The Gamo hideworkers of southwestern Ethiopia and Cross-Cultural Comparisons

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ABSTRACT
Hideworking was practiced prehistorically and historically in nearly every region of the world. Today hideworking is practiced using stone tools only in parts of North America, Siberia, and Ethiopia. This article reviews and explains the diversity in hideworking practices among the Gamo of southern Ethiopia, in particular focusing on the variation of the stone scrapers, handles, and use of space. The Gamo hideworking practices and materials are then compared to customs in other parts of the world. It is concluded that intra-cultural and cross-cultural material and practical homogeneity and diversity can only be explained through an understanding of localized histories in the their global contexts.

KEY WORDS
Hide production,
scraper,
handle,
stone tools,
Ethiopia.

RÉSUMÉ
Les Gamo du sud-ouest de l'Éthiopie : comparaisons transculturelles.
Le travail de la peau était pratiqué aux périodes préhistoriques et historiques dans presque toutes les régions du monde. Aujourd'hui, le travail de la peau en utilisant des outils de pierre est pratiqué uniquement dans certaines parties de l'Amérique du Nord, de la Sibérie et de l'Éthiopie. Cet article examine et décrit la diversité des pratiques du travail de la peau chez les Gamo du sud de l'Éthiopie en mettant en particulier l'accent sur la variation des grattoirs lithiques et des emmanchements et la gestion de l'espace. Les pratiques des Gamo et les matériaux utilisés sont ensuite comparés avec d'autres pratiques dans différentes parties du monde. Il est conclu que les matériaux intra- et inter-culturelles, l'homogénéité et la diversité des pratiques ne peuvent être expliqués qu'à travers la compréhension de l'histoire locale replacée dans des contextes plus larges.

MOTS CLÉS
Travail de la peau,
grattoir,
emmanchement,
outils de pierre,
Éthiopie.

INTRODUCTION

Since the late 19th century, ethnographers have recorded the preparation of animal hides in Africa, Australia, North America, and South America. These accounts describe the production of clothing, shelter, bedding and other accoutrements of human life using a variety of tools including bone or beaming tools/fleshers/spoke shaves (Turner 1894: 294; Ewers 1930: 10-13; Lowie 1935: 75-79: 76; Druker 1941: 113-114; Hiller 1948), copper and iron scrapers/fleshers (Turner 1894: 294; Giglioli 1904; Ewers 1930: 10-13: 11; Lowie 1935: 75; Hiller 1948; Jarvenpa & Brumbach 1995), shell scraper blades (Lothrop 1928: 69; Laurant 1946: 85; Swanton 1946: 442-448), rough pebble stones (Boas 1888: 53; Ewers 1930: 10-13: 11; Dunn 1931: 68; Adams 1966; Kamminga 1982: 43), and most notably flaked stone scrapers (Giglioli 1889; Mason 1889; Murdoch 1892: 294; Nelson 1899: 113-115; Roth 1899; Teit 1900: 184-187; Aiston 1929; Ewers 1930: 10-13: 12; Lowie 1935: 76; Hambly 1936; Druker 1941: 113-114: 113; Swanton 1946: 442-448; Allchin 1957; Gallagher 1974, 1977a, 1977b; Clark & Kurashina 1981; Albright 1984; Haaland 1987; Brandt *et al.* 1996; Brandt & Weedman 1997, 2002; Beyries *et al.* 2001; Takase 2004; Weedman 2006). The scraping of animal hides is probably one of the oldest crafts as evidenced by the presence of stone scrapers among the first Stone Age assemblages (Toth 1985). The significance of flaked stone-tool variation has been a source of great archaeological interest for over 100 years (Nilsson 1868: 8; Dale 1870; Holmes 1894). Much of the debate has focused on explaining the variation witnessed in stone scrapers and include the following interpretations: clan membership (Bordes 1961, 1973), ethnicity (Brandt *et al.* 1996), status (Hayden 1993), gender (Gero 1991; Kehoe 2005; Webley 2005; Weedman 2005), type of use (Wilmsen 1968; Broadbent & Knutsson 1975; Hayden 1979; Bamforth 1986), mechanical and raw material availability (Andrefsky 1994; Bisson 2001), reduction stages (Dibble 1984, 1987; Kuhn 1992; Shott 1995; Shott & Weedman 2006), selection, efficiency and effectiveness (Meltzer 1981), and agency (Wobst 2000).

The purpose of this paper is to first reveal and explain the variation in the Ethiopian Gamo hideworking practices and material culture. Secondly, I explore the rich diversity of hideworking cross-culturally by reviewing known detailed ethnographic accounts of hideworking with stone-tools particularly in North America among the Talhatan and Beaver Athapascans (Albright 1984: 50-59; Beyries *et al.* 2001), Haudenosaunee (Iroquois) Iroquoian (Mason 1889: 583), Siksika (Blackfeet) Algonquian (Wissler 1920: 57-64; Ewers 1930: 10-13: 12), Nlakapmux (Thompson Indians) and ShuswapSalishan (Teit 1900; Beyries *et al.* 2001), and Inuit and Yu'pik (Mason 1889: 557-558, 562, 566); in Siberia among the Koriak/Koryak Chukotko-Kamchatkan (Beyries *et al.* 2001; Takase 2004) and the Even Altaic (Takase 2004); and in Ethiopia among the Semitic Gurage (Giglioli 1889; Gallagher 1974, 1977a; Brandt *et al.* 1996), Omotic Wolayta (Haaland 1987), Cushitic Oromo (Gallagher 1974, 1977; Clark & Kurashina 1981), Cushitic Sidama (Brandt & Weedman 1997), Cushitic Haidya (Brandt & Weedman 1997), and Cushitic Konso (Brandt & Weedman 2002; Weedman 2005).

PREVIOUS RESEARCH OF ETHIOPIAN HIDEWORKERS

The Gamo people live in southern Ethiopia (Fig. 1). In the eighteenth and nineteenth century, hideworking was of considerable importance in the Ethiopian economy including the production of saddles, bags, swords, scabbards, bandoleers, cartridge belts, pouches, sandals, shields, sleeping mats, and clothing from both domesticated and wild animal hides (*e.g.*, lion, leopard, otter, monkey) (Pankhurst 1964). European travellers recorded hideworking in northern and central Ethiopia during the mid-eighteenth to nineteenth centuries (Bruce 1790; Combes & Tamisier 1838: 77-79; Insenberg &

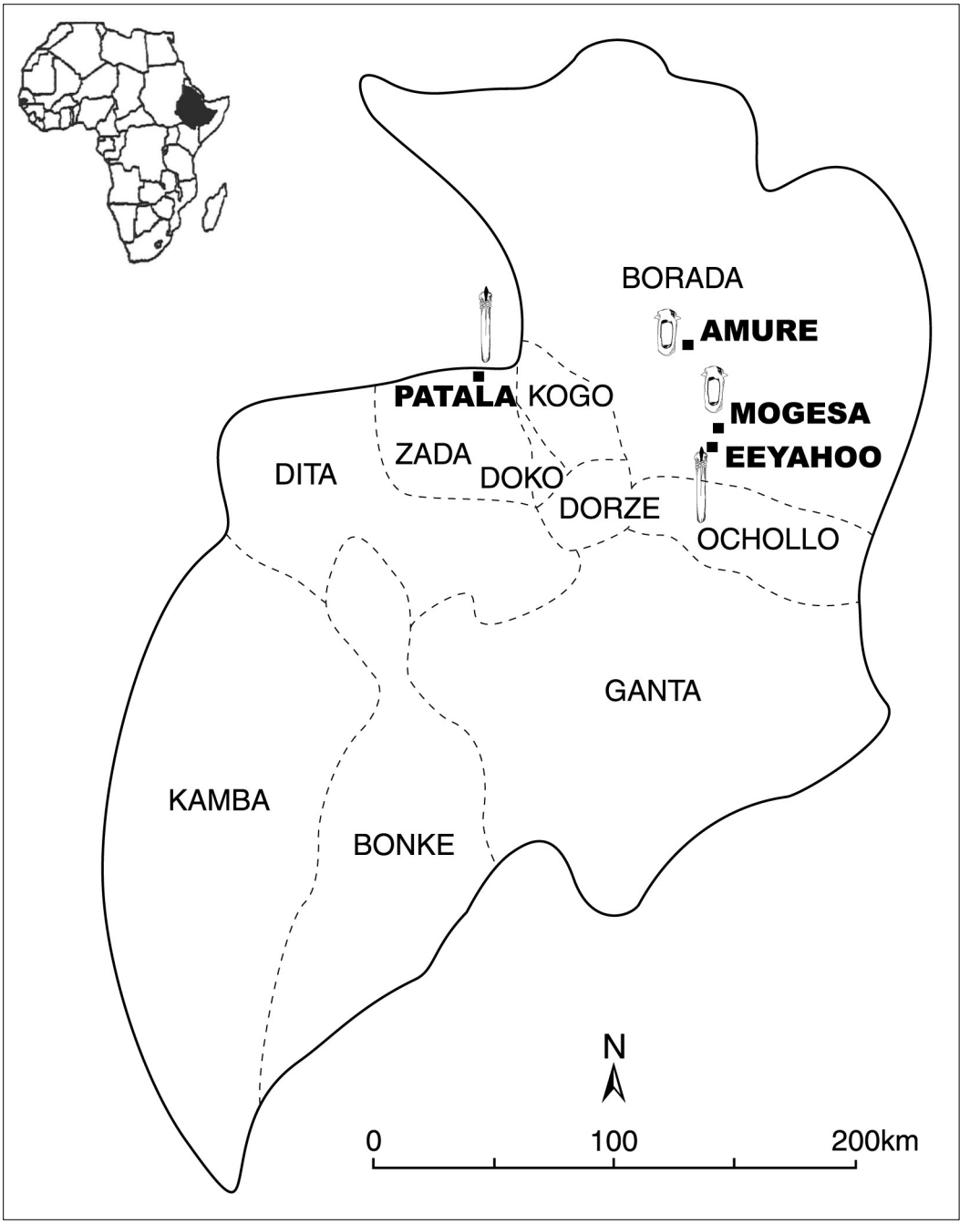

FIG. 1. — Map of the Gamo region in southern Ethiopia showing the location of political units and research villages. Designer: Melanie Brandt.

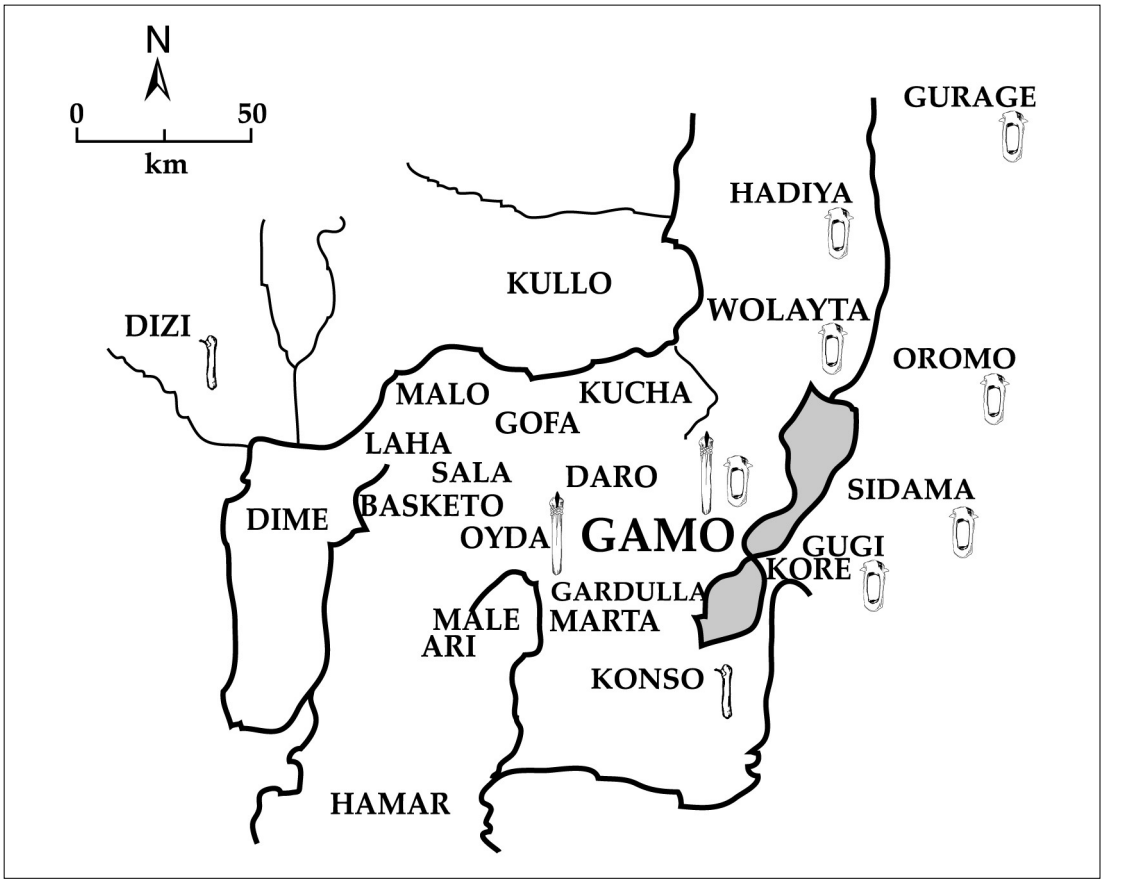

FIG. 2. — Map locating southern and central Ethiopian hideworkers and their handle types. Designer: K.J.W. Arthur.

Krapf 1843: 255-256; Lefebvre 1846: 240-243; Paulitschke 1888: 311; Wylde 1888: 289-291; Burton 1894: 170; Merab 1929; Bartlett 1934: 92; Rey 1935: 225; Parkyns 1966 [1853]: 230-231). Johnston (1972 [1844]: 370-374) and Giglioli (1889) provide us with the first written account of stone-tools associated with hideworking among the Shoa, Oromo and Gurage peoples (Fig. 2). Later German ethnographers illustrated the hideworking material culture of the Dizi, Sidama, Gugi, and Gamo (Straube 1963: 22, plate 13; Haberland 1981, 1993: 94) (Fig. 2).

In the 1970s and 1980s, Gallagher (1974, 1977a, 1977b), Clark and Kurashina (1981), and Haaland (1987) conducted the first systematic but short-term studies of stone-tool production among the Gurage, Wolayta/"Sidamo", and Oromo hideworkers (Fig. 2). In these studies, the researchers reported the same basic pattern of tool manufacture (direct percussion with an iron billet), style (obsidian unifacial convex scraper), use (six to eight hours scraping a cattle hide on a vertical wood frame) and discard (in pits near households). These studies of the hideworkers report little if any variability in the hideworking processes. Subsequently in 1995, Brandt led a survey to study the southern Ethiopian hideworkers, which revealed a great deal of diversity in stone-tool and handle style, raw material type, technology, and sex of the hideworker among the Gamo, Gurage, Hadiya, Konso, Sidama and

Wolayta people (Brandt 1996; Brandt *et al.* 1996; Brandt & Weedman 1997). It was my participation in Brandt's project that led me to study Gamo hideworking practices between 1996 and 1998 for my dissertation work, which is the focus of this current paper. However, following my research among the Gamo, I studied the Konso of southern Ethiopia. The Konso are the only known Ethiopian society where women are the primary stone-tool producers and users for the purpose of processing hides. In addition to studying the hideworking process and excavation of recently abandoned hideworker households (Brandt & Weedman 2002; Weedman 2005), our project included residue and microwear studies of the archaeological and ethnographic scrapers (Rots & Willamson 2004), as well as research concerning the history and culture of the hideworkers (Ellison 2006). Today, the following peoples are known to process hides with stone-tools in central and southern Ethiopia: Amarro, Dizi, Gamo, Gugi, Gurage, Hadiya, Konso, Oromo, Oyda, Sidama, and Wolayta (Fig. 2).

THE GAMO

The Gamo people live in the Gamo-Gofa zone of southwestern Ethiopia. They recognize ten ritual-political districts (*deres*) within their territory (Fig. 1). The Gamo are Omotic speaking peoples (Fleming 1973, 1976; Hayward 1998). In early travellers' accounts and ethnographies, the Omotic peoples were often referred to as the Sidama (Cerulli 1956: 85-132) or the Western Cushitic (Straube 1963). The Gamo are agrarian peoples who live to the west of the Rift Valley lakes of Abaya and Chamo (Jackson *et al.* 1969; Jackson 1971, 1972; Olmstead 1973, 1997; Sperber 1973; Bureau 1975, 1981; Abélès 1978, 1979; Cartledge 1995; Freeman 2001, 2002; Arthur 2002, 2003, 2006). The Gamo subsist primarily by *enset* cultivation (an indigenous crop), but also grow wheat, barley, and a variety of vegetables. The biannual rains and numerous rivers erode the rich basaltic foundation of the Rift Valley creating broad valleys for agriculture and exposing chert sources for stone-tool production and use.

Gamo hideworkers are male artisans, who primarily use chert scrapers to process cattle hides for bedding, bags, and straps and on rare occasion goat hides for ceremonial capes. In 1996, I began an uninterrupted two-year study of the Gamo hideworkers because of the variability I witnessed in 1995 (Brandt 1996; Brandt *et al.* 1996; Brandt & Weedman 1997) concerning their hide processing practices, hafting, and stone-tools. I interviewed with the aid of assistant translators 180 Gamo hideworkers living in 115 villages encompassing one hideworker from each of the villages (*i.e.*, that has 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 for in-depth studies based on my survey. Thus, this paper is based on the contextual data and scrapers obtained through the 180 survey interviews and in-depth interviews with 30 male hideworkers living in the four villages of Mogesa, Patala, Eeyahoo, and Amure (Fig. 1).

GENDER AND STATUS

Gamo hideworkers are male artisans, who are members of the social-economic strata *tsoma*. The Gamo divide their population into two strata that are somewhat aligned with occupations, including: *mala* (farmers, smiths, and weavers) and *tsoma* (potters, hideworkers, smiths, and groundstone-makers) (Straube 1963: 380-384; Bureau 1975, 1981: 85-87; Abélès 1979). In some parts of the Gamo region, the *tsoma* are divided into two groups: *tsoma mana* (potters) and *tsoma degala* (hideworkers, smiths, and groundstone-makers). Although Freeman (2001: 187) refers to the Gamo *tsoma* artisans as marginalized minorities, many other researchers acknowledge the similarities between Gamo cultural characteristics and caste systems described in

South Asia and other parts of Africa (Lewis 1962, 1974; Levine 1974: 39; Bureau 1975: 38; Abélès 1981; Cartledge 1995; Arthur 2002, 2003, 2006).

The hideworkers as members of the *tsoma degala* strata do not participate in community assemblies or hold local hereditary political-ritual positions (Halperin & Olmstead 1976; Abélès 1978; Cartledge 1995: 81-98). The Gamo hierarchically grade their societal strata of *mala*, *tsoma mana* (potters and smiths), and *tsoma degala* (hideworkers, groundstone makers and smiths). The *mala* are considered the highest strata followed by the *mana* and *degala* in terms of prestige, purity, and power. The *tsoma mana* and *degala* pay national taxes, yet in their own communities are not considered full members of Gamo society. Thus, the system as a whole appears to be focused on the decisions and leadership of the *mala,* who intertwine the decisions of monarchial hereditary and democratically elected officials (Sperber 1973). However, *degala* (hideworkers, smiths, groundstone makers) and *mana* (potters) have their own elected leaders, who serve to symbolically enhance the fertility of the *tsoma*, resolve issues, and act as intermediaries between *tsoma* and *mala*.

The Gamo consider that the hideworkers and other *tsoma* are polluted and segregate their community into *tsoma* and *mala* sanctioned through their ideological concepts of purity and impurity and practices 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, marriage, and space that they will upset the ancestors who will disrupt the fertility of the land and people. During rites of passage, *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* limited access to ritual-political positions and societal taboos restricting sexual intercourse and marriage 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. Craft specialists in Ethiopia exist as at least one hereditary endogamous group in virtually every Ethiopian Cushitic, Omotic, and Semitic speaking society (Cerulli 1956: 128-130; Simoons 1960: 174-191; Lewis 1962, 1970; Shack 1966: 8-12, 131-135; Hallpike 1968, 1972: 139-147; Olmstead 1973; Cassiers 1975; Gallagher 1977b: 272-275; Todd 1978; Haberland 1984; Cartledge 1995: 40-43).

As a consequence of being considered impure, the Gamo hideworkers perform rituals that mediate between people and illness, death and infertility. They act as mediators between life, death, and social disharmony in Gamo society by serving as circumcisers, midwives, healers, morticians, and messengers. Reinforcing their ritual positions, *tsoma* have ritual languages or argots that serve to keep their craft and ritual secrets from others, *i.e.*, the *mala*. The Gamo hideworkers have their own language (*owdetso*) and the potters also have their own language (*manacalay)*. The *tsoma* utilize the same materials and skills derived from their economic roles to fulfil their ethnic and regional social roles as healers, messengers, and circumcisers. For instance, the hideworkers use or used in the past stone to perform *guchay*, a form of healing through incisions and *katsera*, circumcision. Hideworkers also blow bovine horns to announces 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 that is slaughtered for its meat and hide, is given to the hideworker as a partial payment for his labor.

Among the Gamo, artisans such as hideworkers are ascribed, endogamous, and hold low political and economic status in society. However, the presence of *tsoma* 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 and the concept that power is determined by context.

HIDE PRODUCTION

Gamo hideworkers produce items used in almost every household including, bedding, chairs, saddles, drums and bridles (the last four do not require scraping, Weedman 2000, 2006). 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. Hideworkers do not own cattle, as they are very expensive far exceeding 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 *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 and tissue 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 centimetres 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 or in the branches of nearby trees. They usually scrape hides during the rainy seasons (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. The upper edges of the frame's two poles either rest on the household wall if located inside the household or on a mud bank wall or against large enset plants. The hideworker secures the hide on the frame by winding enset twine through the holes along the edge of the hide and around the framing poles. The twine is tied at the top and the bottom to achieve an appropriate tension in the hide. The hideworker taps on the hide to determine the appropriate tension of the hide for scraping. The frame consists of three bamboo poles, two of which are planted in the ground at an angle of 65 to 85 degrees (relative to the ground). After the hide is scraped, the hideworker applies butter or *etema* (liquid from an indigenous plant) 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 approximately 4 hours and 3 minutes, 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, 2006). 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, thickness/length ratio, and edge angle (Weedman 2002b). In general Gamo scrapers indicate that there is a reduction in length and increased distal thickness as a result of resharpening associated with the use of the scraper (Shott & Weedman 2006). In addition, the Gamo scraper edge angles ranged from 50 to 67 degrees (Weedman 2000). The morphology of Gamo scrapers reflect the hideworkers membership in an ascribed caste group, and as such the craft is passed down through particular patrilineal lines. Hideworkers learn how to produce their stone-tools from their fathers and since post-marital residence patterns are virilocal a discrete lineage, village, and ritual-political district scraper style is discernable and statistically viable (Weedman 2000, 2002b, 2005). Furthermore, the increased presence of spurs (previously thought to have a secondary

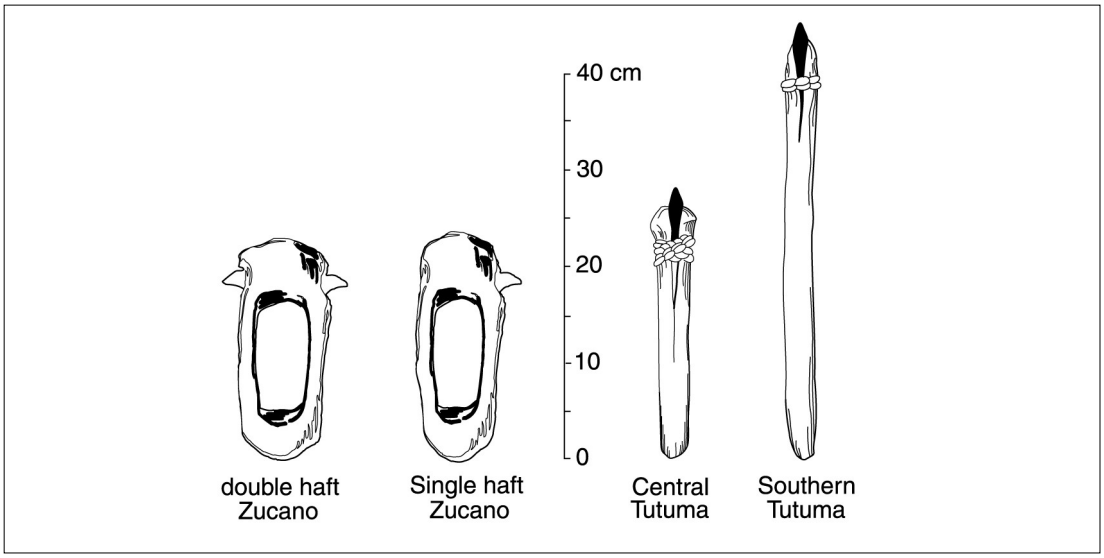

FIG. 3. — Illustration of Gamo handle types. Designer: Melanie Brandt.

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 loosing their strength (Weedman 2002a).

The Gamo hideworkers are unique in southern Ethiopia for their use of two handle types (*zucano* and *tutuma* types, Fig. 3) to process cattle hides for bedding using predominately chert scrapers. The presence of these two types of handles results in two different life-cycles for the procurement, production, use, and discard of stone-tools in Gamo communities (Weedman 2000, 2006).

THE *ZUCANO*-USERS

Today the hideworkers living in Ochollo and Borada-Abaya districts use a *zucano* handle to haft their hideworking stone scrapers (Fig. 4). Until approximately 30 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. Acacia tree resin holds the scraper in the closed-socket.

The *zucano*-users walk from two to four hours to acquire 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 scraper blank before carrying the materials to their home (Fig. 5). *Zucano*-users are particular about the size of the flake they can 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 work area. 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 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

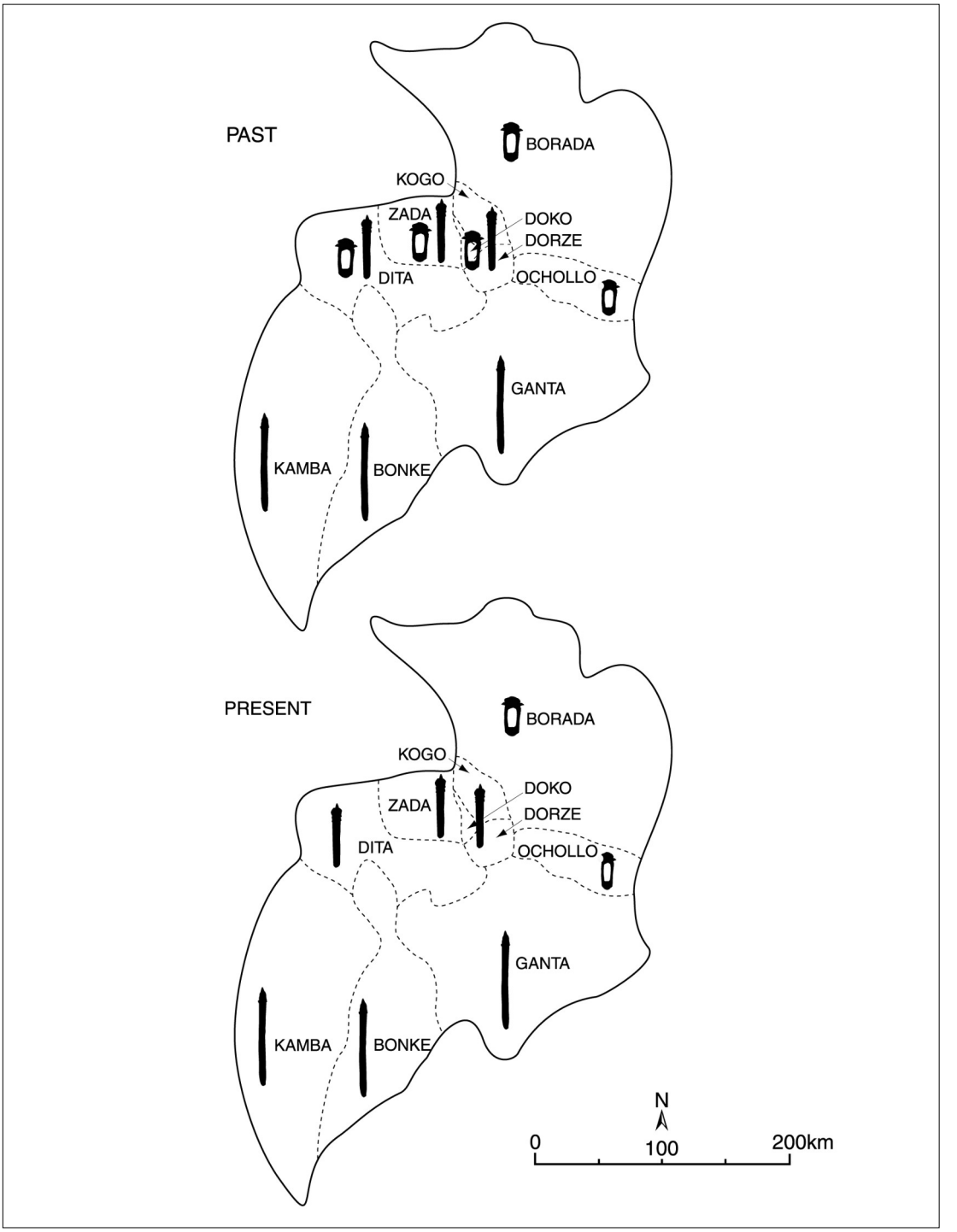

FIG. 4. — Map locating past and present uses of Gamo handle types. Designer: Melanie Brandt.

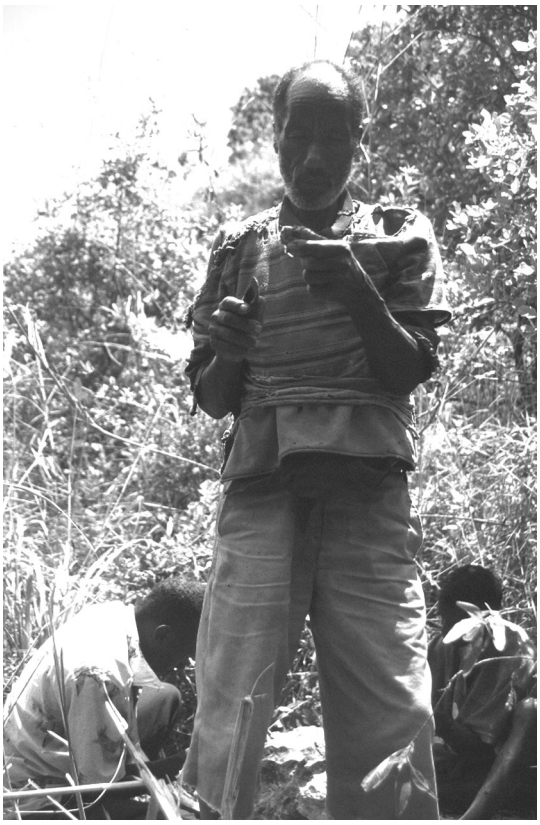

FIG. 5. — Photograph of Gamo man producing scraper blanks for hideworking. Photographer: K.J.W. Arthur.

range from one to eight. The final shaping takes place in the household next to the hearth. The average unused scraper measures 3.9 × 2.5 × 1.2 × 0.31 cm (length × breadth × thickness × retouch depth, n = 448; Weedman 2006). The hideworkers collect tree resin and mix it with ash heating it on an outside hearth on a broken ceramic piece. 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 the 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 hideworkers 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 average used-up scraper measures 3.84 × 2.44 × 1.31 × 1.01 cm (length × breadth × thickness × retouch depth, n = 489; Weedman 2006). I observed 13 *zucano* scraping events and the average time to scrape a hide was 4 hours and 47 minutes using an average of 3.611 scrapers with 681.4 scrapes and 213.3 chops.

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 removed 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 and so they will not cut themselves. 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 hideworking stone scrapers (Fig. 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 (Weedman 2006).

The *tutuma*-using hideworkers walk two to four hours to their chert sources. The *tutuma*-users will use most flakes that they can get an appropriate edge on for scraping a hide. Shaping of the laterals 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. The hideworker will use almost any flake that has a good edge. When a new scraper is needed in the haft, the hideworker may select a flake 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 shaping of 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. The average unused scraper measures 2.8 × 2.3 × 0.9 × 0.16 cm (length × breadth × thickness × retouch depth, n = 363; Weedman 2006).

In the *tutuma*-using households, hideworkers state that when scraping, the scraping frame would press against and shake the house causing the house to lose its thatching and become unstable, so they tend to scrape outside the house on a frame located within their enset garden (Fig. 6). 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 (Fig. 7). The average used-up scraper measures 2.67 × 2.35 × 1.06 × 0.844 cm (length × breadth × thickness × retouch depth,

FIG. 6. — Photograph of Gamo man resharpening his stone scraper hafted in a *tutuma* type handle. Photographer: K.J. W. Arthur.

FIG. 7. — Photograph of Gamo man scraping a cow hide with a *tutuma* handle. Photographer: K.J. W. Arthur.

n = 379; Weedman 2006). I observed 15 *tutuma* scraping events and the average time to scrape a hide was 4 hours and 33 minutes using an average of 4.785 scrapers with 413.76 scrapes and 54.82 chops.

The *tutuma* handles and lithic materials are stored outside 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.

EXPLAINING GAMO HAFT AND SCRAPER VARIABILITY

The presence of the two hafting types among the Gamo is 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 (Weedman 2000, 2006). The scrapers hafted in the *zucano* (a double-socketed mastic handle) and the *tutuma* (a single-socketed non-mastic handle) in their unused and discardable forms are morphologically and statistically distinct from one another. 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 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 are the result of using a second or third edge of the tool for scraping rather than shaping the tools to fit in the haft.

The explanations for handle and stone-tool variability among the Gamo lies in technological practice and how technology is learned and enacted in a social context reflecting the mediation of an individual's social positions, actions, and experiences (Weedman 2006). 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). Today, the Gamo hideworkers use both handle types to scrape cattle hides to make bedding. Although *tutuma*-users tend to live in highland areas away from chert resources, 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 (Weedman 2006). Access to wood for handles, mastic, and cherts were also not determining factors in handle and scraper production as social relationships were instigated to facilitate access to these resources (Weedman 2006). Explanation for the two handle types among the Gamo can only be found when examining their technological practices in their historical and present day social contexts.

The Gamo hideworkers are enmeshed in a caste system, which is known to exist in almost all Ethiopian Omotic, Semitic, and Cushitic speaking cultures. While statistically, the Gamo hideworkers produce unique stone scraper forms that differ from those in neighboring ethnic groups (Gallagher 1974, 1977a, 1977b; Brandt *et al.* 1996; Brandt & Weedman 1997; Clark & Kurashina 1981; Haaland 1987); their handle types are not unique (see Fig. 2). The Gamo *tutuma* type handle is currently known among the Oyda people (Feyissa 1997). The Gamo *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, Gugi, and the Omotic-speaking Wolayta peoples of central and southern Ethiopia (Straube 1963: 22; Gallagher 1974, 1977a, 1977b; Clark & Kurashina 1981; Haberland 1981, 1993: 94; Haaland 1987; Brandt *et al.* 1996). 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 (Weedman 2006). Furthermore, a review of Gamo hideworker integration into national and regional networks serves to illustrate how their lives and technologies were changed by 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. Gamo integration into national political and economic systems led to the discontinued use of the *zucano* handle in the central Gamo territories. 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. Lastly, there was a national administrative change that moved the regional capitol from the central Gamo town of Chencha to the southern Gamo town of Arba Minch, which shifted commercial and political focus to the southern region. The continued use of the *tutuma* handle among the central Gamo in lieu of the *zucano* handle signalled this change in political and economic affiliation. Only a few hideworkers who had extremely strong ties with the north continued to use the *zucano* handle type. Thus, Gamo 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. The following is a comparison of Gamo hideworking with hideworking known in other parts of Ethiopia, in North America, and in Asia to assess cross-cultural variation.

CROSS-CULTURAL COMPARISONS AND DISCUSSION: GENDER AND STATUS

The Gamo hideworkers should be craft specialists and male, like most of the other stone-tool using hideworkers in Ethiopian societies such as the Amarro, Dizi, Gugi, Gurage, Hadiya, Oromo, Oyda, Sidama, and Wolayta (Gallagher 1977a; Clark & Kurashina 1981; Haaland 1987; Brandt & Weedman 2002). Among Native Americans, the Yuman-Piman (Druker 1941: 113-114), Achumawi/Pitt-River, Maklaks/Modoc, and Dine/Navajo (Mason 1889) men scraped hides with stone but not as craft specialists. Among the Namaqua Khoikhoen (Webley 2005) and the Waganda (Mason 1889: 581) of South Africa, and the Inuit (Nelson 1899: 116), Nde/Apache, Chaticks-si-Chatick/Pawnee, and Caddoan (Gilmore 2005) of North America it is customary for men and women to dress hides. Worldwide, however generally hideworking is not a craft specialization and women are more commonly renowned as hideworkers, such as in Ethiopia (among the Konso; Brandt & Weedman 2002; Weedman 2005), in the Americas (Apsáalooke/Crow, Siksika/Blackfeet, Lakota/Sioux, Inuit, Arikara, Chipewyan; and Yu'pik; Mason 1889; Turner 1894; Ewers 1930: 10-13; Lowie 1935: 75-79; Hiller 1948; Jarvenpa & Brumbach 1995; Holliman 2005; Chapters in Frink & Weedman 2005), and Asia (Even and Koriak/Koryak; Tiet 1900: plate XIV, fig. 1; Beyries *et al.* 2001; D'iatchenko & David 2002; Takase 2004).

Except in Ethiopia where women hideworkers are specialist, in the latter accounts hideworking is a more widely learned craft practiced by most women. Hideworking is a craft which is handed down from parent to child and training begins early among the Gamo. Young men begin to

accompany their fathers and uncles to quarries and help them prepare, scrape and soften the hide by age ten, but do not produce their own scrapers until they are married. I witnessed the same age sequence among the Konso female hideworkers. Albright (1984: 52) also wrote that Tahltan Athapascan girls begin to learn the process at about the age of 10-12. Ewers (1930: 10) comments that hideworking is very hard work and requires an industrious woman, thus male hunters usually took several wives. Gifford-Gonzalez (1993: 34) laments that present day culture tends to depict and associate women with the most dull and labor intensive tasks such as the "Drudge-on-a-Hide". Cross-culturally hideworking is not the sole provenance of either males or females, hence it is not biologically determined but is ascribed based on differential culturally determined gendered rules. Hide production is labor intensive, but it is a sophisticated craft, which requires many years of training and a wide variety of knowledge regarding not only material culture production and use, but also botanical knowledge and the order and sequence of the process depending on the type and size of the hide, and the final use of the hide.

The status of hideworkers is highly variable and not necessarily connected to the gender of the hideworker. Among the Gamo and other Ethiopian cultures, hideworking is a low status but specialized occupation whether the craft is performed by males or females (Cerulli 1956: 107-108; Jensen 1959: 422-425; Simoons 1960: 174-191; Straube 1963: 376, 384; Lewis 1964, 1970; Shack 1966: 8-12, 131-135; Hallpike 1968; Cassiers 1975; Gallagher 1977: 272-275; Todd 1978; Lange 1982: 75-77; Donham 1985: 107-113; Yintso 1995: 104-109; Feyissa 1997). Generally, Ethiopian hideworkers do not own the hides that they scrape and are given little (a small amount of grain or food, or a bit of money) as compensation for their labor intensive efforts. Ethiopian hideworkers generally do not own land or participate in political and judicial life. This is not to say that Gamo hideworkers are without power, as boundaries of power, practice, and identity are situational (Weedman 2006). The Gamo *tsoma*, of whom the hideworkers are members, have their own leadership and control and maintain secret languages, craft production knowledge, and ritual knowledge associated with healing and rites of passage all of which attest to their power. Ellison's (2006) historical study of the Konso hideworkers demonstrates how status and economic power and prestige also have been renegotiated in the 20th century. In North America, Gilmore (2005) indicates that women could gain high status through their hideworking skills among historic Plains Native Americans. Hayden (1990, 1993) has suggested that during historic and prehistoric times in temperate and tropical environments (Europe, Australia, North America) that most hide processing focused on production of luxury items as a prerogative of the wealthy. The invested time in softening a hide to its full extent (labelled as stage 3, which includes fleshing, tanning and softening the hides as discussed in this article) would have meant that hides were expensive and a luxury item. Hayden mentions that hides were in the control of men who were the hunters and that clothing was a luxury for elite males in ethnographic accounts, however it is not made clear how the status of women who processed the hides was entwined with that of male elites. Most ethnohistoric accounts indicate as stated above that it was female kin who were hideworkers, but status and power of women varied widely in North American societies. In the recent past (circa 1960s), among the Gamo, elite males, *mala*, were responsible for organizing the hunting of wild animals in the lowlands. The elite Gamo had sole access to especially feared wild animals such as lion, hyena, and leopards. Those elite males who killed these animals had the privilege of wearing their hides in ritual contexts. In all cases, these hides were prepared by the, non-elite caste group, *degala*. Furthermore, studies of the effects of colonialism on the status of indigenous women hideworkers of North America indicate even though women predominated in hideworking practises, it was often men who controlled the sale/exchange of hides especially in colonial and post-colonial periods (Frink 2005; Habicht-

Mauche 2005). The presence of prepared hides as signatures of power and status do not necessarily dictate that the individuals who processed the hides have access to that power. Hayden (1990: 95) suggests that in conditions where hides are processed in large numbers as prestige items the associated stone-tools will be "specialized, curated, hafted, and resharpened tools". Ethiopian societies, Plains Native Americans, and Inuit use specialized hafted stone scrapers to produce prestige items (capes and skirts and musical instruments) but also items used in every household, in particular shelters, bedding/blankets, carrying bags/storage containers and straps (Ewers 1930: 10-13; Lowie 1935: 75-79; Gallagher 1974, 1977; Albright 1984: 51; Brandt & Weedman 1997; Weedman 2006).

In Ethiopia societies with stone-tool using hideworkers, including the Gamo, the hideworkers are members of a specific endogamous social-economic strata, who are considered ritually polluted and as such serve as important ritual mediators. Studies of the other Ethiopian peoples indicate that artisans, such as hideworkers, perform important mediating roles as healers, messengers, and circumcisers (Cerulli 1956: 107-108; Jensen 1959: 422-425; Straube 1963: 376-384; Orent 1969: 284-286; Todd 1978; Lange 1982: 75-77, 158-162, 261-267; Donham 1985: 107-113; Yintso 1995: 104-109; Feyissa 1997). Among the Khoisan of southern Africa, Webley (2005) notes that hides are used in many rituals that mark periods of transition or danger and mediation such as birth, puberty, marriage and death. Baillargeon (2005) and Bodenhorn (1990) add significantly to our understanding of the cross-cultural symbolic meaning of hideworking in North America. They illustrate that tanning is viewed as a spiritual and ritual art in which the hideworker is a mediator between life and death. The animal is infused with power and energy and brought back to life in respect for the fact that it gave its life for humans. This process is gendered on the physical and spiritual planes, since women work the hides and concomitantly channel the soul of the animal back into the hide, thus restoring order. Although the Gamo hideworkers are males they are viewed as mediators between life and death. They act as ritual healers, circumcisors (death as child to life as an adult), and as announcers and musicians at weddings and funerals. They transform the hides of primarily domesticate animals, which are considered semi-polluted because they are cared for and fed by humans. Domesticated animals are ritually killed by *mala* elite to purify them so that the elite can consume the meat. However, the hides are an enduring symbol of the death and must be transformed by a mediating *degala* hideworker before they are consumed as products used as everyday items in the household, which in themselves are linked to fertility such as adult bedding/blankets and agricultural grain sacks. Sterner and David (1991) suggest that craft specialists are endogamous and caste-like because male artisans are likened to women. Neither farm or receive grain in return for their services; nor do they participate in warfare, and like women male artisans create and transform, *i.e.*, mediate nature and transform it into culture (tools). Although the Gamo do not explicitly associate male hideworkers with female gender, the Gamo *mala* do consider *tsoma* artisans both male and female to be a source of infertility.

HIDEWORKING PROCESS

The Gamo and other Ethiopian stone-tool using hideworkers are craft specialists who are members of subsistence agricultural societies (Gallagher 1974, 1977a; Clark & Kurashina 1981; Brandt *et al.* 1996; Brandt & Weedman 1997; Weedman 2006). They scrape domesticated animal hides, predominately cattle, sheep, and goat to produce bedding, musical instruments, and on rare occasion capes, and clothing for ritual. In most other known ethnographic studies, hideworking is conducted among pastoral and forager groups, for example in southern Africa (Webley 2005), Siberia (Beyries *et al.* 2001; D'iatchenko & David 2002; Takase 2004), and North America (Turner 1894: 292-296; Teit 1900: 184; Ewers 1930: 10-13; Lowie 1935: 75-79; Hiller 1948; Albright 1984; Beyries *et al.* 2001) who processed

buffalo, reindeer, moose, red deer, bear, seal, fox, walrus, and wolverine hides for clothing, shelter, bags, ritual capes and clothing.

The Gamo and other hideworkers described in this section practice fleshing, tanning and softening hides delineated by Hayden as Stage 3 (1990). However, it should be noted that there is great variation in the sequence and steps in the process. For instance, the Siberian Evens process reindeer/caribou hides in the following sequence: deflesh, dry, spell scrap, dry, scrape, smoke, color, smoke, and scrape (Takase 2004). In contrast, the Tahltans process moose and caribou (Albright 1984) hides by defleshing, dehairing, scraping, soaking/tanning, wringing, drying, dressing or dry scraping, and smoking. The Siksika Algonquian process buffalo hides (Ewers 1930: 10-13) by defleshing, dehairing, scraping, tanning, rubbing it with a stone, and sawing over a rope; and the Inuit (Neneunot) (Turner 1894: 293-298) process deer hides by dehairing, defleshing, drying, scraping, and tanning with an emollient by hand rubbing. In addition to this variation, there is great variation in the material culture associated with each stage of the process and in the following portion of this paper, I have tried to emphasize descriptions associated with stone-tool users.

Fleshing, Dehairing and Drying

After the skin is separated from the animal, the hideworker removes the tissue and fat from the typically wet hide using a defleshing tool such as: a metal knife as used among the Gamo and other Ethiopian cultures; the long bones from moose, caribou or bear as used among Native Americans (Turner 1894: 293; Ewers 1930: 10-13; Albright 1984), Siberians (Beyries *et al.* 2001; Takase 2004), and Australians (Kamminga 1982); shell as used among Australian (Kamminga 1982) and Native Americans (Laurant 1946: 85; Swanton 1946: 442-448); and an application of salt as used in southern Africa (Webley 2005). Some hideworkers, like the Gamo, cut along the edges of the hide holes in which wooden or horn pegs are placed to secure the hide to the ground near their households or camps (Mason 1889: 561-563, 569-570; Wissler 1920: 55; Ewers 1930: 10-13; Beyries 2002; D'iatchenko & David 2005; Schrieber 2005; Webley 2005). The hide is left for several days to bleach and dry in the sun.

The Gamo and Australian Aborigines (Kamminga 1982) did not remove the hair from their hides, however among most cultures the hide was dehaired before drying the hide. In southern Africa, the hide was buried with succulent plant leaves that softened the hair, which was removed by hand (Webley 2005). Among many Native American cultures the hide was immersed in lye and water and then the hair was removed by hand (Mason 1889: 586-587; Lowie 1935: 75-79; Druker 1941: 113-114). More rarely a bone or a metal knife (Albright 1984: 53) or a stone scraper were used to remove hair (Mason 1889: 567; Turner 1894: 293; Ewers 1930: 10-13; Grinnell 1962: 213; Beyries *et al.* 2001). In some cultures the hide is prepared entirely wet (Lowie 1935: 75-79; Kamminga 1982) or frozen (Albright 1984: 53) instead of dried. Hayden (1990) notes that scraping dry hides produces the most scraper attrition.

Dry Hide Scraping with Stone Scrapers-Procurement

The Gamo use chert/chalcedony and obsidian to scrape dried cattle hides. The Gamo collect their raw material from quarries located 2-5 km away from their households, they also traded for obsidian a long distance resource. The Gamo chert quarries are owned by specific village lineages of hideworkers. The *zucano*-users brought back scraper blanks and the *tutuma*-users raw-material. Unfortunately, we are given little information other than the use of stone or chipped stone for many North American sources (Turner 1894: 205; Ewers 1930: 10-13; Druker 1941: 113-114; Hiller 1948). Siberian hideworkers are recorded as using chert, obsidian and iron (Takase 2004) and Inuit and Yu' pik hideworkers used green schistose, slate, jasper and chert (Mason 1889: 585; Nelson 1899: 113), however no procurement or production information was provided. The Wolayta, Oromo, Hadiya, Gurage, and Sidama hideworkers use obsidian collected from local

quarries or through market trade bringing home raw material or recycled archaeological flakes or scraper blanks. The flakes are made into a single tool type: unifacial convex end scrapers (Gallagher 1974, 1977; Clark & Kurashina 1981; Haaland 1987; Brandt *et al.* 1996; Brandt & Weedman 1997). The Wolayta hideworkers travel up to 10 km to acquire their obsidian from quarries, which are not owned or controlled by anyone. The Konso collect quartz, quartz crystal, chert, and chalcedony from local and long distance quarries (5-25 km in distance) and bring home the raw material (Weedman 2005). They acquire their long distance resources through visitation to their natal or ancestral villages and acquiring stone through kin or through journeying to quarries on the way to long distant markets. When the Konso quarry local stone they share the quarry resources with local unrelated women. The Konso heat treat the raw materials in their hearths for 1 day to 3 months. Similarly among the Tahltan, women in the process of other procurement activities collect course grained basalt pieces for hideworking (Albright 1984: 57). Webley (2005) also reports that women travelled 5-10 km to acquire their sandstone pebble for hideworking. In my ethnographic observations among the Konso and the Gamo the decision to use local resources or long distance resources depends on need for other nearby resources, kinship and other social relationships, age and stage of life, as well as raw material preference, which varies widely even in one culture such as the Konso (Weedman 2000, 2005). Most often archaeologists stress that distance between stone resources and household affect tool morphology (Parry & Kelley 1987; Henry 1989; Andresky 1994).

Scraper Production and Style

The reduction of raw material to the finished tool form requires not only several stages of manufacture which may include direct percussion, indirect percussion, bipolar, and pressure flaking, but also correspondingly several different kinds of fabricators that must be of material different from the stone being worked (Crabtree 1982). The Gamo and most other male Ethiopian hideworkers use a metal billet and direct percussion to form the tools (Clark & Kurashina 1981; Haaland 1987; Brandt *et al.* 1996; Brandt & Weedman 1997). Mason (1889: 586) reports that a bone "chipper" was used to resharpen and produce stone scrapers. However, among the Konso hideworkers, women used a combination of direct percussion and the bipolar technique with an iron billet. Albright (1984: 57) reports that the Tahlatan women also used the bipolar technique. Unfortunately, the written accounts of scraper production by other hideworkers do not exist.

Formal unifacial scrapers, as used by the Gamo, are produced by most hideworkers (Nelson 1899: 116-117; Clark & Kurashina 1981; Albright 1984: 59; Haaland 1987; Brandt *et al.* 1996; Brandt & Weedman 1997; Beyries *et al.* 2001; Takase 2004). However, among Native American groups a tang on the end of the end-scraper may have been produced to help secure the scraper in the haft and dissipate stress on the working edge (Kehoe 2005). In addition, while some groups produce formal flaked scrapers, others sometimes produce more informal scrapers (in particular households among the Konso and Gamo: Brandt and *et al.* 1996; Brandt & Weedman 2002). Among some groups, including the Khoisan (Dunn 1931: 68; Webley 2005) and Inuit (Boas 1888: 53) a rough but unflaked stone was used. Archaeologists have traditionally contrasted the direct access of resources by mobile people resulting in the curation of stone-tools and the production of more formal tools, with indirect procurement by sedentary peoples resulting in informal tools (Parry & Kelley 1987; Henry 1989). Thus, in contrast to the idea that sedentary people will more likely produce informal tools, studies of hideworking suggest that mobility is not a good predictor for the formal or informal nature of stone-tools.

It is only among the Ethiopian hidescrapers that the meaning behind the variation witnessed in stone scraper style has been studied ethnographically. The Gamo hideworkers are members of an ascribed hereditary group, and as such the craft is past down through particular patrilineal lines. Hideworkers learn how to produce their stone-

tools from their fathers and since post-marital residence patterns are virilocal a discrete lineage, village, and ritual-political district scraper style is discernable and statistically viable (Weedman 2000, 2002b, 2005). Since the Gamo have two forms of handles, each handle has a different scraper style. The closed haft *zucano* handle is hafted with formal unifacial convex scrapers and the open haft *tutuma* handle with unshaped flake scrapers. Earlier studies of Ethiopian hideworkers also reported the presence of a single formal scraper type used in mastic closed-hafted handles (Gallagher 1974, 1977a, 1977b; Clark & Kurashina 1981; Haaland 1987). The Sidama and Hadiya, however, produce short and long obsidian scrapers used for scraping the center and chopping the edge of the hide respectively (Brandt & Weedman 1997). Although within a household, differences in scraper size and morphology may reflect functional differences. A morphological comparison of the Ethiopian stone scrapers between ethnic groups suggests that there is a statistically significant difference between the scrapers produced by each ethnic group (Brandt *et al.* 1996; Brandt & Weedman 1997), which suggests that form is not solely dependent on function of the tool.

Scraper Hafting

Hafting may have increased tool efficiency or helped to economize resources (Oswalt 1976; Odell 1994; Shott 1997). There are basically 7 types of scraper handles reported ethnographically:

1. Oval shaped handles with two sockets and used with mastic (Ethiopia).
2. Parallel shaped handles with single open haft used with lashing (Ethiopia, Siberia, North America).
3. Perpendicular or beam shaped handles with single socketed hafts used without mastic or lashing (North America and Siberia).
4. Triangular or saddle shaped handles with single socketed hafts (North America).
5. Crescent shaped handles with single open haft (North America).
6. Adze-shaped handles with single open haft used with lashing (North America).
7. Parallel shaped handles with a single socket used with mastic (Ethiopia).

The Gamo hideworkers are unique in southern Ethiopia for their use of two wooden handle types for the same function to process cattle hides. They haft their scrapers in either an oval shaped closed double hafted (*zucano*) handle securing the stone with acacia tree resin or parallel shaped open single hafted (*tutuma*) handles securing the scraper using enset twine. The presence of the handle types is not due to access to resources or function, but rather historical entanglements (Weedman 2006). In only one other known account of hideworking are two different handle types used in the same culture to execute the same function (same hide, same end product, etc.) among the Siberian hideworkers (Takase 2004). Takase believes that there is a historical order to the two handle types (perpendicular and parallel handles).

North American and Siberian single hafted perpendicular or beam handles do not use mastic but simply the pressure of the work and shape of the scraper and opening to hold it in place (Beyries *et al.* 2001; D'iatchenko & David 2002; Takase 2004). Triangular shaped and crescent shaped handles made of wood and ivory are known among the Inuit (Mason 1889: Plate LXXI-LXXIX; Nelson 1899: 113-114). Sinew or plant materials also are used to hold the scraper in the haft for parallel and adze-shaped handles. The use of parallel and adze-shaped handles made of wood and ivory tied with sinew is known among the Inuit (Mason 1889: Plate LXX, LXXIX, LXXXII, LXXXV; Turner 1894: 294; Nelson 1899: 113-114), as well as the Siksika Algonquian (Ewers 1930: 10-13), Apsáalooke (Crow) (Lowie 1935: 75-79; Mason 1889: Plate XCI), Tahltans Athapascans (Albright 1984), Lakota (Sioux) (Hiller 1948), Koriak/Koryak (Takase 2004), Ininiwok (Cree) Algonquian (Kehoe 2005), and the Oyda of Ethiopia (Teshome 1984). Mason (1899: Plate LXXIX) commented that a Chaticks-si-Cahtick/Pawnee hideworker stated that a scraper is lashed in rather than using mastic because the blade is continually taken out to be resharpened.

The Gamo *zucano*-users place acacia tree resin in the haft to secure the scraper. The closed double-socket mastic handles are known in other parts of Ethiopia including the Gurage, Hadiya, Oromo, Sidama, Gugi cultural groups who use Euphorbia tree mastic, cactus milk, sheep hair, butter, and even melted plastic trash bags to secure the scraper in the haft (Giglioli 1889: 213; Straube 1963: 22; Brandt *et al.* 1996; Brandt & Weedman 1997; Clark & Kurashina 1981; Gallagher 1974, 1977; Haberland 1981, 1993: 94; Haaland 1987). Single hafted parallel or vertical wooden handles are used among the Dizi and Konso of Ethiopia and the scrapers are secured with beeswax or tree resin from *Balanites aegiptica* (Haberland 1981, 1993; Brandt & Weedman 1997; Weedman 2005).

The discovery of traces of bitumen on Middle Paleolithic stone-tools is the earliest evidence for the hafting of scrapers (Boëda *et al.* 1996). I noted on the Gamo tools, as did Hardy (1996) in his study of Brandt's 1995 ethnographic scraper collection (Sidama, Gurage, Gamo, Konso, and Wolayta ethnic groups), the presence of mastic remaining on the scrapers after they were discarded. Williamson discerned mastic, blood, and collagen on the Konso ethnographic and archaeological scrapers (Rots & Williamson 2004). Hardy (1996) and I also noted the presence of striations running perpendicular to the haft along the distal ventral side within the mastic present on scrapers. Archaeological material and experimental studies have suggested several other stone characteristics that may indicate hafting including lateral notching and/or crushing, ventral thinning (Clark 1958; Nissen & Dittemore 1974; Gallagher 1977b: 410; Hayden 1979: 26-27; Deacon & Deacon 1980; Keeley 1982; Rule & Evans 1985; McNiven 1994; Shott 1995), polish and crushing of dorsal ridges, as well as organized stricture (Beyries 1988; Shott 1995). Clark and Kurashina (1981) also observed the presence of patina, polishing, and striations on their used-up and buried scrapers. In experimental studies of hideworking, researchers recorded the presence of a luster or polish especially on drier hides (Brink 1978: 102-103; Keeley 1980: 50; McDevitt 1987; Hayden 1993; Kimball 1995). Although I noted the presence of ventral thinning, purposeful dorsal ridge reduction, and notching on Gamo scrapers, the occurrence of these features was low, indicating that tools may be hafted without these characteristics (Weedman 2000). Furthermore, I was not working with polarized light and a microscope, so I did not note the presence of polishing or non-mastic striations. Hardy (1996) though observed the presence of striations (not embedded in mastic) on the ventral and dorsal sides of *tutuma*-hafted scrapers. Experimental and ethnographic studies warn that polishing and striations can occur as the result of environment, such as with the presence of rough soils, grit, and alkaline soils (Vaughan 1985: 35-36, 37-44; Hurcombe 1992: 71-78; Rots & Williamson 2004).

In addition, decoration or style of hafts, the size and shape of the socket, and the uselife of a haft may reflect social group membership such as individuals, language-groups, and/or ethnic identity (Deacon & Deacon 1980; Gould 1980: 128-129; Larick 1985; Wiessner 1983). In particular, hideworking hafts are used as a recording device. Among some Native American societies, women used their handles for recording the ages of the children (Fowler 2001: 848), or the number of tipis or hides that they had processed (Skinner 1919). Generally it has been accepted that it takes more time to make a haft than the stone-tool to be hafted (Rule & Evans 1985), as is evidenced by the study of hideworking handles which tend be used for long periods of time: anywhere from two years through many generations (Albright 1984: 58; Brandt & Weedman 1997; Weedman 2005, 2006). Lastly, Keeley (1980) offers that hafted tools are more likely to be smaller, thinner, and narrow, as per hideworking scrapers revealed in this overview.

Scraper Use

The Gamo and other Ethiopian hideworkers hold the handle with both hands and with one scraper against the hide begin to remove the fatty inner layer of hide by either a scraping or chopping motion (Gallagher 1974, 1977; Clark &

Kurashina 1981; Haaland 987; Brandt *et al.* 1996; Brandt & Weedman 1997). For scraping, the hideworker shaves off long stripes of the fat from the inner side of the hide. For chopping, the hideworker places his hand underneath a rough spot on the hide or along the hardened edges of the hide and pounds the hide in his hand with short strokes of scraper. The hide is initially hung with the tail hanging along the bottom axis. This allows the hideworker easier positioning to first scrape in the upper center of the hide, which is the most difficult and thickest area of the hide. After the hideworker scrapes the exposed surface of the hide, he takes the hide down and rehangs it with the tail located at the top of the frame. Then he scrapes the area previously not reduced. The hideworker periodically sprays or dabs water on to the hide to keep it moist. Takase (2004) notes that reindeer dung or salmon roe may be used as a catalysis during scraping. Beyries *et al.* (2001) also describe scraping by moving from the top to the bottom of the hide using linear motions and then half-circular movements.

Among the Gamo a single hide requires approximately 4 hours and 3 minutes to scrape. In addition to defleshing and softening, a person need at least a full day if not two to process a large hide. My work among the Konso and Albright's (1984: 56) among the Tahltan agree with this time frame. Among the Wolayta and Oromo of Ethiopia it is estimated it requires 6 to 10 hours, respectively, to process a single cattle hide (Gallagher 1977b: 411; Clark & Kurashina 1981: 306; Haaland 1987: 69). Most earlier descriptions do not include a time frame, however Lowie (1935: 76) implicated that the a great deal of time and effort are needed to scrape a hide as is exemplified in a Apsáalooke/Crow myth "Worms-in-his-face demand that his wife should tan and embroider a buffalo hide within a single day. Disconsolate, she goes off crying, but animal helpers appear".

During use, the edge of a stone scraper dulls and requires resharpening. The Gamo use an iron billet to strike the ventral side of the scraper to remove small flakes off the edge of the tool for resharpening. The Gamo use their scrapers an average of 281 scrapes or 473 chops before resharpening. In comparison, the Gurage resharpen after an average of every 90 to 100 strokes, the Wolayta after every 50 to 112 scrapes, the Konso after every 60 scrapes, the Sidama after every 46 scrapes, and the Oromo after only 15-20 scrapes (Gallagher 1977a; Brandt & Weedman 1997, 2002; Clark & Kurashina 1981; Haaland 1987: 69). In experimental studies, archaeologists determined that resharpening is necessary after even a higher number of scrapes than most ethnographic research. For instance, quartz scrapers were resharpened after 500-600 scrapes (Broadbent & Knutsson 1975) and flint every 500-600 scrapes (Brink 1978: 97). The Gamo tend to resharpen scrapers less often than other southern Ethiopian ethnic groups, which may be the result of scraping with different a type of stone (chert for the Gamo and obsidian for most of the other ethnic groups).

Compared to other Ethiopian hideworkers, the Gamo used more scrapers in the process of preparing a cattle hide and their scrapers were reduced less compared to other Ethiopian cultures. The Gamo hideworker uses approximately 4 1/2 scrapers, which were reduced an average of 0.60 cm each (based on 811 unused scrapers and 872 discardable scrapers (Weedman 2000, 2002a, 2006). In general Gamo scrapers indicate that there is a reduction in length and increased distal thickness as a result of resharpening associated with the use of the scraper (Shott & Weedman 2006). Most other ethnographic studies of scraper use indicate more reduction of the tool, for example the Gurage reduce their scrapers 2.45 cm using 2 to 4 scrapers (Gallagher 1977b: 267-268, 278), the Oromo reduce their 2 used scrapers an average of 2.54 cm in length (Clark & Kurashina 1981), and the Wolayta use 4 scrapers (Haaland 1987: 70) averaging 1.2 cm in reduction (Brandt & Weedman 1997). The difference between the Gurage, Wolayta and the Oromo reduction rates and the Gamo may be a result of material type, obsidian among the former and chert among the latter. When I compared the reduction of the Gamo chert scrapers (n = 778 unused scrapers and 778 usedup scrapers) to

obsidian scrapers (n = 62 unused scrapers and 88 usedup scrapers) it was clear that the obsidian scrapers tended to be longer at initial hafting and reduced more during use (Weedman 2000).

Dibble (1984, 1987) and Kuhn (1992) are strong advocates for reduction stages as the source for variation in scraper morphology found in the Middle Paleolithic. Dibble's (1987) experimental work demonstrated reduction in length and increase in evidence of retouch. Although Gallagher (1977b: 278-279) noted differences in length, breadth, and thickness (I am assuming proximal thickness since this is a more common measurement), his numbers of unused (n = 18) and used-up (n = 12) are too small for statistical comparison. Brandt *et al.* (1996) noted that the greatest difference between unused and used-up scrapers was in their length, which ranged from 1.2 to 3.72 cm shorter after use, depending on the ethnic group. Clark and Kurashina (1981) found a statistical difference in the length and thickness between unused and used-up scrapers, but also found that breadth was significantly affected.

Through the scrapers uselife the angle of the working edge changes. The mean edge angle of Gamo unused scrapers is 50-degrees and when used-up a mean of 67-degrees (Weedman 2000). My results differ from Clark and Kurashina's (1981), who found a 44-degree mean distal edge angle for unused scrapers and a 56.6-degree mean distal edge angle for usedup scrapers. More in line with my own study of the edge angle of used-up scrapers is Broadbent and Knutsson (1975) experimental study of quartz scrapers, finding that 55 to 65 was the best edge angle for scraping hides. Again raw material type may play a role in determining the best suitable scraper edge angles. However, my unused edge angles and Clark and Kurashina's (1981) unused and used-up edge angles are within Wilmsen's (1968) experimental study of edge angles for hideworking with flint scrapers (46-55 degrees).

One of the areas most intensely studied associated with hide scrapers is the associated usewear (Brink 1978; Vaughn 1985; Hayden 1987, 1990; Hurcombe 1982; Siegel 1984; Rots & Williamson 2004). I recorded the presence of increased rounding or usewear on the working edge of the scraper (Weedman 2000). In contrast to my own findings of rounding of used-up scraper edges, Clark and Kurashina (1981) noted irregularities along the used edge. Vaughan (1985: 26-27) and Hurcombe (1992: 24-26) stated that the harder the material the more quickly rounding occurred. The difference between my results and Clark and Kurashina's (1981) results was that they were looking primarily at obsidian and I at chert. Brink (1978: 102) who experimented with flint scrapers also noted rounding as the most important kind of use-wear associated with hide scraping. Beyries *et al.* (2001) observed that most is decentred along the working edge of the tool, and experimental studies by Hayden (1993) indicate that dry hides were "like wear from a fine grit grinding wheel. Grains and crystals seem to have been truncated and resembled coarsely cut quartzite or conglomerate" (p. 129). Microwear studies of the quartz, quartz crystal, and chert Konso ethnographic hidescrapers (Rots & Williamson 2004) indicate that polish and poor to moderate rounding was present on all used tools and that evidence for each stage of use (scraping, resharpening and extraction from the haft) were visible. However, Rots warns that microwear is affected by the use duration of the tool since the last resharpening as opposed to the total use duration. Microwear studies of the Konso scrapers also indicate interpretable wear representing each stage of use including scratches that result from extraction of the scraper from the haft (Rots & Williamson 2004). Rots also was able to make these observations on archaeological scrapers excavated from Konso households that probably date within the last 150 years.

In general Ethiopian scrapers confirm experimental studies (Dibble 1984, 1987; Kuhn 1990, 1992) that indicate that there is a reduction in length and increased distal thickness as a result of resharpening associated with the use of the scraper (Shott & Weedman 2006). In addition, the Gamo edge angles ranged from 44 to 67 degrees, which falls in line with experimental edge angle (Wilmsen 1968; Broadbent & Knutsson 1975) expectations for hidescraping edge.

Softening, Tanning, Coloring

After scraping the hide, the Gamo soften the hides using butter or etema (the juice from the enset plant corm). The hideworker blows liquid butter or etema on the hide and folds the hide over with his feet and tramples it for over an hour every day for a week. Although butter is a luxury item, the hideworkers still use it to soften the hide. No tannin is added to the hide. However, some Gamo use cattle urine to wash their clothing. The Gamo may not tan their hides because they washed/or wash their clothing with urine, which acts as a preservative.

The European traveller accounts of hideworking in northern and central Ethiopia during the mid-eighteenth to nineteenth centuries are generally concerned with the plants used to tan, soften, and color the hides including *Euphorbia abyssinica*, *Osyris abyssinica*, and *Cassia goratensis* (Bruce 1790; Combes & Tamisier 1838: 77-79; Insenberg & Krapf 1843: 255-256; Lefebvre 1846: 240-243; Paulitschke 1888: 311; Wylde 1888: 289-291; Burton 1894: 170; Merab 1929; Bartlett 1934: 92; Rey 1935: 225; Johnston 1972 [1844]). Parkyns (1966 [1853]: 230-231) and Merab (1929: 411) describe in Ethiopia the softening of hides by trampling or "pedipulation" with milk and linseed. The Gurage, Oromo, Konso, and Wolayta Ethiopian hideworkers soften their hides with their feet by grinding in butter and/or castor seeds (*Riccinus comunis*) and sometimes eucalyptus leaves (Brandt & Weedman 2002).Hides are softened in a variety of ways including smoking (Ewers 1930: 10-13; Beyries *et al.* 2001; Takase 2004), using small stones or shell or bone to score the hide (Kamminga 1982), chewing the hide with their teeth (Turner 1894: 205; Cooper 1917), and rubbing hides together (Cooper 1917; Lothrop 1928). Native Americans used animal brains, liver, fat, sour milk, marrow, urine, and/or excrement and kneaded it into the hide by hand or with a rough stone or pebble to soften; and then smoked to tan and waterproof the hide (Mason 1889; Turner 1894: 295; Teit 1900: 184-185; Ewers 1930: 10-13; Druker 1941: 113-114; Adams 1966; Beyries *et al.* 2001; Gilmore 2005). In southern Africa, the Khoisan used several plants in the tanning process including ground tubers, bark of acacia, and roots of some plants.

The Gamo do not color any of their hides, however the Konso sometimes added a mixture of castor bean oil and ochre to their hides especially those used for clothing (Brandt & Weedman 2002). Among Native Americans and Siberians, hides prepared for specific products, especially clothing, were colored using ochre, pounded flowers, dried mushrooms, fish roe, and alder bark, and also embroidered and beaded (Mason 1889; Turner 1894: 296-297; Teit 1900: 187; Druker 1941: 113-114; Takase 2004).

Hideworking Location

Most hideworkers scrape hides in specific locations and on scraping frames. After a hide has dried, the Gamo may store it for several months or they may scrape it after several days. The hide is soaked in water for several hours and lashed onto a frame at an acute angle (65-85 degrees). It is common cross-culturally, for hides to be scraped on an acute angle and lashed to a frame (Nelson 1899: 116; Teit 1900: plate XVI, fig. 1; Druker 1941: 113-114; Gallagher 1977; Clark & Kurashina 1981; Albright 1984: 55-56; Haaland 1987; Beyries *et al.* 2001; Brandt & Weedman 2002). Hides also are scraped while held in the lap (Mason 1889; Turner 1894: 294; Beyries *et al.* 2001; Takase 2004; Brandt & Weedman 2005; Webley 2005; Weedman 2006) or more rarely hides are scraped horizontal to the ground (Ewers 1930: 10-13; Takase 2004). In several cultures more than one position was known for scraping hides and the scraping position depended on the size and type of the hide (Brandt & Weedman 1997, 2005; Beyries *et al.* 2001; Weedman 2005), the gender of the hideworker (Weedman 2005), and the type of hidescraping tool (Takase 2004).

The Gamo hideworkers' scraping frame is located in either the household or in the garden near the household, in both situations the area covers about 5 by 5 meter work area. Among the Wolayta, Oromo, Gurage, Hadiya, and Sidama Ethiopian groups, hideworking predominately

takes place in a specialized location in the household garden (Gallagher 1977; Clark & Kurashina 1981; Brandt & Weedman 1997). Beyries *et al.* (2001) also notes specialized locations for hideworking. The Konso hideworkers of Ethiopia scrape either in specialized workshops or under a shade tree for larger hides. The Konso scrape smaller hides in an open space in the household compound while holding the hide in the lap (Brandt & Weedman 2002). However, many of the accounts of hideworking are ethnohistoric and among mobile peoples and they indicate that women processed hides at hunting camps. For instance, Albright (1984: 52) notes that today hideworking takes place near the house, but that in the past among the mobile Tahlatan that hidescraping took place at hunting camps and required up to 200 square meters of work space depending on the number of hides being processed.

Researchers debate the visibility of hideworking areas archaeologically. When hideworking took place inside structures, I consistently recorded (among both the Gamo and the Konso) that the area was cleaned of lithic waste materials and discarded outside the household compound in specific lithic waste areas or in household/village trash middens. However, I still witnessed the persistence of stone scrapers and debitage on the household floors, after sweeping, particularly near walls and the hearth. I also observed lithic materials in areas where hideworking took place outside the household structure. Furthermore, excavation of hideworker abandoned households among the Konso produced lithic waste through the household compound but concentrated near hearths, walls, and scraping areas. Among the Wolayta and Sidama debitage was allowed to fall and remain on the floor of specialized workshops (Brandt *et al.* 1996; Brandt & Weedman 1997). Beyries *et al.* (2001) also indicated that materials associated with hideworking may be visible as specialized areas were not cleared of debris. However, Gallagher (1977a) and Clark and Kurashina (1971) reported that all the debitage and lithic materials are collected in a basket or bowl even when hideworking occurs outside of a structure and that lithics were discarded outside of the household area. Hence, they argue that the scraping area would be difficult to detect archaeologically.

In addition, Ethiopian hideworkers have a wide variety of locations where they deposit their lithic materials including: inside the compound, outside the compound, along fences, in fields, in hearths, in rodent or other natural holes, in man-made holes or ditches which lends itself to a wide range of studies relating to social organization and site structure. Clark and Kurashina (1981) mapped a recently used lithic and ash discard middens revealing flakes, cores, and scrapers. Furthermore, research among the Gamo suggests that the location of hideworking households within the village and the internal spatial arrangement of artisan and farmer households symbolically reflects social hierarchies, thus distribution of scrapers and lithics may reflect not only household membership but village ideology and relationships. Ethnographic disbursement of materials is interesting both in terms of analyzing the specialized use of space and the formation of the archaeological record (Kent 1987) and for understanding past ideology and symbolic structures (Leone 1984; Donley-Reid 1990).

CONCLUSION

This cross-cultural comparison of hideworking, demonstrates how ethnoarchaeology can provide multiple inferences concerning material culture. Arguably people who practice particular crafts, such as hideworking, might be able to provide insights that are not conceivable to the western-trained archaeologist. The trajectory of ethnographic and archaeological reasoning must not only be viewed in terms of how we transform the past from present knowledge and past material culture, but how we also affect the present with our interpretations of the past, for instance the role of women and the complexity of indigenous cultural practices (Wilmsen 1989: xiii; Schmidt 1997; Stahl 2001: 27-30). Furthermore, it is becoming more apparent that prior to the

colonial era societies were no more bounded than present day societies (Wilmsen 1989; Matory 2005). Ethnoarchaeology has the potential as the arbitrator between cultural and archaeological studies and as an instigator for developing new theories and methods concerning ideologies about the material world transcending the dichotomy of self/other renegotiating our ideas about boundaries and identity.

Exploring hideworking cross-culturally helps us to unbind the ideas of the culture core and homogenously linked material types with specific cultures. This review of hideworking suggests that there is some consistency in the general process of preparing a hide. For instance it is common to: deflesh a hide with a sharpened long bone from large mammals, to dehair by hand, to use a unifacial end scraper on hides to remove fat that evens the thickness of the hide, to scrape the hide on a frame, and to use an animal or plant oil to soften the hide by kneading or pounding with the feet. However, at the same time there is great diversity in the specific practices and their order, as well as the specific materials used. A cross-cultural comparison of Ethiopian scraper morphology illustrates that each ethnic group has its own scraper style, but it also illustrates that style is most similar among geographical neighbours (Brandt *et al.* 1996). Unfortunately, outside of Ethiopia there are not enough published ethnographic details concerning stone scraper morphology to make a comparison or a detailed understanding of the stone-tools. In terms of hideworking material culture, the best ethnographic descriptions and illustrations focus on handle type. Certainly someone interested in discovering cross-cultural universals could select out the presence of the parallel single-open hafts for hideworking in Africa (Feyissa 1997), North America (Mason 1889; Nelson 1899; Albright 1984; Ewers 1930), and Siberia (Takase 2004) as evidence for the similarity in the hideworking process across the world. Although there appears to be a universal similarity in material form among these vastly different cultures, a more detailed examination of intra-cultural, historical and geographical relationships suggest that understanding local historical process are important. For instance, many of the descriptions in North America date 100 years earlier than those in Africa and Siberia and without documentation of localized histories and transnational context (*e.g.* Matory 2005) for understanding each particular culture it is too easy to assume a diffusionist explanation for the similarities.

Reevaluations of culture core studies point out that anthropologists have tended to view geographic ethnic boundaries as stable and tangible, while history was viewed as fluid and dynamic creating an asymmetrical relationship between space and time (Coronil 1999). Similarly, archaeologists have tended to identify cultures through material homogeneity and to view heterogeneity as culture change through time and space. The use of two handle types among the Gamo is not dictated by environment or function, but by historical processes and entanglements, and Takase (2004) suggested the same explanation for the presence of two handle types among the Even and Koriak/Koryak. An examination of Gamo ideology, learning systems and their group and individual reactions to changing political and economic relationships through time best explain the presence of multiple handle types and their uses and distribution of these two types through time and space (Weedman 2006). If we look cross-culturally at Omotic-speaking Ethiopians, there are three distinct handle types: the oval two-socketed mastic handle (Gamo and Wolayta), the parallel single-socketed open handle (Gamo and Oyda) and the parallel single-socketed closed mastic handle (Dizi and Konso) (Brandt & Weedman 1997). The Gamo use two handle types shared by neighboring Omotic speakers. The oval double-socketed mastic handle type is most prevalent in Ethiopia and used by Cushitic, Semitic and Omotic speakers. Thus material culture types are neither homogenous bounded to a particular culture or a particular region. Yet, the particular shape and socket type combination of these three handle types is not recorded outside of Ethiopia, so there is some geographical continuity the specifics of which can only be explained by local and regional historical processes. The presence of

perpendicular or beam single-socket handles is found most commonly among Siberian (Chukotko-Kamchatkan and Altaic speakers) and in the northern populations of North American (Athapaskan and Salish). Once again there is great diversity in the languages spoken by these hideworkers, but there is some geographical continuity and shared history between them. Hideworking material culture suggests that each cultural group is enmeshed in a wider system and people actively negotiate their status in their particular loci and history in the system through their materials and their use of space.

Hideworking is strongly associated cross-culturally with the intersection of gender roles, status, and ideology concerning the mediation of life and death. Clearly, there is enough ethnographic information to suggest that hideworking is a gendered activity that may provide clues to understanding use of space, division of labor, and power relationships (Frink & Weedman 2005). Despite this archaeologists have ignored gender as a factor in interpreting Paleolithic scraper variability (though see chapters in Frink & Weedman 2005). Women identified as tool-makers are often masked over by themes of man-the-hunter and the man-the-tool-maker (Conkey & Spector 1984; Gero 1991; Nelson 1997: 95-98; Zihlman 1997). Other than stone scrapers, women have been frequently documented as making and using stone-tools (Holmes 1919: 316; Goodale 1971; Tindale 1972: 246; Gould 1977: 166, Hayden 1977: 183-186; Hamilton 1980; Bird 1993). Most commonly women are historically documented (Albright 1984; Bird 1993; Weedman 2005) using bipolar method of production, which leaves visual signatures on the scraper. This may provide one clue as to the sex of the maker situated in the specifics of other contextual information. Women also more commonly practice embedded (Binford 1978) stone-tool procurement strategies, which means that women should not be reduced to using only locally available resources (*e.g.* Gero 1991; Sassaman 1992; Casey 1998). Use of space may provide one clue to the gender of the hideworker, according to this cross-cultural comparison, when hideworking is a craft specialization with a permanent and specific workshop it is often the purview of men (for exception though see the work about the Konso, Brandt & Weedman 1997; Weedman 2005). Although hideworking is arduous and time consuming, it is also a complicated craft and it takes years to master the skills which include the production and use of tools and the right application of a combination of botanical and mineral compounds. Hideworking is usually taught from parent to child beginning when the child is about 10-12 years old. Evidence for stages of learning is discernable in stone-tool assemblages (Gunn 1975; Bonnichsen 1977; Weedman 2002a). However, depending on the lineage, post-marital residence system, and learning systems of the culture, tool style at the village level may be either homogeneous or not (Dietler & Herbich 1998; Weedman 2005).

The status of hideworkers is not universal, in Ethiopia it is a low status occupation but in other parts of the world hideworking skills can bring high status, especially to women. In Western society, because of our historical background in which men are the industrial outside workers, we tend to ascribe the most labor intensive, dull and unskilled occupations with women including craft production (Gifford-Gonzalez 1993). Furthermore, these crafts are viewed as only meagerly contributing to household economic status and/or a means of obtaining status as compared to male activities (Nelson *et al.* 2002). Hayden (1990,1993) has demonstrated that much of North American hide production may be associated with high status luxury goods, and in at least some instances this transfers to a high status for the producer even when female (see chapters in Frink & Weedman 2005, particularly Gilmore 2005; Holliman 2005; Webley 2005). People use craft items not in the domestic sphere, but also to mediate social, economic, political, and ritual contexts (Costin 1998). As such they are imbued with symbolic meaning and often serve as active or passive identity markers (Sackett 1990). Artisans have an essential role in creating meaning that is manifested in the objects they create (Costin 1998).

This review of hideworking practices, in addition to simply adding to our knowledge of stone-tool technology from cultures in which it is common knowledge, adds to the growing literature which illustrates that material manifestations are not constrained by ecological or social necessities but are the result of situated knowledge (Gosselain 1992; Pfaffenberger 1992; Childs & Killick 1993; Dietler & Herbich 1998; Dobres & Hoffman 1999; Wobst 1999; Hodder 2003). 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, and 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 review of hideworking suggest that many factors infuse material variation. Cultures are mosaics in terms of the activities individuals pursue in relationship to their environment and their socio-political identities.

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