

Knapped Glass Tools from Konso, Southern Ethiopia

Birgitta Kimura

Post-doctoral Fellow, Anthropology Department, U Florida, Gainesville FL, USA
[bkimura@ufl.edu]

Knapped glass tools and flakes possibly related to tool production were recovered from a small scale excavation of an ash midden in Konso, Southern Ethiopia in 2002. These tools were probably made from broken glass bottles and likely to date to the 20th century.

The Konso live in highlands between 1300 and 2000m altitude situated in the Rift Valley in Southern Ethiopia (figure 1). They speak an eastern Cushitic language and are known for their terraced agriculture and their stone-walled settlements, which contain households, walkways and open public and ritual spaces (*moras*). Konso is also known as one of the few places where stone tools are still being manufactured and used. Brandt and Weedman (2002) have documented women making and using scrapers of chert and quartz to prepare hides for clothing and bags. However, many of the Konso hideworkers today use glass as a raw material for scrapers. Glass has similar properties as lithic materials used for tools, and glass tools are known from several areas of the world (Robbins et al 2004, Wilkie 1996). However, glass fractures more easily than stone, and what looks like flake scars can be produced by natural breakage. Although that makes it more difficult to identify knapped glass, Martindale and Jurakic (2006) found that breakage and trampling produced isolated, inconsistent flake scars. Thus, regular retouch is unlikely to be accidental and can be used to identify tools.

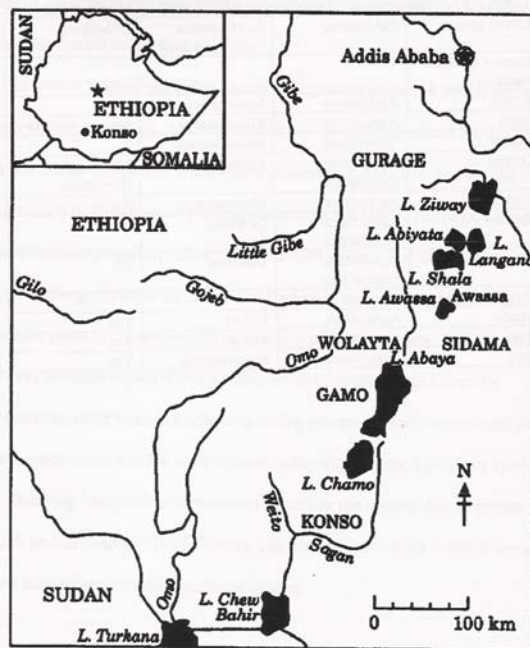


Fig. 1. Map showing location of Konso.

The excavation that yielded glass tools took place in Olanta, one of the older settlements. This settlement had been extended at least four times (figure 2). An abandoned household in the oldest part of the settlement (A) and an ash midden outside the oldest part (B) were selected for small scale excavations.

Only the ash midden excavation yielded glass tools. Ash middens are formed because each neighborhood within a settlement has one area where they deposit trash which is periodically burnt. As the excavated ash midden is close to the oldest part of the settlement, it is likely to be one of the oldest in the settlement.

There are 2 problems with excavating Konso ash middens. Artifacts sink, and when the midden gets to high against the wall, people will push it away from the wall. This prevents wild animals, such as hyenas, and human enemies from climbing the midden into the settlement. The excavation was placed on a level area close to the wall, to minimize the risk of reversed stratigraphy, but there may be layers missing. The stratigraphy was complex. Based on charcoal layers and changes in matrix color 7 major stratigraphic layers were recognized.

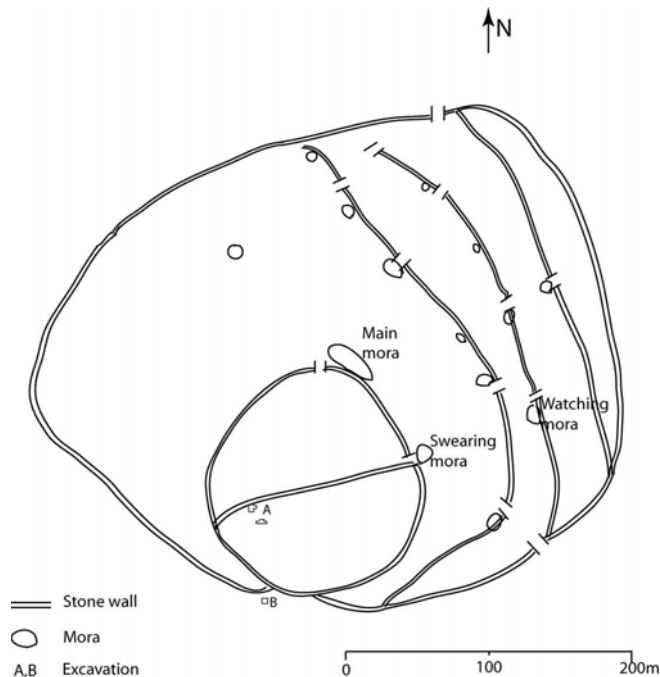


Fig. 2. Location of excavations in Olanta.

There were a total of over 700g of glass in the ash midden. The vast majority of this consisted of broken glass fragments. There were also 24 tools, 21 of them scrapers with regular retouch on one or more sides, and three modified unshaped tools with irregular retouch. In addition there were 60 flakes. At least some of the flakes are likely to have been caused by natural breakage, and some unshaped tools may also be accidental. On the other hand it is also likely that some of the broken glass fragments represent angular waste from tool production.

The glass tools were probably made from broken bottles. The curvature of the glass showed that 20 were made from the body of the bottle, 2 from the base, and 1 from the shoulder (one was too small to determine location). These are similar proportions to those found by Wilkie (1996) in tools from a Louisiana plantation. The glass tools resembled lithic tools also found in the ash midden, both in form and dimensions, although glass tools were thinner, likely due to the difference in raw material. The edge angles of the glass scrapers tended to be smaller than those of lithic scrapers (65.2 ± 6.1 vs 74.8 ± 10.6) but the ranges overlapped. Bifacially shaped lithic tools were rare (12%) and only one of the glass scrapers had bifacial retouch.

It appears that glass was gradually replacing lithics as a raw material for tools (figure 3). There are only lithic tools in stratum 6, glass tools are rare in stratum 5 and 4 (and may be intrusive in 5), but common in the 3 upper strata. It is likely that glass became used after Konso was incorporated into the Ethiopian Empire in 1897. The regional administration had their head quarters adjacent to Olanta and

probably introduced the use of glass, although some glass may have reached Konso earlier with traders. This would imply that the glass tools date to the 20th century, which also fits with the distribution of glass trade beads and metal artifacts in the ash midden.

Fig. 3. Comparison of lithic and glass distribution in the ash midden.

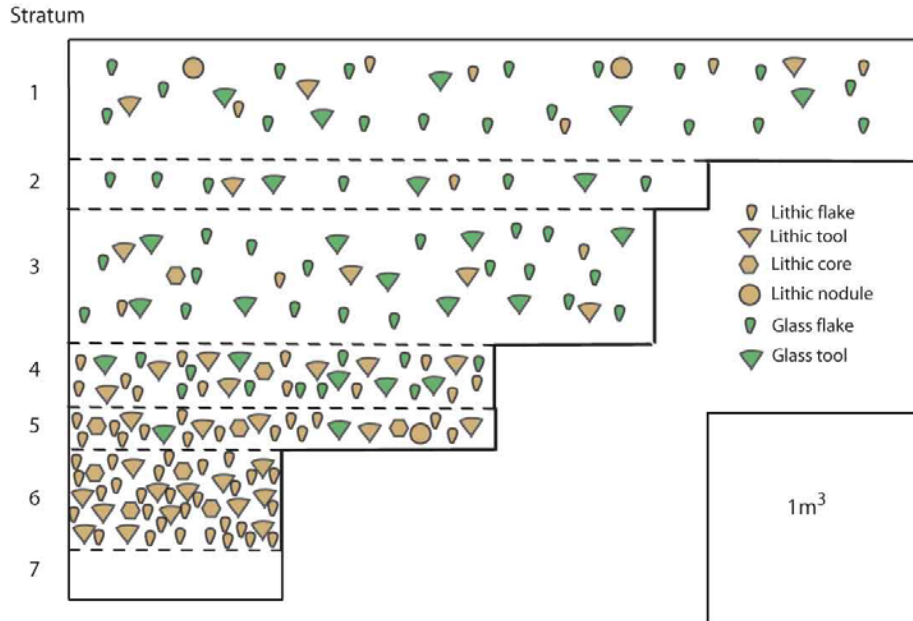


Figure 4 shows examples of scrapers. Like lithic tools it appears that they were more carefully made deeper in the midden. The scrapers in stratum 4 and 5 were retouched on the concave (inner) surface of the glass, in stratum 3 they were retouched on the convex surface, and in stratum 1 and 2 four out of 6 were retouched on the convex surface. This may be a change over time or due to preferences of different knappers. Most of the tools shown in figure 4 are of green glass. Indeed, all of the modified unshaped tools and 17 out of 21 scrapers were made from green glass. One scraper in stratum 1 was made from aqua colored glass, one in stratum 2 from clear glass, and 2 in stratum 3 and 4 respectively from yellow glass. It appears that the color of the glass used was a conscious choice. Over 80% of the tools were made from green glass whereas only 40% of the broken glass fragments were green. Likewise only 4% of tools were made from clear and 4% from aqua colored glass although 36% of the broken glass was clear and 17% was aqua colored. Yellow glass may also have been preferentially used for tools, as 8.3% of the tools but only 1.9% of the broken glass fragments were yellow. The distribution of colors in flakes, on the other hand, follows the broken glass distribution better, suggesting that at least some flakes were not associated with knapping.

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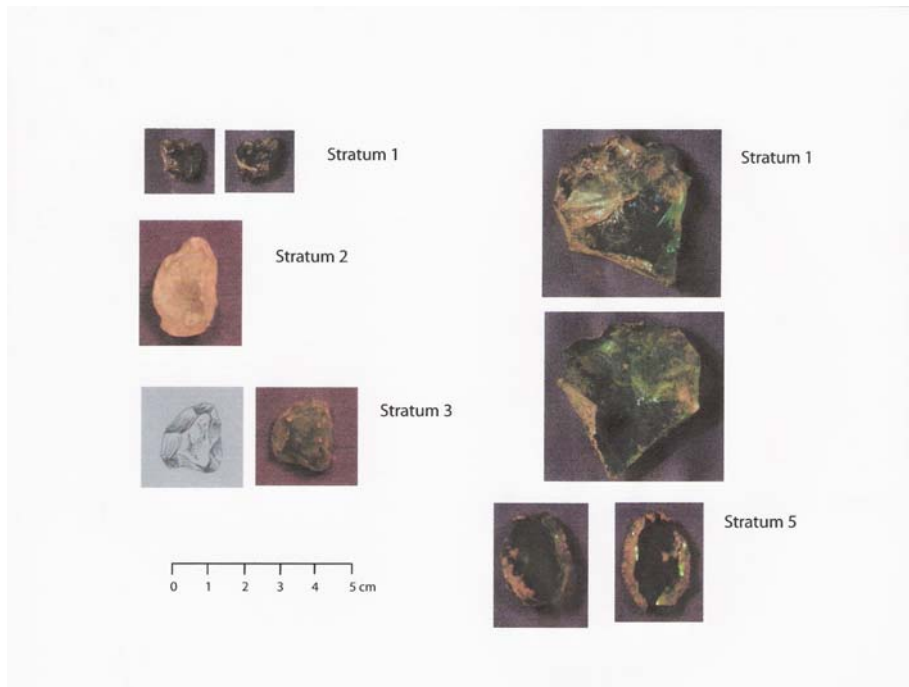


Fig. 4. Examples of glass tools.

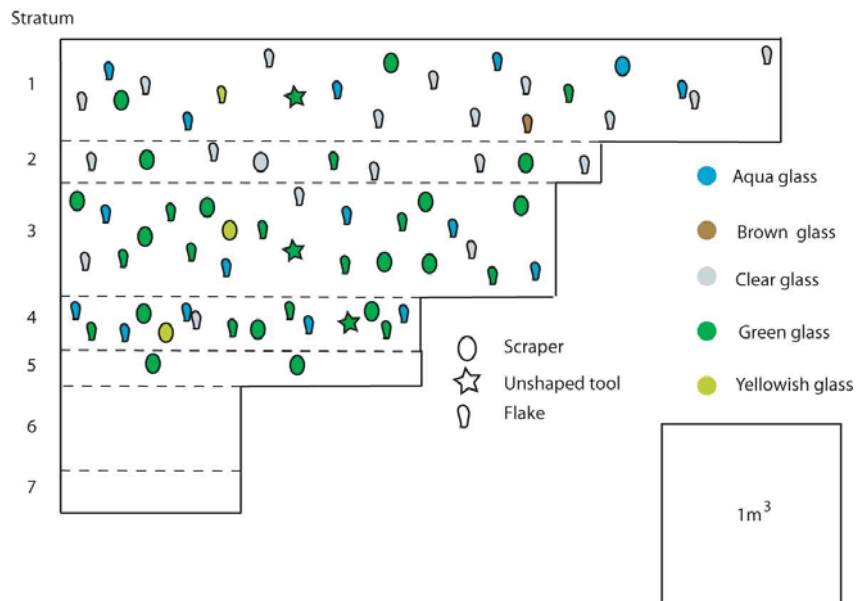


Fig. 5. Distribution and color of glass tools and flakes in the ash midden.

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