Beyond clay: tracing Mekelle's pottery tradition through ethnoarchaeological and sociocultural lenses

Abstract: The making of ceramics involves a multi-level process of shaping vessels and other objects following a *chaîne opératoire*. The presented ethnoarchaeological study comprehensively documents clay processing and pottery production methods of artisans in Mekelle, engaging with the living material cultures of the craft to delve into the past. Through interviews, observations, and surveys of modern-day potteries, this pioneering investigation reveals both similarities and unique aspects of Mekelle's pottery practices compared to other regions. Notably, a distinctive tradition of using different clay types for a single pottery type was observed. With urban expansion threatening this traditional craft, it has become crucial to document ethnographic data before its potential extinction. In this paper, social dynamics within Mekelle's pottery making community, including hierarchical rankings and gender-based division of labor, are explored, showing that women exclusively handle the making, transportation, and marketing of pottery, while men engage in smithing and weaving. These findings have significant archaeological implications and offer insights into behavioral patterns within the community. The study emphasizes the crucial role of ethnoarchaeology in preserving traditional crafts and understanding cultural heritage.

Keywords: ethnoarchaeology, gender, pottery, social ranking, craft, ceramics, vessel

Kibrom Gebremariam[1, 2]

[1] University of Warsaw, Faculty of Archaeology
[2] Mekelle University, Ethiopia

Polish Archaeology in the Mediterranean 33 | Kibrom Gebremariam 2024: 403–431
https://doi.org/10.37343/uw.2083-537X.pam33.10
received 22 May 2024 | received in revised form 16 July 2024 | accepted 16 September 2024 | available online 31 December 2024

INTRODUCTION

Ethnoarchaeology examines contemporary cultures from an archaeological perspective, emphasizing the significance of material culture and associated behaviors (N. David and Kramer 2001). Africa has emerged as a prominent research location for ceramic ethnoarchaeological studies (N. David and Kramer 2001). Ethnoarchaeology aims to study living societies and their behaviors to better understand and interpret archaeological records (Binford 1981: 32). Mekelle has been chosen as the focal point of the present study because traditional pottery making in this region is dwindling, while the encroachment of the city of Mekelle heightens the risk of its replacement with modern production methods. It is imperative to document and preserve this rich tradition before it fades into obscurity. Thus, this paper aims to highlight the urgency of safeguarding cultural heritage in the face of rapid urbanization.

Ethnoarchaeological research on pottery making was conducted in various regions. For instance, studies were undertaken of the Gamo people in southwestern Ethiopia, highlighting the role of pottery as an economic indicator through the use-wear method (Arthur 2000). Similarly, technical nuances of pottery production among the Wellega potters were investigated by Wayessa (2006). Pottery making in the northern region of Ethiopia has been a subject of extensive ethnoarchaeological studies examining the social status and origins of potters in Edagahamus in the eastern and southeastern parts of Tigray (Lyons and Freeman 2009; Asefa 2013; Ambaye 2014).

These studies illuminate the sociocultural and technological dimensions of pottery making. With diverse artisan groups such as blacksmiths, weavers, and potters, each characterized by different social structures, gender-based labor divisions, and unique material cultures, Mekelle presents an opportunity for ethnoarchaeological exploration. The potters in Mekelle have long practiced pottery making as a means of subsistence, employing distinctive traditional methods that have yet to be documented.

In Sub-Saharan Africa, the pottery industry's *chaîne opératoire* is frequently used to examine the material aspects of social identity by analyzing ceramic technological styles. Despite this, studies on the subject have been inconsistent, and literature on how modern local socio-economic changes and global influences have affected the industry's *chaîne opératoire* and its archaeological and social significance is lacking (Wayessa 2021: 116).

Pottery making sites in Mekelle, according to the author's best knowledge, have not been studied thus far, especially with regard to raw materials, tempers, fashioning techniques, and transportation methods. This makes the need for an ethnoarchaeological investigation into Mekelle's pottery making tradition all the more pronounced.

STUDY AREA

LOCATION

Mekelle, situated in northern Ethiopia, is the capital and economic hub of the Tigray National Regional State. It is positioned at 39°33'E longitude and 13°32'N latitude, within an extension of Ethiopia's central highlands, surrounded by mountain ranges to the east and north. The altitude of Mekelle ranges from 1965 m to 2220 m a.s.l.

HISTORY

Mekelle was established in the 13th century AD and assumed its role as Ethiopia's capital during the reign of Emperor Yohannes IV. Originally a small settlement with an area of only seven hectares of urban land, Mekelle expanded to 2.4 km² in the 1960s (MCPPPO 2008). Presently, the city has grown significantly to encompass an area of 259.9 km² (MCPPPO 2008).

The site of present-day Mekelle originally encompassed five hillside settlements, along with four additional settlements located on the flatlands (Okazaki 2009). Mekelle's development began when Emperor Yohannes IV built his palace on a hilltop that had no notable prior settlement. To populate the area, he compelled aristocrats and warriors to settle at the base of the hill. As a result, a "downtown" area gradually developed around the palace, growing without the

Fig. 1. Illala River in 2016 (Photos K. Gebremariam)

guidance of modern urban planning principles (Shimizu et al. 2018).

The nine original villages of Mekelle were Enda Meskel, Gonay Daero, May Degene, May Liham, Chomea, Enda Gabir, Enda Anania, Ada Gafaf, and May Gifaf (Okazaki 2009). These settlements represent the oldest foundations of Mekelle, and while their names continue to denote local neighborhoods, the accurate location of these villages within the layout of the modern neighborhoods is essential. Originally, each village ranged in size from 30 to 50 *hidmos*, traditional dwellings typical of the Tigrayan region.

CLIMATE

Mekelle is situated within the *woina dega* (temperate) zone, characterized by moderate temperatures ranging from 14°C to 20°C all year round, as reported by the Ethiopian Mapping Agency (1981). This classification indicates a generally comfortable climate. The moisture index (P/ET) ranges between 0.25 and 0.5, indicating moderate dryness in the area. Mekelle typically receives annual rainfall between 600 mm and 700 mm (Berhane 2002).

TOPOGRAPHY

The topography of Mekelle exhibits an altitude gradient ranging from 2220 m in

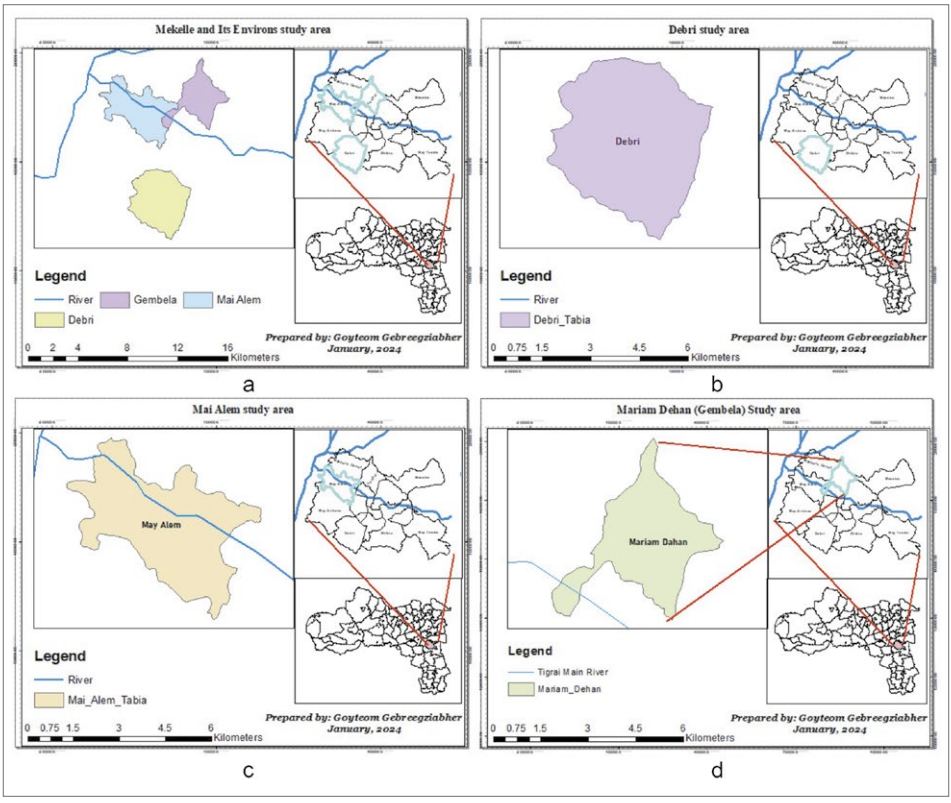

Fig. 2. Mekelle area and its environs (a); Debri (b); May Alem (c); Gembella (d) (Drawing G. Gebreegziabher)

the east to 1965 m in the northwest near the lower Illala River [*Fig. 1*], a crucial water source for Gembella potters. The town slopes predominantly from east to west and northwest, impacting the drainage patterns of most streams and tributaries. However, some watercourses may also be influenced by the underlying geology (Berhane 2010).

GEOLOGY

The area of Mekelle comprises several main lithologic units, as detailed by Berhane (2010). These include Quaternary sediments, dolerite, limestone with marl-shale intercalations, sandstone, and bedded limestone [*Fig. 2*].

Quaternary sediments encompass alluvial deposits, colluvial deposits, and residual soils. The alluvial deposits vary in grain size from clay to sand with minor boulders commonly found along streams and to the north and northwest of the town. They are dark gray in color, feature loose to compact consistency, and are occasionally stratified. The colluvial deposits are prevalent along the base of the steep slopes, particularly to the east of the town center. The residual soils range from clay to sand with angular boulders, typically yellowish in color, and are located in areas with gentle slopes (Berhane 2010: 67).

Dolerite outcrops prevail in the east, where they form steep cliffs, and near the town center. Dolerite is characterized by a black color, fine to medium grain size, and spheroidal weathering. This rock displays vertical and horizontal jointing and exhibits varying degrees of weathering, often leaving remnant core stones, particularly noticeable when digging foundation trenches (Berhane 2010: 68).

Sandstone in Mekelle ranges in color from white to light yellowish. It is friable, less cemented, and bedded, with weathering evident. Quartz grains dominate in specimens on hand, accompanied by some dark minerals. The rock is fine to medium grained, occasionally interspersed with siltstone layers. Additionally, the primary geological structures in Mekelle include faults, joints, and bedding planes, which play significant roles in the town's geological framework (Berhane 2010: 69).

Fig. 3. Gembella potters in 2016 extracting clay (a) and transporting sand (*hutsa*) to the workshop (b) (Photos K. Gebremariam)

METHODOLOGY

The concept of *chaîne opératoire*, introduced by French anthropologists, sees the manufacturing process as a sequence of technical steps that transform raw materials into products. With regard to ceramic manufacture, this involves reconstructing each production stage, from raw material sourcing to the final firing (Shepard 1956; Rye 1981; Binder and Courtin 1994; Livingstone Smith, Bosquet, and Martineau 2005; Roux and Courty 2019, as cited in R. David 2022).

During the fieldwork, data gathering and collection methods comprised interviews, field surveys, observations, and taking photographs along with GPS coordinates. The GPS technology was utilized to record the precise location, including the altitude and latitude, of pottery making sites and abandoned areas. Photographs were taken to document ethnographic details and other pertinent information.

The study involved both active and passive participation. The latter consisted in observing pot makers' settlement areas, pottery making sites, and patterns of discard. Additionally, marketplaces where the pots were sold were visited so as to understand the potters' interactions with society and to compare the products' market prices. Participatory observation involved active engagement in activities such as collecting clay, fashioning, and firing the vessels.

A total of 91 pottery makers at three sites were identified and recorded during the fieldwork. Using a purposive sampling, an equal number of informants from each site were selected, resulting in a total of 60 informants (including potters, artisans, and others) at the three sites. Each site was represented by 20 purposely selected informants. This sampling method accounted for 33.3% of the total pottery makers.

POTTERY MAKING IN MEKELLE

Pottery production in Mekelle consists of six fundamental phases of the operatory chain.

PHASE 1: SELECTION AND COLLECTION OF RAW MATERIALS

The first step in pottery making in Mekelle involves identifying suitable sources of clay and sand [*Fig. 3*]. Typically, this task is carried out by the potter or a family member, often a young female. Such a person possesses the knowledge to distinguish the necessary materials for pottery production. This stage is crucial as potters select clay based on its specific properties, particularly focusing on its plasticity.

However, potters in certain villages encounter challenges in acquiring sand known as *hutsa* and clay called *meret adi ere*, which restricts their usage. On the other hand, the clay type known as *meret welel* is readily available and can be collected from nearby sources situated in the vicinity of every household. While *meret adi ere* from a village named Adi Ere (from which it derives its name) is a distant clay source for potters from Mesebo,

those from Adi Ere village face difficulty obtaining the sand, *hutsa*.

PHASE 2: PASTE PREPARATION

This phase begins with granulometric sorting by sieving to clear the paste of unwanted elements: gravel, leaves, and sand [*Fig. 4*]. This process is applied to both *meret welel* and *meret adi ere* clay types. Once cleaned, the clays are mixed with well-sorted *hutsa* sand. This process is typically carried out manually. Subsequently, the clay-and-sand mixture is submerged in water.

Proportions for mixing clay and sand vary [*Table 1*], the common ratio being one-to-one for most types of vessels. According to Taemo, a Gembella potter, crushed potsherds (grog) are also added at this stage to enhance the paste's elasticity and the pots' strength. Hilifti, another Gembella potter, stressed the necessity of incorporating grog to prevent pots from cracking during the next steps of pottery making. The desired potsherds are collected, ground, and mixed with the other ingredients (water, clay, and sand) before use.

Table 1. Pottery recipes collected in March 2016

No.	Vessel type	Fabric components	Sand-to-clay(s) proportions
1	Stewpot (*disti*)	Sand (*hutsa*), semi gray clay (*meret*)	1:1
2	Beaker (*wancha*)	Sand (*hutsa*), semi gray clay (*meret*)	1:1
3	Coffee pot (*jebena*)	Sand (*hutsa*), semi gray clays (*meret welel* and *meret adi ere*)	For base 1:1:2 For body 1:2:1 For neck 1:1:1
4	Water jar (*etro*)	Sand (*hutsa*), semi gray clay (*meret*)	1:1
5	Incense burner (*meteshi etan*)	Sand (*hutsa*), semi gray clay (*meret*)	1:1
6	Griddle (*mogogo*)	Sand (*hutsa*), black clay (*meret walka*)	1:1

PHASE 3: FASHIONING OF VESSELS

Potters in the study areas use techniques that do not involve the employment of a rotary device. Once the paste is prepared, the potter carefully begins forming the vessel using only her hands [*Fig. 5*].

The simplest method of forming a vessel involves taking a ball of clay and evenly pinching it outward. This technique —pinching and hollowing— is used for small vessels with simple forms and crude, irregular finishes. Potters build vessels from the base, and once this part is dry, they add the next parts. When complete, the pot is placed in a shelter for partial drying. The duration of drying may vary depending on the sunlight and the season.

May Alem potters, Lielti and Zewdu, noted that vessels like coffee pots, stewpots, incense burners, and beakers require fewer hand movements, less time and energy to produce than a griddle, locally called *mogogo*. However, they also mentioned that in the case of the small pots the technique of surface treatment remains similar to that of large-sized pots.

PHASE 4: SURFACE TREATMENTS

Once a vessel has been formed, the surface treatment begins. Decorations are applied before the pots are fully dry. The informants in Gembella saw the main aim of decoration in enhancing the visual appeal of the pot and increasing its market value. They emphasized that undecorated pots had lower demand and selling prices in the study areas and highlighted the significance of decoration.

Decorating and polishing are done subsequently, depending on the type of pot. The decorations executed on the pots include primarily straight lines from the neck to the base, zigzag (*tiwuyway*) lines across the body and

Fig. 4. Gembella potters grinding sand and preparing paste in 2016 (Photos K. Gebremariam)

neck made by both incising and carving —cutting designs into the surface of the clay before it is fired— and also by impressing; appliqués (*mewredi, methezi, ezni*), crosses (*meskel*) only on water jars, and dash-type decorations usually made on incense burners. The appliqué technique consists in attaching molded clay shapes or figures to the vessel's surface. Decorations on pots are made with hand-held tools including various stick-like objects, nails, and any locally available objects with sharp edges.

PHASE 5: DRYING

In the study areas, the drying of vessels is understood as the most critical stage in the pottery making process. This is because it marks the phase in which the pots are nearing their final stage, and they are particularly vulnerable to breakage. Consequently, potters in Gembella and Debri use significant caution and care at this point.

The drying process takes place both before and after burnishing. This is because burnishing is carried out in two stages — when slightly dried and when fully dried. Once a vessel is finally polished and decorated, it is ready for drying. In some cases, especially for griddles, this stage entirely replaces the firing process. In Debri, well-dried griddles are not fired but undergo the "baking trial", known locally in Tigrigna as *mimisas* or *miwufan*. Newly purchased pots, like a griddle, stewpot, or coffee pot are not used for cooking immediately; instead, they undergo a conditioning process. For the griddle, this involves polishing with linseed powder while the vessel is hot. For a coffee pot, coffee is boiled in it but not consumed. Similarly, *injera*, a traditional local bread, is baked during the trial but not eaten. This process typically takes at least one day so as to ensure the vessels are ready for regular use.

PHASE 6: FIRING

The last step in the *chaîne opératoire* of a potter's workshop is firing [*Fig. 6*]. Once the pots are thoroughly dried, the potter carefully examines and selects sound pots for the final firing stage.

Apart from May Alem potters, who make small trench fires (usually filled with ashes from years of firing) and bury

Fig. 5. Gembella potters shaping coffee pots in February 2016 (Photos K. Gebremariam)

their vessels for two days to achieve thorough firing, most of the selected villages in the study area arrange the firing places on the surface of the ground (bonfiring). The firing methods also differ depending on the type of vessel. Griddles are typically fired on the surface, while other types of vessels are fired in a ditch, where small ash mounds help maintain a stable temperature throughout the firing stage. The firing places are typically situated within the compound of every potter's household, at an average distance of 8–10 meters from the dwelling. Thus, the firing process is a critical part of the production chain, as unfired vessels are unusable (except for the Debri griddle, see below). Vessels such as coffee pots and beakers are carefully placed with the opening (mouth) of one vessel facing another. The piled pots are then covered with a mass of dried animal dung locally known as *akhor*, wood of different kinds, and crop straw locally known as *geleba*.

This technique is used for firing all pots except for griddles, or *mogogo*. The firing of griddles is uniquely performed without the use of a ditch or ash. Two griddles are placed upright, leaning their upper parts against each other to keep them standing. A fire is then lit in the space left between the standing griddles, making this firing method effective with regard to fuel consumption.

As noted above, Debri potters do not fire griddles: Taemo Akeza and Meaza claim that they have stopped firing them

Fig. 6. Mekelle potters firing pots in February 2016 (Photos K. Gebremariam)

for two reasons: the first is to save energy, and the second is that, once purchased, an unfired griddle will be exposed to fire by future users. The Gembella potters, in turn, fire their griddles, claiming that well-fired ones are strong and not easily broken.

VESSEL PRODUCTION SCHEDULE IN MEKELLE

Mekelle potters work on their pots in weekly cycles, which coincides directly with the market day schedule. All potters start production on Tuesday and must finish Monday morning so as to deliver the pots to market that day. Thus, firing takes place one or two days before the market day. Saturday and Sunday are the usual days to schedule firing because all the pots from different corners of the city are brought to the main Mekelle market called *edaga soni*, which means "Monday market". The firing duration varies according to vessel type. Small vessel types like coffee pots (*jebena*), stewpots (*disti*), incense burners (*meteshi etan*), and beakers (*wancha*) are completed within 14 to 15 hours. The fire is prepared on Sunday evening and burns through the night, ensuring sufficient heat. Water jars (*etro*) have different firing requirements. They require a minimum of 40 hours of firing and are kept in the firing place from Saturday evening or Sunday morning until Monday morning. Generally, large pots require a considerable amount of clay and their firing consumes a large amount of fuel.

The above schedule holds true only for the Ethiopian dry season (September–June). During the Ethiopian summer (July and August), or the rainy season, pottery manufacturing can take up to ten days or longer. This is conditional and varies depending on the amount of sunshine, and it is evident that more fuel is required at this time.

If the number of pots to be produced is small, two or three tasks can be accomplished simultaneously within one day. On Christian Orthodox Church holidays, when the saints are venerated, performing physical and mechanical tasks like digging clay or pounding of sand is prohibited, but forming, decoration, and firing of vessels is allowed.

PRICE OF VESSELS IN MEKELLE

The price of vessels varies from one pot to another and is determined by different factors that include size, decoration, type, and the season [*Table 2*]. The price of pots goes up in the rainy season because their manufacture is more time and fuel consuming. The clay extraction site is flooded and covered with soil deposits that have to be removed. Potters are also busy with their own agricultural field tasks. As a result, most of the village potters do not make vessels at this time of year. According to the informants, in the summer season firing is difficult because of the scarcity of fuel such as animal dung and crop straw. The firing zone can also be flooded and damp, meaning the potters have to wait for it to dry. Nevertheless, small pots such as stewpots (*disti*) and incense burners are produced, though their number is low compared to the dry season. In the rainy season, improper firing of pots affects their color and durability. All these factors, poor vessel drying conditions, scarcity of clay, and the fact that not all potters are engaged in pot production increase the price of pots.

In the dry season, pottery production is easier because there is no shortage of fuel, every firing surface is dry, potters have spare time for pottery production, and there is sufficient sunshine to ensure the drying of pots. These factors effectively translate into lower pottery prices.

In 2016, the price of pottery varied even within the same type, depending on whether they were decorated or not. A well-decorated coffee pot cost 20–25 birr on the market, while an undecorated one was available for 15 birr. As for griddles, the price remained the same regardless of their size. Debri potters produced griddles in two different sizes, for household use and for hotel use, and both were sold at 40–45 birr. Beakers (*wancha*) were available on the market for 5 birr, while their selling price at the potter's home was 3–4 birr. Stewpots were available for 12 birr, and water pots (*etro*) cost 60 birr.

Table 2. Price of vessels in Mekelle, February 2016

No.	Vessel type	Selling price at producer's home [birr]	Selling price at Mekelle market [birr]	Manufacturer village
1	Stewpot (*disti*)	5 (small), 12 (medium), 20 (large)	7 (small), 15 (medium), 25 (large)	May Alem only
2	Beaker (*wancha*)	3	4	May Alem, Debri
3	Coffee pot (*jebena*)	15	20	Gembella only
4	Water pot (*etro*)	45	60	May Alem only
5	Incense burner (*meteshi etan*)	10	13	May Alem, Debri, Gembella

TRANSPORTING AND MARKETING

Pottery making is not the only source of income for Mekelle potters; in fact, it is considered additional work besides agriculture. Once the pots are fired, they are ready for sale. Mekelle potters sell their products at their homes and in the Mekelle market (*edaga soni*). Even if the majority of the pots are sold in the marketplace, some are still traded directly from home.

Selling vessels at potters' homes: potters generally sell their products immediately after the firing stage, which is carried out in their backyards. Consumers of pots include non-potters as well as potters from other villages due to local variations in the pot manufacture. For example, a potter from Egamat must travel 3 km to get a griddle from Adi Chiendog, while an Adi Chiendog potter must travel the same distance to get a coffee pot from Egamat. When buying directly from a potter's house, one can obtain a discount on the selling price. The price of a coffee pot in the potter's house is 10–12 birr, but it rises to 20–25 birr in the Mekelle market. The price for a well-burnished and decorated pot can go up to 30 birr, while a polished but undecorated one may be sold for 20 birr. Such exchange fosters social and economic relationships between the villages. During my stay in Gembella, I observed visitors from distant villages who arrived at the potters' homes to purchase vessels.

Selling vessels in the Mekelle market: the majority of the products are sold in the marketplace in the city center [*Fig. 7*]. Potters carry their wares to the weekly market by themselves and in a donkey cart. The potters do not travel long distances to markets outside Mekelle because they need sufficient time to produce pots for the next weekly market. In addition, most potters want to sell their products locally. However, Mekelle merchants distribute these wares not only locally, but also to more distant locations.

Most merchants in Mekelle try to add value to the pots. For example, an incense burner may be painted with a spray of a different color to make it attractive and more desirable.

Fig. 7. Mekelle potters selling their pottery products on the market (*edaga soni*), February 2016 (Photos K. Gebremariam)

Another significant issue is the place where the pot sellers dwell and sell their wares. I have observed that Mekelle potters occupy the outskirts of the main Mekelle market (its west side). According to the pot sellers Kaleyta, Tseganesh, and Hiriti, the main reason for choosing the outskirts of the market is because customers buy pots at the end of their shopping, and this location is nearest to the exit, facilitating transportation. Therefore, the brittle nature of pottery products plays a major role in selecting a place for their sale. However, my observation in this matter is different: potters' marginalization is clearly visible, not only in their neighborhood but also in the market.

Fig. 8. The dominant Mekelle coffee pots, March 2016 (Photos K. Gebremariam)

FUNCTIONAL GROUPS OF VESSELS

In the study areas, pottery vessels have numerous purposes and their function varies according to vessel type. Although industrial wares are impacting the use of clay pots in the study areas, the day-to-day life of the locals is associated with the use of traditional wares. The interviewed potters listed the following vessel groups and their functions:

COFFEE POT (*JEBENA*)

The coffee pot (*jebena*) [*Fig. 8*] emerges as the predominant vessel type crafted by nearly all artisans. According to the interviewed informants, this prominence is attributed to its high demand among both local residents and urban customers. Compared to other vessels, the coffee pot commands a relatively high selling price, particularly given its size. Consequently, many potters prioritize its production due to its strong market demand.

The primary function of the coffee pot is to make coffee. In Ethiopian culture, the coffee ceremony is a distinctive tradition, and the coffee pot serves as its crucial component. These vessels are omnipresent in households across Ethiopia, contributing to their widespread demand.

Coffee pots are available in various sizes: small, medium, large, and extra-large. However, due to the high demand for medium-sized vessels, many potters now focus exclusively on this size unless specifically requested to make other sizes. The coffee pots illustrated [see *Fig. 8*] are the predominant types found in Mekelle. Despite variations in decoration, coffee pots with similar designs can be produced within the same village, as is the case in Gembella. For instance, coffee pot "A" features appliqué decorations such as bold zigzag lines and circles on the body and neck, whereas coffee pot "B" is decorated with small incised lines.

Fig. 9. Griddle (*mogogo*) in Mekelle, March 2016 (Photo K. Gebremariam)

GRIDDLE (*MOGOGO*)

The griddle [*Fig. 9*] is another vessel type in high demand, second only to the coffee pot. According to Mekelle potters, the lower demand for the griddle is due to its durability once it is installed, while a coffee pot is portable and thus prone to damage. This impacts the livelihood of griddle makers, whose numbers are dwindling. A griddle is in common use in every household because the Ethiopian staple food, *enjera*, can only be baked on this clay baking plate.

STEWPOT (*DISTI*)

The stewpot [*Fig. 10*] is a clay vessel used for cooking stew. Compared to the previously mentioned pots, the demand for stewpots is low due to the growing popularity of steel and aluminum industrial wares. Although there is an increasing demand for clay stewpots from hotels and restaurants, their popularity with households is decreasing.

BEAKER (*WANCHA*)

Wancha [*Fig. 11*] is another type of vessel produced exclusively in May Alem and Debri villages. According to the potters interviewed, clay beakers have been largely supplanted by industrial wares. However, a recent resurgence in

Fig. 10. Stewpots (*disti*) of medium and small size in Mekelle, March 2016 (Photos K. Gebremariam)

demand for beakers, driven by the proliferation of coffeehouses using them to serve water alongside coffee orders, has been noted. Beakers are also in high demand among *siwa* houses, where local fermented beer is sold. In rural areas, beakers are used at holiday parties or weddings, and also during mourning ceremonies as drinking cups for *siwa*. Due to their low firing temperature, beakers are brittle and prone to breakage.

Like coffee pots, beakers feature decorations on their bodies consisting of small incised circular lines. In contrast to coffee pots, however, the decorations on beakers are not limited to these motifs. Above and below the circles, additional zigzag decorations are applied [see *Fig. 11*].

WATER POT (*ETRO*)

The water jar [*Fig. 12*] is one of the vessel types currently in minimal demand. This decline is largely attributed to the prevalence of plastic containers, which have supplanted water jars even in rural areas. According to the potters interviewed, the primary issues with clay water jars are their fragility and considerable weight, even when empty. Water jars are traditionally used for transporting and storing water, as well as for preparing local beverages like *siwa*. In Mekelle, it is only the May Alem potters who make water jars.

Decorations are applied to both neck and body of the water jar. Crosses are the predominant decorations on the neck [see *Fig. 12*]. Additionally, near the edge of the neck, circular lines topped with dashes are incorporated into the design.

INCENSE BURNER (*METESHI ETAN*)

Demand for incense burners [*Fig. 13*] is nearly comparable to that for coffee pots due to their complementary nature, as the primary function of an incense burner is to facilitate the burning of incense during the coffee ceremony. Incense burners are predominantly produced in villages located nearest to urban centers.

Incense burners feature decorations in the form of oblique dashes (-) at the top of the hearth.

Fig. 11. Beakers (*wancha*) in Mekelle, February 2016 (Photo K. Gebremariam)

DISCARDING POTS

When pots cease to function effectively due to wear, breakage, and natural wear and tear, they are discarded. During my observations within the study areas I have noted a significant number of broken pots. According to the potters interviewed, vessels break for various reasons, commonly during firing, transportation, and use [*Fig. 14*].

Crucially, pots broken during firing are often reused during clay preparation. Potters pound the broken pieces and mix them into the fresh clay paste. Some believe this process enhances the plasticity of the clay, while others consider it indispensable for preparing the paste.

Villagers in May Alem and Debri typically leave broken pots near their houses, atop stone fences or scattered outside their compounds without much concern for disposal. Observations on how modern potters and consumers of pottery vessels discard their broken pots may provide insights of significance for understanding the past, as similar patterns might occur at archaeological sites.

Former firing places were identified through survey and with help from the potters. They had been used for firing stewpots, griddles, big *siwa* jars (*geene*), water pots (*etro*), and incense burners. Most of them were found farther away from current dwelling areas than the currently used firing places.

Excavating abandoned firing places may offer data of significant archaeological value, as indicated by the selection of pot fragments collected from the abandoned firing place sites [*Fig. 15*].

Fig. 12.Water pot (*etro*) in Mekelle, February 2016 (Photo K. Gebremariam)

Fig. 13. Incense burner (*meteshi etan*) in Mekelle, February 2016 (Photo K. Gebremariam)

MEKELLE POTTERS IN THE SOCIAL STRUCTURE

In Mekelle certain occupations or group specializations are associated with a sense of impurity. Craft workers, for example, are often looked down upon and placed at the lower rungs of the social hierarchy, with their skills considered as somehow "tainted". Potters in Mekelle are particularly stigmatized in this regard. Through ethnographic research and observation, various parameters have been employed to understand the local social hierarchy. One such indicator is marital status, which serves as a means of classification and marginalization. Consequently, craft workers tend to marry within their own community, making unions with those outside the artisan class difficult and, in some cases, forbidden. Lineage is also a significant factor, with patrilineal descent from non-artisan groups often used for classification purposes. Among artisans, weavers enjoy a relatively high status, tracing their ancestry back to agricultural communities — a fact acknowledged even by non-artisans. Interestingly, the landownership system, uniform across both artisan and non-artisan groups, does not affect social hierarchy. Unlike landownership, marriage serves as a significant parameter for determining the social ranking of Mekelle's potters [*Fig. 16*].

DISCUSSION

Ethnoarchaeology has played a pivotal role in the present research, offering an opportunity to observe the multifaceted aspects and material outcomes of activities related to the production, use, consumption, distribution, and disposal of ceramic artifacts, alongside the sociocultural dynamics of potters within diverse ethnographic contexts.

Among the pottery makers in Mekelle, the primary material for crafting pottery is a local clay known as *meret*. However, different types of clay are used for various types of vessels. *Meret*, which has a semi grayish hue, is utilized for most pot types except for griddles, which are crafted from a black, sticky soil known locally as *meret walka*. While laboratory

Fig. 14. Broken pots for reuse in Mekelle, February 2016 (Photos K. Gebremariam)

analyses may reveal differences in physical and chemical properties of these clay types, the potters maintain that clay of the same type is consistently used in all villages under study.

Choices a potter makes at each stage of production are guided by knowledge conveyed within their community. As a result, each pottery making cultural group has its unique set of technological styles, which form a material expression of its social identity (Wayessa 2023: 9). Variation in Mekelle's vessels, evident and indicative of the village in which they are produced, arises from differences at each stage of production. Despite the Mekelle city administration providing potters with land for sourcing clay, potters still obtain quality clay from nearby crop fields and villages. Although potters can easily identify which clay types are suitable for pottery making, they lack clear criteria for determining the best-quality clay. Observations have indicated that potters avoid collecting surface clay, believing it negatively affects the quality of vessels, and instead prefer digging slightly downward and diagonally to find clay of higher quality. While digging in the ground is common for other purposes, digging specifically for clay is unique to Mekelle. During field observations, numerous areas disturbed by digging were noted near crop fields, indicating either changes or continuity in use of clay sources, which may have implications for understanding past clay sourcing practices.

Fig. 15. Pot fragments from abandoned firing places and areas surrounding the villages (Photos K. Gebremariam)

Generally, for Mekelle potters, quality clay is a priority, and to acquire it they do not hesitate to travel or source the clay from prohibited areas like nearby crop fields. As regards the techniques used for clay sourcing, no significant variations across the study areas have been recorded, with all villages uniformly using a backhoe, locally called *mekueti* or *mewaro*, for digging.

Another noteworthy issue is the use of anatomical terminology by all potters in the study area to describe parts of a vessel. As noted by Bula Wayessa (2015: 396), the connection between the Oromo origin myth and ceramics provides insights into how deeply pottery is embedded in the socio-cultural fabric of Oromo society. Reflecting the association of pots with human beings, various parts of finished pots are referred to using human anatomical terms. Mekelle potters likewise employ such terminology for parts of the pot like *aaf* (mouth), *kisad* (neck), *kebdi* (body), *meankor* (buttocks), etc. This practice suggests an adoption of human anatomical terminology to pottery, indicating continuity in the tradition of naming pots.

Decorations on the appliqués of stewpots are both similar to and different from historic ones. While the older fragments feature chevron motifs (^^^), contemporary stewpot appliqués are devoid of any decoration, suggesting a shift in decoration styles over time. However, the use of incised lines on the body and neck of vessels persists, and contemporary decorations bear similarities to older ones, indicating continuity in the tradition. Thus, pottery decorations serve as indicators of cultural contact, social relations, and chronology. In addition, the motifs may also reflect the makers' or users' faith. For example, the cross motif is popular on medium water jars (*etro*). Mekelle potters confirm that the decoration, besides beautifying the pots, is directly linked to religion. The lines incised on kettle necks and crosses made on pots bear direct associations with the Christian Orthodox faith because the Christian Orthodox Church followers wear the cross (*maeteb*) on a string tied around their necks. May Alem potters believe that applying this motif to a pot protects its contents from contamination by evil spirits in the night. Therefore, the decorations can offer insights on the religious beliefs of the communities that produce the pots.

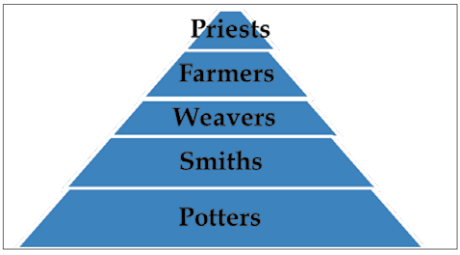

Fig. 16. Pyramid showing the social hierarchy including Mekelle potters (Processing K. Gebremariam)

Regarding the function of pottery, the Mekelle potters make forms used both in daily life and in ceremonial practices; they are integral to daily household activities despite the encroachment of industrial wares. Manufacture of coffee pots and griddles remains unaffected by industrial production, while other types, such as stewpots, water pots, and beakers are largely substituted with metal and plastic containers. Large jars, according to modern scholarship (de Garine 1996; Reusch 1998; Donham 1999; Dietler 2001,

as cited in Arthur 2003), have a strong association with beer production and consumption, a trend observed among the Mekelle potters who use big pots (*genee* and *etro*) for preparing local beer called *siwa*. Despite the rise in popularity of plastic utensils, the demand for traditional pots that had previously been replaced in Mekelle is growing again, driven by a desire for traditional items. Coffeehouse owners in the city attract customers by serving water in traditional pots alongside coffee orders, while restaurants show a higher demand for stewpots compared to household users.

Damaged pots are recycled. This helps reduce over-exploitation of resources and minimizes ecological damage caused by discarding used objects (Ramayah, Lee, and Lim 2012). In addition, grinding broken pots into temper improves the quality of the clay, making it more resistant to heat shock during firing. Temper of this kind also enhances the clay's workability by refining its texture (Wayessa 2023: 9). Mekelle potters cite similar reasons for use of grog as a temper in their vessel production.

According to Romain David (2022: 103), archaeological evidence for pottery manufacture is considered direct when the exact site of production is identified. This is often evidenced by the presence of firing structures, such as kilns, especially in the Levant. Additional indicators might include clay tanks, misfired pottery (wasters), raw materials like clay or temper, unfired vessels, or various tools. Finds of this kind may indicate the workshop's size and provide insights into the spatial arrangement of production activities both within the workshop

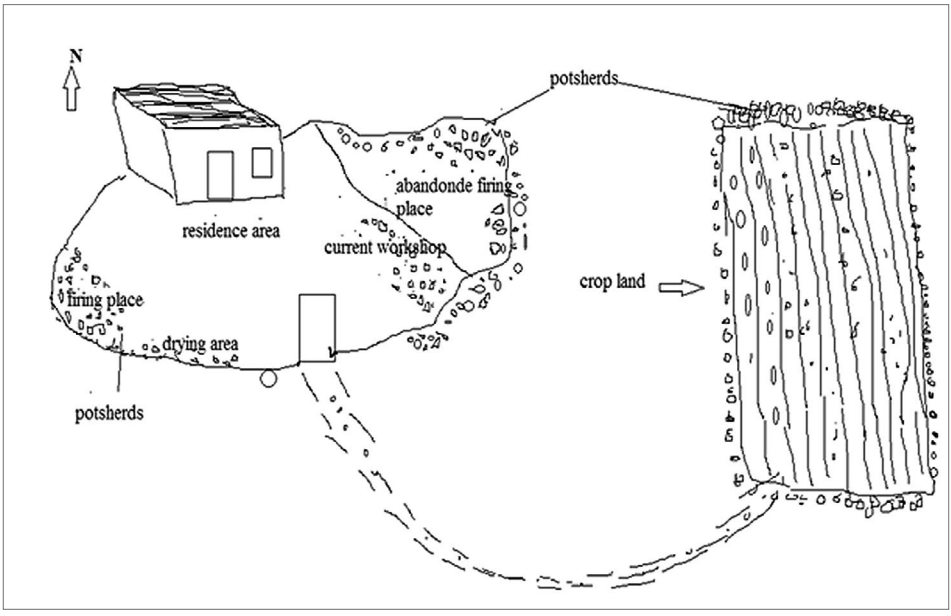

Fig. 17. Sketch showing a typical discarding pattern of potters in the study area (Drawing K. Gebremariam)

and in its broader context. Occasionally, it may even be possible to estimate the number of artisans involved, particularly when specific installations, such as a potter's wheel, are associated with individual workstations. Mekelle potters carry out their pottery production within the confines of their residential compounds. Thus, while distribution of pot fragments varies among villages and households, a substantial amount is retrieved from potters' residences. This pattern may be useful to archaeologists attempting to pinpoint sites of pottery manufacture.

According to Kramer (1985), change in pottery manufacture can result from various factors. Alterations in vessel forms and shifts in production quota may occur as new materials become available, modifications in clays and forms of cooking vessels may follow changes in fuels or hearths, and production volume may fluctuate seasonally with raw material availability. Currently, coffee pot and griddle production dominates in the study areas, leading to a complete replacement of bigger water pots (*genee*) with other wares for reasons mentioned above. As evidenced by fragments of handles collected from abandoned firing places, potteries that used to manufacture big water pots have ceased their production entirely. Consequently, pottery found in the study areas serves as an indicator of ceramic change over time.

As a cultural group, Mekelle potters have manufactured, used, and discarded various ceramic objects throughout their history. Discarded ethnographic objects accumulate over time, forming patterns in the natural space where they are buried [*Fig. 17*]. These disposal sites serve as valuable assets for future archaeological reconstructions. The manner of discarding used pots varies from village to village; for instance, Gembella potters dispose of broken pots in crop fields, while May Alem potters discard them near their compounds. This difference in disposal practices provides insights into archaeological site formation in the area.

The analysis of waste material or debitage holds significant importance as it can offer insights into discarding patterns and the types of tools made and discarded on site. With the shifting of pottery locations, archaeological sites have emerged in the study area. These sites, surveyed and documented during the fieldwork, are now utilized for domestic crop cultivation, potentially storing ethnographic and ethno-archaeological information about the potters and their pottery making practices, accessible through comprehensive archaeological investigation.

Several factors prompted Mekelle potters to engage in pottery making, including inheritance from parents, the scarcity of arable land, and economic hardship. Despite the potentially better positions of newly trained potters compared to those inherited from parents, they are all referred to as *buda*, or artisans of the poor. Interestingly, when asked about their initiation into pottery making, the potters often misrepresented their start date, as they were aware of the discrimination against original potters and the preferential treatment given to recently trained ones. Potters' marginalization appeared to be more pronounced in May Alem, located farther from the town, compared

to Debri and Gembella, which are closer. Respondents in Mekelle expressed fear of potters residing farther from the town, believing that while nearby potters were generally friendly and non-threatening, those farther away posed a potential threat, except in the context of marriage. Wayessa (2015) noted that intermarriage between the Wellega Oromo potters and other social groups, including farmers, does not occur as such marriages violate socially acceptable practices. Similarly, marriage between potters from different ethnic backgrounds is uncommon. This is similar for the potters in Mekelle, who are known for being endogamous. However, as far as marriage between different ethnic backgrounds is concerned, among the Mekelle potters this issue does not arise as they all belong to one ethnic group, the Tigray.

Cassiers (1971) notes that potters are often marginalized by mainstream society and reside on the outskirts of towns and villages, typically close to streams and rivers to access raw materials easily. This holds true for the Gembella potters, who reside near the Ilala River. This environmental setting and exploitation of clay sources plays a significant role in shaping the potters' interaction with other social groups, like landowners or local administration. Pottery making is often looked down upon, which discourages change and development among specialists. Potters are regarded as *buda* and their status in the social hierarchy is low. In spite of this, Mekelle potters are involved in various socio-cultural activities and participate in all aspects of community life.

Observation has shown that in various areas potters heavily depend on other family members for assistance with relatively simple tasks, such as digging and preparing clay (Kramer 1985). In the study area, potters' families with many daughters tend to produce more pots than those with few daughters. Kramer (1985) notes that in Africa, as in the American Southwest and the Pacific, many potters are female. Similarly, in Mekelle, pottery is exclusively manufactured, transported, and marketed by women, highlighting the significant role of women in the pottery industry. The study indicates that in Mekelle, marked differences in surface finishing can occur within a single site. The pots produced by older potters have a better finish than those made by the young potters. Similarly, Kramer (1985) indicated that skill in producing larger pots tended to increase with age. Therefore studying the ethnographic data in tandem with the collected pot fragments could indicate the age of the producers.

Arthur (2003) notes that foods with higher acidity, like bread and beer, can erode vessel interiors, potentially indicating the economic condition of the Gamo people who consume them. In Mekelle, surface attrition is observed in two pot types: stewpots and big water jars used for preparing local beer called *siwa*. While both stewpots and big water jars (*genee*) exhibit surface attrition in Mekelle, the economic status of the potters appears similar, and they use similar cooking ingredients. Even though *siwa* can cause attrition to big jars, I believe surface attrition cannot be used as the sole indicator of economic condition in the study areas. However, it may point to a continuity of specific diets over time.

While numerous vessel forms remain in use, the bigger water pot (*genee*) has been completely substituted with industrial products. Fragments recovered from abandoned firing places, along with information from potters, attest to this change.

Pottery decorations that are the most prominent and technically versatile tend to change frequently over time. In contrast, the less noticeable ones persist with minimal alteration (N. David, Sterner, and Gavua 1988; Gosselain 2000). Similarly, significant implications regarding decoration, paste preparation, and firing techniques were identified in Mekelle. In Mekelle, there appears to be a change in decoration over time, with ornaments on the pots indicating religious and socio-cultural interactions among locals and with neighboring regions. In addition, a unique approach to using different amounts of clay and temper for different parts of the pots (e.g. of the coffee pot (*jebena*)) was observed. The change in firing techniques for griddles was also noted in Debri. These observations underscore the dynamic nature of pottery production and its adaptation to changing cultural, technological, and economic factors over time.

CONCLUSION

Ethnoarchaeological studies in Mekelle have provided valuable insights into the multifaceted aspects of pottery production and its socio-cultural significance. The research highlights the pivotal role of local clay types, *meret* and *meret walka*, in shaping the material outcomes of ceramic artifacts. Despite variations in clay properties, Mekelle potters maintain a consistent identification and use of clay types across villages, underscoring the cultural continuity in pottery making practices.

The technological styles employed by the Mekelle potters not only reflect their unique cultural identities but also demonstrate a deep-rooted tradition intertwined with social choices and community dynamics. Adoption of anatomical terminology to describe vessel parts further illustrates the cultural significance of pottery within Oromo society, connecting the craft to broader socio-cultural narratives and beliefs.

Decorative elements on Mekelle pottery serve as indicators of cultural contact, social relations, and religious beliefs, highlighting the dynamic nature of decorative styles over time. Despite the influx of industrial wares, certain pottery types like coffee pots and griddles remain unchanged, reflecting their enduring relevance in daily household routines and ceremonial practices.

The study also reveals significant insights into pottery recycling practices, as damaged pots are reused to enhance clay quality, demonstrating sustainable practices embedded in pottery production. Moreover, the spatial organization of pottery production within residential compounds aids archaeologists in understanding the material culture and site formation processes in Mekelle.

Challenges such as social marginalization of potters and economic pressures affecting pottery production show the complex interplay between

tradition and external influences. Despite these challenges, Mekelle potters continue to preserve and adapt their craft, contributing to the rich tapestry of cultural heritage in the region.

In conclusion, ethnoarchaeological research in Mekelle not only sheds light on the technical aspects of pottery production but also elucidates its profound cultural significance. By examining pottery making practices through an ethnoarchaeological lens, this research contributes valuable insights into the dynamics of cultural continuity, adaptation, and change in Mekelle's pottery making traditions. Future archaeological investigations in the region hold promise for further unraveling the complexities of Mekelle's pottery heritage and its implications for broader archaeological and anthropological studies.

This conclusion encapsulates the key findings and implications of ethnoarchaeological research on pottery production in Mekelle, emphasizing its relevance for understanding cultural practices, technological adaptations, and socio-economic dynamics in the study area.

Kibrom Gebremariam
University of Warsaw, Faculty of Archaeology;
Mekelle University, Ethiopia
kibrish5@gmail.com

How to cite this article: Gebremariam, Kibrom (2024). Beyond clay: tracing Mekelle's pottery tradition through ethnoarchaeological and sociocultural lenses. *Polish Archaeology in the Mediterranean,* 33, 403–431. https://doi.org/10.37343/uw.2083-537X.pam33.10

References

Ambaye, K. (2014). *Traditional pottery production villages of Hawzen Woreda: the case of Debre-Birhan Kebele, eastern Tigray, northern Ethiopia*. Unpublished senior essay submitted to the Department of Archaeology and Heritage Management, College of Social Sciences, Addis Ababa University

Arthur, J.W. (2000). *Ceramic ethnoarchaeology among the Gamo of southwestern Ethiopia*. (PhD diss.). University of Florida

Arthur, J.W. (2003). Brewing beer: Status, wealth and ceramic use alteration among the Gamo of south-western Ethiopia. *World Archaeology*, 34(3), 516–528

Asefa, T. (2013). *Ethnoarchaeological studies of pottery making in Hintalo Wajerat, southern Tigray, northern Ethiopia*. Unpublished senior essay submitted to the Department of Archaeology and Heritage Management, College of Social Sciences, Addis Ababa University

Berhane, G. (2002). *Engineering geological investigation of Mekelle area, Tigray, northern Ethiopia* (MSc thesis). Addis Ababa University

Berhane, G. (2010). Engineering geological soil and rock characterization in the Mekelle town, northern Ethiopia: Implications to engineering practice. *Momona. Ethiopian Journal of Sciences*, 2(2), 64–86

Binder, D. and Courtin, J. (eds). (1994). *Terre cuite et société: la céramique, document technique, économique, culturel. Actes des Rencontres 21–22–23 octobre 1993*. Juan-les-Pins: Éditions APDCA

Binford, L.R. (1981). *Bones: Ancient men and modern myths*. New York: Academic Press

Cassiers, A. (1971). Ethiopian pottery. *African Arts*, 4(3), 45–47

David, N. and Kramer, C. (2001). *Ethnoarchaeology in action*. Cambridge: Cambridge University Press

David, N., Sterner, J., and Gavua, K. (1988). Why pots are decorated. *Current Anthropology*, 29(3), 365–389

David, R. (ed.). (2022). *Concise manual for ceramic studies: From the Nile Valley to the Middle East*. Nairobi: Africae. https://doi.org/10.4000/books.africae.5605

de Garine, I. (1996). Food and the status quest in five African cultures. In P. Wiessner and W. Schiefenhövel (eds), *Food and the status quest: An interdisciplinary perspective* (pp. 193–218). Providence, RI: Berghahn Books

Dietler, M. (2001). Theorizing the feast: Rituals of consumption, commensal politics, and power in African contexts. In M. Dietler and B. Hayden (eds), *Feasts: Archaeological and ethnographic perspectives on food, politics, and power* (pp. 65–114). Washington, DC: Smithsonian Institution Press

Donham, D.L. (1999). *History, power, ideology: Central issues in Marxism and anthropology*. Berkeley, CA: University of California Press

Ethiopian Mapping Agency. (1981). *National atlas of Ethiopia*. Addis Ababa: Ethiopian Mapping Agency

Gosselain, O.P. (2000). Materializing identities: An African perspective. *Journal of Archaeological Method and Theory*, 7(3), 187–217

Kramer, C. (1985). Ceramic ethnoarchaeology. *Annual Review of Anthropology*, 14, 77–102

Livingstone Smith, A., Bosquet, D., and Martineau, R. (eds). (2005). *Pottery manufacturing processes: Reconstitution and interpretation. Acts of the XIVth UISPP Congress, University of Liège, Belgium, 2–8 September 2001. Symposium 2.1* (=*BAR International Series* 1349). Oxford: Archaeopress

Lyons, D. and Freeman, A. (2009). 'I'm not evil': Materialising identities of marginalised potters in Tigray Region, Ethiopia. *Azania: Archaeological Research in Africa*, 44(1), 75–93

Mekelle City Plan Preparation Project Office (MCPPPO). (2008). *Executive summary for city development plan Mekelle*

Okazaki, R. (2009). *Study on the urban formation and actuality of the central district in Mekelle, Ethiopia: Appraisal of historical quarters and inner city problems* (MA thesis). Keio University

Ramayah, T., Lee, J.W.C., and Lim, S. (2012). Sustaining the environment through recycling: An empirical study. *Journal of Environmental Management*, 102, 141–147

Reusch, D. (1998). Imbiza kayibil' ingenambheki: The social life of pots. In B. Bell and I. Calder (eds), *Ubumba: Aspects of indigenous ceramics in KwaZulu-Natal* (pp. 19–40). Pietermaritzburg: Tatham Art Gallery

Roux, V. and Courty, M.-A. (2019). *Ceramics and society: A technological approach to archaeological assemblages*. Cham: Springer

Rye, O.S. (1981). *Pottery technology: Principles and reconstruction*. Washington, DC: Taraxacum

Shepard, A.O. (1956). *Ceramics for the archaeologist*. Washington, DC: Carnegie Institution of Washington

Shimizu, N., Weldegiorgi, E.T., Okazaki, R., and Miyake, R. (2018). "Urban" formation of Mekelle, Ethiopia, as application of traditional settlement techniques. *Journal of Architecture and Planning*, 83(750), 1579–1589

Wayessa, B.S. (2006). *Traditional pottery making in West Walaga with special emphasis on Dongoro Disi: An ethnoarchaeological study* (MA thesis). Addis Ababa University

Wayessa, B.S. (2015). "Say let it be spared from eyes for a ware cannot survive eyes:" Personification of pots among Oromo of Wallagga, Ethiopia. *Journal of Social Archaeology*, 15(3), 387–407

Wayessa, B. (2021). 'No one remains living in the past': The dynamics of pottery technological styles in southwestern Ethiopia. *Azania: Archaeological Research in Africa*, 56(1), 115–139

Wayessa, B.S. (2023). My meals are in the pots: Making pots and meals in Wollega, Southwest Ethiopia. *African Archaeological Review*, 40(3), 519–529