Local Ceramics from the Islamic Trade Center of Harlaa, Eastern Ethiopia: Markers of Chronology and Contacts

Nicholas Tait & Timothy Insoll

Abstract Locally made ceramics from Islamic sites in Ethiopia have been neglected in most archaeological studies, which tend to privilege imported Middle Eastern and Chinese/Southeast Asian ceramics. An assemblage of the local ceramics from the important trading site of Harlaa, in eastern Ethiopia (mid-sixth and fifteenth centuries AD), is the subject of this article. The study emphasizes the value of these ceramics as chronological markers, and for understanding regional and long-distance contacts, cultural innovations, processes of Islamization, and foodways.

Résumé Céramiques fabriquées localement trouvées sur les sites d’archéologie islamique en Éthiopie ont été largement négligées contrairement aux céramiques importées du Moyen-Orient, de Chine ou d’Asie du Sud-Est. Une échantillon de ces céramiques (milieu VIe et XVe siècles après JC) qui a été exhumé du site de commerce important de Harlaa, dans l’est de l’Éthiopie est le sujet de le présent article. Cette étude met l’accent sur la valeur de céramiques fabriquées localement comme marqueurs chronologiques, fournir des informations sur les échanges régionaux et de plus longue distance, innovations culturelles, processus d’islamisation et les circuits alimentaires.

Keywords Islamisation · Trade · Harlaa · Ceramics · Ethiopia · Medieval

Introduction

Archaeological research at Islamic sites in the Horn of Africa, and Ethiopia, in particular, has been limited (e.g., Begashaw, 2009; de Torres Rodriguez, 2020; Finneran, 2007, p. 237-238; Insoll, 2003, p. 39). The few studies at these sites have privileged themes relating to architecture, epigraphy, or imported items such as coins or glazed ceramics (e.g., Fauvelle-Aymar & Hirsch, 2011a; Insoll, 2003; Pradines, 2017). Locally made ceramics have been neglected in those studies, thereby missing out on the critical insights that these ubiquitous artifacts can provide into regional cultural contacts, the processes of innovation, Islamisation, and foodways, and as chronological markers. These topics are explored in this article with reference to the locally made ceramics from an Islamic site in Ethiopia. These local ceramics demonstrate that indigenous forms survived and were not replaced by an "Islamized" assemblage comprising imported vessels from the Middle East, Iran, or even China/Southeast Asia. Cultural contacts occurred at Harlaa, and some of the population adopted Islam, but these did not lead to a transformed ontology as reflected in the persistence of local ceramics in the archaeological sequence. Archaeologically, the continuity of local ceramic traditions alongside the import of foreign ceramics has also been noted at sites where trade and Islamization intersected, such as Gao, Mali (Insoll, 1996, 2000), Shanga in the Lamu Archipelago, Kenya (e.g., Horton, 1996), and Kilwa, Tanzania (Chittick, 1974). As such, the ceramics provide another indication of the complexity of African cultural...
hybridity (and survival) when exposed to international networks, in this instance, via the Red Sea and Indian Ocean (e.g., Basu, 2003; Beaujard, 2012; Lambourn, 2018).

Archaeological excavations have been ongoing at Harlaa since 2015 (Insoll et al., 2016, Insoll et al., 2017, 2020, 2021). Significant quantities of locally made ceramics were recovered from these excavations, with 20,534 sherds found as of the 2019 season, of which 12,506 have been analyzed as the focus of a recently completed Ph.D. thesis (Tait, 2020). The goals of the study are: develop the first typology of locally produced ceramics from an Islamic site in Ethiopia; provide an overview of the chronological development of these ceramics, particularly with regards to changes associated with the introduction of Islam; and situate the Harlaa ceramics within the wider regional context of the medieval Horn of Africa.

In this study, local ceramics are defined as unglazed wares made in or near Harlaa, or from the wider region. No definitive evidence for ceramic production has currently been recovered from Harlaa, but suitable clay is found in the vicinity of the site, and possible production tools, such as pebbles potentially used for smoothing and burnishing pot surfaces, have also been recorded. The likely local clay sources are kaolinite from weathered granite, collected from nearby hollows (A. Asfawossen pers. comm. 4/3/19). The thin-section and EDS analyses indicate that the clay was composed of material present in the local geology, a topic that we will return to later in this article.

The Archaeological Site of Harlaa

Harlaa (9° 29' 10.22 " N, 41° 54' 36.96" E) is located approximately 40 km northwest of Harar and 15 km southeast of Dire Dawa at 1700 m asl on the edge of the main fault escarpment of the southern Afar margin underneath the modern Oromo village of Ganda Biyo (Khalaf & Insoll, 2019) (Fig. 1). Harlaa was a large urban center with archaeological remains covering an area about 600 m north-south by 350 m east-west, partly walled, with cemeteries on three sides, to the north, east, and west (Khalaf & Insoll, 2019). Several areas have been excavated, including a mosque (HAR-A), workshop complex (HAR-B), cemeteries (HAR-C and HAR-D), a house with associated industrial/kitchen facility (HAR-E), an extensive building complex, probably with a civic function (HAR-F), and a cluster of stone houses (HAR-G) (Fig. 2; Insoll et al., 2016, Insoll et al., 2017, Insoll et al., 2021). Twenty-seven AMS dates have been obtained, indicating occupation between the mid-sixth and fifteenth centuries AD (Table 1).

The existence of a Muslim community at Harlaa by the mid-twelfth century is attested by C14 dates from burials, a mosque, and Arabic inscriptions (Insoll et al., 2021). Long-distance trade was of importance to the inhabitants of Harlaa who had wide-ranging contacts with South Asia, the Arabian Peninsula, Egypt, and indirectly, the Far East. Beads were a significant commodity with approximately 2000 glass and 400 stone beads recorded. South Asian connections appear to be represented by agate bead-making techniques at Harlaa, which resemble those of Gujarat in western India in their use of heat treatment, diamond drill bits, and bow drills (cf. Kenoyer, 2017; Roux, 2000). Beads, bracelets, and cowry shells were likely traded from Harlaa to the surrounding region. International trade patterns were evident in imported Chinese and Southeast Asian ceramic vessels, as well as Middle Eastern ceramics, discussed below. Fragments of imported glass vessels, and copper coins, including two Ayyubid fals from the Cairo mint dated to 623-635/1226-1237 (D. Nicol pers. comm. 20/2/19), provided further evidence for participation in the Red Sea and Indian Ocean commerce.

The local ceramics from three units, recovered from the 2015 to 2018 excavation seasons, are considered here. The sites are the mosque (HAR-A, excavated in 2015) dated to the mid-twelfth to mid-thirteenth centuries, the workshop complex (HAR-B, excavated 2015-2018), and a domestic structure (HAR-E, excavated in 2018), dated to between the mid-eleventh and mid-thirteenth centuries. Within the workshop complex, from which most of the ceramics were recovered (11,582 sherds), five main phases of occupation and use were identified dating to between the mid-sixth and early fifteenth centuries (Table 2). Phases 1 and 2 were further subdivided, based on changes observed in the ceramics, into Phase 1a/1b and Phase 2a/2b.

The Local Ceramics Assemblage

A total of 12,506 sherds were analyzed from the excavation units. The ceramics were recovered from contexts that were sieved using 3 mm mesh, and all sherds were retained. The sole exception was the assemblage from
the 2015 season, consisting of 101 sherds from HAR-A and 635 from HAR-B (a total of 736 sherds), whose non-diagnostic sherds were discarded prior to analysis. Thus the HAR-A and HAR-B assemblages are omitted from the consideration of ware proportions. A further 3689 sherds were recovered from five transect surveys in 2018. As these are not excavated materials, they are also excluded from quantification but are referenced in the discussion where relevant. All sherds were washed and dried on-site before being packed for transport and analysis in the laboratories of the Authority for Research and Conservation of Cultural Heritage in Addis Ababa, where they are now permanently stored.

Diagnostic sherds composed 22.9% of the assemblage (2870 sherds) and included rims (11.5%), carination (3.3%), handles (2.7%), decorated sherds (2.5%), bases (1.9%), spouts (0.1%), and lid fragments (0.1%). The assemblage was very fragmentary, and no complete vessels were recovered from archaeological contexts, which limited the ability to reconstruct vessel forms, but a basic typology of key vessel forms was still produced (Table 3). The local ceramics were divided into two main ware categories: plainwares and burnished wares. This follows similar subdivisions used at other sites in Ethiopia, such as the Lake Tana Jesuit Missionary settlements (de Torres Rodríguez, 2017; Fernández et al., 2017).

The majority of the 11,770 sherds suitable for quantitative analysis were plainwares (9417 sherds; 80.0%). Fabric color is varied, usually red, but occasionally black to brown, with multiple colors often present on the same sherd (e.g., Fig. 3a, d, g, m and Fig. 4a, g). Two rare plainware sub-types were identified: Light Brown Slipped (9 sherds; 0.1% of assemblage) and Black Slipped (56 sherds; 0.5%) wares, the remaining 9352 plainware sherds (79.4%) were classified as Earthenware/Plainware. Burnished wares made up 19.7% of
Fig. 2  Map of Harlaa (prepared by N. Khalaf)
the assemblage (2313 sherds). These usually have a black or dark brown finish, designated Black/Brown Burnished ware (e.g., Fig. 3c, f, h–i; Fig. 4b–d; 1940 sherds, 16.5% of assemblage); occasionally light brown, designated Light Brown Burnished ware (e.g., Fig. 3j; Fig. 4e–f; 322 sherds, 2.8%); and rarely red, designated Red Burnished ware (51 sherds, 0.4%). However, as with the plainwares, examples of sherds fading from one color to another (e.g., Figs. 3j, 4f) suggested that these color variations primarily due to different firing conditions instead of representing separate ware types. The remaining 40 sherds (0.3%) were not identifiable due to damage or rare examples of unique wares. Patterns were generally comparable across the units except for HAR-A (2015 assemblage). Despite being culled, it showed an unusually higher proportion of Earthenware/Plainware sherds than burnished wares (86% Earthenware/Plainware, 13% burnished wares). This was especially evident compared to the other culled 2015

### Table 1 Cumulative AMS radiocarbon dates from Harlaa

| Context Number | Date and Laboratory Number |
|----------------|---------------------------|
| HAR 15 (A) 10 | Cal AD 1155-1255 (2 sigma calibration; Beta - 419525) |
| HAR 15 (B) 6 | Cal AD 1155-1260 (2 sigma calibration; Beta - 419526) |
| HAR 15 (B) 10 | Cal AD 1165-1265 (2 sigma calibration; Beta - 419527) |
| HAR 16 (A) 6 | Cal AD 1290 to 1410 (2 sigma calibration; Beta - 451581) |
| HAR 16 (A) 7 | Cal AD 1255 to 1290 (2 sigma calibration; Beta - 451582) |
| HAR 16 (A) 9 | Cal AD 1190 to 1275 (2 sigma calibration; Beta - 451583) |
| HAR 17 (B) 6 - Hearth | Cal AD 1220 to 1285 (2 sigma calibration; Beta - 461299) |
| HAR 17 (B) 10 | Cal AD 1035 to 1215 (2 sigma calibration; Beta - 461300) |
| HAR 17 (B) 15 | Cal AD 535 to 620 (2 sigma calibration; Beta - 461301) |
| HAR 17 (B) 24 - Hearth | Cal AD 775 to 975 (2 sigma calibration; Beta - 461302) |
| HAR 17 (B) 24 - Under Wall | Cal AD 1015 to 1050 and Cal AD 1080 to 1150 (2 sigma calibration; Beta - 461303) |
| HAR 18 (B) 6 | Cal AD 1256 to 1306 (2 sigma calibration; Beta - 490904) |
| HAR 18 (B) 13 | Cal AD 1152 to 1260 (2 sigma calibration; Beta - 490905) |
| HAR 18 (B) 24 | Cal AD 776 to 971 (2 sigma calibration; Beta - 490906) |
| HAR 18 (B) 26 | Cal AD 684 to 780 (2 sigma calibration; Beta - 490907) |
| HAR 17 (C) Burial 1 - Upper | Cal AD 1330 to 1340 and Cal AD 1395 to 1440 (2 sigma calibration; Beta - 461292) |
| HAR 17 (C) Burial 2 - Lower | Cal AD 1220 to 1285 (2 sigma calibration; Beta - 461293) |
| HAR 17 (D) 1 | Cal AD 1165 to 1265 (2 sigma calibration; Beta - 461294) |
| HAR 18 (E) 8 | Cal AD 1039 to 1210 (2 sigma calibration; Beta - 490908) |
| HAR 18 (E) 9 | Cal AD 1154 to 1264 (2 sigma calibration; Beta - 490909) |
| HAR 19 (E) 30 | Cal AD 1028 to 1184 (2 sigma calibration; Beta - 522144) |
| HAR 19 (F) 6 | Cal AD 1169 to 1270 (2 sigma calibration; Beta - 522142) |
| HAR 19 (F) - (Cut Section) Below Plaster Floor (2) | Cal AD 1165 to 1265 (2 sigma calibration; Beta - 522143) |
| Harlaa Valley Section 1 - 10cm | Cal AD 1015 to 1050 and Cal AD 1080 to 1150 (2 sigma calibration; Beta - 461295) |
| Harlaa Valley Section 1 - 110cm | Cal AD 780 to 785 and Cal AD 880 to 990 (2 sigma calibration; Beta - 461296) |
| Harlaa Valley Section 2 - 20cm | Cal AD 1165 to 1265 (2 sigma calibration; Beta - 461297) |
| Harlaa Valley Section 2 - 90cm | Cal AD 1035 to 1215 (2 sigma calibration; Beta - 461298) |

### Table 2 Occupation phases in the workshop complex at Harlaa (HAR-B) [The * indicates that Phases 1 and 2 were further subdivided for ceramic analysis into Phases 1a and 1b and 2a and 2b]

| Phase | Date (AD) |
|-------|-----------|
| Phase 5 | Late 13th–14th cent. |
| Phase 4 | Mid./Late 13th–Early 14th cent. |
| Phase 3 | Late 12th–Late 13th cent. |
| Phase 2* | 11th–Mid. 13th cent. |
| Phase 1* | 7th–10th cent. |
assemblage, HAR-B (45% Earthenware/Plainware, 54% burnished wares), and could suggest that the burnished wares were used for serving food, which would not have been suitable for the religious context of the mosque.

All the vessels appear to have been hand-made; the potter’s wheel saw little use in the Horn of Africa until recently (c.f. Cassiers, 1971; de Torres Rodriguez, 2017, p. 229). Based on the fabric quality and the variable firing colors across the wares, bonfire firing was likely used. This method of firing has been observed in ethnographic surveys across Ethiopia (e.g., Arthur, 2013; de Torres Rodriguez, 2017; Lyons & D’Andrea, 2003; Lyons & Freeman, 2009; Wayessa, 2011). Thin section analysis suggested a local source for the clay, and there was little variation chronologically in the clay property. Inclusions were poorly sorted and ranged from fine to medium (0.1–0.5 mm), rarely very coarse (> 1 mm), with burnished wares generally having slightly finer inclusions overall. All these inclusions consisted of material found in the local geology (A. Asfawossen pers. comm. 4/3/19), such as ilmenite, quartz, and biotite mica (Fig. 5). It appears temper was not deliberately added.

### The Local Ceramics as Chronological Indicators

Most of the wares and vessel forms appear to have had a long period of use, but some chronological changes could be observed.

#### Wares

There was a limited chronological change in the fabric or finish of the wares. The rare plainware, Light Brown Slipped variant, with a light brown slip over a dark grey-black fabric, was concentrated in the uppermost Phase 5. This appears to be a recent ware type that post-dated the archaeological site, likely from the late sixteenth century onwards, and connected with the recent Oromo occupation.

The Black Slipped Ware concentrated in Phases 5–4 (late thirteenth to the fourteenth century and mid/late-thirteenth to early fourteenth century), but present in small quantities through Phase 2b (eleventh to mid-thirteenth century). This small sample size limits any further assessment of the chronological significance of Black Slipped Ware. Earthenware/Plainware was present throughout the sequence with no identifiable variation. Some color changes were chronologically apparent with burnished wares, with all colors (black/brown, light brown, and red) present until Phase 1a (seventh to tenth century). However, Light Brown Burnished was rare in Phases 2b and 1a (eleventh to mid-thirteenth century and seventh to the tenth century), while Red Burnished was common in Phase 1a (Fig. 6). Burnished wares were conspicuously absent from Phase 1b, the earliest contexts, indicating that they were seemingly not produced before the seventh century.

#### Decoration

The decoration style was of limited chronological significance as most of the motifs had long periods of use with little variation between phases. A total of 380 sherds (2.5%) showed evidence for decoration (Table 4). Decorated wares were found in Phases 2 to 5 but were rare in Phase 2b, with only three burnished ware and four Earthenware/Plainware decorated sherds recorded (0.8% of sherds). No decorated sherds were recovered from

| Table 3 Outline of typology of key local vessel forms identified at Harlaa |
|-----------------------------|-----------------|------------------|------------------|
| **Form** | **Wares** | **Phases** | **Example** |
| 1. Open Bowls | Burnished and Plainware | Phase 5-1b | Fig. 3c,n; Fig. 4c,g |
| 2. Carinated Bowls | Primarily Burnished | Phase 5-2b | Fig. 4d-f |
| 3. Necked Globular Jars | Primarily Burnished | Phase 5-2b | Fig. 3d, l; Fig. 4b |
| 4. Large Closed Storage Vessels | Plainware | Phase 5-2b | Fig. 4a |
| 5. Large Storage Jars | Plainware | Phase 5-1a | Fig. 3o |
| 6. Closed Cooking Pots | Plainware | Phase 5-1a | Fig. 3a |
| 7. Conical Lids | Burnished | Phase 5-2a | Fig. 9a-b |
| 8. Simple Lids | Plainware | Phase 5-2a | Fig. 9c |

© Springer
Fig. 3 Ceramic decoration at Harlaa: a Earthenware/Plainware appliqué, b Light Brown Slipped appliqué, c-e Black/Brown Burnished scratched/incised, d Earthenware/Plainware comb grooved, f Black/Brown Burnished punctate, g Earthenware/Plainware punctate, h Black/Brown Burnished appliqué and punctate, i Black/Brown Burnished appliqué decorated rim, j Light Brown Burnished appliqué decorated rim, k-l Black/Brown Burnished roughened line, m Earthenware/Plainware incised decorated rim, n Black/Brown Burnished pierced and covered, o Earthenware/Plainware neck with appliqué ridge
Phase 1a or 1b. The most commonly decorated wares were burnished wares which, despite only comprising 19.7% of the assemblage, formed 65.3% of the decorated sherds. This suggested that burnished wares were more suited for display, implying potential consumption and serving usage.

**Fig. 4** Rims and carination from Harlaa: a) large Earthenware/Plainware flat, in-turned rim, b) Black/Brown Burnished flat, lip rim with roughened line decoration c) Black/Brown Burnished flat, inner lip rim, d) Black/Brown Burnished Type A carinated bowl, e) Light Brown Burnished Type B carinated bowls, f) Earthenware/Plainware flat, angled rim bowl, h) Black/Brown Burnished ware unique rim
A variety of decorative styles were identified. The most common was roughened-line decoration (n=140, 36.8% of decorated sherds) on burnished wares. This decoration motif consisted of patterns of lines produced by roughening parts of the burnished surface before firing (Fig. 3k–l; Fig. 4b), likely by painting or dripping water or a fine slip onto the surface. Limited examples of roughened-line decoration have been identified elsewhere in Ethiopia, with the clearest examples at the Late Aksumite site of Mifsas Bahri (550–700 AD), where it was referred to as “burnished lines” (Gaudiello & Yule, 2017, p. 107, 111, 115), and Manz (fifteenth to seventeenth century), where it is called “différence de lustrage?” (Chuniaud, 2012, p. 253, 277-278). At Harlaa, this decorative style was present from Phase 5 to Phase 2b, and was the most common decorative style on burnished wares across all phases. The next most common decorative style was incised/scratched decoration (n=125, 32.9%; e.g., Fig. 3d), whereby incised decoration was applied prior to firing, and scratching was made post-firing. This decoration form was found on all ware types and usually consisted of horizontal rows of scratched or incised lines or dashes. While both scratched and incised decorations were present on all wares, scratched decoration was more common on burnished wares, and incised decoration on Earthenware/Plainware. Rarer examples of complex scratched patterns (n=22, 17.6% of incised/scratched sherds; Fig. 3c) were primarily on the interior of burnished wares, likely open bowls, and were present from Phase 5 to 2a. Comb groove incised sherds (n=7 sherds, 5.6% of incised/scratched sherds; Fig. 3d) were primarily Earthenware/Plainware (n=5) and were concentrated in Phase 5–4, with a single example from Phase 2a. Punctate decoration motifs (n=74, 19.5%; Fig. 3f–h) were also present on both burnished wares and plainwares and primarily consisted of horizontal rows of dots, produced using a range of tools such as twigs, straw, thorns, and carved wooden or metal points. Incised/scratched and punctate decorative styles were present on Earthenware/Plainware sherds from Phase 5 to Phase 2b, and Phase 5 to Phase 2a on burnished wares. Appliqué decoration (n=51, 13.4%) was mainly present on Earthenware/Plainware (n=40, 10.5%) and
usually consisted of a horizontal appliqué ridge under the rim or on the neck of the vessel (Fig. 3a–b, o), often further decorated with finger impressed or punctate dots, or incised dashes. This appliqué decoration was present from Phase 5 to Phase 2a. Nine of the ten examples of appliqué decorated burnished ware used dots (Fig. 3i–j).

Earthenware/Plainware sherds with appliqué decorations were present in small quantities from Phase 5 to Phase 2a. A single example had a pattern of appliqué ridges (Fig. 3h). Decorated rims were generally rare (n=25, 6.6%; 18 plainware and 7 burnished ware), and usually consisted of simple incised lines or dashes on the top or exterior of the rim (Fig. 3m). Decorated rims were recovered from Phase 5 to Phase 2b. The burnished ware decorated rims included three with appliqué dots (Fig. 3j), from Phases 4, 3, and 2a. No burnished ware decorated rims were recovered from either Phase 5 or 2b.

Carination

Vessel forms, in general, were chronologically uninformative due to the fragmentary nature of the assemblage. This made identification challenging. However, carinated vessels were chronologically sensitive. Carination was recorded on 417 sherds, primarily burnished wares (n=385 sherds, 92% of carinated sherds). Where identifiable, carination was applied to shallow, open bowls (Fig. 4d–f). Two broad types of carination were identified: Type A with sharper, thinner carination (Fig. 4d) and Type B with shallower, thicker carination (Fig. 4e–f). Carination was first present in Phase 2b in small quantities (about 3.5% of burnished wares), then in larger proportions from Phase 2a onwards (at least 12% of burnished wares). Across all wares, Type B became steadily more common throughout the phases (Fig. 7).

Rims (and Vessel Forms)

Rims were divided into ten broad forms (simple; flat; flat, lip; flat, angled; flat, thickened; flat, inner lip;
tapered; rounded, lip; rounded, thickened; and unique). Most of these are present throughout the chronological sequence. The chronologically sensitive rim forms are the burnished ware flat lipped rims (e.g., Fig. 4b, f), which were absent in Phase 2a and Phase 1b. Tapered rims were also absent from Phase 1a and 1b across all wares. However, the rare out-turned flat rims with inner lips (n=12 sherds; Fig. 4c), likely from open bowls, were present in Phases 3 to 5 only, suggesting they were a more recent introduction. While rim diameters ranged in size, up to 48 cm, they varied little over time. Consistency is apparent in burnished wares, with quartiles falling in the range of 11–20 cm in all phases. Plainware rims appeared to increase in diameter between Phase 2b and Phase 4, particularly regarding out-turned rims, whose median diameter increased from 18 cm in Phase 2b to 25 cm in Phase 4. It is not known why this change occurred, but this may be linked to changes in vessel use, especially in serving and consumption practices.

While of limited chronological significance, a few forms could be identified based on rims. Large, thick in-turned Earthenware/Plainware rims above 30 cm diameter (Fig. 4a) were present in small quantities throughout and likely represented large storage vessels. Small, fine, and straight rims (Fig. 4b) found in all wares, but more common among the burnished wares, were potentially from bottles and jugs. Finally, several forms representing bowls in a range of sizes from 8 to 32 cm were identified throughout the sequence. Among the burnished wares, the carinated open bowls were common from Phase 2a onwards, and simple open bowls were also present (e.g., Fig. 3c, n). Flat, angled, open rims appeared to represent an Earthenware/Plainware bowl variant (Fig. 4g). These bowls were smoothed on the interior and around the rim, but the exterior of the body was rough, presumably to aid grip. A single unique Black/Brown Burnished rim (Fig. 4h) from Phase 5 is similar to the Indian Black Polished ware cooking vessels of 900–1300 AD and 300-1400 AD from Sindh and Gujarat (cf. Rouguelle 2015, p. 165-168, 202-204; Phillips & Smith, 2014, p. 11-12; Smith et al., 2012, p. 182-183). Further analysis is required to ascertain if this sherd was from one of these vessels or is a local product. However, the four sherds of Red Polished ware are likely of Indian origin (Insoll et al., 2021).

Bases

Bases were also chronologically sensitive. Ring bases (Fig. 8a–d) first appeared in Phase 2a in all ware types and remained relatively constant at around 2% of the total assemblage throughout the rest of the sequence. Rarer examples of taller annular ring bases (n=35 sherds, 14.6% of ring bases) were also present in both Burnished wares and Earthenware/Plainware (Fig. 8d). However, these were present in all phases with ring bases, and so were not chronologically significant. Seven examples of stand bases, consisting of legs attached to the underside of the vessel and to a ring or plate as a base (Fig. 8e–f), were found. The highest number of stand bases (three) were from HAR-A, the mosque. These likely formed part of vessels used as lamps or to hold water, perhaps for ablutions. Two additional samples were recovered from HAR-B in Phases 4 and 3, and two others from HAR-E. Due to the fragmentary nature of the assemblage, the vessel forms cannot be discerned from these bases. However, similar bases have been observed as attachment to bowls at several contemporary sites in the wider region.

Handles

Some handles were useful chronological indicators. Two main handle forms were present at Harlaa: circular ribbon handles (n=238 sherds, 71.0% of handles) and pierced lug handles (n=54 sherds, 16.1%). Circular ribbon handles (Fig. 9e) were overwhelmingly Earthenware/Plainware (n=229 sherds, 96%) and found throughout the sequence except for Phase 1a. These handles were produced using a sausage of clay as a core which was attached to the body and then built up and smoothed into the body using additional clay. Rare examples of burnished ware circular ribbon handles (n=5, 2.1%) had a clearer chronological distribution, present in Phase 3 and 5. Similarly, pierced lug handles (Fig. 4e; Fig. 9d), which were primarily associated with burnished wares (n=43 sherds, 79.6%), first appeared in Phase 2a, and were then present in small quantities in both Earthenware/Plainware and burnished wares.

Lids and Spouts

Lids (eight sherds) and spouts (18 sherds) were limited in number but chronologically useful. The four examples of burnished ware conical lids (Fig. 9a–b) had no clear archaeological ceramic parallels elsewhere in the Horn of Africa, although similar woven conical lids have been observed in use by the authors in Harlaa/Ganda Biyo and Harar. Potentially similar ceramic
forms have been recorded in both glazed and unglazed wares at Sharma, on the Yemeni coast of the Gulf of Aden, primarily from undated surface collections (cf. Rougeulle, 2015, p. 236, 268). The Harlalaa examples were from Phase 5 to Phase 2a, with a single example from each phase. Other simple Earthenware/Plainware lids (four examples, Fig. 9c) were present. These belong to a form found
from at least the Late Aksumite period (sixth century) to recently (cf. British Museum Collection Accession code: Af1935,0709.118; Chuniaud, 2012; de Torres Rodríguez, 2017; Fernández et al., 2017; Gaudiello & Yule, 2017). Woven, wooden, or unfired clay lids may also have been used at Harlaa. However, they have not survived in the archaeological record. Spouts (Fig. 9f) were rare at Harlaa, with only 18 examples recovered. With a single exception from Phase 2a, all the spouts were recovered.

Fig. 9 Lids, spouts and handles at Harlaa: a, b Black/Brown Burnished conical lid, c Earthenware/Plainware lid rim, d Black/Brown Burnished flat, inner lip rim with pierced lug handle, e Earthenware/Plainware circular ribbon handle, f Black/Brown Burnished lipped rim with spout
from Phases 4 and 5, suggesting they were from a particular type of vessel form, perhaps a kettle or jug, introduced after the thirteenth century.

The Local Ceramics as Indicators of Innovation, Islamisation, and Foodways

A range of chronological changes are visible in the local ceramics from Harlaa (Fig. 10). These changes, such as the introduction of carination, pierced lug handles, ring bases, and burnished conical lids, around Phase 2a/2b (eleventh to mid-thirteenth century), are likely related to influences from wider regional and international trade networks, which intensified at this point in time. The changes identified do not, however, appear to relate to the direct adoption of commonly found Islamic ceramic forms, such as shallow bowls, ewers, or bottles. Rather, it appeared that the expansion of contacts led to some degree of innovation, including the development of new locally inspired ceramic vessels such as carinated bowls and stand bases, as well as changes in appliqué and rim decoration.

Nevertheless, imported Chinese/Southeast Asian \((n=160\) sherds), and Middle Eastern \((n=145\) sherds) ceramics have been recovered at Harlaa. The Middle Eastern wares include black-on-yellow and other glazed wares of Yemeni/southern Red Sea provenance, Iranian luster glazed frit (Insoll et al., 2021), Chinese celadon and white wares, and Martaban jar fragments of Chinese and Southeast Asian/Chinese origin (Insoll et al., 2021). South Asian ceramics were represented by the four sherds of Indian Red Polished ware. These imported ceramics would have been used for display and functioned in social exchange contexts, such as dowry. So there was no desire or requirement among the local potters to attempt to directly imitate their forms. It has been argued that imported material, including ceramics, acted as a “unifying” assemblage for the Islamic polities of the Horn of Africa, but were used alongside localized material culture (de Torres Rodríguez, 2020, p. 179).

The local ceramics are informative of foodways that were based on an agricultural system dominated by the cultivation of barley, wheat, oil crops (e.g., *Sesamum indicum, Linum usitatissimum*), and legumes (e.g., *Pisum abysinicum, Lens culinaris, Cicer arietinum*), which are all of Middle Eastern origin (Beldados et al., 2019). There are differences with northern Ethiopia. Noteworthy was the almost complete absence of rims from large plates, which have been observed, both archaeologically and ethnographically, as associated with the production of flatbreads such as *injera*, common in central and northern Ethiopia, and *kisra* in western Ethiopia and Sudan (e.g., Ahmed et al., 1990, p. 158; de Torres Rodríguez, 2017; Fernández et al., 2017, p. 165-173; González-Ruibal & Falquina, 2017, p. 186-189; Johnston, 1844b, p. 253; Lyons & D’Andrea, 2003; Lyons & Freeman, 2009; Maundu & Imburmi, 2003, p. 28-29; Poissonnier et al., 2011). Instead, the dominance of bowl forms in Harlaa reflects the prevalence of porridge/soup/boiling-based food culture (cf. MacLean & Insoll, 1999, 2003). Johnston’s descriptions of his travels through Adal (1842-1843) support this interpretation as the local bread, made
from *jowaree* (millet), was described as a heavy, reddish, dusty bread (Johnston, 1844a, p. 51–52, 189), and flatbreads similar to *injera* were not mentioned until he entered the Christian kingdoms in northern Ethiopia (Johnston, 1844a, p. 487; Johnston, 1844b, p. 76, 90–91, 173).

In contrast, the local ceramics are not indicative of the Islamization of foodways. There is an absence of forms that might be linked with Islamic influences such as ewers, bottles, or shallow bowls. The faunal remains, however, suggest that some of the population in Harlaa was following a Halal diet. This was indicated by, for example, eight of the twenty-five hyoid bones found having cutmarks consistent with slicing the throat as the means of slaughter (Gaastra & Insoll, 2020, p. 201). This in itself is not satisfactory as evidence for Islamic diet in Ethiopia because Christians also follow similar dietary rules (Simoons, 1994, p. 40–41). However, evidence for butchery patterns noted at other Islamic period sites such as Barbar in Bahrain (Bangsgaard, 2001), Tell Tuneinir in northeast Syria (Loyet, 1999), and Gözlükele in Turkey (Omar, 2017), including severing of the shoulder joint by chopping through the humeral capitus or neck of the scapula, severing the elbow joint by chopping through the distal trochlea of the humerus, or chopping through the distal tibia were all found in the Harlaa faunal assemblage (see Gaastra & Insoll, 2020, p. 202–203). When considered together with the other evidence for the presence of Muslims, such as burial according to Islamic rites (Pryor et al., 2020) and mosques (Insoll et al., 2021), it is plausible to associate the identification of Halal diet with Islam in the Harlaa community.

**The Local Ceramics in Comparative Regional Perspective**

The wide range of imported materials at many sites across the Horn of Africa shows evidence for links with the Indian Ocean and Red Sea trade networks (e.g., Chittick, 1976; Curle, 1937; de Torres Rodríguez, 2020; Fauvelle-Aymar & Hirsch 2011; Fauvelle-Aymar & Poissonier 2016; González-Ruibal et al., 2017; Insoll, 2001, 2017; Kinahan 2013). The local ceramics from these sites have received minor treatment in the study of these intercontinental networks. As we discuss below, these also indicate evidence for the spread of new influences introduced as these regional and international networks opened up. Placing the local ceramics from Harlaa in the context of the other assemblages from the wider Horn of Africa region can reveal the impacts of these foreign influences on the Harlaa ceramics.

**Chercher Mountains**

Located along the Chercher Mountains between Harar and Abshe-Tafari (Fig. 1), two types of sites, cyclopean walled villages and stone tumuli, were investigated and dated to 700–1300 AD (Joussaume, 1974, 2014; Joussaume & Joussaume, 1972). These sites were both spatially and temporally close to Harlaa, with the nearest, Sourré-Kabanawa, only some 45 km away. It is possible that some of the trade goods found in the tumuli were obtained from Harlaa. These include *Cypraea* (cowries) and *Oliva bulbosa* marine shell, which were extensively worked in Harlaa (Insoll, 2021; Insoll et al., 2021). However, differences also exist, such as the funerary practices. The grave goods associated with the burials, and the form of the funerary monuments, were related to indigenous beliefs.

However, there are some similarities between the local ceramics recovered from these sites and Harlaa. The fabric and finish of the plainwares appeared broadly similar in surface color. Bowls with bases similar to the stand bases were common at Chercher Mountain sites, although the distinctive carinated bowls found at Harlaa were rare. However, precise quantification is lacking (cf. Joussaume, 1974, 2014). The infrequent examples of roughened-line decoration present in the Chercher ceramics (e.g., Joussaume, 1974, fig. 70.18–20), are also similar to those found in Harlaa. These ceramic similarities can be explained by trade, with the Chercher populations possibly even supplying some ceramics to the Harlaa.
community, perhaps with foodstuffs. Moreover, Harlaa was a cosmopolitan settlement, including both Muslim and non-Muslim populations (Insoll et al., 2021), and therefore home to various local communities who used ceramics based on inherited practices.

Hubeyta and Hulul Mojo

The sites of Hulul Mojo and Hubeyta are both close to Harlaa, 21 km west and 6 km to the south-east of Harlaa respectively (Fig. 1). Both have been linked with the Harla people in local tradition. They are semi-legendary people who inhabited the region prior to the Oromo migrations in the sixteenth century. The earliest mention of the Harla is in the chronicle of the Ethiopian Emperor ‘Amdä-ṣiyon I in the early to mid-fourteenth century, when the Harla king joined the Muslim forces of Šalih against ‘Amdä-ṣiyon I which were defeated near Dawaro. Later, in the sixteenth century, the Harla were part of Ahmad Gragn’s army (Braukämper, 1977a, p. 20-21). Beyond this, there are few historical references to the Harla (cf. Chekroun et al., 2011). Due to the large, well-worked stone blocks used for building, the Harla are traditionally seen as “giants”, and it is claimed that the Harla fell due to divine punishment for their pride and wealth. The exact fate of the Harla people is unclear, but it has been suggested the Harla and Harari as well as the Argobba ethnolinguistic group who live around Harar and on the western edge of the Danakil are the same (Braukämper, 1977a, p. 20-21; Chekroun et al., 2011; Insoll et al., 2016; Insoll & Zekaria, 2019; Wilding, 1980).

Survey was completed at Hulul Mojo and Hubeyta in 2019, and limited ceramic surface collections were made. At Hulul Mojo, 15 sherds were collected, and ceramics appeared similar to the Harlaa ceramic complex. Burnished wares and plainwares were recorded, and similar colors and smoothed finishes were apparent on the plainwares. Similar forms were also found, including ring bases, a large rim similar to the Harlaa storage vessels (Fig. 11b), circular ribbon handles, and a large sherd from a burnished carinated bowl (Fig. 11a). No decorated sherds were found. At Hubeyta, only 11 sherds were collected, but they are still informative in a region where very little previous ceramic data exists. No burnished sherds were recovered, indicating a significant contrast with Harlaa and Hulul Mojo. Different decoration/forms were also observed, as indicated by a rim from a large flat plate (Fig. 11e), a rim with distinct appliqué decoration on the body (Fig. 11d), and a simple incised rim (Fig. 11c). Circular ribbon handle fragments and basic rim forms were also recovered. Hulul Mojo would appear to be contemporary with Harlaa, whilst Hubeyta was probably later and connected with occupation after Harlaa was abandoned and Harar founded in post-sixteenth century. The remains of an undated mosque at Hulul Mojo, the Abezayid Mosque, built in a comparable style to the Harlaa structures, using well-cut stone blocks, also suggests contemporaneity as well as a Muslim identity. In contrast, such inferences cannot, at present, be made for Hubeyta.

Harar

Excavations were completed in Harar (Fig. 1) in 2014 and 2018, the latter being part of the Becoming Muslim project. The site is dated to between the fifteenth and nineteenth/early twentieth centuries when Harar served as the capital of the Sultanate of Adal, ca. 1415-1577 (Insoll et al., 2014; Insoll, 2017; Insoll & Zekaria, 2019). Preliminary analysis has been undertaken on the local ceramics from the 2014 season at Harar (Insoll, 2017). Based on this analysis and subsequent observations of both the 2014 and 2018 Harar ceramics, the local ceramics appeared distinct compared to Harlaa. Both burnished and plainwares were still present, as was the ubiquitous circular ribbon handle. However, forms and decorations were different. Appliqué decoration was primarily a burnished ware style at Harar, and carination was rarer. Only two examples were recorded, both burnished, and one from a bowl. This bowl was deeper than the Harlaa examples and had a ridge on the rim to support a lid (Insoll, 2017, fig. 6:5), a form that is not present on the Harlaa carinated bowls. This suggests a cooking function at Harar as opposed to serving and consumption at Harlaa. Plates were also more common at Harar, comprising six of the 57 rimsherds (10.5%). The differences in vessel forms indicate different foodways. The plates, for example, are suggestive of the flatbread/injera food culture in Harar which was not present in Harlaa. Aspects of the zooarchaeological evidence also differed. Cattle (Bos taurus/indicus) was the most common domesticate at Harar, while goat (Capra hircus) was predominant at Harlaa (Gaastra & Insoll, 2020, p. 6). These ceramic comparisons indicate the complexity in the region, even between sites that are
comparatively close geographically and chronologically.

Fäqi Däbbis

The Ifat Sultanate was one of the medieval Islamic polities in the Horn of Africa, succeeding the Shoa Sultanate in 1277 and lasting until 1415 (Abir, 1980; Braukämper, 1977a, 1977b; Fischer, 1977; Huntingford, 1955; Insoll, 2003; Trimingham, 1965). Surveys have been undertaken at various mosques and sites in the Shoa region (e.g., Fauvelle-Aymar et al., 2006, 2007; Pradines, 2017). The most notable of these is Nora, where the town appears to have been spatially organized around the main mosque, which provided a radiocarbon date of Cal AD 1165-1298 (Fauvelle-Aymar & Hirsch 2010, p. 36). However, there has been minimal analysis and discussion of the local ceramics. The exception is the ceramic assemblage from the Fäqi Däbbis mosque excavations (Fig. 1), dated to the fourteenth and fifteenth centuries (Poissonnier et al., 2011).

The analysis of the local ceramics from Fäqi Däbbis was limited to forms and decorations. Bowls and jugs were the dominant forms identified. The assemblage had a diverse range of rim forms. Carination was present, and the use of handles was similar to the circular ribbon handles at Harlaa. The decoration motifs were
limited, primarily consisting of horizontal incised lines on the interior under the rim and punctate decorated rims. These are rare styles at Harlaa. It was noted that there were similarities between the ceramics from Fäqi Däbbis and the Chercher Mountains, especially the walled town of Molé, in terms of the use of decorated rims, which were described as uncommon on Ethiopian ceramics during this period (Poissonnier et al., 2011, p. 132-135). The regional comparison shows that decorated rims are present at most sites connected to the Indian Ocean and Red Sea trade networks, such as Harlaa, Fäqi Däbbis, the Somali-land Islamic sites, and Handoga, as well as Zabid in Yemen (Ciuk & Keall, 1996). Decorated rims may therefore be related to links with the wider Islamic trade networks.

Highland Christian Sites

The archaeological study of medieval-period ceramics from the Christian Ethiopian highlands has been limited, although recent projects have begun to rectify this omission (e.g., Chuniaud, 2012; de Torres Rodríguez, 2017; Fernández et al., 2017; González-Ruibal & Falquina, 2017). Many of the sites largely post-date the occupation of Harlaa. Excavations in caves around Lalibela in the late 1960s by Dombrowski (1970) represent one of the first studies of Ethiopian medieval Christian ceramics (Fig. 1). Limited information is presented in the 1970 excavation report. The ceramics, dated to the twelfth through fifteenth century (Dombrowski, 1970, p. 24, 36), have close parallels to the modern ethnographic ceramics from the region and could be fitted into local functional classifications (Dombrowski, 1970, p. 28).

The excavations of the Meshāla Maryām royal camp and nearby Church of Gabriel in the Manz region of Shoa, dated to the fifteenth through seventeenth century (Fig. 1; Fauvelle-Aymar, 2012), have provided valuable data on Medieval Christian ceramics (Chuniaud, 2012). These sites are close to Shay culture sites, and Shay culture vessels, discussed below, were identified in the assemblages. The site is temporally close to Harlaa and provides similar evidence for roughened-line decoration (Chuniaud, 2012, p. 253). Similar divides between serving/consumption for burnished wares and cooking/storage for plainwares are also proposed. Burnished carinated bowls, often decorated with scratched patterns, are the typical forms at Manz (Chuniaud, 2012, p. 255-256). At Meshāla Maryām, bowls with appliqué ridges under the rim, and decorated with incisions or finger impressions (Chuniaud, 2012, p. 279-280, 287), have close similarities to the Harlaa assemblages (e.g., Fig. 3a). A burnished carinated bowl from the Church of Gabriel has a decoration that appears to be same as the “pierced and covered” decoration from Harlaa (Chuniaud, 2012, fig. 9.12:5). Only two examples of this decoration, consisting of piercings covered by a blob of clay on the exterior, under the rim of simple Black/Brown Burnished ware open bowls, were recovered from Phases 5 and 2a (Fig. 3n).

Whilst not clearly chronologically situated, the ceramic style from a surface collection at Dunjame site (Fig. 1) suggests a late first millennium to early second millennium AD date (Wondifraw & Beldados, 2015). Impressed decoration, which appears similar to incised decoration, was the most common decorative style, but scratched decoration (called incised decoration) was also common. The “clay ball attachment on the lip” decoration may be similar to the appliqué decoration on the rims discussed above (Wondifraw & Beldados, 2015, p. 95, Fig. 3j). Handles with parallels to the pierced lug handles were present in what appears to be red unburnished ware. Most of the decorations were found on burnished sherds. Burnished carinated bowls are noted to be typical of medieval highland sites in Ethiopia, especially at Manz, Gännätä Maryam, Lalibela, and the Lake Tana sites (Chuniaud, 2012, p. 255-256; González-Ruibal et al., 2016, p. 28-29; de Torres Rodríguez, 2017, p. 235-237). Post-firing scratched decoration appears to be a typical style of decoration on burnished sherds in the region (e.g., Chuniaud, 2012; de Torres Rodríguez, 2017; Wondifraw & Beldados, 2015), a style also present at Harlaa.

Shay Culture

The Shay culture was centered in Shoa and south-east Wallo, at sites such as Tätär Gur (Fig. 1). It is known through diverse burial monuments, including tumuli, chamber tombs, and dolmen graves, dated to 900–1500 AD (Fauvelle-Aymar & Poissonnier, 2012, 2016). Research on Shay culture sites has mainly focused on the assemblages from burials. As most of the ceramics were grave goods, a large quantity of complete vessels have been recovered. The burials show that the deceased were followers of indigenous beliefs but were
connected with wider trade networks, including Islamic ones. These networks were the source of the imported monochrome plain and segmented glass beads, and multi-color glass eye-beads, as well as spiral silver rings identical to examples from Chercher sites such as Sourré-Kabanawa and Raré (Fauvelle-Aymar & Poissonnier, 2016, p. 67-70). Both beads and silver jewelry could have come from Harlaa.

However, the ceramics recovered differed from the Harlaa assemblages and nearby Christian sites. Highly burnished carinated vessels were common, including distinctive “flying saucer vessels” (Fauvelle-Aymar & Poissonnier, 2016, p. 64). These were much more sharply carinated than any of the Harlaa vessels. Additionally, no evidence has been found at Harlaa for carinated jugs or bottles. These highly carinated vessels are instead suggestive of links between Shay culture sites and northern trade routes. This is corroborated by the presence of a Shay culture “flying saucer” vessel at the Aksumite site of Matara in Eritrea, interpreted as representing Shay culture contact with this region after the fall of Aksumite Matara (Fauvelle-Aymar & Poissonnier, 2016, p. 71). A single stand base, similar to the stand bases described above, was recovered from a burial tumulus at Qopros. However, it was formed from a single block of clay and pierced to form legs (Poissonnier, 2012, p. 43), and thus differed from the ones from Harlaa and the Chercher Mountains. Thus, the Shay sites suggest a variety of contacts and influences, and although there is little evidence for ceramic links, this could include potential trade items from Harlaa.

The Sudanese Borderlands

Surveys in the Metema and Qwara (Fig. 1) region in the lowlands along the Sudanese border have provided valuable data on archaeological material from sites dating from the seventh century to the twentieth century (González-Ruibal et al., 2016; González-Ruibal & Falquina, 2017). It has been noted that the Gelegu Tradition (600–1200 AD) and Jebel Mahidid Tradition (1300–1650 AD) ceramics have strong parallels with contemporary Sudanese traditions. Burnished/polished bowls, often with punctate, impressed, or incised patterns, and decorated rims were the dominant form in the Gelegu Tradition. The Jebel Mahidid Tradition ceramics often had a rough exterior and were only burnished on the interior, if at all. A small quantity of ceramics across the phases at Harlaa (twelve sherds) had burnished interiors and rough exteriors. This period saw the introduction of Sudanese doka plates for the cooking of kisra. A red burnished carinated bowl from a Jebel Mahidid Tradition site was identified as an Ethiopian highland dîst bowl for the cooking and serving of stews and sauces, dating from the thirteenth century onwards, based on parallels with other sites (González-Ruibal & Falquina, 2017, p. 188).

Near Metema at Gännätä Maryam, the ceramics from a female monastery dated to the sixteenth through the eighteenth century seem closer in form, finish, and decoration to those of the highlands. A fragment of a ceramic tripod vessel with potential parallels to the Harlaa stand bases was also recovered. This was interpreted as a serving tray based on similarities with modern wooden examples (González-Ruibal et al., 2016, p. 29). As with Lalibela and the Lake Tana sites, it was noted that the ceramic traditions at Gännätä Maryam had a long use from the thirteenth century until the present day.

Somaliland Islamic Trade Sites

There are ruins of inland towns and coastal sites in Somaliland on the routes which linked Harlaa to the Red Sea. These have been the focus of research since the 1930s (e.g., Curle, 1937; de Torres Rodríguez, 2020; Fauvelle-Aymar & Hirsch, 2011a, 2011b; González-Ruibal et al., 2017; Huntingford, 1978; Mire, 2015). These sites are linked to the Ifat and Adal Sultanates and seem to have operated between the late thirteenth and the late sixteenth centuries. Imported materials such as Chinese wares, including celadons and blue and white porcelain, and imported Middle Eastern ceramics such as Yemeni black-on-yellow wares, as well as glass beads and bangles have been observed at many of these sites (e.g., Curle, 1937; de Torres Rodríguez, 2020; Fauvelle-Aymar & Hirsch, 2011a). But local ceramics have not been the focus of study. At the port of Zeila (Fig. 1), for example, local ceramics recovered from the “mosque with two mihrabs” as part of the 2004 excavations, were described as red earthenware (Fauvelle-Aymar et al., 2011, p. 46-50). However, forms and decoration were not discussed, thereby precluding further comparison. Zeila was one of the Red Sea ports Harlaa was most likely connected to, and therefore we
should expect some similarities in their local ceramic assemblages.

The analysis of sherds collected during Curle’s (1937) survey of inland trade sites in Somaliland, held in the British Museum, indicates some ceramic affinities with Harlaa. The fabric of the Somaliland local ceramics was primarily a pale buff color, distinct from the red/brown to black fabric in Harlaa and the red fabric in Zeila. Most of the sherds were unburnished, with only three clearly burnished examples. One, a burnished light brown body sherd with carination (Accession code: Af1935,0709.82), was visually identical to Harlaa Light Brown Burnished wares and might have been sourced from Harlaa. Another example (Accession code: Af1935,0709.51), a body sherd with black burnished on the exterior, had a much finer pinkish-red fabric, distinct from Harlaa, suggesting a different origin for this sherd. The third (Accession code: Af1935,0709.81) was also unlike Harlaa burnished wares, with a finer, paler fabric and moulded/appliqué ridges. According to Curle (1937, p. 321), these are possibly related to Harari honey jars. Curle’s assessment of this sherd fits with the analysis of ceramics from the recent excavations at Harar (Insoll, 2017). Similar forms in Harlaa assemblage, including carination (Accession code: Af1935,0709.129), pierced lug handles (Accession code: Af1935,0709.129 and Af1935,0709.147), ribbon handles, although with distinctive joins (Accession code: Af1974,Q.787), and lids (Accession code: Af1935,0709.118) were represented by unburnished wares in the Curle collection.

Test excavations and surveys at the sixteenth-century caravanserais of Qalcadda, and at Bagan and Fardowsa, twelfth to sixteenth centuries (González-Ruibal et al., 2017), provide further detail on comparative local ceramics from Somaliland (Fig. 1). No burnished wares were recovered, and burnishing appeared to have been absent or very rare at the inland Somaliland sites (Curle, 1937, p. 321; Fauvelle-Aymar et al., 2011, p. 40). The fabric of the ceramics was described as ochre-brown (González-Ruibal et al., 2017, p. 153), distinct from both Zeila and Harlaa. Excluding heavily decorated incense burners, ceramic decoration was rare and primarily consisted of incised, punctate, or roulette decoration on rims (González-Ruibal et al., 2017, p. 153). The local ceramics are similar across the inland trade sites (de Torres Rodríguez, 2020, p. 175-176). Some of the decorated rims from Phases 4 and 5 (late thirteenth to fourteenth century) at Harlaa (e.g. Fig. 3m) are similar to those of the Somaliland sites in the use of rows of incised dots or short incised dashes on the rim. These likely represent influences along the trade routes linking the Red Sea coast.

Handoga

Further to the north, comparative data on local ceramics from Djibouti is limited, but not entirely absent. The site of Handoga in western Djibouti (Fig. 1) was excavated by Grau (1976, 1981, 1989) in the 1970s. The site was identified as “medieval” based on the presence of two Arab coins of the eleventh and thirteenth centuries, which are otherwise undescribed (Gutherz, 2013, p. 17, 32). The ceramics from Handoga are notable for a range of unusual base forms, including examples similar to the stand bases at Harlaa and from the Chercher Mountains, as well as annular bases of unique forms. Carination was also present. Decoration consisted of simple incised and punctate patterns on the body, and rows of incised dashes or punctate dots are often under the rim. This style of decoration is present at Harlaa. However, incised decoration more commonly consists of solid horizontal lines as opposed to rows of dashes. Simple punctate and incised decorated rims were also present. This may be part of the connection to the wider Islamic networks attested at Handoga by the presence of imported artifacts such as glass and the two Arab coins (Grau, 1976, p. 8; Gutherz, 2013, p. 31-32).

Conclusions

The local ceramics from Harlaa offer the opportunity to assess their use as markers of chronology and contacts across a vast region and the extent to which inferences can be made about past foodways and cultural identity. While changes were observed in the assemblage, their function as chronological indicators was nevertheless limited by the longevity of many wares and vessel forms. Fabric and finish were generally stable, but some color change was apparent. There was a decrease in Light Brown Burnished wares in earlier contexts, particularly Phase 2b (eleventh to mid-thirteenth century) and earlier, and the rare Black Slipped and Light Brown Slipped plainwares concentrated in Phase 5, although Black Slipped ware was present in small quantities until Phase
2b. The decoration was of limited chronological significance. The absence of decorated sherds from Phase 1 (seventh to the tenth century) was intriguing, but the significance is unclear. Apart from this, roughened-line decoration was the only surface pattern on burnished wares in Phase 2b and Earthenware/Plainware appliqué decoration was absent from this phase. The decorated rims with similarities to the ones at Somaliland trade sites were all from Phases 4 and 5. Information on vessel forms was limited, but carination was chronologically sensitive, being particularly associated with the changes observed around Phase 2a/2b (eleventh to mid-thirteenth century). Certain rim forms were also chronologically sensitive, such as the burnished ware inner lipped rims (Phase 3 to Phase 5) and burnished ware lipped rims (Phase 2a to 5), but rim diameters were not chronologically significant. The presence of bases, particularly ring and stand bases, were chronologically important, as were certain forms of handles, lids, and spouts. Ring bases, pierced lug handles, and the rare conical burnished lids formed part of the ceramic repertoire, which developed around Phase 2a, while rare examples of spouts, concentrated in Phase 5–4, and burned ware ribbon handles were present from Phases 5 to 3.

The archaeobotanical analysis at Harlaa demonstrates a porridge/soup/boiling-based food culture. Likewise, the local ceramics from Harlaa appear to have stronger links with the ceramic traditions of the Christian highlands as opposed to those of Somaliland. Yet, Somaliland and Harlaa were both Islamized, and were part of the same, or allied Islamic polities for a long time. The similarities with the predominately Christian highlands can be seen through the divide in the use of burnished fine wares and plainwares, burnished open carinated bowls, scratched decoration on burnished wares, and roughened-line decoration. The main possible link with Somaliland is the presence of decorated rims. Many of the finer decorated rims at Harlaa, including Fig. 3m, are potentially imports from Somaliland. De Torres Rodriguez (2020, p. 179) has also observed distinctive local trends in the ceramic assemblages of Islamic sites in Somaliland and of the Islamic regions around the Chercher Mountains, Harar, and Shoa. All of these show a general trend in maintaining local ceramic traditions in the Horn of Africa, although they were part of far-flung interaction networks (e.g., Cassiers, 1971; de Torres Rodriguez, 2017, p. 229).

Overall, there appears to have been limited movement of local ceramics within the Horn of Africa. The few exceptions are the Shay culture “flying saucer” vessel at Matara; a highland dist at a Jebel Mahidid tradition site; potential Somaliland decorated rims at Harlaa; and rare burnished wares at the Somaliland trade sites, possibly from Ethiopian sites (including Harlaa) where burnished wares were more common. The implication of these for the movement of people and ideas is uncertain, but foodways in Harlaa appear to have been based on the technology of porridge/soup/boiling, as opposed to the flat bread/injera culture prevalent in parts of Ethiopia today. There was also no evidence of Islamization of ceramics, but certain elements were indicative of participation in broader trade networks. This was particularly so with decorated rims. As has been noted by other authors (e.g., Poissonnier et al., 2011), decorated rims appear to have had a wide distribution across the Islamic trade networks of the Horn of Africa. Similar styles of decorated rims have been observed on local unglazed ceramics from sites in the Indian Ocean trade networks, including at the Yemeni sites of Zabid (Ciuk & Keall, 1996) and Sharma (Rougeulle 2015, p. 186) in contexts dated to 900–1500 and 900–1300 respectively. However, these could not be read as markers of either Islam or a Muslim presence, for they were found in varying regional contexts, both Muslim and non-Muslim. Stand bases were also widely distributed and most common at the Chercher Mountains sites, but were also present at Harlaa and Handoga, with a single example from the Shay culture sites and a similar one from Gännätä Maryam. Circular ribbon handles were also widespread at sites across the Horn of Africa, although with some variation in exact form. This study provides the first insight into the local ceramic assemblage from an Islamic site in Ethiopia. It is, therefore, a contribution to understanding a neglected period in the archaeology of Ethiopia and the Horn of Africa. The ceramic assemblage at Harlaa shows that the adoption of a new religion, Islam, did not lead to a significant change in the locally made ceramics.

Acknowledgements The authors are grateful to Nadia Khalaf for preparing some of the illustrations, Rachel MacLean for commenting on the original manuscript, and to the two anonymous reviewers for making useful suggestions that have improved the article. They are also grateful to the Authority for Research and Conservation of Cultural Heritage, Addis Ababa, the authorities in Dire Dawa, and the administrators and community in Ganda Biyo for approving the research. We are grateful to the European Research Council for funding the project under grant ERC-2015-AdG BM694254.
Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

Abir, M. (1980). Ethiopia and the Red Sea: The rise and decline of the Solomonic dynasty and Muslim-European rivalry in the region. Frank Cass & Co. Ltd.

Ahmed, H. M., Mayatepek, E., Laryea, M. D., Ahmed Ali, F. R., Abir, M. (1980). This licence, visit http://creativecommons.org/licenses/by/4.0/. Regulation or exceeds the permitted use, you will need to obtain a mons licence and your intended use is not permitted by statutory material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

Begashaw, K. (2009). The archaeology of Islam in North East Ethiopia between the thirteenth and sixteenth centuries (Part 1). Ethiopianist Notes, 1(1), 17–56.

Begashaw, K. (2009). The archaeology of Islam in North East Shoa. In S. Ege, S., H. Aspen, B. Tefera, & S. Bekele (Eds.), Proceedings of the 16th International Conference of Ethiopian Studies, Vol. 1 (pp. 11-22). NTNU-trykk.

Bellados, A., Zewdu, E., & Insoll, T. (2019). Report on the archaeobotanical study of soil samples from Harar and Harlalaa (Dire Dawa). Unpublished Report.

Braukämper, U. (1977a). Islamic principalities in Southeast Ethiopia between the thirteenth and sixteenth centuries (Part 1). Ethiopianist Notes, 1(1), 1–43.

Braukämper, U. (1977b). Islamic principalities in southeast Ethiopia between the thirteenth and sixteenth centuries (Part 2). Ethiopianist Notes, 1(2), 1–43.

Cassiers, A. (1971). Ethiopian pottery. African Arts, 4(3), 44–47.

Chekroun, A., Fauvelle-Aymar, F.-X., Hirsh, B., Aynatchew, D., Zeleke, H., Onezime, O., & Shewangizaw, A. (2011). Les Harla: Archeologie et memoire des geants d’Ethiopie: Proposition de sequence historique pour les sites du Carfar. In F.-X. Fauvelle-Aymar & B. Hirsh (Eds.), Espaces Musulmans de la Corne de l’Afrique au Moyen Age (pp. 75–102). De Boccard / Centre Francais des Etudes Ethiopiennes.
the time of Christians and Muslims. *African Archaeological Review*, 33(1), 61–74. https://doi.org/10.1007/s10437-016-9214-2.

Fernández, V. M., de Torres Rodríguez, J., & d’Alós-Moner, A. M. & Cañete, C. (2017). *The archaeology of the Jesuit Missions in Ethiopia* (1557–1632). Brill.

Finneran, N. (2007). *The archaeology of Ethiopia*. Routledge.

Fisher, H. (1977). The Western and Central Sudan and East Africa. In P. M. Holt, A. K. S. Lambton, & B. Lewis (Eds.), *The Cambridge history of Islam, Volume 2A: The Indian sub-continent, South-East Asia, Africa and the Muslim West* (pp. 345–405). Cambridge University Press.

Gastra, J. S., & Insoll, T. (2014). Animal economies and Islamic conversion in Eastern Ethiopia: Zooarchaeological analyses from Harlaa, Harar and Ganda Harla. *Journal of African Archaeology*, 18(2), 1–28. https://doi.org/10.1163/21915784-20200008.

González-Ruibal, A., de Torres, J., Franco, M. A., Abdí Ali, M., Shabelle, A. M., Barrio, C. M., & Aideed, K. A. (2017). Exploring long distance trade in Somaliland (AD 1000–1900): Preliminary results from the 2015–2016 field seasons. *Azania*, 52(2), 135–172. https://doi.org/10.1080/0067270X.2017.1328214.

González-Ruibal, A., & Falquina, Á. (2017). In Sudan’s Eastern borderland: Frontier societies of the Qwara Region (ca. AD 600–1850). *Journal of African Archaeology*, 15(2), 173–201.

González-Ruibal, A., Falquina-Apérico, A., Simenew, C., & Agizew, H. (2016). A Christian frontier: Archaeological survey of a religious landscape in Metema, NW Ethiopia (ca. 1400–1800). *Nyame Akuma*, 86, 24–33.

Grau, P. R. (1976). *Le site de Handoga: Fouilles archéologiques*. *Pount*, 16, 4–22.

Grau, P. R. (1981). *Handoga: Site d’Habitat de pasteurs nomades? Archaeologia*, 159, 55–57.

Grau, P. R. (1989). *Site du Handoga (Republique de Djibouti)*. In T. Beyene (Ed.), *Proceedings of the Eighth International Conference of Ethiopian Studies* (Vol. 2, pp. 1–10). Institute of Ethiopian Studies.

Gaudelli, M., & Yule, P. A. (Eds.). (2017). *Mifsas Bahri: A Late Aksumite frontier community in the mountains of Southern Tigray: Survey, excavation and analysis, 2013–16*. BAR Publishing.

Gutherz, X. (2013). L’archéologie à Djibouti. In A. Saïd Chiré (Ed.), *Djibouti contemporain* (pp. 18–42). Karthala.

Horton, M. (1996). *Shanga: The archaeology of a Muslim trading community on the coast of East Africa*. British Institute in Eastern Africa.

Huntingford, G. B. W. (1955). Arabic inscriptions in southern Ethiopia. *Antiquity*, 29(4), 230–233. https://doi.org/10.1017/S0003588X00021955.

Huntingford, G. B. W. (1978). The town of Amud, Somalia. *Azania*, 13(1), 181–186.

Insoll, T. (1996). *Islam, archaeology and history. A complex relationship: The Gao region (Mali) ca. AD 900–1250*. BAR S647. Tempus Reparatum.

Insoll, T. (2001). *Dahlah Kebir, Eritrea: From Aksumite to Ottoman*. *Adumam*, 3, 39–50.

Insoll, T. (2017). First footsteps in the archaeology of Harar, Ethiopia. *Journal of Islamic Archaeology*, 4(2), 189–215.

Insoll, T. (2021). Marine shell working at Harlaa, Ethiopia, and the implications for Red Sea trade. *Journal of African Archaeology*, 19(1), 1–24. https://doi.org/10.1163/21915784-20210001.

Insoll, T. (2003). *The archaeology of Islam in sub-Saharan Africa*. Cambridge University Press.

Insoll, T., Khalaf, N., MacLean, R., Parsons, H., Tait, N., Gastra, J., Beldados, A., Pryor, A., & Evis, L. (2021). Material cosmopolitanism: The entropet of Harlaa as an Islamic gateway to Eastern Ethiopia. *Antiquity*, 93(2), 487–507. https://doi.org/10.15184/aqy.2020.169.

Insoll, T., Khalaf, N., MacLean, R., & Zerihun, D. (2017). Archaeological survey and excavations, Harlaa, Dire Dawa, Ethiopia January-February 2017. A preliminary fieldwork report. *Nyame Akuma*, 87, 32–38.

Insoll, T., MacLean, R., & Engda, B. (2016). Archaeological survey and test excavations, Harlaa, Dire Dawa, and Sofi, Harari regional state, Ethiopia, August 2015: A preliminary fieldwork report. *Nyame Akuma*, 85, 23–32.

Insoll, T., Tesfaye, H., & Saako Mahmood, M. (2014). Archaeological survey and test excavations, Harari regional state, Ethiopia, July–August 2014. A preliminary fieldwork report. *Nyame Akuma*, 82, 100–109.

Insoll, T., & Zekaria, A. (2019). The mosques of Harar: An archaeological and historical study. *Journal of Islamic Archaeology*, 6(1), 81–107.

Insoll, T. (2000). *Urbanism, archaeology and trade. Further observations on the Gao Region (Mali)*. The 1996 Fieldseason Results. BAR S829. British Archaeological Reports.

Johnston, C. (1844a). *Travels in southern Abyssinia: Through the country of Adal to the kingdom of Shoa* (Vol. I). J. Madden and Co.

Johnston, C. (1844b). *Travels in Southern Abyssinia: Through the country of Adal to the kingdom of Shoa* (Vol. II). J. Madden and Co.

Joussaume, H., & Joussaume, R. (1972). Anciennes villes dans le pays de Tchercher (Harrar). *Annales d’Ethiopie*, 39, 21–50.

Joussaume, R. (1974). Le mégalithisme en Ethiopie: Monuments funéraires protohistoriques du Harar. *Museum National d’Histoire Naturelle Laboratoire de Préhistoire*.

Joussaume, R. (2014). *Mégalithisme dans le Chercher en Éthiopie*. Addis Ababa: De Bocard / Centre Français des Études Éthiopiennes.

Kenoyer, J. M. (2017). *History of stone beads and drilling: South Asia*. In A. Kumar Kanungo (Ed.), *Stone beads of south and southeast Asia: Archaeological, ethnographic and global connections* (pp. 127–150). Indian Institute of Technology.

Khalaf, N., & Insoll, T. (2019). Monitoring Islamic archaeological landscapes in Ethiopia using open source satellite imagery. *Journal of Field Archaeology*, 46(6), 401–419.

Kinahan, J. (2013). The sixteenth-century ritual precinct at Koticha Kesu in the Gigel Gibe Valley, southern Ethiopia. *Azania*, 48(3), 355–379.

Lambourn, E. (2018). *Abraham’s luggage. A social life of things in the Medieval Indian Ocean world*. Cambridge University Press.

Loyet, M. A. (1999). Small ungulate butchery in the Islamic period (A.D. 632–1260) at Tell Tuneinir, Syria. *Journal of Near Eastern Studies*, 58(1), 33–45. https://doi.org/10.1086/468670.

Lyons, D., & D’Andrea, A. C. (2003). Griddle, ovens and agricultural origins: An ethnoarchaeological study of bread
baking in Highland Ethiopia. *American Anthropologist, 105*(3), 515–553.

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

MacLean, R., & Insoll, T. (1999). The social context of food technology in Iron Age Gao, Mali. *World Archaeology, 31*, 78–92.

MacLean, R., & Insoll, T. (2003). Archaeology, luxury, and the exotic: The examples of Islamic Bahrain, and Gao, Mali. *World Archaeology, 34*, 558–570.

Maundu, P.M., & Imburmi, M. (2003). East Africa. In S.H. Katz & W.W. Weaver (Eds.), *Encyclopedia of food and culture* (Vol. 1, pp. 27–34). Thomson & Gale.

Mire, S. (2015). Mapping the archaeology of Somaliland: Religion, art, script, time, urbanism, trade and empire. *African Archaeological Review, 32*(1), 111–136.

Omar, L. (2017). Approaching Medieval cuisine: employing zooarchaeological methods on Anatolian faunal assemblages. In J. Vroom, Y. Waksman, & R. van Oosten (Eds.), *Medieval MasterChef: Medieval and Post-Medieval Mediterranean Archaeology* (pp. 95-115). Brepols.

Poissonnier, B. (2012). Les tumulus de Qopros (Mänz): Premiers indices d’une culture originale. In F.-X. Fauvelle-Aymar & B. Poissonnier (Eds.), *La culture Shay d’Éthiopie (Xe-XIVe Siècles): Recherches archéologiques et historiques sur un élite païenne* (pp. 33–44). De Bocard / Centre Français des Études Éthiopiennes.

Poissonnier, B., Ayenachew, D., Bernard, R., & Hirsch, B. (2011). Les mosquées médiévales de Goze et Fäqi Däbbis (Ifät). In F.-X. Fauvelle-Aymar & B. Hirsch (Eds.), *Espaces Musulmans de la Corne de l’Afrique au Moyen Âge* (pp. 103–139). De Bocard / Centre Français des Études Éthiopiennes.

Rougeulle, A. (Ed.). (2015). *Sharma: Un entrepôt de commerce médieval sur la côte du Hadramawt (Yémen, ca 980-1180)*. Archaeopress.

Roux, V. (Ed.). (2000). *Cornaline de l’Inde*. Éditions de la Maison des Sciences de l’Homme.

Simoons, F. J. (1994). *Eat not this Flesh*. University of Wisconsin Press.

Smith, L., Mallinson, M., Phillips, J., Adam, A., Said, A., Barnard, H., Breen, C., Britton, D., Frosythe, W., Jansen van Rensburg, J., McErlean, T., & Porter, S. (2012). Archaeology and the archaeological and historical evidence for the trade of Suakin, Sudan. In D. A. Agius, J. P. Cooper, A. Trakada, & C. Zazzaro (Eds.), *Navigated spaces, connected places: Proceedings of Red Sea Project V held at the University of Exeter, 16-19 September 2010* (pp. 173–186). BAR.

Tait, N.M.T. (2020). *Archaeological ceramics as chronological indicators on Islamic sites in Eastern Ethiopia* [Unpublished doctoral dissertation]. University of Exeter, U.K.

Trimingham, J.S. (1965). *Islam in Ethiopia*. Frank Cass & Co. Ltd.

Wayessa, B. S. (2011). The technical aspects of Wallaga pottery making: An ethnoarchaeological study of Oromo potters in Southwest Highland Ethiopia. *African Archaeological Review, 28*(4), 301–326. https://doi.org/10.1007/s10437-011-9103-7.

Wilding, R. (1980). The desert trade of eastern Ethiopia. In R. E. Leakey & B. A. Ogot (Eds.), *Proceedings of the 8th Panafrican Congress for Prehistory* (pp. 379–380). Louis Leakey Memorial Institute for African Prehistory.

Wondifraw, T., & Beldados, A. (2015). Classification and analysis of potsherds from Dunjame, East Gojjam, Ethiopia. *Nyame Akuma, 83*, 93–99.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.