African hominids (*A. africanus*), more so than to the southern African robust lineage, *A. (P.) robustus*.

The dating of any South African cave deposit is at best difficult. This is particularly true when excavations are at such an early stage, because we rely mainly on fauna that can be compared to well-dated East African sediments. It is therefore necessary to have a relatively large sample of identifiable fossils to date a deposit accurately. It is fortunate that fauna from Gladysvale had been collected by the previous expeditions, so that faunal lists for the cave had been published.²⁻⁷ In addition, our present work has identified over 37 species of mammals formerly unknown from the Gladysvale deposits (Plug, Avery, Watson and McKee, pers. communs). This brings the total number of mammalian species in the Gladysvale faunal list to over 64. With this faunal list in hand, two things become apparent: (1) there are deposits at Gladysvale that may be as old as the deposits of Sterkfontein Member 4 or Makapansgat Member 3, and (2) savanna conditions probably prevailed during deposition of most of the cave fill. The latter point we recognize by the presence of an extremely high percentage of bovids (antelopes) which specialize in

grazing, and also a large number of equid fossils in the assemblage. Based on the current combined faunal list, our 'best guess' on the date of deposition of the cave fill at Gladysvale would be from about 1.7 million years ago (roughly coinciding with the fill at Kromdraai) to more than 2.5 million years (Sterkfontein Member 4 and Makapansgat Member 3).

Gladysvale differs markedly from the other early hominid-bearing sites in South Africa in its relative percentage of certain types of animals in its faunal assemblage.⁸ Non-human primates, which are relatively common in the other early man sites, have rarely been recovered from Gladysvale. The fossil remains of equids are frequently found in the Gladysvale deposits, but are scarce at all other ape-man sites in South Africa. Whether these differences in the Gladysvale fauna are due to a difference in the bone accumulator, the immediate environment surrounding the cave during fill, or a temporal difference has yet to be established.

Excavations at Gladysvale are still conducted only on a part-time basis. By January 1993, we hope to have begun full-time excavations similar to those that have been conducted at the Sterkfontein and Swartkrans hominid-bearing sites.

- Broom R. and Schepers G.W.H. (1946). The South African fossil ape-men, the Australopithecinae. *Transv. Mus. Mem.* 2.
- Tobias P.V. (1972). Gladysvale. *Standard Encyclopaedia of Southern Africa* 5, 202.
- Cooke H.B.S. (1963). Pleistocene mammal faunas of Africa, with particular reference to southern Africa. In *African Ecology and Evolution*, eds. F.C. Howell and F. Bourliere, pp. 65-116. Aldine, Chicago.
- Maglio V.J. and Cooke H.B.S. (1978). *Evolution of African Mammals*. Harvard University Press, Cambridge, Mass.
- Cooke H.B.S. (1978). Faunal evidence for the biotic setting of early African hominids. In *Early Hominids of Africa*, ed. C. Jolly, pp. 267-284. St Martin's Press, New York.
- Eisenhart W.L. (1974). *Fossil Cercopithecoid of Makapansgat and Sterkfontein*. B.A. thesis, Harvard College.
- Freedman L. (1957). The fossil Cercopithecoida of South Africa. *Ann. Transv. Mus.* XXIII.
- Brain C.K. (1981). *The Hunters or the Hunted?* University of Chicago Press, Chicago.

Lee Berger, who is director of excavations at Gladysvale, is in the Department of Anatomy, University of the Witwatersrand, Private Bag 3, P.O. Wits, 2050 South Africa.