Redefining Technology of the Acheulian Industry and the Middle Stone Age

The ability to make quantitative statements about the hominid behavior has fundamental importance for archaeology, since behavior reflects the interaction between demography, environment and stone-tool technology. However, since direct archaeological evidence of behavior is often elusive the theories surrounding hominid behavior are derived primarily by the cross-correlation between the historical analysis of the African environment and the archaeological record.

Early behavioral interpretations of archaeological hominid remains were based on comparison between the physical values of modern humans and that of archaic Homo sapiens and early findings of Homo erectus. However, in the last few decades, work done on human mitochondrial and nuclear DNA suggest that the earliest anatomically modern members of *Homo sapiens* probably appeared in Africa before 100,000 years ago (Singer and Wymer 1982; Deacon and Thackery 1984; Deacon et al. 1986; Brauer 1984; Caan et al. 1987; Wainscoat et al. 1986; Stringer and Andrews 1988) (McBrearty 159). These recent findings are cause to reexamine the historical analysis of hominid behavior living in Africa and the end of the Middle Pleistocene. As a result of this interpretation, it is from this African population that all species of *Homo sapiens* are derived (McBrearty).

With the disappearance of *Homo erectus* and the appearance of archaic *Homo sapiens* in Africa at the end of the Middle Pleistocene brought changes in stone tool technology (McBrearty). Historically, the Acheulian stone technology of handaxes, disappeared and was eventually replaced by industries characterized by flake tools and points of the Middle Stone Age (MSA). However, in areas of tropical Africa much of the
lithic technological record have been punctuated and deviated by this historical pattern. Such punctuations of artifacts have been found among both Acheulian industries and technologies of the Middle Stone Age and characterized as the Sangoan industry. In many cases Sangoan artifacts overlie Acheulian artifacts and underlie those of the Middle Stone Age. Typical Sangoan tools resemble those of the heavy duty component of the Acheulian as defined by Kleindienst (1962), and include picks, choppers, and core axes (Clark 1965, 840). The excavated samples from Kalambo Falls (Clark, 1962; 1964a, 1969; 1970; 1974) also include quantities of light duty flake tools (McBrearty, 159). Such findings are indeed progressive and in certain respects challenge our established notions of the classification in the archaeological record, there have been few sites of notable distinction that compare the Sangoan industry as a contemporary with Acheulian technology and a predecessor to the industries of the Middle Stone Age. The primary site of concern characterizing the Sangoan industry is that of the Simbi site in Western Kenya.

Artifacts gathered at the Simbi main site was excavated by Sally McBrearty on a surface collection in 1984 and 1986. The large tools gathered were a collection of large bifaces, many with untrimmed butts, and picks. There was no evidence of lanceolate points, however the small tool component consisted of choppers, scrapers on flakes, and modified, utilized flakes and flake fragments. The majority of cores collected were of the radial or subradial variety. (McBrearty 1984) There was a fair abundance of bone at Simbi, with the majority in situ and a few surface scatters.

The location of the Simbi site is located in the waterway drain of the Kano River 30 miles northwest of the town of Kericho and 50 kilometers southeast of Muguruk.
Sangoan artifacts and bone collections were found over 2000 square meters. The artifacts *in situ* were in a “light colored, fine grained sediment which is overlain by a series of volcanic tuffs” (McBrearty, 169). Although the site of Simbi, itself is fairly small in geography, the majority of findings and theories have been based off of surface collections. It is important to note that the material for dating correlations will be based off the volcanic tuffs that lay above the artifacts. The site of Simbi is an open-air site and subject to the influences of the environment. Although much of the sites affiliated with the Sangoan industry have been noted in wooded areas, many sites like Simbi are open and arid.

The initial finding dates of the artifacts of Simbi range between 40,000 and 65,000 years (Deinopers.com). The tuff samples were collected and analyzed using the Potassium-Argon laser technique by Alan Deino of the Berkeley Geochronology Center in 1986. As noted earlier, the crystal rich lithic tuff lies above the artifact and bones by approximately 2.5 meters. Although the thickness of the tuff and the deposits implies an excessive elapsed time in between and place the true date of the Sangoan artifacts at Simbi in excess of 50,000 years (Deino 1986). The Simbi site is unique in its potential to provide isotopic age determination for Sangoan material (McBrearty, 171).

Although sites have environmentally changed significantly throughout the history of Africa, much of the archaeological evidence provides insight into the ancient environment and prompts the question of hominid adaptations. Sangoan sites have traditionally been associated with tropical environments and wooded habitats. However, in certain instances, bones associated with mammals found only in open, arid habitats have been found at Sangoan sites. Such questions of historical geographical variability
are addressed in general Sangoan sites. However, the change from a wooded habitat to that of an open arid environment prompt correlated with the change in tool industry prompt McBrearty’s demand of further research and excavation.

A number of mammalian fossils discovered at Simbi are attributed to medium bovids of Brain’s (1981) size classes 2 and 3, and include members of the tribes Alcelaphini, Bovini, and Reduncini (c.f. *Kobus*) (McBrearty). The majority of bovids found at Simbi belong to those of the extinct species *Equus olduwayenis*, the modern equivalent of the modern Grevy’s zebra. This is interesting because large grazing animals as zebras are traditionally associated with open arid regions. Other specimens collected and observed include mammal teeth, jaws, fish bones, and fragments of elephant tusk.

Although there has been much information gathered at this site, little information can be interpreted as evidence for hominid subsistence. Furthermore, the small collection gathered at the 1984 surface collection by McBrearty provides no evidence for hominid subsistence or activity. There exists no evidence in the data to provide for fire hearths, pits, structures or cultural features to indicate site usage. The conclusion to which one may gather is that although much information has been gathered, there has been few features that may give greater insight into the use of the site and hominid life practices. In fact the only correlation observed is that of artifact analysis; the fact that a shift in environmental conditions is associated with hominid shift in location and technology. However the underlying theme to McBrearty’s analysis is that by correlating these shifts with hominid evolution and changes in the archaeological industries is a complex problem whose solution requires the accumulation of considerably more data (McBrearty 173) and prompts her follow up excavation in 1988 and 1989. Her preliminary excavation
raises new issues regarding hominid adaptation. As postulated 20 years ago by Desmond Clark (1968), it may be that the reduction of the tropical forest opened up previously uninhabited areas to occupation by archaic *Homo sapiens*, and that Sangoan artifacts provided the technology necessary for exploiting this new terrain (McBrearty, 173)

**Literature Cited**