

Taung Heritage Site

Request to renew and amend existing permit

Permit #: 80/09/10/028/51

Brian F Kuhn

Institute for Human Evolution
School of Geosciences
University of the Witwatersrand
Email: brian.kuhn@wits.ac.za

Introduction

Taung, the type-site for *Australopithecus africanus*, is one of the oldest active palaeontology sites in South Africa. Although the only hominin to ever come from Taung was discovered in 1924, years of subsequent work have yielded numerous other faunal specimens. To date the mode of accumulation is still highly contested, as is the provenience of the Taung Child itself. The fact that the demarcated world heritage site has 17 distinct fossil deposits suggests that there is a wide array of research that can and should be conducted at the site. Almost nothing is known about the 15 'other' fossil deposits aside from very small samples taken in the late 80's and early 90's and current research. There has been little effort to determine dates, geology, mode of accumulation; nothing of significance for the 'other' 15 deposits has been published to date.

The political situation at Taung is tenuous at best. During the 2010 field season intimidation and threats from the local population were routine, as was the continuous demands to attend meetings. Leaving the site with the geological samples was hindered. In addition, when I visited the site in November of 2011 I found the roads to be closed, and in particular I found the road around the two pinnacles has had high curbs erected along the road between the road and the sites themselves, thus hindering access to the site for future excavations. The 2012 season was hindered by road construction, and the research team faced daily issues from the construction crews. Even after meeting with the construction company owner, there was no resolution and the research team was forced to contend with closed roads, and wet tar placed between the sites being worked and the exit. This being stated, the research potential at Taung warrants continued work, and to date the researcher has formed an amicable relationship with the management authority.

Fieldwork

The initial field season took place in 2010 and concentrated on the Dart and Hrdlička pinnacles. During this time numerous geological samples were taken from both the pinnacles and the exposed section between said pinnacles. The samples were taken in order to conduct numerous studies, which include but are not limited to microanalysis of the various sediments associated with the two sites, palaeomagnetic analysis, isotope analysis, and uranium-lead dating. In August of 2012 a two week field season took place in order to conduct more work at the Pinnacles, which will included the drilling of two cores, doing geological mapping and using ground penetrating radar to get an idea of potential fossil deposits. In addition we expanded our research to include the Equus Cave site, thus we had two teams on site during this time period.

Summary of Research

An initial result from the 2010 field season indicates that some of the interpretations with regard to the fossil deposits are erroneous. Our 2012 fieldwork supports our original interpretations of the geology of the pinnacles. While the 'red breccia' does indeed appear to be a cave infill formed during the formation of the tufa, our results indicate that the 'pink breccia', the breccia most associated with the Taung child, is actually an older landscape deposit. The suspected landscape deposit was laid down prior to the tufa forming thus giving a completely different interpretation of the site and in particular the site in relation to the Taung child. Palaeomagnetic reversals between the red and pink breccias support the new hypothesis. Cores drilled in 2012 indicate that the two pinnacles are actually made up of the same deposits being laid down over a wider time frame than previously hypothesised. In addition our initial test excavations into the Equus Cave site revealed potential human occupation, and warrants further investigations. Currently there are at least six publications in prep or under review.

Future Research

In theory, the combined sites within the Heritage Site boundary could give one of the widest ranges of dates found within the expanded Cradle of Humankind. Just getting dates and running isotopic studies we could get a holistic picture of the palaeoclimate and palaeoenvironment along the fringe of the Kalahari going back to 2-3 millions years. It is hoped that we will be able to continue with the geological work at the two pinnacles, and at last get a proper stratigraphic map of the two sites. In addition we would like to conduct full on excavations at the Equus site, as well as potentially open up Black Earth Cave, and run test excavations on the Large Mammal deposit at the Oxland Tufa, Quinney Cave, Peabody pinnacle and Berger Cave.

Collaborators

Collaborators to date have included:

*Professor Andy I.R. Herries, La Trobe University, Victoria, Australia

*Dr. Philip Hopley, Birkbeck College, University College London, U.K.

*Dr. Colin Menter, University of Johannesburg, South Africa

Professor Francis Thackeray, University of the Witwatersrand, South Africa

Professor Lee Berger, University of the Witwatersrand, South Africa

* Involved in all field seasons.

Student Training

The 2010 season included three students from the University of the Witwatersrand, two MSc students in Palaeontology and one PhD student in Archaeology.

The 2012 included an MSc student in palaeontology as well as a PhD student in Archaeology from WITS. In addition we had two MSc students in palaeo-anthropology plus one PhD student in geology from University College London as well as an MSc student in archaeology from La Trobe University in Australia.

Particulars of Permit

The current permit states 'mapping of breccias etc., as well as sampling of breccias pockets, speleotherms, tufas and of faunal material in the collections, for dating by U-Pb and palaeomagnetic methods; as well as for test excavations at Dart's, Hirdlicka's and Equus sites and the limestone tufas (plans for extensive excavations must be discussed with and approved by SAHRA beforehand)'. As additions to the existing permit I would like to add Black Earth Cave, the Oxland Large Mammal site, Berger Cave, Quinney Cave, Tobias Cave and Peabody Pinnacle to the test excavations and geological dating and mapping categories. In addition we would like to conduct further excavations at Equus Cave and the Dart and Hirdlicka Pinnacles in the coming years. Preliminary results from the test excavations at Equus revealed a high volume of material in the dumps of the previous excavations. In addition we uncovered ochre, lithics and charcoal, all suggesting human occupation and warranting further excavation of the Equus site.