

An Ethnoarchaeological Study of Hafting and Stone Tool Diversity among the Gamo of Ethiopia

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The significance of flaked stone tool variation has been a source of great archaeological debate for over 100 years. Even though evidence for stone tool hafting exists as far back as the Middle Paleolithic/Middle Stone Age, there is a dearth of information concerning how hafting affects stone tool technology. This ethnoarchaeological study of hafted stone scrapers among the Gamo of southern Ethiopia examines why a single cultural group utilizes two different hafts, which generate different lithic morphologies, technologies, and spatial distributions. The relationships between history, environment, and social group membership are explored to demonstrate how these associations create variation in technological practices.

KEY WORDS: ethnoarchaeology; stone tools; hafting; agency.

INTRODUCTION

Since stone tools were first recognized as products of human activity in the late 17th century, we have questioned the meaning behind stone tool variation and its relationship to cultural identity and activities (Binford, 1986; Bisson, 2000; Bordes, 1961; Close, 1977; Dale, 1870; Dibble, 1984; Holmes, 1894; Lubbock, 1872; Nilsson, 1868, p. 8; Plot, 1686; Sackett, 1982a, 1982b, 1990). Although it has long been known that stone tools were hafted, seldom has hafting been stressed as an important factor affecting the behavior that lies behind lithic technology (Ambrose, 2001; Beyries, 1988; Gould, 1978; Keeley, 1982; Odell, 1994; Rots, 2001). Archaeologists offer that variation in hafting forms may reflect either social identity or synchronically similar environments spurring parallel human activities. Generally it has been accepted that it takes more time to make a haft than the stone

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tool (Rule and Evans, 1985). Hafts tend to be used for long periods of time: anywhere from two years through many generations (Gould, 1980, pp. 128–129). Hafting may have increased tool efficiency or helped to economize resources (Odell, 1994; Oswalt, 1976; Shott, 1997). In addition, decoration or style of hafts, the size and shape of the socket, and the useful life of a haft may reflect social group membership such as individuals, language-groups, and/or ethnic identity (Deacon and Deacon, 1980; Gould, 1980, pp. 128–129; Larick, 1985; Wiessner, 1983).

There are few archaeological survivals of hafted stone tools (e.g., Deacon, 1966; Deacon and Deacon, 1980; Goodwin and Van Riet Lowe, 1929, p. 259; Hester and Schaffer, 1986; Rule and Evans, 1985). The morphological presence of a tang and microwear studies indicating traces of bituman on stone tools suggests they were hafted as early as the Middle Paleolithic/Middle Stone Age (Anderson-Gergaud and Helmer, 1987; Boëda *et al.*, 1996; Beyries, 1988; Kleindienst, 1998). Furthermore, historic and ethnographic studies outline a variety of mediums used to haft (bone, antler, horn, ivory, and wood) and secure (pitch/resin, lashing with sinew or plant material) stone tools (Aiston, 1929, 1930; Allchin, 1957; Bird, 1993; Deacon, 1966; Ewers, 1930; Gould, 1980, pp. 128–129; Gould *et al.*, 1971; Hambley, 1936; Hiller, 1948; Lowie, 1935, pp. 74–79; Mason, 1889; Murdoch, 1988; Nelson, 1899; Nissen and Dittmore, 1974; Rudner, 1979; Spencer and Gillen, 1927; Tindale, 1965; White *et al.*, 1977). Today Ethiopia is one of the few places in the world (for exceptions see Albright, 1984; Beyries *et al.*, 2001; Takase, 2004; Pokotylo and Hanks, 1989) where people continue to haft flaked stone tools. In this paper, I present the result of a two-year ethnoarchaeological study focusing on variation in hafting and stone tools among the Gamo hideworkers of southwestern Ethiopia (Fig. 1). Ethnoarchaeology has the potential, as the arbitrator between cultural and archaeological studies, to be the instigator for developing new theories and methods concerning ideologies about the material world. The morphology and spatial distribution of Gamo hide scraping stone tools and handles/hafts illustrate the ongoing dialogue among the environment, material culture, and social values across space and time.

THE GAMO

The Gamo are Omotic speaking peoples who live in southwestern Ethiopia 350 kilometers south of Addis Ababa to the west of the Rift Valley lakes of Abaya and Chamo (Fig. 1; Abélès, 1977, 1978, 1979; Arthur, 2002, 2003, 2006; Bureau, 1975, 1976, 1978, 1979, 1981, 1983, 1986; Cartledge, 1995; Freeman, 1997, 2002; Jackson, 1971, 1972; Jackson *et al.*, 1969; Olmstead, 1972, 1974a, 1974b, 1975, 1997; Sperber, 1972). The biannual rains and numerous rivers erode the rich basaltic foundation exposing chert sources for stone tool production and use, and create broad valleys for agriculture. The Gamo subsist primarily by *enset*

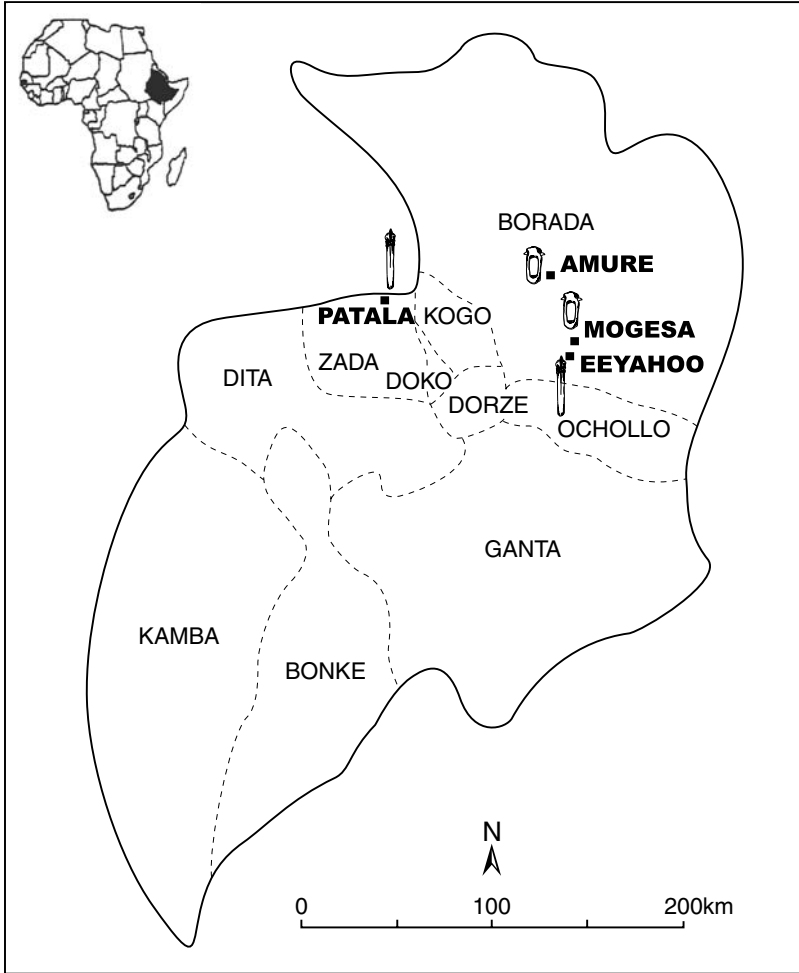


Fig. 1. Map illustrating the location of the four Gamo hideworker villages studied in depth within in their respective ritual-political districts and regional affiliations (north, central, and south).

cultivation (an indigenous crop), but also grow wheat, barley, and a variety of vegetables.

The current national government subsumes the Gamo region within the Gamo-Gofa Zone with other ethnic groups. The Gamo people recognize ten ritual-political districts (*deres*) within their territory (Fig. 1): Bonke, Kamba, and Ganta in the southern region; Dita, Kogo, Dorze, Doko, and Zada in the central region; and Borada-Abaya and Ochollo in the northern region. Currently, each district

Table I. Summary of the Occupations, Prestige, Power, Purity Level, and Ritual Roles of the Gamo Caste Groups

	<i>Mala</i>	<i>Tsoma mana</i>	<i>Tsoma degala</i>
Occupation	farmer, smith, weaver	potter and sometimes <i>degala</i> occupations	hideworker, smith, groundstone maker
Prestige & power	elected (<i>Dana</i> , <i>Uduga</i> , and <i>Halaka</i>)	some regions <i>Halaka</i> representation	some regions <i>Halaka</i> representation
Purity & pollution	Pure	Semi-pure/polluted	Impure/Polluted
Ritual roles	hereditary officials (<i>Kao</i> , <i>Eka</i> , and <i>Maka</i>)	healers, messengers, musicians, circumcisers Ritual Language (manacalay)	healers, messengers, musicians, circumcisers Ritual language (owdetso)
Status	Ascribed/Endogamous	Ascribed/Endogamous	Ascribed/Endogamous

has a hereditary leader (the ritual-sacrificer *Kao*), and Gamo social organization is characterized by patri-clans and locally elected village leaders (*Halaka*). Every village (*guta*) has a forest marking the village meeting place (*debusha*), where elders and hereditary and elected leaders meet to resolve social and political issues. Each village consists of thatched houses and agricultural fields that cluster according to patrilineage membership. The smaller and often poorly thatched houses are located on lower or higher portions of villages, usually on extreme slopes, where gardening is difficult. These households belong to the *tsoma* artisans, including the hideworkers. Arthur's (2002, 2003) studies comparing the number and types of Gamo household structures, agricultural land, livestock, ceramic vessels, and groundstones, which are indicators of wealth in Gamo society, suggest that there is economic and material stratification that reflects the political/prestige hierarchy outlined below.

In Gamo society, occupations are somewhat aligned with each of the Gamo social strata that include: *mala* (farmers, smiths, and weavers) and *tsoma mana* artisans (potters, hideworkers, smiths, and groundstone-makers) (Table I: Abélès, 1979; Bureau, 1975, 1981, pp. 85–87; Straube, 1963, pp. 380–384). In some parts of the Gamo region, the *tsoma* artisans are divided into two groups: *tsoma mana* (potters) and *tsoma degala* (hideworkers, smiths, and groundstone-makers). In oral history and popular conception the *tsoma* artisans do not own land. Although land was distributed to all peoples including *tsoma* artisan during the Marxist-Leninist military regime (1974–1991), the present government, the Ethiopian People's Revolutionary Democratic Front, reinstated the value of local cultures. As a consequence, land is being taken from hideworkers and other artisans through allegations against them concerning illegal and evil eye practices.

The Gamo term for the relationship between *mala* and the *tsoma* artisans of *mana* and *degala*, is *buro* and there is a hierarchical grading between the three groups. The *mala* are considered the highest strata followed by the *mana* and *degala* in terms of prestige, purity, and power. The *tsoma* artisan

mana and *degala* are not considered full members of Gamo society. As such, they do not participate in community assemblies or hold any of the hereditary political-ritual positions such as *Kao* (represents the entire political district) *Maka* (represents clusters of subdistricts), or *Ekas* (represents subdistricts), or the elected positions of *Dana* (represents entire political district), *Uduga* (represents subdistricts), and *Halaka* (represents village) (Abélès, 1978; Cartledge, 1995, pp. 81–98; Halperin and Olmstead, 1976). Thus, the system as a whole appears to be focused on the decisions and leadership of the *mala*, who intertwine the decisions of hereditary and democratically elected officials (Sperber, 1972). However, *degala* (hideworkers, smiths, groundstone makers) and *mana* (potters) have their own elected leaders, who serve to enhance the fertility of the *tsoma*, resolve *tsoma* artisan issues, and act as intermediaries between *tsoma* and *mala*.

The Gamo segregation of their community into *tsoma* artisans and *mala* is sanctioned through their ideology that acknowledges *tsoma* artisans as polluted and *mala* as pure. They reinforce their ideology of purity and impurity through the practice of restricting commensality between *mala* and *tsoma*. Gamo beliefs govern that if the *mala* or *tsoma* break any of the cultural rules regarding the sharing of food, sexual relations, space, etc., that they will upset the ancestors who will disrupt the fertility of the land and people. Because the *tsoma* artisans are considered impure, they perform the circumcision ceremony that is considered a dangerous state in their rites of passage. In the distant past, stone rather than iron was used for this ceremony (for a fuller description see Weedman, 2000). *Degala* (hideworkers, smiths, groundstone makers) and *mana* (potters) initiates are not presented in a *sofie* ceremony to the community after circumcision, which denies them their fertile citizen status within Gamo society. This reinforces *tsoma* artisans limited access to ritual-political positions and societal taboos restricting sexual intercourse between *degala* (hideworkers, smiths, groundstone makers) and *mana* (potter) with each other and with *mala*. The implication is that any such interaction would be barren and even dangerous because wasting one's own fertility upsets the ancestors. Hence, membership in *mala*, *mana*, and *degala* is ascribed by birth, there is no social mobility, and they practice strict endogamy within each group.

While the Gamo consider the *tsoma* artisans to be impure; they are necessary to perform rituals that mediate between people and illness, death and infertility. The *tsoma* artisans are mediators between life, death, and social disharmony in Gamo society by serving as circumcisers, midwives, healers, morticians, and messengers. Reinforcing their ritual positions, *tsoma* artisans have ritual languages or argots that allow them to keep their craft and ritual secrets from others, i.e., the *mala*. The Gamo *degala* have their own language (*owdetso*) and the *mana* also have their own language (*manacalay*).

The *tsoma* artisans utilize the same materials and skills derived from their economic roles to fulfill their ethnic and regional social roles as healers, messengers, and circumcisers (see above). For instance, the hideworkers/*degala* perform

guchay, a form of healing through incisions, for curing flesh wounds such as an abscess, insect bite, etc. The Gamo believe that bad spirits and the breaking of *goma* (taboo) cause illness and injury. The appropriate rituals extinguish the effects of the violation. The hideworkers use stone tools to scrape hides and in their ritual roles used stone tools (now they use razor blades) to rid violations associated with open wounds (referred to *askatcha*, which also means to scrape). The hideworker also is obliged to blow a bovine horn that is often ornamented with some leather and the tail of the animal, to announce weddings, funerals, social and political meetings (usually held to resolve local problems), and work parties (for creating new agricultural fields). The horns, along with the head, tail, and entrails of the animal who is slaughtered for its meat and hide, is given to the hideworker as a partial payment for his labor. If the artisan is requested to blow the horn within his region, he is not paid for this work. The artisans do not mind, because “they want to get along with the people,” or because they want to keep the land that the people have given them.

Studies of the other Omotic-speaking peoples indicate that artisans generally do not own land or participate in political and judicial life, and yet perform important mediating roles as healers, messengers, and circumcisers (Cerulli, 1956, pp. 107–108; Donham, 1985, pp. 107–113; Feyissa, 1997; Jensen, 1959, pp. 422–425; Lange, 1982, pp. 75–77, 158–162, 261–267; Orent, 1969, pp. 284–286; Straube, 1963, p. 376, 384; Todd, 1977, 1978a, 1978b; Yintso, 1995, pp. 104–109). Many of the Gamo cultural characteristics described above are similar to those associated with caste systems described in South Asia and other parts of Africa (Dumont, 1970; Hocart, 1950; Leach, 1960; Sterner and David, 1991; Tamari, 1991; Tuden and Plotnicov, 1970). Although Freeman (2001, p. 187) refers to the Gamo artisans as marginalized minorities, many other researchers acknowledge the Gamo artisans as members of caste-like groups (Abélès, 1981; Arthur, 2002, 2003, 2006; Bureau, 1975, p. 38; Cartledge, 1995; Levine, 1974, p. 39; Lewis, 1962, 1974).

Although I employ the term caste here, it is not meant to instill the idea that relationships between *mala* and *tsoma* artisans have been stagnant or unchanging through time, as recent criticism of the classic Asian caste studies have outlined (Dirks, 2001; Raheja, 1989) based on the original meaning of the Portuguese term and application “casta,” pure. Even researchers objecting to the term caste continue to make use of origin theories and descriptions of Ethiopian and Gamo societies that fail to recognize the agency of artisans. Instead these studies focus on farmer narratives highlighting farmer conquest of artisans (Cerulli, 1956; Freeman, 2002; Haberland, 1978), forced settlement of craft specialists among host/agricultural groups to find a regular source of demand for their products (Hallpike, 1968; Levine, 1974), and the evolution of craft specialists to fulfill the needs of elite farmers (Todd, 1978a). Certainly people’s identities and practices are continually negotiated and the boundaries of power, practice, and identity are just as flexible today as in the past. This is evident among the Gamo in the discussion above in two

ways: in the overlap between occupation and association in *mala*, *mana*, and *degala* especially concerning smiths and weavers; and in the differences between Gamo regions and their categorization of peoples into *mala*, *mana*, and *degala* or the conflation of *mana/degala* identity. In addition, among the Gamo, the presence of *tsoma* artisan leadership and their ability to control and maintain secret languages, craft production knowledge, and ritual knowledge associated with healing and rites of passage attest to their power. Despite the controversy surrounding the word caste in anthropological literature, I chose to employ the term caste to describe Gamo society because it provides a fairly accurate description of the social-economic-and political relationships as currently understood and provides a nexus for exploring changes in power and identity between the present, past, and future.

PREVIOUS RESEARCH OF ETHIOPIAN HIDEWORKERS

Archaeologists have identified stone tool based hideworking workshops associated with the Axumite State in northern Ethiopia dating to AD 100 (Michaels, 1991). Although written records are associated with this early state, the status of these early hideworkers and their handle forms are unknown. The earliest written descriptions of hideworking with “rough” stones is provided by European descriptions of the Shoa Amhara (Johnston, 1972 [1844], pp. 370–374). Subsequently, an Italian ethnographer (Giglioli, 1889) and later German ethnographers (Haberland, 1981, 1993, p. 94; Straube, 1963, p. 22 plate 13) illustrated the variety in scraper and handle forms among the Gurage, Dizi, Sidama, Gugi, and Gamo people for hide working (Fig. 2).

Scientific studies of Ethiopian hideworkers began in the 1970s and were limited to a few days or months study among the Gurage, Oromo, and Wolayta cultural groups (Fig. 2). These initial studies concentrated on documenting the process (Dekker, 1971), the spatial distribution of stone tool discard (Gallagher, 1974, 1977a, 1977b), stone tool edge-wear (Clark and Kurashina, 1981), access and use of raw stone material resources (Haaland, 1987), and the economic status of hideworkers (Karsten, 1972). In all of these studies, the researchers reported the same basic pattern of tool procurement (directly from a quarry), raw material (obsidian), manufacture (direct percussion), scraper shape, function/use (to scrape hides), handle type (two-scraper handle), and discard (pit or dumping area). These studies of the hideworkers report little if any variability in the hideworking processes, in either the shape or size of the handle or the general shape of the scrapers. The researchers clearly took a functionalist perspective, contributing to our knowledge of procurement, production, use, discard, and edge-wear. There was only one attempt to delineate ethnic group identity through stone tool style, which determined (using a very small sample size of 31 tools total) that there were no statistical differences in scraper morphology between the Gurage and Wolayta hideworkers scrapers (Gallagher, 1977b).

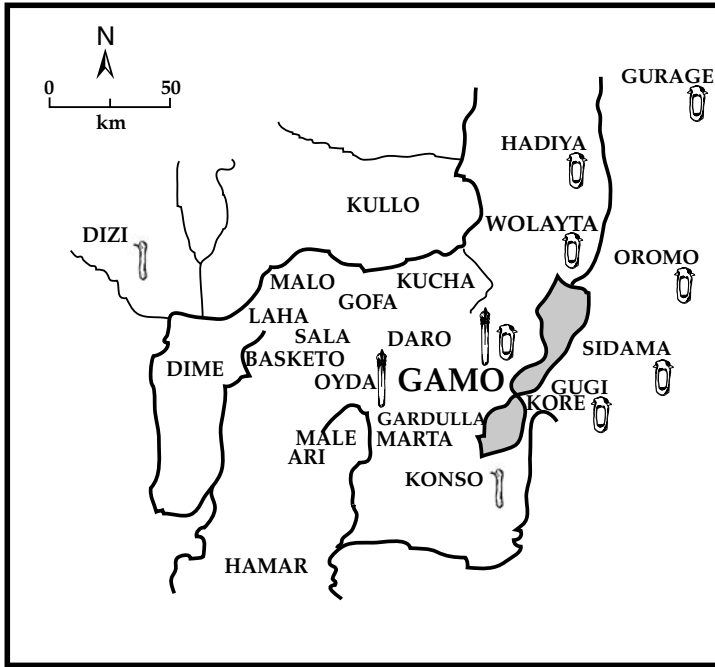


Fig. 2. Map locating the Gamo in relationship to neighboring southern Ethiopian ethnic groups and identifying the hideworking handle types known to be used in southern Ethiopia today.

In 1995, Brandt (1996; Brandt and Weedman, 1997; Brandt *et al.*, 1996) led a survey through southern Ethiopia confirming the use of stone tools for hide-working among the Gamo, Gurage, Hadiya, Konso, Sidama, and Wolayta peoples (Fig. 2). This work significantly revealed a great diversity in hideworking practices including: the gender of hideworkers (female, as well as male), raw material type (obsidian, chert, and quartz), production (percussion flaking and bipolar flaking), the size and shape of scrapers, and the handle style (accommodating one rather than two scrapers). A comparison of the handle, socket, and scraper morphological measurements revealed that variation reflected ethnic identity (Brandt *et al.*, 1996).

GAMO HIDEWORKING

Among the known Ethiopian hideworkers using stone today, there are three handle forms (Fig. 3), two of which are presently used by the Gamo hideworkers. In 1996, I began an uninterrupted two-year study of the Gamo hideworkers because of the variability I witnessed in 1995 concerning their hide processing practices,

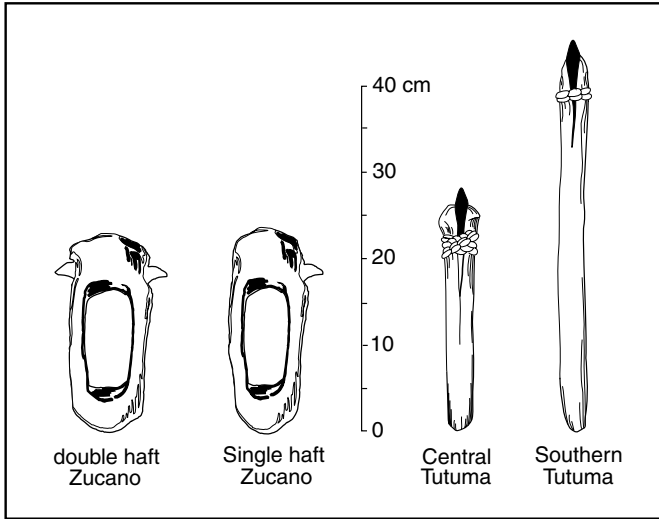


Fig. 3. A comparison of the different Gamo *zucano* and *tutuma* handles used for scraping hides.

hafting, and stone tools. I interviewed, with the aid of assistant translators, 180 Gamo hideworkers living in 115 villages including one hideworker from each of the villages (i.e., that had hideworkers) in 6 of the 10 Gamo districts, including Doko, Dorze, Kogo, Zada, Ochollo, and Borada. I also visited the districts of Ganta, Bonke, Kamba, and Dita, where I did less intensive surveys that involved visiting hideworkers who lived near the road and interviewing them in markets. I then selected four villages (Fig. 1; Mogesa Shongalay, Eeyahoo Shongalay, Amure Dembe Chileshe, and Patala Tsela) for indepth studies based on my survey. These four villages had important criteria for my assessment of material variability, including: 1) they primarily used stone scrapers; 2) they used different handle types; 3) each village represented a different patrician; and 4) each village consisted of several generations of hideworkers from a single lineage. Thus, this paper is based on the contextual data obtained through the 180 survey interviews and indepth interviews with 30 male hideworkers living in the four villages of Mogesa, Patala, Eeyahoo, and Amure and a sample of their ethnographic unused ($n = 811$ indepth) and used-up/discarded ($n = 868$ indepth) scrapers.

Gamo hideworkers produce items used in almost every household including, bedding, chairs, saddles, drums and bridles (the last four do not require scraping). Hideworkers predominately process cattle hides when a Gamo person (usually someone from their village or a neighboring village) requests their services. The hideworkers receive a small sum of 1 to 3 ETB (US \$0.15 to 0.46) or grain and the skull, horns, feet, tail, and entrails of the animal in kind for preparing

the hide. Hideworkers do not own cattle, as they are very expensive and far exceed the annual income of the hideworker. Furthermore, the hideworker is not allowed to slaughter the animal because of his association with pollution and infertility. Instead, a sanctioned elder *baira mala* slaughters the animal, and then the hideworker butchers the animal and removes its hide.

After removing the hide from the carcass, the hideworker takes the hide to his home. While the hide is still moist, the hideworker uses the flat side of a metal knife in a rolling motion to remove the upper layer of fat on the inside of the hide. The hideworker cuts seven to twelve holes along the edge of the hide. He stretches the hide out a few centimeters above the ground and wooden stakes are set through the cut holes to keep it in place. The hide dries in this manner for one to two days depending on the weather. The hideworker rolls up the dried hide and stores it in the rafters of the house and in the branches of nearby trees. They usually scrape hides during the rainy season (March to May and July to early September), when the raw materials for scraper production are available. Before scraping a dried hide, the hideworker soaks it in a shallow river edge for several hours. He then straps the hide onto a frame and methodologically removes the inner fat from the hide using a hafted scraper. After the hide is scraped, the hideworker applies butter that he works into the hide using his hands and feet until the hide is supple. If there are any holes in the hide, the hideworker will sew it together before returning the hide to the client.

To process a single hide requires a mean time of 4 h and 3 min,³ during which time the hideworker uses approximately 4 1/2 scrapers, which are resharpened after a mean of 281 scrapes or 473 chops (Weedman, 2000, 2002a). The Gamo unused and used-up/discarded scraper morphologies are significantly different in *t*-tests in terms of maximum length, distal thickness, breadth/length ratio, and thickness/length ratio, and edge angle (Weedman, 2002b). In general, Gamo scrapers confirm experimental studies that indicate that there is a reduction in length and increased evidence of retouch associated with the use of the scraper (Dibble, 1984, 1987; Kuhn, 1990, 1992). In addition, the Gamo edge angles ranged from 50 to 67 degrees, which falls in line with experimental expectations for hidescraping edge angles (Broadbent and Knutsson, 1975; Wilmsen, 1968). The increased presence of spurs (previously thought to have a secondary function) and increased breakage rates of Gamo stone scrapers were found to be associated with individuals who were either just learning how to produce tools or elderly hideworkers who were losing their strength (Weedman, 2002a). The Gamo learn how to produce their stone tools from their fathers and since postmarital residence patterns are virilocal a discrete village/lineage based scraper style is discernable and statistically viable (Weedman, 2002b, 2005). Furthermore, the Gamo hideworkers produce unique stone scraper forms that differ from those in neighboring ethnic groups (Brandt

³My original publications stating 4 1/2 h represent a miscalculation. The mean is 243.8 min which is 4 h and 3 min based on 28 observations.

Table II. Handle Measurements for *Tutuma* and *Zucano*

	<i>Tutuma</i>	<i>Zucano</i>
Ganta, Kamba, Bonke region Length	62.5 cm (sd = 9.2, n = 7)	none
Doko, Dorze, Dita, Kogo, Zada region length	35.7 cm (sd = 5.9, n = 136)	27.5 cm (sd = 3.3, n = 21)
Borada region length	32.9 cm (sd = 6.1, n = 10)	26.6 cm (sd = 2.2, n = 55)
Ochollo region length	none	28.8 cm (sd = 4.5, n = 5)
Borada, Ochollo, Zada, Doko region width	none	7.6 cm (sd = 1.3 n = 71)
Ochollo region width	none	6.3 cm (sd = 1.0, n = 5)

et al., 1996; Brandt and Weedman, 1997; also see measurements in Clark and Kurashina, 1981; Gallagher, 1974, 1977a, 1977b; Haaland, 1987).

The Gamo hideworkers are unique in southern Ethiopia for their use of two different handle types (*zucano* and *tutuma* types described below) to process cattle hides for bedding using predominately chert scrapers.

The *Zucano*-Users

Today the hideworkers living in Ochollo and Borada-Abaya districts use a *zucano* handle (Figs. 3 and 4) to haft their hideworking stone scrapers. Until approximately 40 years ago, *zucano* handles also were used in the districts of Dita, Doko, Dorze, Kogo, and Zada (Fig. 4). The *zucano* handle has a carved central opening in a thick piece of wood forming an open oval shaped handle. The handle accommodates one scraper on either side. Tree resin holds the scraper in the closed-socket. The Ochollo *zucanos* are slightly thinner and longer than the Borada handles (Table II) and the Ochollo hideworkers (consisting of only 2 hideworkers from the same lineage) indicated that for reasons unknown they only used one of the two sockets in the handle for scraping.

The *zucano*-users of Mogesa and Amure villages (within Borada district), where I conducted indepth studies, walk two and four hours, respectively, to their chert sources. To acquire chert, hideworkers go to the quarry after it rains and search the riverbanks for a suitable piece of material by simply walking along the streambed and up the sides of the riverbank. The *zucano*-users shape the parent chert material into a blank before carrying the materials to their home. *Zucano*-users are particular about the size of the flake they use because their handle has a closed socket. Rather than bringing back a large chunk of raw material, the *zucano*-users opt to bring back scraper blanks. At the quarry, the *zucano*-users work within a river valley in an approximately 2-meter diameter. It usually has some trees for shading and a store of iron billets and large pieces of raw material for future reduction. The ground in these areas is covered with debitage. They use a small cloth sack or pockets to carry ten to twenty scraper blanks back to

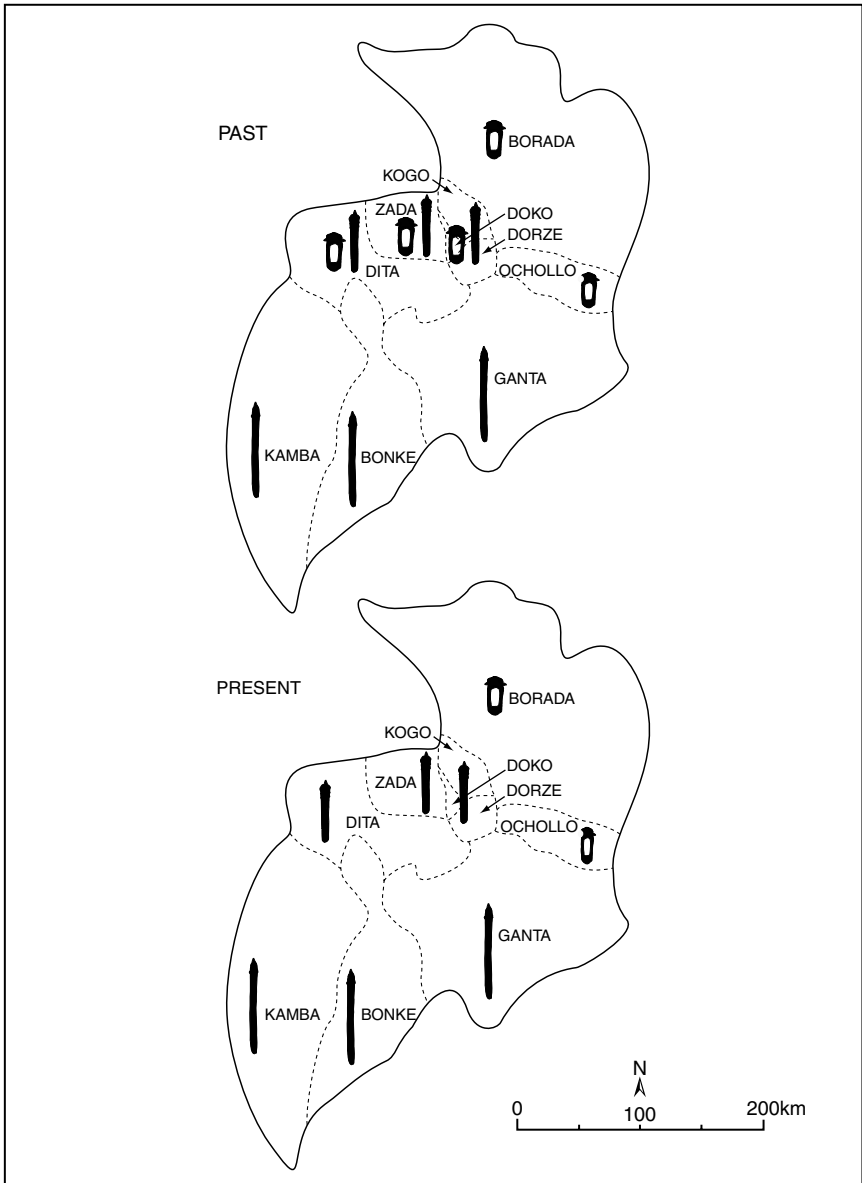


Fig. 4. Maps illustrating the different distribution of the Gamo *tutuma* and *zucano* handles in the past and the present.

the village. The number depends on the season and amount of hide scraping the hideworker has for the next week or so. The average household cache contains four blanks with a range from one to eight. The final shaping takes place in the household next to the hearth. The hideworkers collect tree resin and mix it with ash on a broken piece of ceramic while heating it on an outside hearth. The resin is stored in the house on the broken sherd until the hideworker needs new mastic in his handle. The hideworkers rest the handle socket next to hearth to make the mastic malleable, adding new mastic when required. When the mastic softens in the haft a new scraper is placed within and then left to cool.

The *zucano*-using houses are constructed with mud and wood walls and topped with a thatched roof and siding (Fig. 5). They scrape inside their houses because the sun dries the hides out too quickly if they work outside. Consequently, they have a frame located inside their household that is near the hearth, which is needed to make the mastic malleable to remove and replace *zucano* scrapers. The scrapers are shaped and resharpened within the household. The *zucano* handles and stone caches are kept in cloth sacks or in wooden bowls inside the household. While the hideworkers may on occasion pick up exhausted scrapers discarded near the hearth and select larger waste pieces for removal, more often than not they leave them where they fall and make little effort to remove any lithic materials from the household. Their wives and daughters, however, often sweep the household floors collecting the lithic waste. Both men and women place the lithics in lithic specific waste heaps located outside the household compound near footpaths in thorny bushes to deter children from playing with the material. Members of an extended family (father-son) share lithic waste piles. Although the floors of the household are swept, *zucano* scrapers and lithic waste can often be found in the household near the hearth, at the edges of the household, near the threshold, or near the inside-scraping frame.

The *Tutuma*-Users

Today the hideworkers living in the districts of Bonke, Dita, Dorze, Doko, Ganta, Kamba, Kogo, and Zada use only a *tutuma* handle for hafting their hide-working stone scrapers (Figs. 3 and 4). A *tutuma* handle consists of a tubular-shaped piece of wood which is split open in one end to accommodate a single scraper. The end of the scraper is wrapped in a piece of cloth or hide shaving or wedged with a piece of wood and inserted into the split end of the wooden handle. Rope rather than mastic is used to secure the scraper into the open-socket. The hideworkers living in Kamba, Bonke, and Ganta districts use *tutuma* handles that are considerably longer than the Dita, Doko, Dorze, Kogo, and Zada district *tutuma* or the rare Borada district *tutuma* handles (Table II; Fig. 4).

The *tutuma*-using hideworkers of Eeyahoo and Patala villages (who live in Borada and Zada districts respectively), where I did indepth studies, walk two to

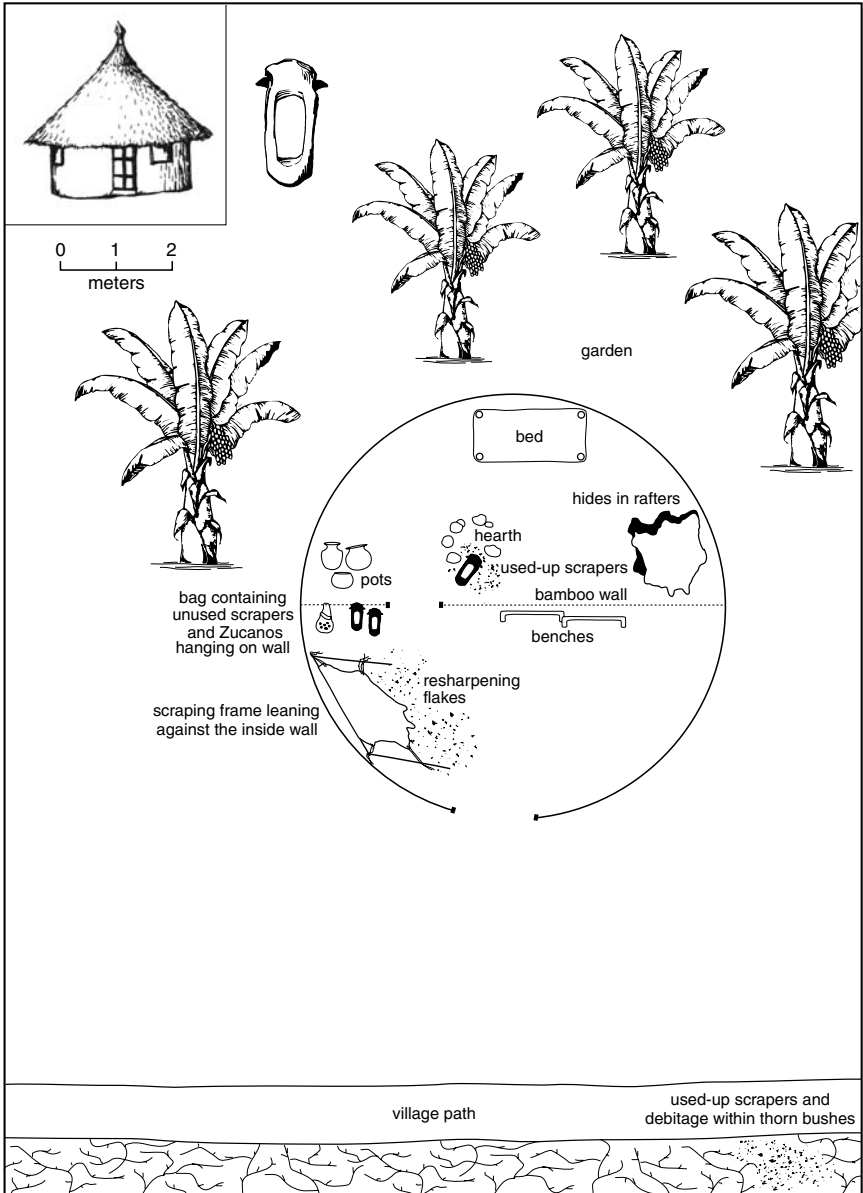


Fig. 5. Plan map of a typical *zucano*-using hideworker household.

four hours to their chert sources. The *tutuma*-users will use most flakes that have an appropriate edge for scraping a hide. Shaping of the lateral sides of the flake is not necessary because the haft is open. The *tutuma* hideworker will inspect a piece for its quality at the quarry and may reduce it to a manageable size no larger than 30 by 30 cm to bring back to the household. Reduction of large pieces is conducted at the location it was found and not taken to a specific reduction area. The reduced nodule or primary-core (a piece of raw material that has been reduced to carrying size and will be subsequently broken to produce formal cores) is placed in a bag or pocket to be brought back to the village. When a new scraper is needed in the haft, the hideworker may select a flake that is already made. However, the hideworker also may reduce a primary core into 2 or 3 smaller cores, select one core to produce eight to ten new flakes and set the other cores aside for future use. There is no need to shape the flake to fit it into the haft since the haft is an open one. The hideworker may sharpen the working edge either before or after it is hafted.

In the *tutuma*-using households, the houses are framed with bamboo and covered with thatch (Fig. 6). *Tutuma*-using hideworkers state that when scraping, the scraping frame would press against and shake the house causing it to lose its thatching and become unstable, so they tend to scrape outside the house on a frame located within their enset garden. The *tutuma* hideworkers store their primary-cores, cores, unused scrapers and debitage in a broken ceramic bowl left outside near their scraping frame within their enset gardens. Scraper production and resharpening occurs near the scraping frame. While some hideworkers perform these activities over a dried hide and then fan the hide out over the garden, there is little effort by either the hideworker or any other household member to sweep or clean the ground of lithic materials that fall in the area. When the storage bowl becomes full of lithic waste and used-up scrapers, the hideworker empties the bowl into his enset garden.

Comparisons of *Zucano* and *Tutuma* Scrapers

The scrapers hafted in the *zucano* (a double-socketed mastic handle) and the *tutuma* (a single-socketed non-mastic handle) are morphologically distinct (Figs. 7 and 8). *Zucano* scrapers are shaped on the distal, proximal and one or more lateral edges. Their unused form resembles what archaeologists refer to as formal tools. In contrast to the *zucano* hafted scrapers, there is no real shaping of a *tutuma* scraper. The distal tip simply is sharpened. Moreover, they resemble in their unused form what we would call utilized flakes, expedient tools, or informal tools.

In *t*-tests the maximum length, medial breadth, distal thickness (measured at the point where resharpening scars end), maximum proximal thickness, and maximum retouch length are all significantly different when comparing unused and used-up *zucano* and *tutuma* scrapers (Tables III and IV). Measurements were taken

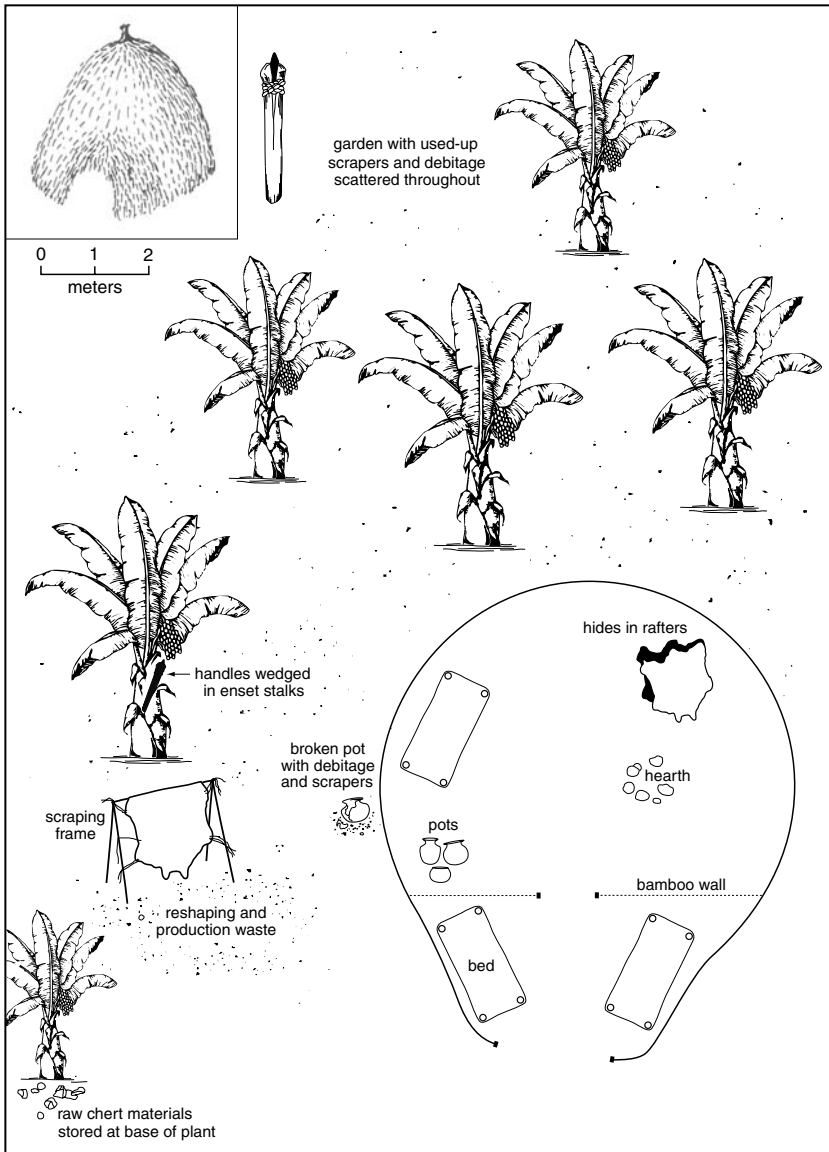


Fig. 6. Plan map of a typical *tutuma*-using hideworker household.

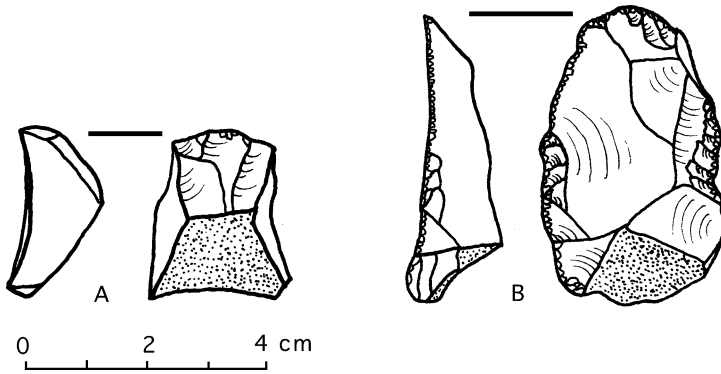


Fig. 7. Illustration comparing the unused stone scrapers hafted in (A) *tutuma* handles and (B) *zucano* handles.

using a set of metric calipers, a gonimeter, and a 20× hand-lens. *Zucano* scrapers are longer, wider, thicker and have deeper retouch in both their unused and used-up forms. The unused *zucano* and *tutuma* scrapers could easily be distinguished from one another because of the formal nature of *zucano*-hafted scrapers and the relatively informal nature of *tutuma*-hafted scrapers. However, because there is only a small difference in the morphological measurements of *zucano* and *tutuma* used-up scrapers it would be difficult to determine a visual difference between the two once they are discarded. It is important to look at other attributes to try to distinguish between the *zucano* and *tutuma* used-up scrapers.

I asked the hideworkers to sort a pile of scrapers in terms of handle type to attempt to ascertain important emic criteria for distinguishing scrapers based on handle types. The hideworkers assessed the sharpness of an edge and the presence and depth of lateral and distal flake scars to determine the scraper's stage of use. The

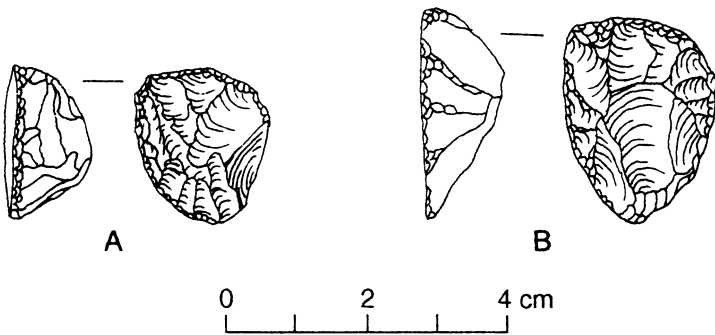


Fig. 8. Illustration comparing the used-up discarded stone scrapers hafted in (A) *tutuma* handles and (B) *zucano* handles.

Table III. Unused *Zucano* and *Tutuma* Scrapers from the Four Village Studied (Total is 811). The Working Edge was Always Considered the Distal Edge Regardless of Bulb Location

Mean measurement CM	<i>Zucano</i> Hafted scrapers (<i>n</i> = 448)	<i>Tutuma</i> non-mastic Hafted scrapers (<i>n</i> = 363)	<i>t</i> -test results (<i>df</i> = 1.96)
Length	3.90	2.80	22.8
variance	0.48	0.49	
Medial breadth	2.50	2.30	5.6
variance	0.16	0.36	
Proximal thickness	1.2	0.90	9.11
variance	0.11	0.19	
Distal thickness	0.38	0.31	6.6
variance	0.02	0.02	
Retouch length	0.31	0.16	12.3
variance	0.03	0.02	

hideworkers identified *zucano* used-up scrapers as having lateral retouch, which they explained was done to fit the scraper into the socket. Based on the observation of these hideworkers, I examined the location and type of retouch as a basis for distinguishing used-up *zucano* and *tutuma* scrapers from one another. Used-up *zucano* were shaped on one or more lateral sides 64 percent (312/489) of the time. Once the working edge of a *zucano* scraper is used-up, the scraper is replaced. *Tutuma* scrapers are not shaped on the laterals before use and hafting. However, I was given many scrapers by *tutuma*-users which were considered unused, because one of the edges was unused even though other edges were used-up (72/379 or 18.9 percent). When the utilized edge of a *tutuma* scraper is used-up, often (49 percent of the cases, 187/379) the scraper is removed and one of the lateral edges or the proximal edge is refitted and used as the next scraping edge. The unused scrapers in the *tutuma* handles are never retouched on the laterals and/or proximal edges unless they are partially used. The result is that the morphology of scraper retouch location is similar in used-up scrapers for both handle types.

Table IV. Used-up *Zucano* and *Tutuma* Scrapers from the four Village Studied (Total *n* = 868)

Mean measurement CM	<i>Zucano</i> hafted scrapers (<i>n</i> = 489)	<i>Tutuma</i> non-mastic hafted scrapers (<i>n</i> = 379)	<i>T</i> -test results (<i>df</i> = 1.96)
Length	2.83	2.67	3.64
variance	0.30	0.49	
Medial breadth	2.44	2.38	2.5
variance	0.12	0.24	
Proximal thickness	1.31	1.06	3.01
variance	0.08	0.13	
Distal thickness	0.918	0.77	7.13
variance	0.08	0.09	
Retouch length	1.01	0.844	7.17
variance	0.09	0.129	

Note. The Working Edge was Always Considered the Distal Edge Regardless of Bulb Location.

Table V. Differences in the Retouch Scar Lengths on *Zucano* and *Tutuma* Hafted Scrapers

Edge modified	<i>Zucano</i> scrapers mean length (cm)	<i>Tutuma</i> scrapers mean length (cm)
Distal used	1.01 (sd = 0.014, <i>n</i> = 489)	0.84 (sd = 0.018, <i>n</i> = 379)
Left lateral unused	0.39 (sd = 0.013, <i>n</i> = 128)	
Left lateral used		0.81 (<i>n</i> = 29, sd. = 0.057)
Right lateral unused	0.40 (sd = 0.13, <i>n</i> = 147)	
Right lateral used		0.80 (<i>n</i> = 33, sd. = 0.042)
Proximal unused	0.41 (sd = 0.024, <i>n</i> = 58)	
Proximal used		0.84 (<i>n</i> = 17, sd = 0.46)

However, the lateral and proximally used edges of the *tutuma* scrapers have a scar depth that is twice as deep as the scar depth in their *zucano* counterparts (Table V).

I also noted that there were differences in the breakage patterns and the presence of undercutting and dorsal ridge reduction when comparing the scrapers of the two handle types. In my Gamo collection, there were 44 broken scrapers representing 4.8 percent of the Gamo used-up scraper assemblage (*n* = 44/912) (Weedman, 2002b). Breakage rates were associated with lack of knapping experience and age, while type of raw material (chert versus obsidian) was not a factor in breakage rates (Weedman, 2002b). Furthermore, breaks occur less often when associated with *tutuma* (2.8 percent) or open hafted handles, than with *zucano* handles (6.3 percent). This is probably because scrapers hafted without mastic tend to fall out of the haft rather than break.

The creation of a dorsal undercut and dorsal ridge reduction were two elements that seem to be the result of hafting only in the *zucano* or closed socketed mastic handles. The mastic sometimes secured the dorsal side of the scraper so firmly into the socket that occasionally stone was removed from under the dorsal back forming an undercut. This occurred on 2.8 percent (14/489) of the *zucano*-hafted scrapers, but not on any of the *tutuma* scrapers. Secondly, if the dorsal ridge of a scraper were too thick for a closed haft, sometimes the hideworker would reduce it, resulting in flake scars along the dorsal ridge of the tool. The intentional removal of material from the dorsal ridge of *zucano*-hafted scrapers occurred in 3.5 percent (33/937) of the unused and used-up assemblage, but none of the *tutuma*-hafted scrapers.

The presence of the two hafting types among the Gamo is also reflected in their use of space and ultimately site formation processes (location of scraper production, scraping location and provisional and final discard location) and scraper morphology. The *zucano* scrapers are produced at the quarry, stored inside houses, used on scraping frames inside houses, removed and inserted near hearths, and discarded in specific lithic discard piles near household paths. They produce formally shaped stone scrapers, which tend to exhibit more lateral and proximal shaping, more frequent undercutting (extensive step fracturing) and dorsal ridge reduction, and a higher breakage rate. In contrast, *tutuma*-users bring raw materials (not

Table VI. Differences Between the *Tutuma* and *Zucano* Using Scraper Morphology and Use, Storage, and Discard Locations

Present handle type	<i>Tutuma</i>	<i>Zucano</i>
Unused scraper morphology	Informal/expedient	Formal
Used-up scraper morphology	3 or more edges used	1 edge used
Scraper shaping location	At home	At quarry
Scraper storage location	Outside home	Inside home
Scraping hide location	Outside home	Inside home
Scraper removal location	Outside near frame	At hearth
Final discard of scraper	In garden	In lithic trash pits

scrapers) from the quarry and store the raw materials and scrapers outside, they scrape on frames located outside their houses in their gardens, and discard scrapers and debitage in their gardens. The *tutuma*-users produce informal or expedient stone scrapers, which tend to exhibit no lateral and proximal shaping, undercutting (extensive step fracturing) or dorsal ridge reduction. If there are flake scars on the proximal or lateral edges of *tutuma* scrapers, they tend to be deep and as the result of using a second or third edge of the tool for scraping rather than shaping the tools to fit in the haft.

EXPLAINING GAMO HIDEWORKING MATERIAL VARIABILITY

The use of two handle types, *zucano* and *tutuma*, among the Gamo hideworkers results in two distinct scraper morphologies, unique methods of procurement and production, and differences in the use of household space associated with lithics (Table VI). The question still remains why within one cultural group are there two distinct handles. Below I explore access to resources (wood, mastic, and stone resources, types of hides scraped) and inter and intra-ethnic social relationships through time to provide a multi-layered explanation for intra-cultural material variation.

Efficiency and Type of Cattle Hide Scraped

Today and in the past all the Gamo hideworkers scrape both highland and lowland cattle hides, and perhaps originally the Gamo adopted the use of two handle types to more efficiently scrape these two types of cattle hides. I observed twelve lowland hide-scrapings and sixteen highland hide-scraping events with chert tools. The lowland hides tend to be thicker and smaller in width and length

Table VII. The Thickness, Width, Length and Scraping Time for Lowland and Highland Cattle Hides

Average	Lowland (n = 12)	Highland (n = 16)	Average
Thickness	3.95 mm (range 3–6 mm)	2.76 mm (range 2–3 mm)	3.35 mm
Width	168.4 cm (range 160–190)	174.17 cm (range 147–208)	170.62 cm
Length	131.8 cm (range 116–145)	140.5 (range 110–220)	134.93
Scraping time	249.5 min (100–655)	239.8 min (100–462)	243 min

than highland hides (Table VII).⁴ All the hideworkers claimed that it takes longer to scrape a lowland hide because they are thicker and rougher and this was confirmed by my observations (Table VII). If so, there may be a difference in the efficiency of handle types. In my study, *tutuma*-users were able to scrape the highland hides much more quickly, by almost 2 hours, compared to the *zucano*-users (Table VIII). The *zucano*-users were able to scrape lowland hides only slightly faster than the *tutuma*-users, by about only 7 minutes (Table IX). It would appear that we have solved our dilemma, highland hideworkers more commonly use the *tutuma* and lowland hideworkers use the *zucano* because each of these tools is more efficient at scraping particular cattle hides.

However, when we also consider how much the hideworkers reduced the thickness of the hide and the average size of the hide, the results of this initial efficiency test of the handle types becomes problematic. The *tutuma*-users removed slightly more material from the lowland hides than the *zucano*-users, which may

⁴However, because of the high variability in sizes, probably based on individuality, age, and the sex of the cattle, and the small sample size there is not a statistically significant difference in the size between lowland and highland cattle hides in my sample.

Table VIII. Lowland Hides: Comparing Scraping Times and Thickness Reduced with *Zucano* and *Tutuma* Handles

Handle type	Time (h/min)	Mean breadth/length (cm)	Thickness reduced (mm)
		ratio of hide	
<i>Zucano</i>	11:05/665	0.86	2
<i>Zucano</i>	8:08/488	0.77	2
<i>Zucano</i>	3:17/197	0.79	2
<i>Zucano</i>	2:23/143	0.76	1
<i>Zucano</i>	2:20/140	0.80	1
<i>Zucano</i>	2:15/135	0.83	1
<i>Zucano</i>	1:50/110	0.88	1
<i>Zucano</i>	1:40/100	0.81	0.5
	4:07/247	0.81	1.25
<i>Tutuma</i>	8:43/523	0.77	2
<i>Tutuma</i>	3:35/215	0.67	2
<i>Tutuma</i>	2:30/150	0.72	2
<i>Tutuma</i>	2:08/128	0.76	1
	4:14/254	0.73	1.75

account for the longer time they spent scraping (Table VIII). Furthermore, the *zucano*-users scraped slightly larger highland hides and reduced their thickness by almost twice that of the *tutuma*-users (Table IX). If we account for how much material is removed from the hide during hide scraping and the size of the hide, then there is little difference between the efficiency of *tutuma* and *zucano* handles and the type of cattle hides they are scraping.

Furthermore, time efficiency in production is not a value shared by the Gamo. In the Mogesa, Eeyahoo, Amure and Patala villages, hideworkers did not appear to be concerned with processing the hide quickly. The process was often interrupted by meals, visitors, and even abandoned completely for 1 to 2 days before returning from other work. Thus, efficiency does not seem to be a factor in the presence of the two hideworking handle types.

Political and Economic Pressures and Types of Hides Scraped

If the *tutuma* handle were really more efficient in scraping highland cattle hides, then one would expect that the *tutuma* handle would have always been used in the highlands to scrape cattle hides. However in the highland districts of Dita, Dorze, Doko, Kogo, and Zada prior to 40 years ago the *zucano* handle was used to scrape cattle hides and the *tutuma* handle was used to scrape goat/sheep hides. In the last 40 years, national political pressures and growing incorporation into national/international economy has led to changes in the types of products and the types of hides scraped in the Gamo region. Prior to the 1970s, the Gamo scraped

Table IX. Highland Hides: Comparing Scraping Times and Thickness Reduced with *Zucano* and *Tutuma* Handles

Handle type	Time (h/min)	Mean breadth/length (cm)	
		ratio of hide	Thickness reduced (mm)
<i>Zucano</i>	7:42/462	0.75	2.0
<i>Zucano</i>	6:58/418	0.71	2.0
<i>Zucano</i>	6:25/385	1.37	2.0
<i>Zucano</i>	4:33/273	0.75	1.5
<i>Zucano</i>	1:40/100	0.69	1.0
	5:27/327.6	0.85	1.7
<i>Tutuma</i>	4:17/257	0.78	1.5
<i>Tutuma</i>	5:00/300	0.82	1.0
<i>Tutuma</i>	4:00/240	1.00	1.0
<i>Tutuma</i>	3:45/225	0.80	1.0
<i>Tutuma</i>	3:42/222	0.86	1.0
<i>Tutuma</i>	3:20/200	0.67	1.0
<i>Tutuma</i>	2:41/161	0.93	1.0
<i>Tutuma</i>	2:40/160	0.68	1.0
<i>Tutuma</i>	2:40/160	0.76	1.0
<i>Tutuma</i>	2:00/120	0.74	1.0
<i>Tutuma</i>	2:30/150	0.73	1.0
	3:19/199.5	0.80	1

cattle hides for bedding, chairs, saddles, straps and drums and goat and sheep hides for clothing and carrying bags. In 1974, when Mengistu Haile-Mariam established the Marxist-Leninist military regime in Ethiopia, he sent “teachers” throughout the nation-state, including among the Gamo. The “teachers” proselytized that everyone was equal. Land was redistributed to include previously landless *tsoma* artisans and all forms of local practices including religious, social, and political activities and symbols were abolished. Among the Gamo, this included outlawing the production of indigenous leather clothing for everyday use and leather capes for ritual-political leaders. These products were made by the hideworkers from goat and sheep skins. Despite efforts by the national government to eliminate local practices and symbols, the Gamo continued their practices out of eyesight of government officials (Freeman, 2002, p. 41). The hideworkers continued to make a few ritual capes in secret during this period, but for the most part the production of clothing and ritual items (such as drums) from goat and sheep skins was nearly eliminated (Weedman, 2000).

In addition, during the last 40 years, there has been a dramatic increase in the export of hides from Ethiopia as the total export value rose from US \$56 million in 1974 to US \$215 million in 1990 (Hasen, 1996). The demand for goat/sheep hides in Addis Ababa raised rural market prices. Today, my observations and interviews with hideworkers suggest that hides, especially goat/sheep hides, are brought through the rural market system to Addis Ababa, where they are tanned in industrial shops for export. Hideworkers usually are not included in the sale of hides because they do not own domesticated animals. In the 1970s, the town of Arba Minch was established in the lowland Gamo region and a road connecting Addis Ababa to Arba Minch was completed making transportation between the Ethiopian capitol and the Gamo region more readily available (Freeman, 2002, p. 37). In addition, Karsten (1972) noted in the early 1970s that in the Gamo region there was an increased distribution of western clothing and agricultural sacks, items which the Gamo had been making out of goat/sheep skins. The Gamo’s growing incorporation into the national economy involved increased exportation of goat/sheep skins and increased presence of industrially made clothing and agricultural sacks which contributed to the demise of scraping goat/sheep skins.

Certainly economic and political pressures help to explain why goat/sheep skins are rarely scraped in the Gamo region today, which in some districts has led to a change in material culture. Prior to Mengistu’s regime, oral histories indicate as far back as living memory allows (3 to 8 generations) that the Ganta, Bonke, and Kamba district hideworkers were using only the *tutuma* type handle and the Borada and Ochollo district hideworkers exclusively used the *zucano* handle type (Fig. 4). Thus, prior to the 1970s, the Ganta, Bonke, Kamba, Ochollo and Borada district hideworkers each used and continue to use today a single handle type to scrape hides. The elimination of sheep/goat hides from hideworker production did not lead to a change in handle type in these districts.

However, among hideworkers living in the districts of Dita, Doko, Dorze, Kogo, and Zada there has been a change in handle use in the last 40 years. Oral histories revealed that all the hideworkers in these five districts used both a *zucano* and a *tutuma* handle (Fig. 4). Previously *zucano* handles were used to scrape cattle hides and *tutuma* handles were used to scrape goat and sheep hides. The presence of both handle types in many of these households (though the *zucano* was no longer in use) confirmed their statements. Since prior to Mengistu's regime goat/sheep hides were scraped in Dita, Doko, Dorze, Kogo, and Zada districts with a *tutuma* handle, one would assume that this handle type would no longer be in use in these districts because the Gamo only rarely scrape goat/sheep hides today. However, the hideworkers in these districts chose to discontinue using the *zucano* handle not the *tutuma* handle.

National political pressure and economic changes led to a change in handle type circa 40 years ago in some of the Gamo districts. Hideworkers living in Dita, Doko, Dorze, Kogo, and Zada districts discontinued the use of the *zucano* for political and economic reasons. However, many Gamo hideworkers continued to use the *zucano* handles withstanding these external pressures. Thus, political and economic changes in the last 40 years do not entirely explain the current use of two handle types nor the original reason for the presence of two handle types in the Gamo region.

Direct and Indirect Access to Wood and Mastic Resources

The discontinued use of the *zucano* handle among highland hideworkers in Dita, Doko, Dorze, Kogo, and Zada districts for economic reasons suggests that perhaps access to the raw wood and resin materials may have been a factor in the development of the two handle types. The Gamo hideworkers give their handles to their sons and grandsons, thus handles are used for multiple generations. Eventually, however, the useful life of the handle is exceeded or a hideworker has more sons than he can provide handles for and a new handle must be made. The Gamo hideworkers use lowland (*baso*, 1500–2300 m) and highland (*geza*, 2300–3000 m) trees to make their *zucano* and *tutuma* handle types respectively⁵ (Table X). However, hideworkers do not necessarily live close to the resources they need to make and use their respective scraping handles. The hideworkers state that the *tutuma* handle can be made out of any strong wood, but most typically they are made from tree species found in the highlands (*geza*, 2300–3000 m). The *tutuma* handle requires no mastic. Instead, the scraper is secured in the haft with twine made from the leafy cover of the onset plant, which grows at elevations of 1200 to

⁵The tree species and their geographical ranges that were used to make and use the Gamo handles, were identified first by the hideworkers, then scientifically named by the local agricultural extension office, and finally verified by faculty at the Addis Ababa University Herbarium (Bekele-Tesema *et al.*, 1993; Hedberg and Edwards 1995; Hedberg and Edwards 1989).

Table X. The Different Species of Trees and their Elevation and Environmental Zone Used to Produce *Tutuma* and *Zucano* Handle Types

Handle	Scientific name	Elevation meters	Environmental zone
<i>Tutuma</i>	<i>Galiniera saxifraga</i>	Not published	
	<i>Maesa lanceolata</i>	Not published	
	<i>Hagenia abyssinica</i>	2450–3250	geza/highland
	<i>Eucalyptus Sp.</i>	2300–3000	geza/highland
<i>Zucano</i>	<i>Olea africana</i>	Not published	
	<i>Cordia africana</i>	Not published	
	<i>Schrebrea alota oleaceae</i>	1500–2300	baso/lowland
	<i>Combregur combretaeceae</i>	500–2300	baso/lowland
	<i>Cupresse lutanica</i>	Not published	
Rope	<i>Ensete ventricosum</i>	1200 to 3100	baso & geza
Mastic	<i>Acacia brevispica</i>	900–2000	baso/lowland
	<i>Acacia niolitica</i>	700–1700	baso/lowland

over 3000 m (Brandt *et al.*, 1997). Most *tutuma*-using hideworkers live in a highland environment, however southern Bonke and Ganta district *tutuma*-users live in both highland and lowland environments. (Table XI). In contrast, the wood and tree resin used to make and use a *zucano* handle are located in a restricted area—the lowlands (*baso*, 1500–2300 m). Although the resources for making and using the *zucano* are found in the lowlands, the *zucano*-using hideworkers of Ochollo and Borada districts live equally in lowland and highland environments (Table XI). Furthermore, in the past the *zucano*-handle was used in the highland districts of Dita, Doko, Dorze, Kogo, and Zada. Thus, easy/local/direct access to resources for hafting is not the initial driving force behind choice in handle style.

If hideworkers did/do not always have direct access to the resources to make and use their handles, how then did they acquire the resources? There is evidence that in the past as well as in the present, marriage relationships afforded access to handle materials, even in the presence of a market system. Marriage patterns among the Gamo are important for determining the extension of their access to resources outside their own village. Generally, individuals, including hideworkers, cannot marry members of their own patrilineage (Olmstead, 1974a, pp. 31–32).

Table XI. The Number of *Tutuma* and *Zucano* Users in Highland and Lowland Environments

	Highland	Lowland
Central <i>tutuma</i> -users	326	3
Southern <i>tutuma</i> -users*	18	12
Northern <i>tutuma</i> -users	4	7
Total <i>tutuma</i> -users	348 or 94%	22 or 6 %
Northern <i>zucano</i> -users	40	58
Central <i>zucano</i> -users	5	3
Total <i>zucano</i> -users	45 or 42.5%	61 or 57.5%

*Based on only a partial survey of the region.

There is a hierarchical relationship between wife-givers and wife-takers in Gamo society, and a permanent ranking of houses/clans is possible if the women from the same house/clan always married men of the same house/clan (Donham, 1990; Freeman, 1997). The husband's lineage is indebted to the wife's lineage, if the union results in the birth of children. The Gamo consider the wife's lineage as the source of potential fertility, which the husband's lineage activates. Having produced descendants, the wife's lineage is revered as a fertile one, and marriage between the lineages may be repeated to reinforce the relationship. If hideworkers do marry women of the same lineage as their mothers, then they may establish a stable resource base through kinship relationships. However, my study of Gamo hideworker kinship does not support the presence of a stable alliance system. I was able to obtain knowledge of the clan name of both the mother and wife for only 113 of the 180 hideworkers interviewed. My study indicates that 72 percent ($n = 81$) did not marry women sharing the same patrilineage as their mother and 28 percent ($n = 32$) did. Only 4 of 32 individuals (1.3 percent), who married women of the same clan as their mother, married them from the same lineage.

Although there is not a stable marriage-alliance system among hideworkers, an examination of the relationships indicates that hideworkers did marry women from other environmental zones to access resources. Among the central highland Gamo hideworkers, there are seven hideworkers who today still use a *zucano*, and they all live in Leesha village of the Zada district. This is the only location where I found the continued presence of *zucanos* in the highland region. They all state that the *zucano* is stronger and easier to hold and they prefer them to *tutumas*. Their fathers taught them how to use the *zucano*, and in three of the instances the hideworkers and their fathers have been marrying women from either Mulato subdistrict of Borada district or Duma village of Ochollo district for several generations. The other four have access because they belong to the same patrilineage as the men who have married women from the lowland regions. Thus marriage appears to be one means through which hideworkers in the present ensure their access to wood and mastic resources.

It is clear that those few who do marry women from other environmental zones, do so to acquire access to particular resources. The present use of social relationships among the central Gamo, such as in Zada district, to obtain access to lowland resources (i.e., *zucanos* and mastic) led me to question if marriage patterns in the past had enhanced access to resources. In the past, when the central Gamo hideworkers of Dita, Doko, Dorze, Zada, and Kogo districts were using both the *tutuma* and the *zucano* handle types, they tended to marry outside their political district to women from the lowland/northern districts of Borada and Ochollo, where the *zucano* resources are predominately found (Table XII). Among the Borada hideworkers, there has been a consistent marriage pattern within the area both in the past and in the present. I do not have much information regarding the kinship patterns of the southern Gamo, but the few individuals I interviewed married within the region, both in past generations and present.

Table XII. Past and Present District and Subregional Marriage Patterns Among Hideworkers

Region	District	Living: spouse from same district (%)	Deceased: spouse from same district (%)
North	Borada (<i>n</i> = 86)	74	70
North	Ochollo (<i>n</i> = 10)	40	47
Central	Doko (<i>n</i> = 100)	73	60
Central	Dorze (<i>n</i> = 49)	72	45
Central	Kogo (<i>n</i> = 225)	60	40
Central	Zada (<i>n</i> = 100)	47	40
South	Bonke (<i>n</i> = 7)	100	100

It is possible that in the past the highland Gamo married northern and lowland Gamo women more frequently to gain easier access to the resources particularly wood and resin for hideworking, which has never been known to be available in markets.

Direct and Indirect Access to Stone Resources

The availability of stone in different Gamo regions and the necessity to conserve stone material may explain the presence of two scraper and handle types. Among the Gamo, approximately 70 percent of hideworkers are using glass, less than 1 percent use iron, and 30 percent are using stone. Bottle glass was introduced into the south during the Italian occupation of Ethiopia (1935–1941), but according to oral histories its use among hideworkers did not become prevalent until the Marxist-Leninist government circa 1974. Hence, glass was beginning to be used at the same time that the demand for hide products was decreasing and the use of the *zucano*-handle in the central region discontinued. The hideworkers who use glass state that they prefer to use stone because it does not tear the hides as easily. However, they use glass because they can collect it freely and easily off the ground near towns and markets and it is no longer worth their effort to travel long distances to procure stone resources because of the reduction in demand for scraped hides. Glass is replacing chert in areas where hideworkers had to travel more than 2–3 h to acquire chert or hideworkers had obtained stone through purchasing it through the market system. Currently, the Gamo hideworkers living in the highland districts of Dorze, Doko, Dita, Kogo, and Zada districts predominately use *tutuma* handles with glass and more rarely with stone (Fig. 9). Thus, since the Gamo have replaced stone with glass in many regions where stone was difficult to access, it seems reasonable that scraper and handle form may relate to conserving stone.

Approximately thirty years ago all the hideworkers used stone and today they still preferred the local chert, referred to as *goshay*, and long-distance obsidian, referred to as *salloa*. In all four villages I studied, *zucano*-users in the villages of Mogesa and Amure and *tutuma*-users in the villages of Eeyahoo and

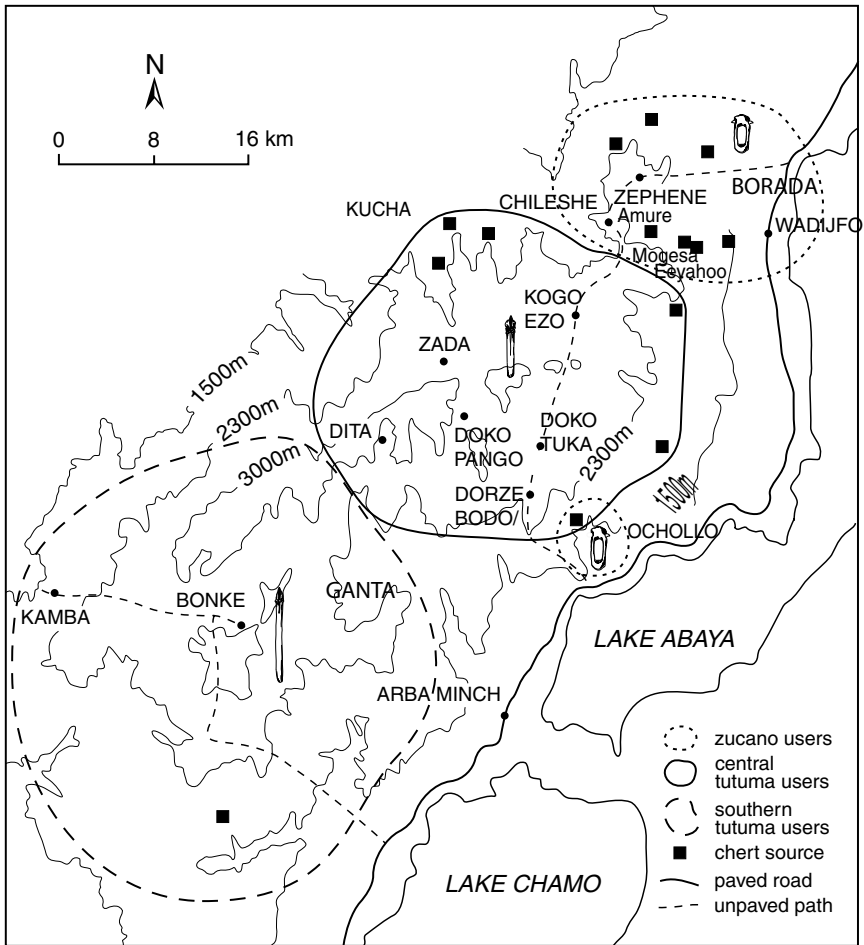


Fig. 9. Map illustrating the location of chert resources in relationship to different handle types and the major Gamo markets.

Patala have direct access to chert within a two to three hour walk. However, when we look more broadly at access to stone raw materials, a distinct pattern emerges. The Gamo territory represents the southernmost protrusion of late Tertiary lava, which was uplifted and fractured by the Rift Valley. The basaltic plateau of the highlands supports the formation of cryptocrystalline rocks such as chert. All the known Gamo chert sources are located at an elevation of circa 2000–2300 m, which the Gamo consider lowland (*baso*) territory. The location of chert in the lowlands explains why many of the highland hideworkers now use glass. In

addition, a patrilineage of hideworkers use the stone quarry sources exploited by their ancestors; and they do not share the quarries with others outside the lineage. The hideworkers are protective of their stone quarries and if a hideworker decides to move from his natal village he must obtain permission by the resident hideworkers to move into their village and use their quarry. Generally, only men of the same clan are accepted into a new village.

Although a scattering of hideworkers in all Gamo districts use stone, stone is primarily used today among *zucano*-using hideworkers who live in or near the lowlands. For instance, stone is commonly used in the districts of Borada-Abaya and Ochollo and the *tutuma*-using hideworkers living in the Bonke district. The Ochollo use a source located on the Baso River, approximately a two to three-hour walk. In contrast, there are many sources of chert in Borada (Fig. 9) within acceptable walking distance to the hideworkers. Occasionally, the Borada hideworkers also acquire obsidian through the market-system from the neighboring Wolayta peoples. The Bonke district *tutuma*-users either walked long distances to obtain their chert or they purchased them at the market (Fig. 9). Although Bonke consists of almost equal lowland and highland terrain, there is only one known chert source today. The Ganta and Kamba district hideworkers primarily use iron and glass.

The highland Gamo hideworkers of Dorze, Doko, Dita, Kogo, and Zada districts (who currently use glass) stated that in the past they (or their fathers and grandfathers) used both *zucano* and *tutuma* handle types and procured stone from quarries located in rivers or near settlements in the lowlands near the western shores of Lake Abaya and through markets (Fig. 9). They also mentioned sources in Kucha, a neighboring lowland region to the west of the Gamo. In addition to procuring their own stone resources some of the hideworkers living in the Ezo subdistrict of Kogo district and neighboring parts of Doko and Zada districts obtained stone at the Ezo market. Thirty years ago, Birbir (a lowland subdistrict of the Kogo district) hideworkers brought the chert to sell at the Ezo market. Today, a few hideworkers still purchase chert at the Ezo market, and it costs 3 ETB for one chunk, approximately 15 by 15 cm in size. Currently a few in these districts use obsidian they find in agricultural fields that are likely archaeological sites attesting to the fact that trade in obsidian was probably more common in the past.

If we were just examining handle type and stone access in the present, then it would seem that access to chert sources may have led to the presence of the two hafting forms. Today, the *tutuma* predominates in highland districts where there is less availability of chert resources and they produce informal tools or expedient type tools from their resources. The production of informal scrapers by *tutuma*-users means that the flakes they select for their haft (which is an open haft) can be of almost any size and shape, reducing the waste of lithic resources. In contrast, today the *zucano*-users live in or near the lowlands where chert is more readily available and make more formal tools. Importantly, while this study might suggest that expedient informal tools are a signature of scarce resources, that does not seem to be the case. In the past when the highland districts of Dorze,

Doko, Dita, Kogo, and Zada were using stone they were using both *tutuma* and *zucano* handles. *Zucano*-users of Borada-Abaya district and *tutuma*-users in the Bonke district also live in both highland and lowland environments. Thus both handle types were being used in areas of abundant and scarce stone resources. In addition, since there have been no detailed geological surveys we are forced to rely on living memory and there may be considerably more chert sources in the Gamo region than currently cited by the living hideworkers.

In summary, the presence of two different handle and scraper types among the Gamo does not seem to be the result of access to wood and stone materials, type of hide scraped, and use for the following reasons. First, the present and past distribution of handle types does not correspond to the environmental regions associated with direct access to hafting resources. *Zucano*-users and Bonke, Kamba, and Ganta *tutuma*-users live equally in both environments and in the past both handle types were used in the highlands districts of Dorze, Doko, Dita, Kogo, and Zada. Second, today both handle types are used to scrape cattle hides and both are similar in their efficiency. Third, in the past, the use of the two handle types for two different functions (i.e., scraping goat versus cattle hides) was only known in the Dorze, Doko, Dita, Kogo, and Zada districts. Fourth, both *zucano* and *tutuma*-users have direct and indirect access to raw stone materials. Although use and direct access to resources do not seem to have stimulated the presence of the two handle types, political and economic changes in the last 40 years have led to a change in material culture associated with hideworking. In particular, the near elimination of scraping goat/sheep hides for clothing and ritual items due to political and economic pressures led to the replacement of stone with glass and the discontinued use of the *zucano*-handle in some highland areas. While the presence of stone in some regions was always scarce, in a demanding market for hide products hideworkers found the means either by making the effort directly to acquire the resources, establishing and maintaining social networks, or by purchasing them through the market. Social-political and social-economic changes instigated material change. These social factors hint that while environmental and functional models do not explain well the persistence of the *zucano* handle or the *tutuma*, a deeper examination of Gamo social relationships in the past and present may provide some further insights.

Intraethnic Relationships

In addition to environmental and economic influences, a person's social identity and relationships are important for assessing factors that may affect stone tool morphology and distribution. Social identity is flexible and exists on several levels in Gamo society. A closer examination of Gamo handle-scraper distribution indicates that it reflects membership in ritual-political districts, regions, and migration patterns.

Regional and Ritual-Political Affiliation

The Gamo recognize differences between three subregions of their territory, south (Kamba, Bonke and Ganta districts), central (Dorze, Doko, Kogo, Dita, and Zada districts), and north (Borada and Ochollo districts). Today, the southern and central Gamo peoples use a *tutuma* handle and the northern Gamo use the *zucano* handle. There are clear dialectical differences between the three regions, although all Gamo claim that their language is Gamocalay. The division of the Gamo region into three locally recognized subregions and their relationships with one another is important for assessing the distribution and types of hideworking material culture. The Gamo hideworkers identify themselves closely with their village and patrilineage, which are situated within the larger district and regional communities. A Gamo hideworker upon identifying himself will state that he is first and foremost a member of his lineage/village and a hideworker's scrapers and use of space most closely resemble those of other hideworkers who are members of his partilineage/village (Weedman, 2000, 2002b, 2005). Beyond patrilineage identity, hideworkers associate themselves within their hideworking communities at the district and regional levels. The social-ritual roles of the hideworkers are determined by their membership in these larger political entities and in some districts and regions hideworkers have elected political officials (*halakas*) who mediate their relationships among themselves and with the *mala* farmers and weavers within districts and regions.

Each subregion is different in terms of types of local ritual-political leaders and the social roles of artisans. As Freeman's (2002) study of the Gamo indicates, the meaning and practice ascribed to these ritual-positions is flexible, which makes space for cultural and material change and differences. The *tutuma*-using southern Gamo districts (Ganta, Bonke, and Kamba) have the hereditary positions of *Kao*, *Dana*, and the elected *Uduga* ritual-political leaders in each district (Table XIII). However, they lack the hereditary position of *Maka*, which is known in the other two Gamo regions. The southern region also uses the word *Maga* as well as *Halaka* to describe the *mala* (farmer & weavers) elected ritual-political position at the village level. Among the southern Gamo, the potters (generally women) and hideworkers (generally male) both belong to the caste group, *mana*, and marry one another (Table XIV). The ascription to all artisans into one caste group is a characteristic of the districts belonging to the southern Gamo region and is unknown and unaccepted in the central and northern regions. The southern Gamo hideworkers are responsible for circumcision, healing, and announcements, and they have their own politically elected officials referred to as *Magas*.

The *zucano*-using Ochollo and Borada political districts (*deres*) are considered within the northern Gamo region because of their shared cultural traits, even though geographically the Ochollo are located in the central area. Furthermore, the Ochollo people are the only centrally located Gamo people who claim that their ancestors came from the north in particular from Ochollo village in the Borada

Table XIII. Gamo Subregions and the Number of Persons Holding the Different Ritual-Political Positions in Each

Region	District	<i>Kao (H)</i>	<i>Maka (H)</i>	<i>Eka (H)</i>	<i>Dana (E)</i>	<i>Uduga (E)</i>	<i>Halaka/Maga (E)</i>	<i>degala & or mana Halaka</i>
Represent South	Ganta	district 1	Several subdistricts 0	Sub-district 1	district 1	Sub-district 1	village several	various several
	Bonke	1	0	1	1	1	several	several
	Kamba	1	0	1	1	1	several	several
	Doko	1	1	1	0	1	14	1
Central	Dorze	1	2	1	0	0	7	1
	Dita	1	0	1	5	1	several	several
	Kogo	1	1	1	2	3	several	4
	Zada	1	0	1	5	0	several	several
North	Borada	1	sometimes	sometimes	several	sometimes	sometimes	0
	Ochollo	1	1	1	1	0	several	0

Note. Hereditary position (H) and elected position (E).

Table XIV. The Subregional Roles of Artisans

	South	Central	North
Hideworkers and potters belong to the same caste	Yes	No	No
Hideworkers as circumcisers, healers, and musicians	Yes	Yes	No
Artisan <i>Halakas</i>	Yes	Yes	No
Artisans intermarriage	With central	With south & north	With central

district, which according to oral history was the first settlement in Borada. The northern Gamo region districts refer to their potters as members of the *chinasha* caste, rather than using the term *mana* that is used in the southern and central regions. They also do not always have *Udugas* and *Halakas*, instead, each political district has *Kao*, *Maka*, and several *Dana* (Table XIII). Among the northern Gamo, the potters and hideworkers, smiths, and groundstone makers belong to different caste groups, *chinasha* and *degala* respectively (Table XIV). Among the *chinasha* only women produce pottery and among the *degala* only men work hides and iron and produce groundstones, so there is one sex group in each caste group that is not an artisan. The *chinasha* and *degala* do not marry one another. Among the northern Gamo the potters, rather than the hideworkers as in the southern region, are responsible for circumcisions, healing, and announcing ceremonies and meetings. The northern artisans do not have their own ritual-political leader.

The central Gamo share cultural traits with both their southern and northern Gamo neighbors (Tables XIII and XIV). Today the central Gamo hideworkers only use a *tutuma* handle, but in the past they used both the *zucano* and *tutuma* handles. Among the districts of the central Gamo region (Doko, Kogo, Zada, Dorze, and Dita) some have not a *Maka* like the northern Gamo and some have *Udugas* like the southern Gamo. This suggests an influence of both northern and southern traditions onto the central region. The central Gamo are similar to the northern Gamo in that the hideworkers and potters represent two different caste groups, *mana* and *degala*. However, like the southern Gamo, the central Gamo potters are members of the *mana* (not *chinasha*) caste group. However, the central region hideworkers are similar to the southern hideworkers because they both perform circumcison, healing, work as musicians, and they have *Halakas* (local leaders). The central Gamo districts each have a different number of *degala Halakas*. The geographical location of the central Gamo people gives them proximity and easy means of interaction and communication with both the southern and northern Gamo. Thus, among the central Gamo peoples the presence of different ritual leaders and artisans' roles represents influences from both the southern and northern Gamo people.

The cultural division of the Gamo people into these three geographical areas also is reflected in the hideworkers' material culture with the southern and central

Gamo using a long and short *tutuma* handle respectively, and the northern Gamo using a *zucano* handle (Fig. 4) and their corresponding use of space (Figs. 5 and 6). The flexible social and ritual-political system among the Gamo is demonstrated through oral histories recounting conflict and changes in alliances throughout the 19th century (Abélès, 1981; Olmstead, 1975) and more recent changes as documented by Freeman (2002). Flexibility is exemplified in the change in material culture use among the central Gamo hideworkers who today use only the *tutuma* handle but in the past used both the *tutuma* and *zucano* handles. In the past, the *tutuma* handle was used to scrape goat/sheep hides and the *zucano* handle used to scrape cattle hides. Instead of disposing of the use of the *tutuma* handle when goat/sheep hides became scarce and the products made from them forbidden, most central Gamo hideworkers chose to discontinue using the *zucano* handle. The central Gamo hideworkers must have weighed in not only their use of the different handles (goat, sheep and cattle) and access to resources (more indirect access for *zucano* handles), but also identity and the symbolic meaning associated with the use of either handle type. At the time of the discontinuation of the *zucano* handle, the national government changed the center of its GamoGofa administration from Chenchu, which is located in the central Gamo region, to Arba Minch located in the lowlands in the southern Gamo region. There was an increasing pull then towards commerce and politics focused in the southern region rather than in the central and northern Gamo regions. The continued use of the *tutuma* handle among the central Gamo in lieu of the *zucano* handle signaled a shift in political and economic affiliation.

While a majority of the central Gamo hideworkers use a *tutuma*, there is a small community that continues to use the *zucano* in Leesha, Zada, as discussed above. This community felt strongly that the *zucano* was a better tool and made efforts to maintain strong connections with the northern region, in particular Mulato Borada and various Ochollo district villages by continuing to marry women from these regions. The locations of their connections are extremely interesting historically. According to oral history, the residents of Mulato Borada and Ochollo district originated from Ochollo Borada, which was the first settlement in Borada. Leesha Zada hideworkers who use the *zucano* handle (not all use the *zucano* handle) are from two patrilineages and note that their fathers urged them to continue to use the *zucano*. It is possible that their fathers felt a strong connection to this northern settlement and continued to make the effort to ensure their access to resources to make the *zucano* was maintained.

Handle type is a marker of village, district, and regional identity. Hideworkers clearly point out that membership in other regions is signaled by the use of different handle types. Although there are broad trends associating Gamo subregions (north, central, and south) with particular handle forms and use of space, there are some exceptions indicating negotiation with identity and movement in the Gamo territory.

Migration

The migration of hideworkers between regions demonstrates the extent to which hideworkers are willing to change their use of material culture when they assume residence in a new district and region. The Gamo hideworkers trace their descent patrilineally and are virilocal. Thus, hideworkers living in one village (93 percent, $n = 107/115$ villages in survey) tend to belong to one patrilineage and can often recount their ancestors back five to eight generations in the same village. Hideworking practices are learned from fathers or other males in the same patrilineage and men rarely ever move from their natal village on a permanent basis during their life. Thus, there is similarity in village, district and even regional hideworking material culture. Only 12 percent (68/588 individuals listed in kinship reconstructions during the survey of 180 hideworkers) of the living Gamo hideworkers had moved from their natal village. Of these 68 migrant hideworkers only 11 moved into an area that was dominated by another handle type, and all of these were *tutuma*-users moving into lowland *zucano*-using areas. These migrations partially explain the variation witnessed in the presence of handle and scraper types in the different Gamo regions and ritual-political districts.

Almost 15 percent (10/68 individuals) of the hideworkers moved to Addis Ababa for employment opportunities (where they do not work as hideworkers). However migrants remaining in the Gamo region moved for two major reasons: availability of land (39.7 percent or 27/68 individuals) and disputes with one or both of their parents or between parents (7.35 percent or 5/68 individuals—38.22 percent or 26/68 individuals left the question unanswered). The first and more common reason for hideworkers to leave their natal community was the availability of land elsewhere. The Marxist-Leninist Ethiopian government redistributed land and ensured allocation to previous non-farmers. They also provided incentives for moving into previously uninhabited lowland areas in the Gamo region. Thus, almost all of the noted migrations of hideworkers involved the movement from the highlands into the lowlands. In the northern district of Borada, there are eight hideworkers who use a *tutuma* handle rather than a *zucano* handle. Either the hideworker or his father moved into the northern region (Borada) to obtain land offered during the Marxist-Leninist regime. All of these hideworkers or their fathers are from the central Gamo districts of Doko, Kogo, and Zada, where before the Marxist-Leninist regime the *tutuma* and *zucano* handles both were commonly used. These migrating hideworkers moved into a *zucano*-using area and to an area where *zucano* resources are readily available, but like their natal districts in the central region they chose to continue to use the *tutuma* handle. They continue to use *tutumas* because this is the handle of their “fathers,” even though they or their fathers at the time were using both handle types. Migrating hideworkers closely associate themselves with their patrilineage and return to the natal community. The continued use of the *tutuma* actively signals their ties with their homeland.

Hideworkers also move, but less commonly, because of disputes that arise with or between their parents. Three of the hideworkers living in the village of Eeyahoo Shongalay (subdistrict) of Borada district moved there in the last ten years from the district of Kogo. At this time, the *tutuma* was the predominate handle used for scraping in Kogo, and despite their dispute with their father, all the hideworkers learned their craft from their father. They continue to use *tutumas* in their new village, even though the area is predominated by *zucano*-users. The hideworkers gained access to land in Shongalay through their mothers. Two hideworkers moved because of a dispute with their father and moved to Shongalay where their mother lived with a second husband. The mother was married to an ironsmith and the *mala* he worked for gave land to the two younger hideworkers when they married. The third hideworker's mother moved to Shongalay, Borada her natal village after she had a dispute with her husband. His sister lived with her mother and married a local ironsmith. After the death of his mother, it was through his sister that he received access to land.

The Eeyhao Shonglay hideworkers had to have permission from the other Shonglay hideworkers before they could move into the area, even though they wished to live in a different village. The Shongalay hideworkers accepted them into the subdistrict because they were members of the same clan. The Eeyahoo hideworkers are fairly young and continued to use the *tutuma* handle type, which is literally and symbolically the handle of their father and natal home. Although they continued to use the *tutuma* style handle, two had adopted the local practices of scraping hides within the household and throwing the discards in discrete lithic waste piles similar to the use of space by the *zucano*-using Borada. Thus, migration provides a new social context in which practice and technology are rearticulated.

Interethnic Relationships

We have already seen how recent political and economic forces and sense of identity have affected the presence and change in the temporal and spatial distribution of the two handle types. The historical and present day relationships that the Gamo have with other ethnic groups may affect their access to and knowledge of different resources as well as their craft-production technology. The Gamo do not live in isolation from the global, state, or regional relationships either today or in the past. They are "entangled" in wider patterns of historical change.

Today most of the known hideworkers in central and southern Ethiopia use a *zucano*-type handle including the Gurage, Hadiya, Oromo, Sidama, Gugi cultural groups (Brandt *et al.*, 1996; Clark and Kurashina, 1981; Gallagher, 1974, 1977b; Haaland, 1987; Haberland, 1981, 1993, p. 94; Straube, 1963, p. 22). In the absence of their own written language and archaeological studies, the knowledge we have of Gamo history is fragmentary and based on the written records by their northern neighbors, early European travelers' accounts, and later studies of oral history.

Most of these accounts suggest that northern and neighboring states intrusively vied for power over the Gamo and with few exceptions these invading states used *zucano* type handles to scrape their hides. An ecclesiastical monk recounted that the Oromo invaded his home among the Gamo in the 16th century (Bahrey, 1993 reprint of 1593). Some researchers have offered that the Gamo may have adopted their rites of passage ceremonies from the Oromo (Abélès, 1977, also see Cerulli, 1956, p. 86), rituals in which the hideworkers play an integral part as circumcisers. In the 19th century (Giglioli, 1889) and in the present we know that the Oromo hideworkers used/use a *zucano* type handle (Brandt *et al.*, 1996; Clark and Kurshina, 1981). By 1820, the Gamo and most of the other Omotic societies were tributaries to the Omotic king of Kafa (Beckingham and Huntingford, 1954: LXVI). In 1893, Menelik, ruler of the northern Christian state, conquered the Gamo and other southern peoples, forcing them to perform labor and pay tribute to his Amhara soldiers, who became local settlers and administrators (Bureau, 1979; Hodson, 1929; Marcus, 1994, pp. 19–20; Olmstead, 1997, p. 29). In 1889 (Giglioli, 1889), we have the first description of the handle type used among northern Ethiopian peoples to scrape hides and it most closely resembles the *zucano* type handle. In the absence of direct historical knowledge (archaeological and written records) it is not possible to determine who influenced whom in terms of the direction and flow of hideworking hafting similarities, however what little information we do know suggests that for a long time the Gamo have been intertwined in regional networks.

Closer to home, the Omotic speaking Gamo are bordered by other Omotic speakers (Fleming, 1973, 1976; Hayward, 1998; Fig. 2), who use *zucano* and *tutuma* handle types. To the north of the Gamo live the Wolayta, to the west live the Oyda, Daro, Kucha, Sala and Male, to the south live the Gardulla (eastern Cushitic speakers); and to the east are lakes Abaya and Chamo. The Daro use iron to scrape hides and the Marta, Sala, Male, and Kucha do not scrape hides according to my Gamo informants, who sometimes travel to these areas to provide hides. The Omotic-speaking Kucha were said to have ruled the Gamo until circa 1550 (Beckingham and Huntingford, 1954: LXV; Borelli, 1890). However, both the Oyda and the Wolayta use stone to scrape hides (Feyissa, 1997; Teshome, 1984).

The neighboring Oyda and Wolayta Omotic-speaking ethnic groups have similar handle styles as the Gamo people (Fig. 2). The Gamo people also share cultural similarities concerning the submersion of artisans and their roles as healers, circumcisers, and messengers with the neighboring Wolayta and Oyda peoples (Table XV). The northern Gamo artisans and the Wolayta both use a *zucano* handle for scraping hides, and both refer to it as a *zucano*. The Borada Gamo people share their border with the Wolayta ethnic group and the Borada Gamo speak the Wolayta language, as well as their local Gamocalay. The Borada Gamo and the Wolayta refer to hideworkers and smiths as *degala* and potters as *chinasha* (Table XV). They also share some other cultural characteristics, such as: (1) the

Table XV. A Comparison of Artisan Categories and Roles Among the Wolayta, Gamo, and Oyda

	Wolayta	Northern Gamo	Southern Gamo	Oyda	Central Gamo
Hideworkers, ironsmiths, groundstone makers	<i>degala</i>	<i>degala</i>	<i>mana</i>	<i>mana</i>	<i>degala</i>
Handle type	<i>zucano</i>	<i>zucano</i>	<i>tutuma</i>	<i>tutuma</i>	<i>tutuma & past zucano</i>
Potters	<i>chinasha</i>	<i>chinasha</i>	<i>mana</i>	<i>mana</i>	<i>mana</i>
Healing	<i>potters</i>	<i>potters</i>	<i>hideworkers</i>	<i>hideworkers</i>	<i>hideworkers</i>
Circumcision	<i>potters</i>	<i>potters</i>	<i>hideworkers</i>	<i>hideworkers</i>	<i>hideworkers</i>
Musician	<i>potters</i>	<i>potters</i>	<i>hideworkers</i>	<i>hideworkers</i>	<i>hideworkers</i>
Halaka leadership	no	no	yes	yes	no

Note. *degala*, *chinasha*, and *mana* are the different terms used to define caste groups in Omotic societies.

potters rather than the hideworkers serve as musicians, healers, and circumcisers; (2) the artisans do not have their own village leaders; (3) the hideworkers and potters represent different social groups and are forbidden from intermarrying; and (4) they share some clan names like Zutuma and Boradamala. In addition, the Gamo and the Wolayta share a common oral history, which recounts their common descendant from brothers (Teshome, 1984). The northern Gamo hideworkers are the only ones I interviewed who married women from another ethnic group (i.e., the Wolayta).

The Oyda, who live to the immediate west of the southern Gamo, use only the *tutuma* style handles (Feyissa, 1997). The southern Gamo and the Oyda also share some cultural similarities associated with the artisans (Table XV). They both use the word *mana* to include both potters and hideworkers and as such there is intermarriage between the potters and the hideworkers. In addition, the hideworkers rather than the potters perform ritual healing and serve as musicians. These cultural traits are not seen among the northern Gamo and Wolayta artisans. Furthermore, according to the oral history of the Oyda, some of their ritual-sacrificers, *Kati*, claim descent from the Gamo (Feyissa, 1997, p. 21).

The hideworkers primary explanation for why they use one handle and other hideworkers use another type was “*Woga*,” culture, or “it is our tradition.” An interethnic study of hideworking practices suggests that interethnic interaction, influences and entanglement may partially explain the presence of two handle types (Wolayta *zucano* handles and Oyda *tutuma* handles) among the Gamo people.

CONCLUSION

This paper has examined the meaning behind the variation in the presence of the two Gamo haft types (*tutuma* and *zucano*) and their effects on scraper

morphology and distribution. The Gamo hideworkers are enmeshed in a caste society and as a result hide production is a lineage-based craft in which fathers teach their sons the locations of resources and the production, use, and discard of the stone tools involved in their craft. Fathers and their adult sons live in the same village, as postmarital residence patterns are virilocal. Stone tool variation among the Gamo is the result of multiple functional and social factors, such as age and skill of the hideworker (Weedman, 2002a), lineage, village, and ritual-political district membership, stage of use, and historical context (Weedman, 2000, 2002b, 2005). These earlier publications concerning the Gamo added to the literature that recognized variation as a reflection of stage of use (Dibble, 1984, 1987; Kuhn, 1990, 1992), age-grade status (Hodder, 1982, pp. 77–82; Larick, 1985), linguistic/dialect differences (Wiessner, 1983, 1985), kinship descent systems (Hill, 1970, pp. 69–72; Longacre, 1964, 1970; Plog, 1978), learning groups (Close, 1977, 1989), coresidential units (Rick, 1980, pp. 314–316), and the individual (Gunn, 1975; Wiessner, 1983). However, more recently, ethnoarchaeological and archaeological studies of material culture have demonstrated how technology is learned and enacted in a social context reflecting the mediation of an individual's social positions, actions, and experiences (Childs and Killick, 1993; Dietler and Herbich, 1998; Dobres and Hoffman, 1999; Gosselain, 1998; Hodder, 2003; Lechtman, 1977; Pfaffenberger, 1992; Wobst, 1999). Most important is the act or practice itself, as it provides us with everyday technological practices within a social setting. Hence, material objects themselves are a source for understanding human interaction and the social condition. Ethnoarchaeological studies of contemporary people using stone tools have proven invaluable to archaeologists concerned with understanding past human activities (Binford, 1973, 1986; Gould *et al.*, 1971; Hayden, 1977; Tindale, 1965; White and Thomas, 1972; White *et al.*, 1977). This ethnoarchaeological study of the Gamo hideworking practices and technology (handles, and stone tool) reveals how material culture reflects changing relationships in global, regional, and local webs of interaction.

Function, efficiency, and direct access to resources alone do not adequately explain the presence or origin of the two Gamo handle (*zucano* and *tutuma*) and scraper types (formal and informal). Archaeologists have stressed that tool morphology was the result of human activity and adaptive reactions to different environments (Ammerman and Feldman, 1974; Binford, 1986, 1989; Broadbent and Knutsson, 1975; Dunnell, 1978; Mellars, 1970; Wilmsen, 1968). Today, the Gamo hideworkers use both handle types to scrape cattle hides to make bedding. A comparison of scraping lowland and highland cattle hides in terms of time spent scraping the hide, the size of the hide, and the thickness of the hide suggests that there is no difference in the efficiency of these two handle types. Furthermore, interview data suggests that efficiency in hide production is not valued by the Gamo. In the past, both handle types also were used to scrape goat/sheep hides for agricultural bags and ritual items, as well as cattle hides. Thus, the type of

hide scraped and the products produced did not play a significant role in the development of the two handle types among the Gamo.

Access to wood and mastic resources to produce the handles were also not a limiting factor. Although lowland resources are needed to make the *zucano* type handle and highland resources to make the *tutuma* type handle, the past and present distribution of the hideworkers using these handle types suggest that environmental setting did not dictate handle style, as both *zucano*-users and *tutuma*-users live in highland and lowland environments. The *zucano* users living in the highland areas offered that they instigated social relationships (primarily marriage) to facilitate access to wood and mastic (needed hideworking resources).

Distance to stone resources has been cited in archaeological literature as a determinate in stone tool form and the presence of hafting. For instance, it has been suggested that formal standardized tools, such as the *zucano*-hafted scrapers, are either a result of direct access to high quality resources (Andresky, 1994) or conserving long distance resources (Henry, 1989; Odell, 1989; Parry and Kelley, 1987; Shott, 1986), or increased demand on resources inducing technological responses such as hafting which in turn led people to economize with curation and standardization in stone tool form (Odell, 1994; Oswalt, 1976). Conversely, informal expedient tools, such as the *tutuma*-hafted scrapers, are made from poorer quality materials (Andresky, 1994) or locally available resources (Shott, 1986; Odell, 1989). The Gamo prefer to make their scrapers from cherts, which have limited distribution in the lowland environments between 2000–2300 meters. Both *tutuma*-users, who make expedient scrapers, and *zucano* users, who make formal scrapers, live in highland and lowland environments with varying access to chert resources.

Access to chert resources is not as simple as living near or walking to a quarry. Access to chert sources is controlled by social relationships lineage/clan membership (also see Gould, 1968; Gould *et al.*, 1971; Gould, 1977; Hayden, 1979, p. 51, 109), and hideworkers moving into a new region must receive permission and be members of the same clan as local hideworkers. Cherts also were acquired indirectly by purchasing the raw materials at the market, which also dictates the presence of social-economic relationship between the buyer and seller, both of whom were hideworkers.

The morphology and the distribution of the Gamo hideworker handle types reflect relationships with the nearest ethnic neighbor, political-economic change, interactions between the different Gamo regions, and marriage and friendships through which resources are acquired. Ethnographic studies stress handles are often decorated with symbols representing individuals, language-groups, and/or ethnic identity (Larick, 1985; Wiessner, 1983). Closed hafts place a constraint on the absolute size and form of the stone tool inserted, which may be important for identifying regularities in form (Deacon and Deacon, 1980; Holdaway, 1996). In addition, the time-investment in producing a haft (Rule and Evans, 1985) and its

potential longevity of use (Gould, 1980, pp. 128–129) have important implications for determining the social relationships associated with stone tool form.

Although the Gamo have not left a written record of their history, cursory studies of records written by their northern neighbors and European travelers indicate that the Gamo have a long history of interaction in southern Ethiopia and this history has affected haft use among the Gamo today. The Gamo use handle types that are currently and historically known in other cultures in Ethiopia. The *zucano* type handle has been recorded as early as the late nineteenth century among the Shoa hideworkers in central Ethiopia (Giglioli, 1889), and currently among the Gurage, Hadiya, Oromo, Sidama, and Gugi peoples of central and southern Ethiopia (Brandt *et al.*, 1996; Clark and Kurashina, 1981; Gallagher, 1974, 1977a, 1977b; Haaland, 1987; Haberland, 1981, 1993, p. 94; Straube, 1963, p. 22). The *zucano* handle also is used among the Wolayta, who are the northern neighbors of the Gamo and with whom they share a common oral history origin and other cultural traits. The Gamo *tutuma*-users occupy the central and southern regions. The southern Gamo neighbor the Omotic-speaking Oyda peoples who also are known to use the *tutuma* handle for scraping hides. Oral histories and cultural traits associated with artisan responsibilities also demonstrate a connection between the Oyda and southern Gamo. An interethnic study of hideworking practices suggests that interethnic interaction, influences and entanglement may be partially responsible for the presence of two handle types (Wolayta *zucano* handles and Oyda *tutuma* handles) among the Gamo people.

The presence of both the *zucano* and *tutuma* handles among the central Gamo hideworkers in the past reflects their geographical position and social interaction networks with the northern and southern Gamo. For instance, social entanglements between the central region and the north and south can be seen in the ritual-political leadership (presence of hideworker ritual-political leaders as among the southern Gamo), the social categorization of hideworkers (hideworkers referred to as *degala* as among the northern Gamo) and hideworkers' ritual roles (responsible for circumcision, healing, and musicians as among the southern Gamo). The Gamo hideworkers' explanation for why they use one handle type and other hideworkers use another type was *Woga* or culture or the prescriptive practice. Handle type is a clear signal of regional identity among Gamo hideworkers.

This fusion of cultural and material traits under culturalist paradigms suggests a process of ethnogenesis (Moore, 1994). The idea behind ethnogenesis is that ethnic boundaries are flexible and dynamic but still there is an acceptance of culture as a bounded and whole entity. More recently, the concept of dialogism has been adapted to anthropology and in particular to the African diaspora (Yelvington, 2001). It accepts agency and change and acknowledges that continuous flow back and forth in “. . . multi-group interactions of material, ideational and discursive phenomena, among others, in complex relationships characterized more often than not by an unequal distribution of power . . .” (Yelvington, 2001, p. 204). It rejects the idea of a baseline in either the past or the present and allows for agency.

A review of Gamo hideworkers integration into national and regional networks serves to illustrate how with their lives and technologies were changed with their social context. Forty years ago, the hideworkers of the southern Gamo used a *tutuma* handle, the central Gamo used *tutuma* and *zucano* handles, and the northern Gamo used a *zucano* handle. The Marxist-Leninist military regime beginning in 1974 allocated the Gamo hideworkers land for farming and at the same time outlawed indigenous ritual and everyday leather clothing, which served to decrease the amount of time they spent scraping hides. Furthermore, the increasing export of goat/sheep hides and the import of industrially made clothing and bags contributed to the demise of scraping goat/sheep hides among the Gamo.

Although handle form among the southern Gamo (*tutuma*) and northern Gamo (*zucano*) did not change, those who lived in highland regions began to rely more on glass as the medium for producing scrapers. Glass is not the preferred material but it is easily obtainable in a less demanding market for hide production. Among the central Gamo hideworkers, glass was even more widely adopted than in the southern and northern region. In addition, the central Gamo hideworkers discontinued their use of the *zucano* type handle, even though it was used in this region to scrape cattle hides and the *tutuma* type handle had been used to scrape goat hides. It is possible that the highland central Gamo may have eliminated the use of the *zucano* handle because the wood and mastic resources needed were located in the lowland region and with decreasing demand the effort required to obtain them may no longer have seemed necessary. However, none of the hideworkers cited resource availability as a reason for abandoning the *zucano* handle type. Unlike stone which was either acquired directly or through the market, hafting resources were acquired through marriage and social networks.

When goat/sheep hide scraping was significantly decreasing there was a national administrative change that moved the regional capitol from the central Gamo region to the southern Gamo region, which shifted commercial and political focus to the southern region rather than in the central and northern Gamo regions. The continued use of the *tutuma* handle among the central Gamo in lieu of the *zucano* handle signaled this change in political and economic affiliation. Only hideworkers who had extremely strong ties with the north, such as the Leesha Zada hideworkers, continued to use the *zucano* handle type.

Migration of hideworkers from the central region into the northern region also speaks to the importance of handle type, scraper form, and use of space in negotiation of social identity. Migrants from the central Gamo region continue to use the *tutuma* style handle and scraper forms, but often appropriate northern use of space in their new northern residences. Thus interaction in national and regional politics and economies affected the demand for hideworker products, their access to resources, and ideologies surrounding their occupations and their material technologies.

Clearly, material culture is fluid, demonstrating that the Gamo and most any other culture represent not a homogeneously bounded group, but rather continually negotiated entities. Hence, the Gamo use of specific handle forms is related to their “entanglement” in wider socio-political-economic forces. Environmental context and external social relationships are heavily intertwined in the distributional use of the two handle and stone tool types among the Gamo. J. Olmstead (1997) described southern Ethiopia:

Imagine a wet sheet of paper to which watercolors are applied. Each spot of color spreads and mixes with contiguous colors and the boundaries between colors may not be very clear or consistent along the edges of a central color spot. Localized conditions on the page—slight ripple, extra water, a raised section—will affect just how far a color spreads and how much it mingles. . . . It is this shifting dance of color that I use as a central image when thinking of the thousands of years people have lived upon the surface now called Ethiopia. (26)

Like a stone tool, whose dorsal scars overlap, intersect, and parallel one another, so do an individual’s life activities and identities overlap, intersect, and parallel the lives of others in their society. The edges of the tool are renegotiated with use, just as the boundaries of social life are continually renegotiated. Hence, cultures and their material manifestations are not constrained by ecological or social necessities. Culture and material culture are heterogeneous and continuously renegotiated in terms of the activities individuals pursue in relationship to their environment and also their social, religious, economic, political relationships. By incorporating non-western views through ethnoarchaeological studies, we broaden our understanding of material diversity, which must be understood in terms of people’s daily lives and their fluid entanglement in the local, regional, and global. This ethnoarchaeological study has demonstrated through Gamo hideworking history and practice that many factors infuse material variation. Cultures are mosaics of the activities individuals pursue in relationship to their environment and their socio-political identities.

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