The Malawi Earlier-Middle Stone Age Project: Preliminary Results from 2009 Fieldwork

Jessica G. Thompson1,2, Memno Welinding2, Justin Farttger,3 and David K. Wright1

1School of Social Science, The University of Queensland; 2Institute of Human Origins, Arizona State University; 3Department of Anthropology, Catholic University of Malawi; 4Institute for Human Evolution, University of the Witwatersrand; 5School of Human Evolution and Social Change, Arizona State University

Introduction
The Malawi Earlier-Middle Stone Age Project (MEMSAP) has been developed to investigate the relationship between Middle Stone Age behaviour, demography, palaeoclimate, landscape change, and resource availability in the Malawi Rift (Figure 1). This will permit: 1) excavating important sites in the Middle to Late Pliocene Chitimwe Beds of northern Malawi; 2) analysing the recovered lithic, pigment, and possibly fossil material; 3) characterising some of their depositional environments; 4) constructing a regional chronology; and 5) linking these data to a changing high resolution palaeoclimatic dataset. The inaugural field season was held in 2009. We mapped and sampled two sites: Mwanganda’s Village and the Airport Site. For a detailed account of the depositional context of this Chaminade Secondary School, where Clark et al. (1970) investigated stratified east Mwanganda’s earlier site, see the Chaminade paper. We present here a summary of this work along with an outline for future MEMSAP research.

Long-term Project Goals and Hypotheses

Goal 1: Characteristics significant attributions of technological behaviour throughout the entire MSA.

1. Identify important changes in landscape and resource use (specifically lithic raw materials and water sources).
2. Look at human demographics to climatic variability by identifying where populations were during periods of arid/semi-arid climate.
3. Test the following six hypotheses by the timing and mechanics of behaviour/technological change:

a. There are detectable differences in stone tool manufacturing techniques over time in a single locality.

b. Behavioural change took place across the entire Middle Stone Age (rather than only near the end).

- Cultural, technological, and environmental changes occurred in concert with changing availability of lithic raw materials and landscape conditions such as climatic change.

- Behavioural change was most rapid and punctuated by changes of periods within climate/landscape change.

- Permanent Mawanja became occupied during Late Pleistocene landscapes on both sides of the rift.

- Permanent occupation occurred near central Malawian river valleys during these meso-lithic deposits.

Mwanganda’s Village
Mwanganda’s Village is an important early MSA site from which a Sangoan lithic assemblage has been reported in association with portions of an elephant butchery (Clark and Haynes, 1970). Mwanganda’s Village is the oldest cited evidence of early MSA lithic manufacturing (e.g. McNabb et al., 1993; McCartney, 1999). The materials were recovered from near the base of the Pleistocene Chitimwe Beds (which have not been observed to preserve fossils at other localities), where they are unerringly characteristic of the Pleistocene Chitimwe Beds (which have been observed to contain fossils but have not been mapped). The materials were discovered by Mwanganda’s Village excavations in the early 1990s. This site was developed in a single phase to the present, in an extremely arid environment, and is located at the confluence of two rivers. Thus far, no late weathered or aeolian cobbles have been found, although differences in the intensity of aeolian deflation may have affected the upper part of the sequence. In the future, we plan to explore this aspect of the site in detail.

Chaminade
Near the Chaminade Secondary School at an elevation of 1,200 m above sea level; this site is located in the Mwanganda’s Village area, where the deposits are characterized by burrowed deposits containing lithic and faunal remains, with more unweathered lithics continuing for ca. 15 cm to the base of the Chitimwe Beds. This suggests that the deposits here date to a period of landscape stability that occurred after extensive incision initiated the deposition of the Chitimwe Beds in response to a change in a humid regime in the region (Clark and Ring, 1989, fig. 8, p. 416). This priority of the iron pan to the local Chitimwe suggests that the site will yield the oldest part of the MSA sequence that has not been extensively reworked or bioturbated before. Unfortunately, OSL dating does not appear to be appropriate for these highly diagenetic samples and complex sequences of the site.

Project Goals for 2010
- Recover and analyse representative artefact assemblages from the Airport Site, Chaminade AAH, Chaminade AAR, and Karonga AAH.
- Establish the approximate age range represented by the Chitimwe Beds in northern Karonga, including Chaminade’s Village.
- Develop a series of diagenetic pathways processes under which the Chitimwe Beds were deposited, e.g. tectonic, fluvial deposition and erosion, aeolian processes.
- Conduct a palaeoecological study of the original Mwanganda’s Village faunal assemblage.
- Assess the faunal data in a GIS environment to link landscape changes with human behaviour and compare significant changes and behaviour/demographic changes during these MSA of northern Malawi.

Project Agenda Beyond 2010 – Research and Outreach
Karonga
An assessment of the surveys in Karonga is required as significant new localities can be identified, excavated, and sampled. The major aim for 2010 is to conduct pilot projects that will be based on data from Karonga. We will work directly with the Lake Malawi Dolphin Project team to ensure that the human behavioral record is as successfully palaeo-environmental record as possible. We hope to present these research goals, we have several long term archaeological projects. Many sites are in need of management and the rich archaeological record in the country is relatively unknown. We will continue to incorporate Malawian students and professionals in all aspects of fieldwork, and we will construct a Paleolithic display at the Karonga Museum to fill an existing chronological gap in the exhibits.

Nikola Bay
The Nikola Bay region contains deposits equivalent to the Chaminade phase at times very early in a very long systematic investigation (Clark and Haynes, 1970). These deposits immediately adjacent to the part of the lake which bathymetric data show did not experience dramatic drop in lake levels during period of megadroughts (Clark et al., 1970, 1991). This makes the deposit an ideal candidate to, and compare the results of two views that will inform us how these MSA demography and behaviour was affected by periods of extreme aridity in the Malawi Rift.

Keyloans
A new central site was observed in 2009 in the Kayeshe area region about 20km to the east of the Mawanja exposure. Kayeshe clearly contains a rich Earlier and Middle Stone Age record, as demonstrated by surface collections that were obtained from a paleo-mining survey of the area (Figure 6). It is clear if any artefacts could be systematically examined to generate more reliable data. These deposits could be used as an aggravation to the point of this notional site.”

References
- C. V. J. Kayelekera, U., & Ring, U., & Topeka at the Malawi Ministry of Tourism, Culture, and David K. Wright

Figure 1 Map of the study area showing the locations of sites mapped and surveyed in 2009 and minimum lake levels over the last 500,000 years (light blue). Approximate locations of lake drift sites indicated in orange (From Scholz et al., 2007).

Figure 2 Map of the area showing the locations of sites mapped and surveyed in 2009 and minimum lake levels over the last 500,000 years (light blue). Approximate locations of lake drift sites indicated in orange (From Scholz et al., 2007).

Figure 3 Map of the study area showing the locations of sites mapped and surveyed in 2009 and minimum lake levels over the last 500,000 years (light blue). Approximate locations of lake drift sites indicated in orange (From Scholz et al., 2007).

Figure 4 Map of the area showing the locations of sites mapped and surveyed in 2009 and minimum lake levels over the last 500,000 years (light blue). Approximate locations of lake drift sites indicated in orange (From Scholz et al., 2007).

Figure 5 Map of the area showing the locations of sites mapped and surveyed in 2009 and minimum lake levels over the last 500,000 years (light blue). Approximate locations of lake drift sites indicated in orange (From Scholz et al., 2007).

Figure 6 Map of the airport site showing location of site with representative sections (top) and close-up of the iron pans with in artefact. This site was observed in 2009 in the Kayeshe area region about 20km to the east of the Mawanja exposure. Kayeshe clearly contains a rich Earlier and Middle Stone Age record, as demonstrated by surface collections that were obtained from a paleo-mining survey of the area (Figure 6). It is clear if any artefacts could be systematically examined to generate more reliable data. These deposits could be used as an aggravation to the point of this notional site.”

Figure 7 Map of the area showing the locations of sites mapped and surveyed in 2009 and minimum lake levels over the last 500,000 years (light blue). Approximate locations of lake drift sites indicated in orange (From Scholz et al., 2007).

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