

General areas of articles in this volume
Localisation des articles de ce volume



EDITORIAL

Dear readership,

The June 2020 volume 93 consists of five papers in English. Unfortunately we did not receive any submissions in French. Geographically, all but one are located in the east with a lone representative from the west coast. Chronologically, these pieces cover the fifth century AD to the present, addressing archaeological survey and the development of sites for tourism.

Beginning on the west coast, Chidinma C. Oguamanam, Emeka E. Okonkwo, and Jacinta U. Ikegwu report on pottery recovered from ten rock shelters in Ozizza, Nigeria. Their archaeological survey was paired with ethnographic investigations of current potting traditions in the region. The current potters are older, and younger and married women are giving up the practice, leading to a decline in the craft locally. Thus, the authors' goal was to document the techniques and knowledge associated with production before the practice is lost, as well as to aid in their interpretation of archaeological materials associated with rock shelters. They document the various types and uses of different pots and developed a typology based on their ethnographic findings.

Two contributions report on field projects in Ethiopia. The first study by Hailay Atsbha presents preliminary results from an archaeological survey in the highlands of eastern Tigray in the Wereda of Hawzien. The goal of this initial phase of research was to identify archaeometallurgical sites in the region that could potentially predate the fifth century AD, or the Askumite period. The project consisted of two weeks of pedestrian survey focused on identifying surface features. Seven sites consisting of slag deposits of various sizes were identified as production sites, and iron ore source locations are proposed when possible. However, radiocarbon dates from charcoal recovered at one site (Dogol) post-date the Askumite period.

Alebachew Belay Birru authored our second contribution from Ethiopia. His study focused on megalithic sites associated with the Shay Culture (ca. tenth to fourteenth century AD) of the Central Highlands. The project is another survey with the aim of documenting the various types of megalithic sites that have been attributed to

the Shay Culture, developing a typology for the area. Besides expanding the geographical study of megaliths in the region, Birru has taken a broader landscape approach examining the association of these with rivers and other bodies of water.

From Ethiopia, we move to Somalia with a contribution from Jorge de Torres Rodríguez, Alfredo González-Ruibal, Manuel Antonio Franco Fernández, Pablo Gutiérrez de León Juberías, Candela Martínez Barrio, Álvaro Minguito Palomares, and Ahmed Duale Jama reporting on the 2020 field season at the medieval town of Fardow-sa. This is an expansion of the previous investigations of the site by members of the team in 2015 and 2016. Their focus in 2020 was on a 700 square meter area that was not covered with brush in order to investigate previous structures. The concentrated excavations uncovered three structures that are reported on in detail with regards to their architectural style, layout and associated material culture here. Their findings suggest that a regular floor plan for houses was employed at the site for larger households as well as integration in regional trade networks in the fifteenth and sixteenth centuries AD.

Moving to the south, Stephane Pradines, Heinz Ruther, and Fabien Balestra present the results of their 2018 field season at the Swahili site of Kua in Tanzania. Kua was occupied during the Portuguese expansion in the Indian Ocean in the sixteenth and seventeenth centuries AD. Archaeological fieldwork was focused on site preservation. Working with their local partners, the ultimate goal is to prepare the site for tourism. Specifically, local individuals were employed in various stages of the project and trained as tour guides.

We hope that our readers find this volume an interesting contribution to the field. We take this opportunity to thank all authors for supporting the Bulletin, as well as all those who were involved in its production. They are the members of the Heritage Department and of the Publications Service of the Royal Museum for Central Africa who took care of the proofreading, graphic assistance, layout and copy-editing. We also thank our colleagues at SAfA for the on-line publication on the SafA-website.

The editors,

Liza Gijanto

Els Cornelissen



ÉDITORIAL

Chers lecteurs, chères lectrices,

Le volume 93 du mois de juin 2020 comporte cinq articles en anglais, aucun texte en français ne nous ayant malheureusement été soumis. Sur le plan géographique, tous les articles sont localisés dans l'est, sauf un seul qui représente la côte ouest. Sur le plan chronologique, ces textes couvrent une période qui s'étend du cinquième siècle après J.-C. jusqu'à nos jours ; ils traitent de fouilles archéologiques et du développement de sites touristiques.

Commençant par la côte ouest, Chidinma C. Oguanam, Emeka E. Okonkwo et Jacinta U. Ikegwu rendent compte de la poterie découverte dans dix abris sous roche à Ozizza, au Nigeria. Leurs fouilles archéologiques étaient associées à des recherches ethnographiques portant sur les traditions céramiques actuelles dans la région. Les potières d'aujourd'hui sont des femmes d'âges divers, et celles qui se marient abandonnent l'activité, ce qui entraîne localement un déclin de cet artisanat. Dès lors, le but des auteurs était de documenter les techniques et le savoir associés à la production avant que cette activité ne soit perdue, ainsi que de contribuer à l'interprétation du matériel archéologique trouvé dans des abris sous roche. Ils documentent les divers types et utilisations des différents pots et développent une typologie basée sur leurs observations et données ethnographiques.

Deux contributions nous donnent le compte rendu de projets de terrain réalisés en Éthiopie. Dans la première, Hailay Atsbha présente les résultats préliminaires de fouilles archéologiques menées sur les hauts plateaux du Tigré oriental, dans le Wereda de Hawzien. Le but de cette phase initiale de recherche était d'identifier dans la région des sites archéométrallurgiques qui pourraient dater d'avant le V^e siècle après J.-C., donc d'avant la période aksumite. Le projet consistait en une prospection pédestre de deux semaines centrée sur l'identification de caractéristiques visibles en surface. Sept sites constitués de dépôts de scories de tailles diverses ont été identifiés comme sites de production et, quand c'est possible, des localisations sont proposées pour les sources de minerai de fer. Cependant, les dates radiocarbone du charbon découvert sur un site (Dogol) postdatent la période aksumite.

Alebachew Belay Birru est l'auteur de notre second article provenant d'Éthiopie. Son étude porte sur les sites mégalithiques associés à la culture shay (environs du X^e au XIV^e siècle après J.-C.) des Hauts-Plateaux du Centre. Le

projet est une autre prospection archéologique visant à documenter les divers types de sites mégalithiques qui ont été attribués à la culture Shay, et développant ainsi une typologie pour la région. En plus d'étendre l'étude géographique des mégalithes dans la région, Birru a adopté une approche plus large du paysage en examinant l'association de ces mégalithes avec des rivières et d'autres étendues d'eau.

Nous quittons l'Éthiopie pour la Somalie avec une contribution de Jorge de Torres Rodríguez, Alfredo González-Ruibal, Manuel Antonio Franco Fernández, Pablo Gutiérrez de León Juberías, Candela Martínez Barrio, Álvaro Minguito Palomares et Ahmed Duale Jama qui font le compte rendu de la saison de terrain 2020 réalisée dans la ville médiévale de Fardowsa. Il s'agit de l'extension de recherches antérieures menées par l'équipe sur le site en 2015 et 2016. En 2020 celle-ci s'est focalisée sur une surface de 700 m² non couverte de buissons, en vue de rechercher des structures anciennes. Les fouilles ont mis au jour trois structures dont sont ici décrits en détail le style architectural, la configuration et la culture matérielle associée. Leurs découvertes suggèrent l'application, sur ce site, d'un plan habituel de maisons à des habitations plus grandes, ainsi qu'une intégration dans des réseaux régionaux de commerce aux V^e et VI^e siècles après J.-C.

Nous nous déplaçons vers le sud, où Stéphane Pradines, Heinz Ruther et Fabien Balestra présentent les résultats de leur saison de terrain de 2018 consacrée au site swahili de Kua, en Tanzanie. Kua a été occupé à l'époque où se poursuivait l'expansion portugaise dans l'océan Indien, aux XVI^e et XVII^e siècles après J.-C. Le travail archéologique de terrain était axé sur la préservation du site. Le but ultime est, en collaboration avec leurs partenaires locaux, de préparer le site pour le tourisme. Plus spécifiquement, des personnes de la région sont employées à diverses étapes du projet et reçoivent une formation de guides touristiques.

Nous espérons que nos lecteurs et nos lectrices considéreront ce volume comme une contribution intéressante à notre domaine. Nous saisissons cette opportunité pour remercier tous les auteurs de soutenir le *Bulletin*, ainsi que tous ceux qui ont été impliqués dans sa production, à savoir les membres du département Patrimoines et ceux du service des Publications du Musée royal de l'Afrique centrale qui ont assuré la relecture, l'assistance graphique, la mise en page et le *copy editing* de ce numéro. Nous remercions aussi nos collègues et membres de la SAfA pour la publication en ligne sur le site de notre organisation.

Les éditeurs

Liza Gijanto

Els Cornelissen

Ethiopia

Preliminary Survey of Archaeometallurgical sites in Hawzien, Northern Ethiopia

Hailay Atsbha

hailay.2005a@gmail.com

Department of Archaeology and Heritage Management, Adigrat University, Ethiopia

Introduction

There is a lack of archaeological evidence for early iron production in much of the Horn of Africa, including Ethiopia. Little is known of the ancient technologies or craftspeople responsible for iron production in northern Ethiopia. The first archaeometallurgical research was initiated in 2016 by Humphris (2017) and focused on the investigation of two major iron production locations close to the town of Adigrat (Figure 1). Fragments of iron slag have also been noted at Gobo-Dura, Lalibella and Nechibet (Phillipson 1997).

Archaeological research at the ancient capital site of Aksum and other Aksumite sites has revealed a significant range of metal artifacts and tools that demonstrate the technological skills of metal workers in Aksumite societies (Munro-Hay 1991). Scholars like Finneran (2007) have suggested that even if there is insufficient archaeological evidence for metal smelting in Ethiopia, some of the metal artefacts discovered at Aksumite sites point to a local origin for technological development. However, Mapunda (1995) states that knowledge regarding the production of iron in the region is incomplete. Therefore, the archaeometallurgical research outlined here represents a particularly significant step forward in our understanding of ancient Ethiopian iron production.

The presence and absence of slag helps in understanding where in the landscape iron production was taking place. In Aksum and its vicinity, a number of archaeological

investigations were undertaken by Phillipson in 1997. However, these large-scale investigations do not report significant quantities of metallurgical waste except at the site of Sibe'at in Adwa (Hagos 2011). Therefore, the possible geographical distribution of iron production was in the eastern part of Tigray (also supported by the results of the archaeometallurgical investigations recently conducted by Humphris (pers. comm). The forests of the area, as well as iron ore outcrops, may have contributed to this geographical distribution, while the distance from the major centers could have also been deliberate to keep the iron workers away from society.

Besides the presence of abundant evidence of iron slags, the rock hewn churches of Gheralta also demonstrate a requirement for hard tools such as iron picks. It is well known that the rock hewn churches were excavated using metal implements, and these metals could be produced locally by the local smiths in the area. Eighty percent of the rock hewn churches of Tigray are found in the Gheralta cluster mainly in the study area. Therefore, according to some scholars such as Humphris (pers. comm.), the abundant rock hewn churches in the region could be related to the abundance iron tools produced in the area. Yet scholars like Hagege (2000) ascertained that it is not known exactly when the churches were constructed. It is currently surmised that the churches in Gheralta undoubtedly dated back to the Aksumite period or the post-Aksumite period.

This study seeks to further fill this gap through investigations in Northern Ethiopia in the highlands of eastern Tigray in the Wereda of Hawzien. The iron production sites are found in the southern part of the Wereda, below the mountains of Gheralta, specifically in the area of Freweyni that is located about 18 km from the town of Hawzien. The majority of archaeometallurgical sites studied to date are located here at Selae and May-Tekli (see Figure 1).

Objective and methodology

The main objective of this study was to locate archaeometallurgical sites. More than two weeks of pedestrian survey were undertaken to document any visible archaeological evidence. Alongside this survey, the significance of our work was explained to local communities in an effort to raise awareness of their importance and the need for preservation. A total of seven archaeometallurgical sites identified during the survey are described below (Figure 2).

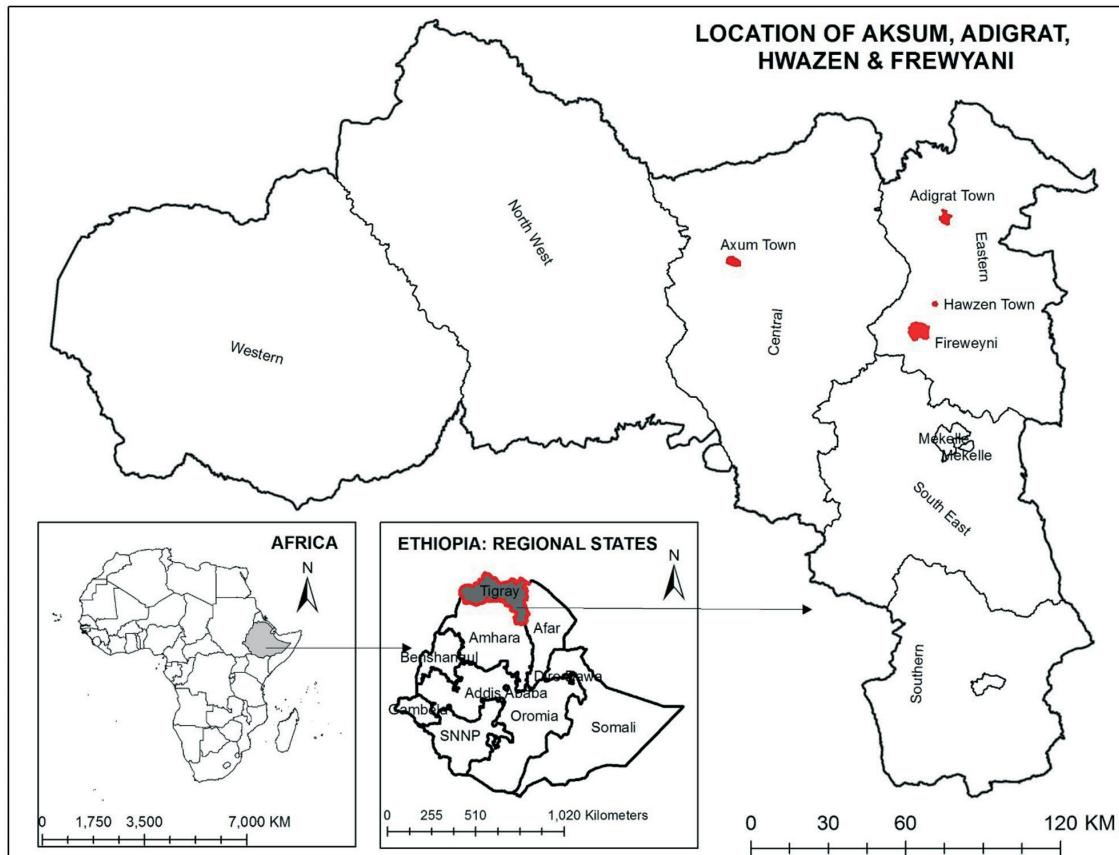


Figure 1: Map showing the location of Tigray in northern Ethiopia and of certain towns in the region (by Abrha Assefa, Adigrat University).

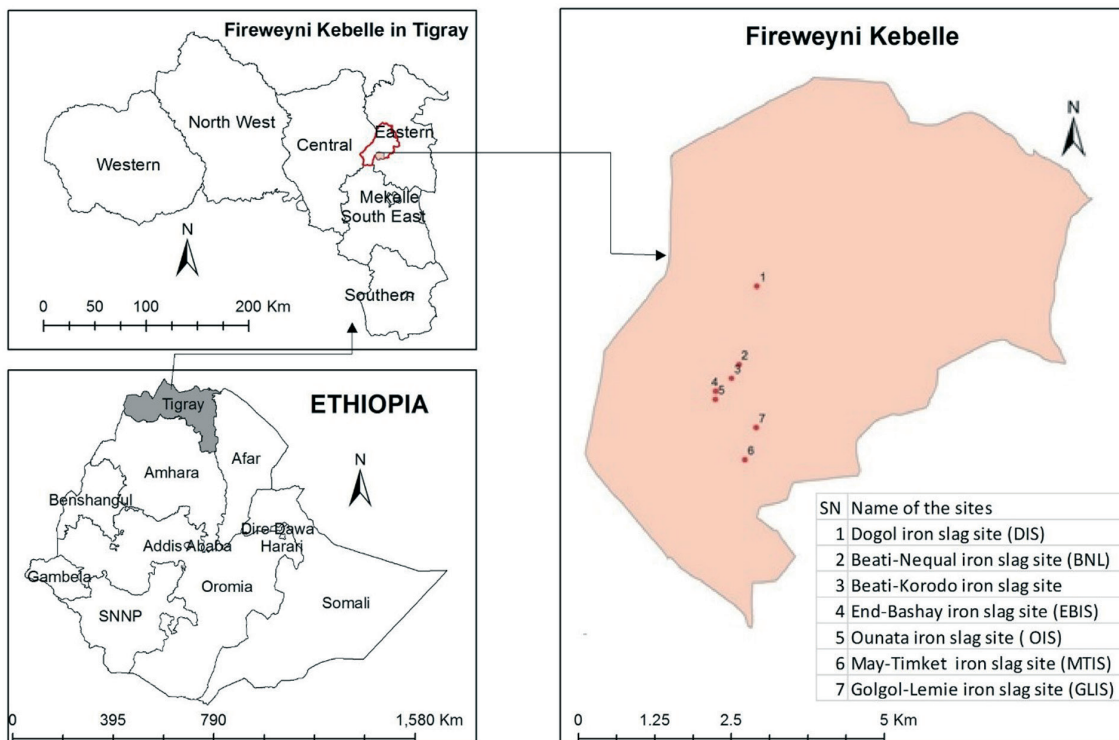


Figure 2: Map shows the identified sites of the study area (by Abrha Assefa, Adigrat University).



Figure 3: The site of Dogol (photo by Hailay Atsbha).

Dogol Iron Slag Site (DGL)

The site of Dogol is located 5 km north of the archaeological site of Bae'ti-Nequal and is almost one hectare in size. It is found at 0546931 easting and 1545430 northing with an elevation of 1983 masl. It is situated at the foot of the Gheralta Mountains, specifically the mountains of Mikael-Gundo and Enda Aba-Gerima, in a depression known as Dogol. Based on surface scatter, it is one of the largest iron production sites in the area. Significant quantities of slag ranging from small pieces of a few grams to larger pieces, is found scattered across the site along with furnace fragments. The site is known locally as Harea Hatsin (ሐርኢ ሐዲን), meaning 'a place where remains of iron slag or smelted iron are abundantly found'. The local inhabitants informed the author that in the 'ancient times' blacksmiths were smelting iron in the area, especially to produce agricultural tools. They also mentioned that the iron tools had been used during the construction of the rock hewn church of Mikael-Gundo which is found approximately 3 km northeast of the site.

The relatively remote location of this production site could indicate that the site's iron workers were isolated from the rest of the communities due to their powerful abilities to produce iron – a feature also seen elsewhere in Africa, at least in the ethnographic record (Finneran 2007). Alternatively, this relatively isolated location could have simply been particularly advantageous for accessing resources such as fuel and clay to construct the furnaces.

Today, the site is vulnerable to erosion from seasonal rivers that run from the mountains, washing the sandy deposits downhill (Figure 3). This, coupled with human activity, has resulted in poor site preservation. Some archaeological materials seem to have been transported by water over 500 m from their original context, yet material including iron slag, unidentified bone fragments, grinding stones, and pottery fragments were found in and around this archaeological site.

The pottery found at this site, with incised horizontal lines with red orange colors are considered typical examples of the Aksumite period pottery. Scholars like Wilding (1989) have suggested that pottery fragments with horizontal corrugation and reddish-brown color with ledge rim basins are typically Red Aksumite ware. This Aksumite ware has a wide range of forms, shapes, decorations and motifs. Thus, based on the presence of similar decorations and colors, the pottery remains in the study area are tentatively dated to the Aksumite period (150 BC to 700 AD).

Recently, a number of radiocarbon analyses was completed on charcoal samples embedded within slag fragments at the site of Dogol (Table 1). The radiocarbon dates were funded by UCL Qatar as part of the wider investigations into iron production of the region being undertaken by Humphris. This revealed that the slag dated to the post-Aksumite period. The results indicate that a long-term iron production tradition existed in the region,

which demonstrates the potential of archaeometallurgical research to shed further light on the social and economic context of the post-Aksumite period.

AA number	Sample number	95% calibrated date
AA112052	DGL 1	1036 calAD to 1164 calAD
AA112053	DGL S2	1036 calAD to 1160 calAD
AA112054	DGL S3	898 calAD to 1019 calAD

Table 1: Radiocarbon dates obtained from charcoal samples taken from Dogol.

Finally, this appears from the surface to be one of the largest iron production sites in the area (Figure 4). A significant portion of the surface slag identified was found in a rock overhang. The slag fragments range from small (ca. 0.2 g) to larger (ca. 40 kg) fragments. There were no iron ore sources observed at the site. Thus, it is tentatively postulated here that the ore used for smelting was brought in from elsewhere. In order to confirm this hypothesis, a geological survey is required.



Figure 4: Iron slag and pottery fragments at the site (photo by Hailay Atsbha).

Bae'ti-Nequal Iron Slag Site (BNL)

Bae'ti-Nequal is located 5 km south of Dogol with 13513933 northing, 39205083 easting and elevation of 1967 masl. In the local language the term 'Bae'ti' means cave and 'Nequal' means hole. Therefore, Beati Nequal means 'hole cave'. Similar to Dogol, it is surrounded by mountains. Today the cave is used as shelter for the herders during the rainy season. Unlike the Dogol site, the archaeological features of this site are found in their primary context with little site disturbance observed.

Pottery fragments, pounding holes, and possible sourcing ores are identified at the site. Consequently, the sourcing area for the ores is from the cave itself. Thanks to the use of a magnetic metal detector (helped by Humphris), the inside part of the cave was shown to be full of iron ore. As result, it is posited here that this may be where producers extracted iron ore that was processed in pounding areas for the region.

Various sizes of slag fragments are found scattered across the site in three main concentrations, but no charcoal or furnace fragments were noted. The three main areas of concentration of the site are 1) Bae'ti-Nequal One (BNL-1), 2) Bae'ti-Nequal Two (BNL-2), and 3) Bae'ti-Nequal Three (BNL-3).

Bae'ti-Nequal One (BNL-1)

This area is located below the cave south east of BNL-3 and south of BNL-2. Small slag fragments in large concentrations (Figure 5) and non-diagnostic pottery fragments were discovered. Since it is found in the shallow escarpment, the slag fragments from this area of the site were probably brought from in from the possible production area identified (BNL-3).



Figure 5: Iron slag at of BNL-1 (photo by Jane Humphris and Thomas Scheibner).

Bae'ti-Nequal Two (BNL-2)

This slag concentration is located north of BNL-1 and east of BNL-3. Around this area, fragments of pottery and iron slag were found alongside a chamber tomb with monolithic staircase, and hand axe like depictions. A well-dressed chair-like structure was carved in the stone directly above the tomb, and evidence of the traditional game 'Gebeta' is also visible, alongside graffiti such as a cross.

Bae'ti-Nequal Three (BNL-3)

This concentration is located west of BNL-1 and south-east of BNL-1 at the foot of the escarpment. In this area, large concentrations of various sizes of iron slag are evident, although no furnace is obvious. Interestingly, over 40 visible pounding hollows are present at the foot of the hill escarpment that were possibly used to crush ore mined from a visible seam running along the foot of the escarpment.

Bae'ti-Korodo Iron slag (BKIS)

This site is situated 5 km south of Dogol site, and 2 km south of Bae'ti Nequal site. Geographically, it is located below the hills of Korodo at 13513090 northing, 39204586 easting and at the elevation of 1965 masl. Unlike the archaeological sites of Dogol and Bae'ti-Nequal, half of the site is in arable land. Although a lot of slag is visible here, local people have also begun using the slag in house construction. Despite much destruction caused by human activity, furnace fragments and charcoal are visible alongside the slag fragments. Besides, pottery fragments with red and black colors are discovered. However, most of the pottery fragments in the site are undecorated. Of the diagnostic sherds with decorations, there are some with a hole and dot impressions. Others have cross-like decorations with reddish brown colors, incised vertical / horizontal lines with fired clay and grey/ black colors and horizontal line decorations with reddish brown colors. The majority of the diagnostic pottery sherds in the site have reddish brown colors with incised horizontal and vertical lines. Wilding (1989) stated that pottery sherds with such forms and decorations date from 150 AD to 700 AD.

Enda-Bashay iron slag site (EBIS)

This site is found near the rural road to Alal, approximately half a kilometer from the site of Bae'ti-Korodo, at 13512187 northing, 39203330 easting and at the elevation of 1960 masl. Pottery and iron slag was found in small concentrations across the site. There is a possible ore mine close to the site, although further investigations would be required to confirm this.

Unfortunately, a large portion of this site has been destroyed by agriculture and local road construction.

Ounatat Iron Slag Site (OIS)

Ounatat located to the southeast of Enda-Bashay and south of the archaeological site of Dogol at 13511640 north-

ing, 39203626 easting and at the elevation of 1954 masl. In the local language the term 'Ounatat' (ዑናታት) means 'ruins of houses'. Slag concentrations can be seen on the arable land covering an area of around ¼ of a hectare and it has been used in recent house construction.

Most of the features (especially the iron slag) are found in their primary context. However, further geological or archaeometallurgical investigations are required to identify the iron ore source. Furnace material, embedded charcoal and pottery is also evident at the site, but due to local building and agricultural activity the site is at risk.

May-Timket Iron Slag Site (MTIS)

This site is found around 3 km south of the Ounatat (OIS) at 13503401 northing, 39205655 easting and at the elevation of 1907 masl. Like OIS, it is found in the plain area near private land. An area of the site referred to as 'May-Timket' meaning a place where baptizing is practiced using water, contains a scatter of slag but no additional visible material culture. The concentration of the slag is very small compared to the other sites. Since the site is located in a remote area, it might be that the producers chose it to escape from the general public and used it as a temporal production place. This could be the reason for the absence of other forms of material culture.

Golgol-Lemie Iron Slag Site (GLIS)

This site is found north of May-Timket and west of OIS approximately 4 km from Dogol at 13505659 northing, 39210496 easting and at the elevation of 1917 masl. Geographically, it is located near the river streams of Eimblo and Endakahanat at the place called Golgol-Lemie. In the local language the term 'Golgol' means field and 'Lemie' means green area; this is an appropriate name even now for this green landscape. Possible pounding hollows and furnaces are present alongside iron slag and charcoal. In addition to these discoveries, broken grinding stone with mano (a small stone used to make grinding stone rough) and pottery fragments have been found. Unfortunately, a stream is destroying part of the site.

Conclusions

In general, many of the sites are deteriorating due to environmental and human factors. As a result, their current state of preservation is poor, especially the sites of BKIS, EBIS, OIS and GLIS. The majority of the sites are located between mountains and close to rivers or streams,

and are hidden in isolated locations such as depressions in the landscape, or on mountain escarpments, possibly indicative of the often-marginalized position of iron producers in society (Finneran 2007). Whether it was only iron workers who occupied the region (settling in relation to the smelting sites) and if the pottery was produced locally is unknown.

To conclude, the survey in the Wereda of Hawzien resulted in the discovery of seven iron production sites, with archaeological evidence of iron slag, some furnace fragments, possible ore sources and ore processing locations such as pounding hollows. This demonstrates that the eastern region of Tigray has a significant metallurgical history. This is supported by the presence of many rock hewn churches in the cluster, which could indicate that the beginning of iron ore production in the area was during the Aksumite times.

One promising line of inquiry for reconstructing the history of iron working, the documentation and interpretation of contemporary traditions, has yet to be pursued. Although many of these traditions are still practiced throughout much of Ethiopia, most of them are in decline, and there is a pressing need for documentation. Valuable information such as the vocabularies of technical terms, the names of objects, and oral histories concerning fabrication and use of iron tools should be urgently prioritized by academics before this knowledge is lost. A thorough interpretation of these metalworking traditions will require the study of technology and the contexts of use, and a detailed investigation of the social status and the role of iron producers in the societies. Studying the iron working traditions of Ethiopia can serve as an excellent vehicle for exploring questions concerning the meeting of cultures in Ethiopia, which has been a crossroads for centuries.

Acknowledgments

First, I would like to thank the almighty God for his permission. My special thanks go to Dr. Jane Humphris for her countless editorial comments throughout the paper. Her immense help, from site photos to editorial work, was unforgettable. I would also like to thank Thomas Scheibner for his assistance in the field, and UCL Qatar for funding the radiocarbon dating. My sincere gratitude goes to Abrha Assefa for his professional help in producing the study map sites. I am also very much indebted to all the local informants who devoted valuable time to being interviewed and sharing their information on the study sites.

References cited

- Childs, T. & Herbert, E.
2005. 'Metallurgy and its consequences'. In Stahl, A. (ed.), *African archaeology: a critical introduction*. Oxford: Blackwell, pp. 276-300.
- Finneran, N.
2007. *The Archaeology of Ethiopia*. London: Routledge.
- Haaland, R.
2014. 'The Meroitic Empire: Trade and Cultural Influences in an Indian Ocean Context'. *African Archaeological Review* 31: 649-673.
- Hagege, A.
2000. 'The churches of Tigray'. (in Amharic). *Efita* 4: 232-241.
- Hagos, T.
2011. 'Preliminary result of a survey of the Archaeological Site of Sib'at, 'Adwa, Ethiopia'. *Itiyopis* 1: 25-35.
- Humphris, J.
2010. 'An Archaeometallurgical investigation of iron smelting traditions in Southern Rwanda'. PhD dissertation. University College of London.
2017. Humphris, J. 2017. 'Archaeometallurgy in Tigray: a pilot investigation of ancient iron production in Ethiopia'. Unpublished report for the Society for the Promotion of Museums in Ethiopia. Online available at <http://www.museums-in-ethiopia.org/de-library-humphris-bericht-ucl-qatar.html>
- Mapunda, B.
1995. 'An Archaeological View of the History and Variation of Iron Working in Southwestern Tanzania'. Unpublished PhD dissertation. University of Florida.
- Munro-Hay, S.
1991. *Aksum: an African civilization of late antiquity*. Edinburgh: Edinburgh University Press.

Phillips, J.

2000. 'Pottery and clay objects'. In Phillipson, D.W. (ed). *Archaeology at Aksum, Ethiopia, 1993-1997*, vol. 2. London: British Institute in Eastern Africa, pp 303-357.

Phillipson, D.W.

1977. 'The Excavation of Gobedra Rock Shelter, Axum: An Early Occurrence of Cultivated Finger Millet in Northern Ethiopia'. *Azania* 12: 53-82.

Severin, T., Rehren, T. & Schleicher, H.

2011. 'Early Metal Smelting in Aksum, Ethiopia: Copper or iron?' *European Journal of Mineralogy* 23(6): 981-992.

Wilding, R.F. & Munro-Hay, S.C.

1989. 'The Pottery'. In Munro-Hay, S.C. (ed.). *Excavations at Aksum*. London: British Institute in Eastern Africa, pp. 235-316.

Ethiopia

The ‘Shay Culture’ Revisited: Overview of Recent Archaeological Fieldworks in the Central Highlands of Ethiopia

Alebachew Belay Birru^{1,2}

alex.belay7@gmail.com

¹Université Toulouse, Jean Jaurès
Laboratoire, France,

²Debre Berhan University, Ethiopia

Background of the project

Megalithic monuments, particularly stelae, are found across Ethiopia displaying a wide range of density and artistic composition. For this reason, the country is regarded as the ‘land of megaliths’ (Joussaume 2017: 23). To date, archaeological studies have mainly focused on the stelae of Aksum and its environs in the north and stelae fields in southern Ethiopia. To this end, megalithic sites in the Central Highlands are recent additions to the corpus of megalithism in Ethiopia.

Francis Anfray was the first archaeologist to visit the Central Highlands, particularly Menz, in 1980 and report the presence of megalithic sites in the region (Anfray 1983: 507-518). Two decades later, a French team led by François-Xavier Fauvelle identified nearly ninety tumuli (Fauvelle-Aymar *et al.* 2007: 329-398). Subsequently, test excavations were conducted at five megalithic monuments including the hypogeum of Ketetiya in South Wollo.

Meanwhile, four charcoal samples were taken from two sites that dated between the tenth and fourteenth centuries AD (Fauvelle-Aymar & Poissonnier 2012). Referring to the river Shay in Menz-Gera along which large numbers of megalithic sites were recorded, the team termed this megalithic culture the ‘Shay Culture’. The study further asserted that the builders were not followers

of monotheistic religions such as Christianity, Islam or Judaism which are known in Ethiopian religious history. Thus, the culture has been regarded as a ‘Pagan culture’ implying that it belonged to traditional or indigenous religious practices. In addition, grave goods were discovered that included imported items, indicating that the medieval trading network of Ethiopia had extended as far as the Middle East (Fauvelle & Poissonnier 2016).

Despite the aforementioned archaeological findings, a number of questions remained unanswered regarding our understanding of the Shay Culture. The present project is thus a continuation of these preceding studies with the intention of mapping megalithic monuments in the Central Highlands of Ethiopia. That being the case, this paper is an interim report communicating recent archaeological prospections conducted on megalithic sites in the Central Highlands of Ethiopia.

The main goal of this project is to define the Shay Culture. This involves an analysis of the typo-morphological scope of megalithic monuments and location of settlement traces of the megalithic builders. To this end, three comprehensive archaeological exploration missions were conducted, which led to the discovery of hundreds of megalithic monuments and sites. Apart from meeting the aforementioned objectives, the collected data permitted the classification of the study area into sub-regions, the correlation of the position of megalithic sites with the natural landscapes, and the development of hypotheses on the origin and diffusion of megalithic building tradition in the region.

Methods

In order to define the geographic extent of megalithic monuments in the region (Figure 1), a pedestrian survey was employed. The survey was carried out over three seasons from 2017-2019 for a total of two months. Accordingly, observation, photography, sketching, GPS reading, measurement (the dimension of monuments), and interviews as well as surface collection were the major data collection tools. These approaches allowed for the accumulation of a considerable volume of data on the various surface features of megalithic monuments and sites. Spatial analysis was completed using QGIS to manage GPS data and map the distribution of megalithic sites and monuments in the study area. This tool also made it possible to plot topographic variations in the landscape where the megalithic monuments were positioned.

Spatial and contextual frameworks

Previous studies on the Shay Culture were geographically limited to five districts. This has now been increased to 14 districts in North Shewa, South Wollo and Oromo Special Zones of the Amhara Regional State (A Zone is the 3rd level in Ethiopian administrative hierarchy after the Federal government and Regional States, and is composed of Districts) (Figure 1). The megalithic sites identified by the previous Shay Culture Project were also revisited as part of this project. Most of the tumuli were located in rugged landscape traversed by gorges which includes the Highlands of Menz and adjacent Districts to the west compared to the semi-lowland area to the east where there are considerable number of stelae.

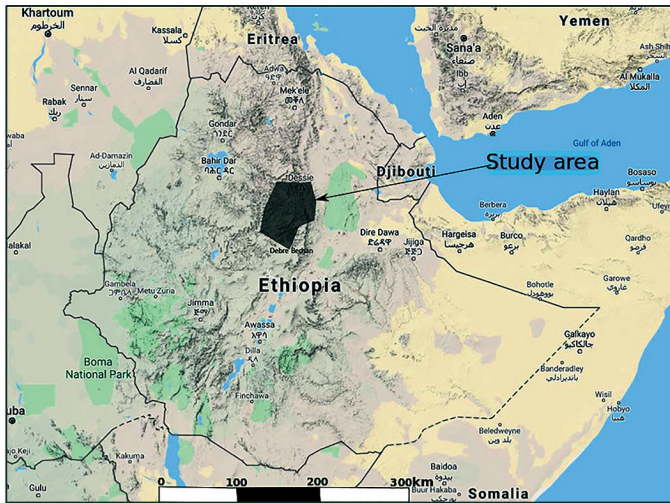


Figure 1: Location of the current project area (by author).

A major goal of spatial analysis was to uncover the connection between the megalithic sites and the surrounding natural landscapes. Most of the megalithic monuments in the world are found in proximity to bodies of water, particularly rivers (Shetrone 1936: 31; Pozzi 2013: 19). Similarly, most of the megalithic sites in the Central Highlands of Ethiopia are positioned in relation to the banks of rivers. There are also monuments situated in the uplands and plain fields. However, further investigation is required to better understand the paleo-environment of the region and its implication on the lives of the megalithic builders.

Typo-morphological features of megalithic monuments

Developing a typology that is based on the various morphological elements of megalithic monuments is a major

goal of the present project. Based on their structural appearance, megalithic monuments in the Central Highlands of Ethiopia can be grouped into five. These are tumuli, stelae, dolmen, hypogea, and enclosures (Figure 2).

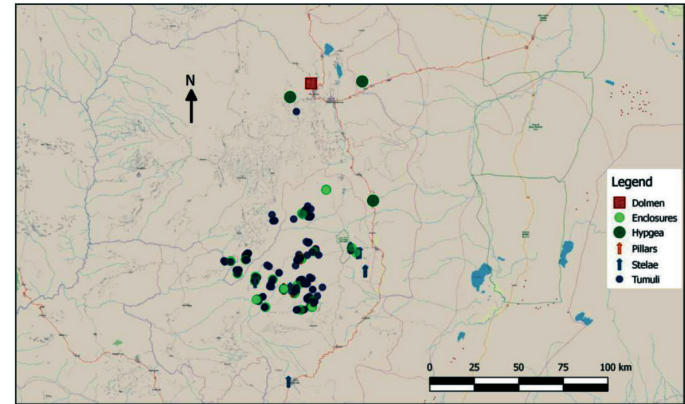


Figure 2: Distribution and types of megalithic monuments in the Central Highlands of Ethiopia (by author).

Tumuli refers to piles of stones, earth or a mix of the two, while stelae comprise monolithic standing stones with and without symbolic imprints. Dolmen is commonly identified as a structure with orthostats and capstone/s. However, in this study they are characterized by an irregular arrangement of giant stone boulders with the form of neither tumulus nor stelae. In general, hypogea refers to an underground feature while an enclosure is a feature that encircles the site. The last two groups (hypogea and enclosures) are not typically associated with megalithic monuments worldwide, but they share facets with other megalithic structures in the region. For example, the hypogea at Ketetiya shares elements in function and material composition with tumuli from the Highlands of Menz such as Tatar Gur (Fauvelle & Poissonier 2016). Likewise, enclosures were located in association with some of the megalithic monuments.

In general, 320 megalithic structures were documented under the present study, tumuli comprise 85% of megalithic monuments followed by drystone enclosures and stelae. In addition, there are three hypogea and one dolmen-like structure so far identified. Thus, compared to the northern and southern Ethiopian megalithic sites which are predominated by stelae, the magnitude of tumuli can be taken as a peculiar feature of the Central Highlands. Enclosures are viewed here as settlement markers and discussed independently in the next section.



Figure 3: Qum Dengay, Menz Gera (by author).

Analysis of the form of these megalithic monuments provides detailed information on the architectural and symbolic disparities within a particular type of structure. To begin, tumuli are mainly conical in form with dimensions between 10 and 40 m in diameter. Most of these structures are stone piles (cairns) while there are some earthen mounds as well. The stelae are also diverse in their form and artistic composition ranging from crude ones (Figure 3) to those with anthropomorphic, phallic and other symbolic portrayals. In Efrata and Gedem District, apart from the revisit of previously identified stelae in the localities of Mehal Wenz and Gadilo Meda (Hagos 2000: 58; Poissonnier 2012: 119-129); new phallic and anthropomorphic stelae were identified at Ergo Tela in the second fieldwork season.

These new stelae sites indicate an eastward extension of megalithic sites in the region and the gradual refinement in their artistic composition. The presence of stelae in the eastern portion of the region with evidence of genesis in morphology and artistic composition indicates that these belong to the final phase of megalithism in the Central Highlands because there is an observable typo-

logical and morphological alteration from Menz down to Mehal Wenz area and further east through Gadilo Meda to Ergo Tela.

Since 1997, three hypogea were accidentally discovered (at different times and places) while farmers were ploughing agricultural fields and clearing the area. Two of these hypogea are earthen and the third one is a rock-cut. The hypogea of Ketetiya was partially excavated in 2008 (Fauvelle-Aymar & Poissonnier 2012: 129-174; Fauvelle & Poissonnier 2016: 64). An additional rock-cut and an earthen hypogea were recorded as part of this project.

Finally, ceramic objects and human remains are the major archaeological traces collected from these monuments. Ceramics are similar in their form and symbolic composition with those collected from the tumuli.

As indicated above, there is only one dolmen-like structure so far identified in the study area. It is a group of huge stone blocks of different forms positioned over a small earthen tumulus. Informants stated that the stones represent petrified members of a wedding ceremony in-

cluding the bride and bridegroom cursed by an elder in the area for violating social norms. This is a common legend for most of the stelae in Ethiopia mostly called ‘yemushera dengay’ which literally translates to the ‘bride stone’.

As part of the spatial and typo-morphological analysis of megalithic sites, the study area is classified in to three viz. core, periphery-core and periphery. The division is mainly based on differences in quantity, dimension and structural compositions of monuments. Accordingly, the highland of Menz which includes four Districts (Lalo, Mama, Gera and Qeya) is regarded as the ‘core zone’ while the remaining ten Districts fall in the ‘periphery-core’ and ‘periphery’ categories (Figure 4). This is due to the fact that out of the 320 monuments so far documented, over 200 of them are found in Menz. Apart from tumulus, which is the dominant type, there are also stelae and enclosures, which imply the typological multiplicity as well. In addition, there are tumuli from simple stone piles to well-built and enormous ones in the core zone (Figure 5). Likewise, one can see these discrepancies in periphery-core and periphery categories in a reduced scale.

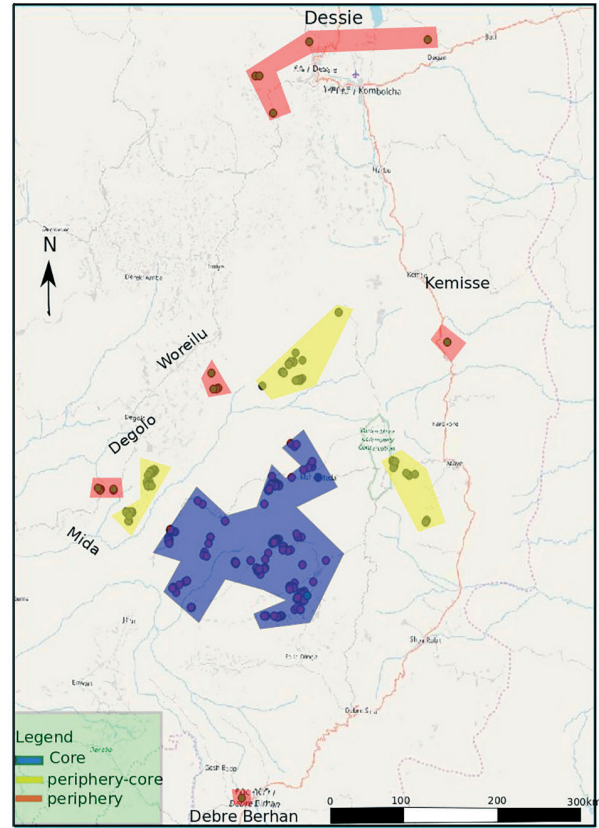


Figure 4: The three spatial categories of the study area (by author).



Figure 5: Seyitan Gur, Menz Mama (by author).

On the basis of the aforementioned propositions, an attempt was also made to develop a timeline for the areas of the initial megalithic activity, its advancement, and finally the cessation of megalithic building traditions in the Central Highlands of Ethiopia. However, considering the scope of this paper and pending the completion of the study, the details are not included here.

Settlement traces

In the study of megalithic culture, it is essential to consider the search for associated settlement traces of the megalithic builders and users because the socio-economic and political organizations of the society can be discerned from the material and monumental habitation evidence. A focus on habitation sites has received limited attention in the study of Ethiopian megalithic sites. What is noted includes unidentified stone structures found near most of the identified megalithic sites. Roger Joussaume (2014: 175-192), for example, studied three stone walls positioned closer to tumuli in Chercher, Harar. As part of this study, monumental traces (which are collectively called enclosures here) are mostly found attached to or near other megalithic structures, specifically tumuli. These enclosures are usually circular in form while there are also structures with irregular geometry.

Ceramic and stone objects were found associated with enclosures and tumuli. Some of these objects were collected by the locals residing around while clearing the megalithic landscape and building their dwellings decades back. The ceramic objects shared several elements from and decorations with ceramic wares from the previous excavations including those from the hypogeum of Ketetiya (Fauvelle & Poissonnier 2016: 66). Furthermore, there are thousands of sherds, and some grinding stones collected from the surface in and around these structures, which are under study.

Recent excavations in Lalibela uncovered ceramic objects possessing similar features with those from the Central Highlands (personal observation and discussions with members of the French archaeological team working there). This is a very important clue to explore the northward expansion of the ceramic technology of the Shay Culture. However, to better establish the ceramic production and exchange of the period, independent and comparative studies are needed.

Conclusion

Building upon previous research on the Shay Culture, this project focuses on the spatial distribution of megalithic sites, the typo-morphological features of monuments, and settlement traces of the megalithic builders. This paper, thus, highlights the ongoing archaeological investigation on megalithic sites and the project's provisional findings.

Extensive archaeological fieldwork conducted during the past three years have increased the corpus of archaeological data on the subject. This has permitted the refinement of the spatial as well as typo-morphological aspects of megalithic monuments in the Central Highlands of Ethiopia. The settlement ruins identified were located in association with the megalithic monuments. Artifacts, mainly ceramic and stone tools, found in both megalithic and settlement sites are identified as important material vestiges to boost our understanding of megalithic culture in the region. Thus, the interim results discussed in this paper indicate the diversity and peculiarity of megalithic structures in the region and imply the potential for further archaeological investigations.

Acknowledgments

I am very much grateful to Dr. Liza Gijanto for her review and invaluable comments. I would like to thank Debre Berhan University for the permission to pursue my study and interim salary considerations. I am grateful to the French Embassy in Ethiopia and CFEE for providing the scholarship and financial support. I am deeply indebted to my supervisor Professor François-Xavier Fauvelle for his relentless support and encouragement throughout my study in general and in the preparation of this paper in particular. I am also thankful to Dr. Deresse Ayenachew and Dr. Vincent Ard, for their follow-up and backing. My gratitude also goes to Professor Marie-Laure Derat for the inclusion of this project as part of her grand "Ethio-Christ" project and sponsoring the 2nd and 3rd fieldwork seasons. It could have been hard without the kind support of ARCCH, and Culture and Tourism Departments and Offices in the Zones and Districts respectively. I am very grateful to all who took part in the field missions and contributed their part for their successful completion. I also thank Mr. Daniel Kumah for reading and commenting the draft of this paper.

References cited

- Anfray, F.
1983. 'Tumulus, pierres levées et autres vestiges dans le Manz en Éthiopie'. In Segert, J. & Bodrogligeti, J.E. (eds), *Ethiopian studies dedicated to Wolf Leslau on the occasion his seventy-fifth birthday, November 14th 1981*. Wiesbaden: Harrassowitz Verlag, pp. 508-518.
- Derat, M.-L. & Jouquand, A.-M. (eds)
2012. *Gabriel, une église médiévale d'Éthiopie. Interprétations historiques et archéologiques de sites chrétiens autour de Meshāla Māryām (Manz, Éthiopie), XV^e-XVII^e siècles*. Paris: De Boccard ('Annales d'Éthiopie hors-série' 2).
- Fauvelle-Aymar, F.-X., & Poissonnier, B. (eds)
2012. *La Culture Shay d'Éthiopie (X^e-XIV^e siècles). Recherches archéologiques et historiques sur une élite païenne*. Paris: De Boccard ('Annales d'Éthiopie hors-série' 3).
2016. *The Shay Culture of Ethiopia (Tenth to Fourteenth Century AD): 'Pagans' in the Time of Christians and Muslims*. New York: Springer Science+Business Media.
- Fauvelle-Aymar, F.-X., Ayenachew, D., Hirsch, B., & Bernard, R.
2008. 'Les monuments mégalithiques du Mänz (nord-Shoa): Un inventaire provisoire'. *Annales d'Éthiopie* 23: 329-398.
- Hagos, T.
2000. 'Preliminary notes on the Stelae of Efrata and Gidim of northern Shoa'. *Annales d'Éthiopie* 16: 55-58.
- Joussaume, R.
2014. *Mégalithisme dans le Chercher en Éthiopie*. Paris: De Boccard ('Annales d'Éthiopie hors-série' 4).
- Joussaume, R. & Cros, J.-P.
2017. *Mégalithes d'hier et d'aujourd'hui en Éthiopie*. France: Éditions Errance.
- Pozzi, A.
2013. *Megalithism: Sacred and Pagan Architecture in Prehistory*. Florida: Universal Publishers.
- Shetrone, H.
1936. *The mound-builders: a reconstruction of the life of a prehistoric American race*. London: D. Appleton and Company.

Nigeria

Ozizza pottery: a Heritage Resource in Afikpo Community, Ebonyi State, Nigeria

Chidinma C. Oguamanam,¹ Emeka E. Okonkwo,¹ Jacinta U. Ikegwu²

emeka.okonkwo@unn.edu.ng

¹Department of Archaeology and Tourism, University of Nigeria, Nsukka, Nigeria,

²Humanities Unit, School of General Studies, University of Nigeria, Nsukka, Nigeria

Introduction

This paper reports on the investigations of potsherds recovered from excavation at one of the 10 rock shelters (*gba-Eju*) in Ozizza, Afikpo North Local Government Area of Ebonyi State, Nigeria with particular emphasis on their attributes and functions. Archaeological fieldwork was paired with ethnographic investigations in order to understand the longterm development of potting traditions in the area.

Pottery is the oldest crafting tradition among the inhabitants of Eastern Nigeria. Examples of potting communities in Eastern Nigeria are the Inyi in Udi/Awgu highland, Oha Ndiagu on the Nsukka plateau Enugu State, Nunya in Isuikwuato scarplands in Ishiagu in Abia State and Ozizza in Afikpo North, Ebonyi State (Ekechukwu 2002). In some places such as in Northern Nigeria, men are associated with pottery making (especially in digging out clay from clay pits); while in other places, specifically in Ozizza, pottery rest exclusively in the hands of the womenfolk (Okpoko & Okonkwo 2010). According to Oyeoku (2000), pottery production in Afikpo uplifts the status and dignity of women. The art was handed down by Ozizza ancestors called *Ndiegu*.

Scholars such as Ibeanu (2000), Ali (1999, 2005) and Oyeoku (1999) have conducted research on pottery-making within the surrounding areas (Inyi and Afikpo). The primary material for pottery making is clay. Primary clay is found in the parent bedrock at the foot of the hills and slopes, while secondary clay is found around the streams. The potters take preference in the collection of clay in their secondary form than the tedious task of digging out primary clay. Be that as it may, newly procured clay is spread and dried in the sun for two, three or more days. Oyeoku (1999) aptly described this process as weathering, and this helps to improve the clay while increasing its plasticity.

After the sun-drying of clay, the quantity of clay to be used is crushed into small pieces on a crushing hollow formed on a bedrock located close to the house. The crushed clay is then sieved; and the fine clay is poured into a big pot or bowl and soaked in water for a few days until it acquires a sour smell. The process enables the clay to become soft and thoroughly slaked. Thereafter, kneading takes place. The spots where kneading takes place are first swept and smeared with ashes before some quantities of grog are poured out. The clay subsequently follows and finally another quantity of grog is poured. The potters then tread upon them raising their legs alternately until they are thoroughly mixed together. Water is added intermittently to the mixture. This process is continued until the desired workable paste is achieved.

The next stage is pottery formation. The potter usually conceptualizes the purpose of the pot and this concept guides her throughout the production stages. Potters in Ozizza and Afikpo surrounding areas use free hand coiling technique in forming pots. According to Clark (1964) this is achieved by using long coils of clay approximately the thickness of one's thumb. A pot is formed by cutting a lump from the heaped worked clay and by rolling the paste into cylindrical coils of about half an inch in diameter and a foot or more in length depending on the thickness as well as the type of pot the potter wants to form. When it is elongated, the potter uses her left hand to cut it into rolls and places the rolls on the floor in which ash had already been poured. The essence of the ash is to prevent the rolled balls of clay from sticking to the ground.

Once enough coils are made, she picks up one of the rolls in her right hand, smears and squeezes this into her left hand to form a miniature bowl. She picks another coil and in an anti-clockwise direction, adds the coil to

the small bowl. When the bowl reaches a stage that she can no longer carry it on her palm, she carefully places it on a broken neck of an old pot, which serves as a stand. The process is continued until the desired height and size are achieved. The potter then smoothens the inside and outside walls before placing the pot in the open air to dry.

The next stage that generally follows is the decoration stage. Decorations on pottery reflect the overall values of the culture of which they are a part. The most predominant decorations in the areas are burnishing, punctuate, net impression and incision. These decorations are usually functional as they leave rough surfaces which enhance the gripping and carrying of the pots. Burnishing involves rubbing of the surface of leather hard pot with smooth objects like broken pieces of calabash and coconut shells to produce a shiny smooth surface. Incised decoration refers to either a delicately engraved line or a low relief pattern made with broader tools. As observed by Ali (2009) incision can be done with a point or with a broad blade, a piece of bamboo or reed, cut like a bread pen.

Firing is the final stage. Ibeanu (2000), Ali (1999, 2005) and Oyeoku (1999) have revealed that pots and other ceramic wares are typically fired at a communally designated firing area called *Ohuhuite*. In each pottery season (usually in dry season – November to March), a new *Ohuhuite* site is chosen and cleared by all the potters. There were no tales of the activities of the goddess; thus, no sacrifice of any kind is performed. Prayers, according to oral tradition, are only offered to summon God (*Ezeukwu*) to assist them during the firing of pots. Ozizza potters believe that the firing of a pot determines to a large extent the success or failure of the art. This process could be exciting and fascinating as well as heartbreaking; hence, every potter is usually very anxious at this stage. The mood of Ozizza potters during firing is corroborated by some scholars that potters are always in suspense, not knowing what will befall them during firing (Agu 1990; Aliyu 2001; Ali 2009).

The main focus of this research was to study Ozizza pottery to understanding the human occupation in the area. This research work would be the first of its kind, in that no such work has been conducted in Ozizza. The study will also strengthen other works already carried out in Afikpo with that of its closest neighbour (Okigwe) in other to reconcile them with the work of Ekechukwu (2002), whose aim is to inventory all the archaeological sites found

at Nsukka-Okigwe-Afikpo cuesta for tourism. After all, archaeological sites are valuable resources and when harnessed will be opened for tourism and thus, answer the clarion call for job creation and poverty alleviation.

The Ozizza potters are aged women, as the youths (girls) and married women lack interest in the art of pottery. There is a fear that if pottery tradition goes extinct in Ozizza, the art will only be remembered in stories, songs and myths like most African phenomena. This explains why there is a need to document this tradition.

Finally, this research arose because there has not been a systematic study of the archaeology of Ozizza, although there had been archaeological research done in the cuesta. Therefore, this study compared pottery wares recovered from our study with the contemporary Ozizza pottery wares with a view to identify continuity and change in the study area as well as understanding or to throw more light on the human occupation of the area.

Research methods

This research report is primarily an ethnoarchaeological one employing archaeological survey (archaeological reconnaissance and excavation) and ethnographic method (in-depth and semi-structured interviews) to obtain primary data.

The archaeological survey is vital and indispensable in any excavation or fieldwork and helps in the collection of surface/sub-surface data. Ogundele (2000) asserted that more considerable attention should be paid to surface research, which makes it possible for the archaeologist to have some insight on how man has broadly used space at one time or the other, or the relationships between man and terrestrial space. In October 2012, we did initial research of Ozizza for fieldwork preparations as well as to acquaint ourselves with the research study location. We conducted a reconnaissance survey, which allowed us to locate some attractive sites and identify essential individuals for interviews. The reconnaissance survey also allowed us to determine and observe proof of previous human activities in the research location to assist us in determining specific possible sites for the research. The potential sites identified were recorded and mapped for a more comprehensive research study. We subsequently identified both elders and knowledgeable persons in Ozizza as essential informants and finally evaluated those that made up the respondents for in-depth interviews. This preliminary study lasted for twenty days.

In the second phase of the fieldwork, which occurred in December 2012, we studied the ethnographic resources (natural and cultural features) in Ozizza and their GPS coordinates. This allowed us to map the site utilising a portable GPS device. In February 2013, we revisited Ozizza and conducted an archaeological excavation. We also surveyed pottery wares currently in use and compared them with those we excavated to determine culture continuity. Conservation practices of both natural and cultural resources were further studied. The visit lasted for four months (February to May 2013). Our concluding visit was in February 2014 when we revisited Ozizza to revalidate our data.

The archaeological reconnaissance lead to the identification of ten rock shelters (*gba-eju* in Ozizza). The depths of the rock shelters (RS 1 to 10), height, length, cavity/width, and degree were recorded. Also, surface cultural deposits identified through on-the-spot assessment and reconnaissance were recorded (see Table 1). The deposits revealed bat guano, fishing nets, a stone tripod stand, potsherds and a pot. However, of the ten rock shelters, RS/10 has the highest concentration of cultural material, and thus, it was earmarked for excavation (see Figure 1).

N/S	Depth	Cavity /width	Height	Length	Degree	Cultural deposit
Ogba-Eju RS1	0.26m	7.8m	2.14m	8m	50°SE	None
Ogba-Eju RS2	0.28m	10m	1.9m	44m	45°NE	None
Ogba-Eju RS3	0.41m	8.3m	1.9m	4m	60°SW	None
Ogba-Eju RS4	0.24m	4.1m	1.7m	7.8m	30°NW	None
Ogba-Eju RS5	0.09m	8.8m	4m	3.8m	80°NE	Pot
Ogba-Eju RS6	-	8.5m	2.2m	2.5m	50°NE	Pot and potsherds
Ogba-Eju RS7	-	18.6cm	8m	2.5m	90°SW	-
Ogba-Eju RS8	0.23	4.9m	6.1m	4m	20°NW	pot
Ogba-Eju RS9	0.25m	9.50m	2.70m	4.50m	40°NW	Stone, tripod stand, Ash and black coating on the wall of rock shelter, Pot and potsherds.
Ogba-Eju RS10	0.17m	20.00m	3.50m	4.40m	50°SE	Fish nets, Stone, Tripod Stand, Ash, pots and Potsherds.

Table 1: Measurements of the rock shelters and their depth.

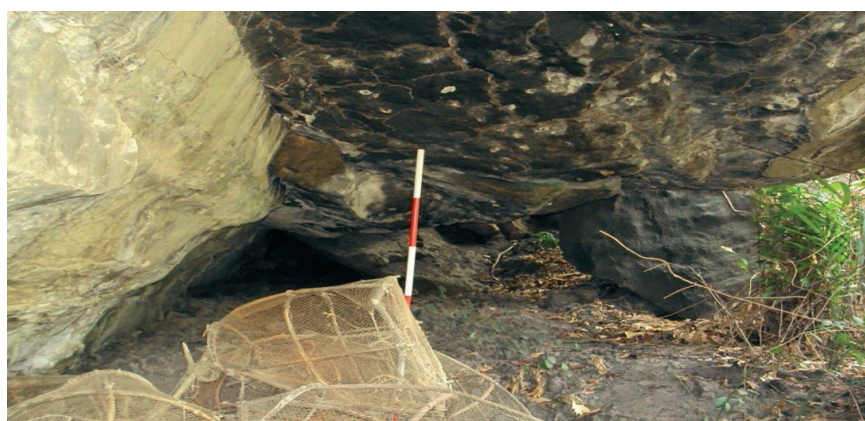


Figure 1: *Ogba-Eju* Rock Shelter Ten (RS/10) – the excavated site.

On the other hand, the ethnographic research method provides opportunities for respondents to talk freely and in detail. The semi-structured interview involves a conscious effort to guide and steer the discussion towards the particular interests of the researcher by either using a series of written or memorised prompts, or a carefully planned interview guide (Okpoko & Ezech 2011: 69).

Ethnography has expanded to become established as one of the vital study elements connected with a qualitative research study. This qualitative study method dates to many centuries ago, and first begun with anthropologists (Holloway *et al.* 2010). Ethnographers that usually adopt in-depth interviews and participant observation to accumulate information usually are confronted with the quandary of staying unbiased and also moral in their information collection procedure, along with generating reports that can be reproducible (Eyisi & Okonkwo 2019).

In-depth and semi-structured meetings with a number of rigorously chosen individuals were carried out. A total number of 35 individuals from among knowledgeable persons in the Ozizza community were selected. Their selection was based on their ranks and positions within and outside the Ozizza community. A non-probability sampling method was used in selecting the individuals to be interviewed. Here, we identified one member of some population of interest and interviewed the participant and after, offered an opportunity for the person to suggest another interviewee(s) who might be knowledgeable on the subject. Using this strategy, ten titled men, seven craftsmen, ten pottery makers, and also eight clan heads were recognized and interviewed using an interview guide. 'Snowball sampling often leads the researcher into a realm he/she knows little about' (Okonkwo & Ikegwu 2020).

Ethnographic interviews were conducted in December 2012 and zeroed mainly on understanding past subsistence practices, technological know-how and cultural festivities. The subsistence practice identified was farming. The technological know-how was pottery making, while cultural festivities were new-yam festival (*Iri-ji*), masquerading and *mgba* (wrestling). According to the respondents, perfection in any local craft and *mgba* was by regular participation or by apprenticeship. The clustered settlement in Ozizza gave room for the inhabitants to interact very closely with each other and to share things in common. Furthermore, ethnographic data revealed pottery production processes, decoration, types and func-

tions. Ethnographic method proved to be useful in gathering data for our research as the persons interviewed gave excellent information, provided more in-depth answers and a full range of data. The information was gathered with tape/video recorders in addition to field notes. Photographs, documents, and field observations were likewise made throughout this inquiry.

Execution of the reconnaissance survey and excavation

In order to actualise the purpose of the research during the reconnaissance, the following tools were employed: compass, black and white scale, metal tape, ranging poles and calliper. The compass was used to determine directions which showed that Ozizza lies due south of upper Afikpo. The metal tape was used to measure the distance of all the sites reading from Amainyime town hall (our datum point). Black and white scale was used to initiate the North of each site identified. A Vernier calliper was used to measure the thickness of artefacts found *in-situ* and at the surface collection. These tools were also handy during the excavation in Rock Shelter 10 at *Ogba-Eju*.

Archaeological excavations at *Ogba-Eju* RS/10 began on 03 February 2013 and ended on 28 May 2013. The study being a pilot one, we used a test pit of 2 meters by 2 meters choosing an arbitrary spit level of 20 cm (0-20 cm, 20-40 cm...100-120 cm in an ascending order); at a depth of 120 cm, there was no evidence of cultural materials, indicating a sterile layer; as a result, the excavation stopped at the depth of 120 cm. Materials recovered during excavation include potsherds, charcoal, snail shells, palm kernels, fishnet, tripod stand, polished stone, hook, metal steel, a pot, among others. Due to financial constraints, these materials are yet to be dated. The potsherds (rim and body sherds) from the excavated pit were compared with the pottery tradition of the contemporary Ozizza people focusing on the motifs, techniques and use(s). To effectively do the comparison, we collected some pottery wares from Ozizza potters and thus, examined them with the excavated water pot. The comparison of the excavated water pot and contemporary Ozizza water pots shed more light on the history and activities of potters in the area. This enabled our understanding of continuity and change in time perspective as well as the likely factors that could have stabilised or brought about the possible change in pottery tradition in the study area.

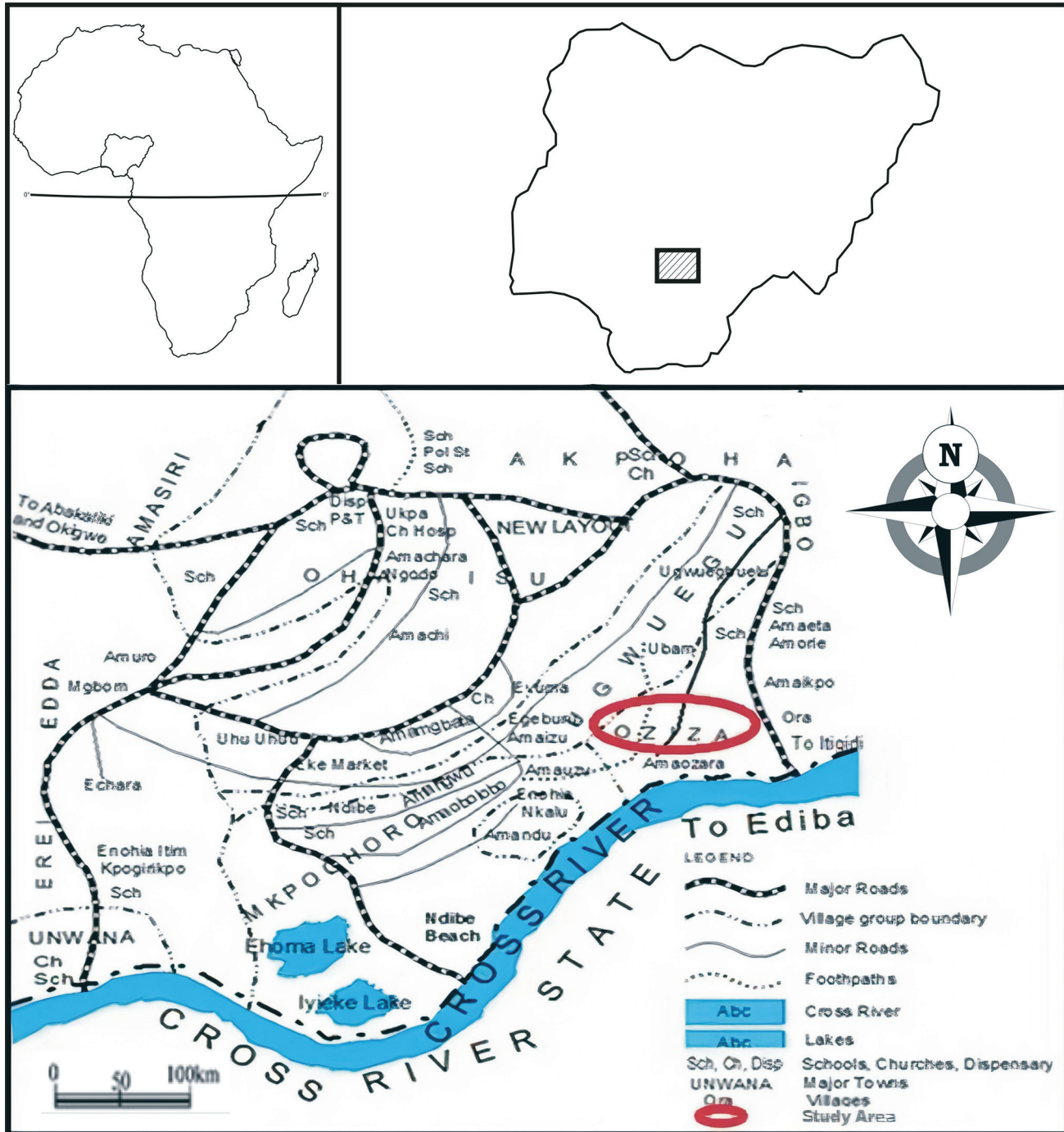


Figure 2: Map of Afikpo showing Ozizza archaeological site.

Ozizza town: geographical location

Ozizza is a town in Afikpo North and is located on the axis of 50, 54N and 70 560E. The town is a sub-group of Afikpo, situated on a hill, with undulating plains, and lies between N900E north of Upper Afikpo. It is located East of Ugwuegu and Ukpa rock shelters with a total area of 24.32 km². It has four sub-groups of villages namely

Amainyime, Amaori, Amaeta and Urrah. Ozizza town is an Igbo-speaking enclave that settled at this present position many generations ago (see Figure 2). The principal occupations of Ozizza settlers are farming, fishing, hunting and pottery making. The people also engage in wrestling, especially during festivities. Ozizza has unique and similar geomorphology and two central lithological units

characterise the geomorphology: (a) Siliceous sandstone and carbonaceous shale (b) calcareous sandstone and grey shale (Andah & Anozie 1980/81). Ozizza has undulating topography with sandstone forming prominent ridges. The cuesta where the *Ogba-Eju* (rock shelters) are located possessed a robust scrap features that caused the shale to be underlain with much broader flat flowing lowlands which are flooded during the rainy season.

The vegetation cover of Ozizza falls within the Guinea Savanna zone. Tall trees and grassland characterise it, as exemplified by the presence of raffia palm, silk cotton tree; shrubs and bamboos found especially at Amaeta village. The road to the village is always flooded during the rainy season and the only access to the village during rainy periods is by canoe. High temperature and climate fluctuations also characterise Ozizza, but the wind action is stable. The Ozizza community has large hectares of land for farming and thus, has many foodstuffs with a pleasant climate. Ozizza cuesta has fatty mineral deposits. During reconnaissance, coal deposits were found at Amaori village; while shale and grained sandstones were found at *Ogba-Eju*. Ibeanu (2000) reported that coal, shale and grained sandstone deposits were found at Okigwe cuesta, precisely at Ihube and Ugba junctions. All these mineral deposits have not been utilised for commercial purposes.

Data presentation and analysis

A total number of 290 artifacts (see Table 2) were recovered from the excavated rock shelter (RS/10); however, the focus here is on potsherds. The potsherds were sorted into decorated (n=95) and undecorated categories (n=57). The findings from the excavated materials implied that although there was continuity in the pottery in the area regarding production and body design, there was a gradual change in the design of the body by the people, time and space. It is hoped that more information will be revealed when these materials are dated. The findings reveal a good number of potsherds, the most common feature of body design are undecorated, followed by punctuate, while other classifications were virtually absent. It would be noted, therefore, that technological advancement could have led to the inclusion of burnish in the body design which was absent in the older methods of design. This is attributed to the desire to inculcate desirable attributes such as colour and to increase the strength and hardness of the pottery material. Motifs observed are undecorated, burnished,

punctuate, groove, punctuate and criss-cross, punctuate and incision. The excavated potsherds had unburnished, burnished and composite (burnished and dotted lines).

Furthermore, results from the excavated materials showed evidence of unburnished bodysherds. Also, burnished body design occurred in all the spits except in spit 100 cm-120 cm where the identified body applique was composite (burnished, dotted line, burnished and incision). It is argued here that the method of design stems from the applications used by the early inhabitants, and differences in the applications could be attributed as a result of modernisation which geared towards the need of the modern man in a global environment. The only body applications used in almost all the levels was burnished undecorated. In essence, ethnographic data as well as our observations revealed that the burnished motif is a particular body application in the area for continuity and change of pottery making in Afikpo, Abakiliki formation.

The most common rim design application in contemporary Ozizza pottery represented by the surface level collection was composite (groove, incision, net impression and perforations) whereas the potsherds recovered from excavation have rim applications as unburnished with the horizontal incision. In some instances, we had unburnished as the only common application. Other observed applications were in the rim: horizontal incision, dotted and burnished. Spit level 20-40 cm did not observe any of the applications since no rim was recovered (this may be attributed to the sedentary life of the occupants of the rock shelter). However, in spit level 1-20 cm, the observed motifs are vertical or curvilinear or oblique with burnish, as well as groove, multiple incision, net impression and perforations. These results confirmed change and continuity of pottery tradition in Afikpo. This change is from a simple rim design to more complicated and sophisticated design applications. The intentions of the producers could be to confer more security (tamper-proofing) on the pottery.

The pottery neck did not experience much change since the only classification observed was only in spit level 80-100 cm. Therefore, the neck of the pottery produced in Afikpo, Abakiliki formation was not accorded any significance by the buyers and producers alike.

Items	Surface	0 cm-20 cm	20 cm-40cm	40 cm-60 cm	60 cm-80 cm	80 cm-100 cm	100 cm-120 cm	Total	%
Bottle	1	-	-	-	-	-	-	01	0.344828
Potsherds	7	36	66	8	17	18	-	152	52.41379
Pot	-	-	-	-	-	-	1	01	0.344828
Charcoal	3	8	3	4	2	1	-	21	7.241379
Metal steel	-	1	-	-	-	-	-	01	0.344828
Snail shells	3	3	-	-	-	-	-	06	2.068966
Kernel shells	3	26	12	-	-	-	-	41	14.13793
Zinc	1	2	-	-	-	-	-	03	1.034483
Quartzite	-	1	7	1	-	-	-	09	3.103448
Quartz	-	-	-	-	-	1	-	01	0.344828
Rock	-	-	-	-	-	1	-	08	2.758621
Clay	-	1	-	-	-	-	-	01	0.344828
Plastic	1	1	-	-	-	-	-	02	0.689655
Rock outcrop	-	-	1	-	-	-	-	01	0.344828
Palm kernel	-	14	-	1	-	-	-	15	5.172414
Aluminum	3	-	-	-	-	-	-	03	1.034483
Hook and net	1	-	-	-	-	-	-	01	0.344828
Fish net	4	-	-	-	-	-	-	04	1.379310
Coiled wire	1	-	-	-	-	-	-	01	0.344828
Grind stone	1	-	-	-	-	-	-	01	0.344828
Tripod stone	1	-	-	-	-	-	-	01	0.344828
Plants/trees	2	-	-	-	-	-	-	02	0.689655
Tin Tomatoes Can	1	-	-	-	-	-	-	01	0.344828
Snare	1	-	-	-	-	-	-	01	0.344828
Polish stone	1	-	-	-	-	-	-	01	0.344828
Seed husks	3	7	1	-	-	-	-	11	3.793103
Total	38	104	91	16	19	21	01	290	100.0000

Table 2: Distribution of materials recovered at Ogba-Eju RS/10 (level by level).

Pottery Typology

From information gathered via ethnographic study, the pots were classified according to their functions. The hemispherical wide and semi-wide neckless pot *mgbuku/uguru-onu* and bowl *oku* or *ite-ohe* are used for water storage and soup making. Others in these categories are *nja* (i.e. small pots and bowls) and *oshishi* which served as

sacrificial wares and were also used for serving kola nuts. In essence, pots and bowls can be used for any purpose as long as the type meets the purpose. The pottery wares recovered from various spit levels during excavation have similar functions with the contemporary pottery wares of Afikpo community. In-depth interviews with four Ozizza potters and on-the-site assessment revealed that pottery

are hollowares and are grouped into pots (*ite*) and bowls (*nja* or *oku*). Pots come in numerous forms for specific uses. For example, the *ite Mgbuku/Oguru-onu* is used for water storage, *ite ohe* is used to cook soup, *ite iwa* for cassava processing, *ite mai/ite okpogo* is used for preserving local dry gin and *ite erusi* serves for ritual. The bowls or *oku* are used for bathing, with specific forms such as the *njaohe* for eating, *nja manu* used to store palm oil, *mpaleka* for local palm oil lantern, and the *oshishi* is used to both serve kola nut and in rituals.

Ozizza in particular and Afikpo in general have uniform pottery wares. The uniformity was seen from pottery materials excavated from Ogba-Eju rock shelter (RS/10). Hartle (1966) at Ukpa rock shelter (550-1050 BC); Andah and Anozie (1980/1981) at Ukpa rock shelter (150-50 BC), and Chikwendu (1976) at Ugwuegu (1020+90 BC) made similar assertions that the similarity centered on the motifs of decoration. The decorative motifs are burnishing and combination of burnish with groove, incision, criss-cross among others. Their attributes and functions are almost the same. For instance, we observed in the course of our ethnographic research that all Ozizza and Afikpo pottery wares are shaped in the form of globular/oval or spherical necked pot made up of heavy and sturdy rim-sherds with an average diameter of 21 cm. The shape is what one can comfortably call an Igbo ware because similar vessels were equally found in other parts of Igbo communities such as Igboukwu, Okigwe and

Inyi (Shaw 1970; Ibeanu 2000, 1989). Ozizza people in particular, and Afikpo in general also makes hemispherical wide and semi-wide pots and bowls. These pots were used and are still in use within the communities and environs. Examples are *Mgbuku* pots, pitcher pots, *njaerusi*, *mpalaka* and *Ite Okpogo*, used for wine and water storage, fetching water rituals, lantern, ceremonial wares or sacrificial wares. Bowls are *njaoji* and *njaoshishi*. All these bowls (*nja*) serve different functions, according to motive and tradition, as their shapes confer functionality upon a bowl. Arising from the motive and function, we have soup bowl, eating bowl, cassava processing bowl, ritual/sacrificial bowls, kola nut storage bowl, fishing bowls and kola nut serving bowls. Ali (1991) and Oyeoku (1976) reported *njaogodo* (eating bowl with raised pedestal/foot), *Ite Okpogo* (wine pot), and *Ite-mgbere/itemaa* (ritual pot) were also made in other Afikpo communities. It should be noted that Amaeta-Ozizza potters acknowledged these various pots as among their products; however, not all the products were found within those finished wares made at the point of our visits in 2012 and 2013. According to the potters, some pots (ritual/sacrificial bowls) are made on-demand; while pottery wares used on a daily basis (water pots, eating bowl, wine pots, pitcher pots, cassava pots etc.) are produced more often because of their easy sales and uses. Ozizza potters also acknowledged making *njaerusi* towards the *Ihe akwukwo* oat taking at Ogba-Eju boundaries between two communities, Ozizza and Akpoha in Afikpo.

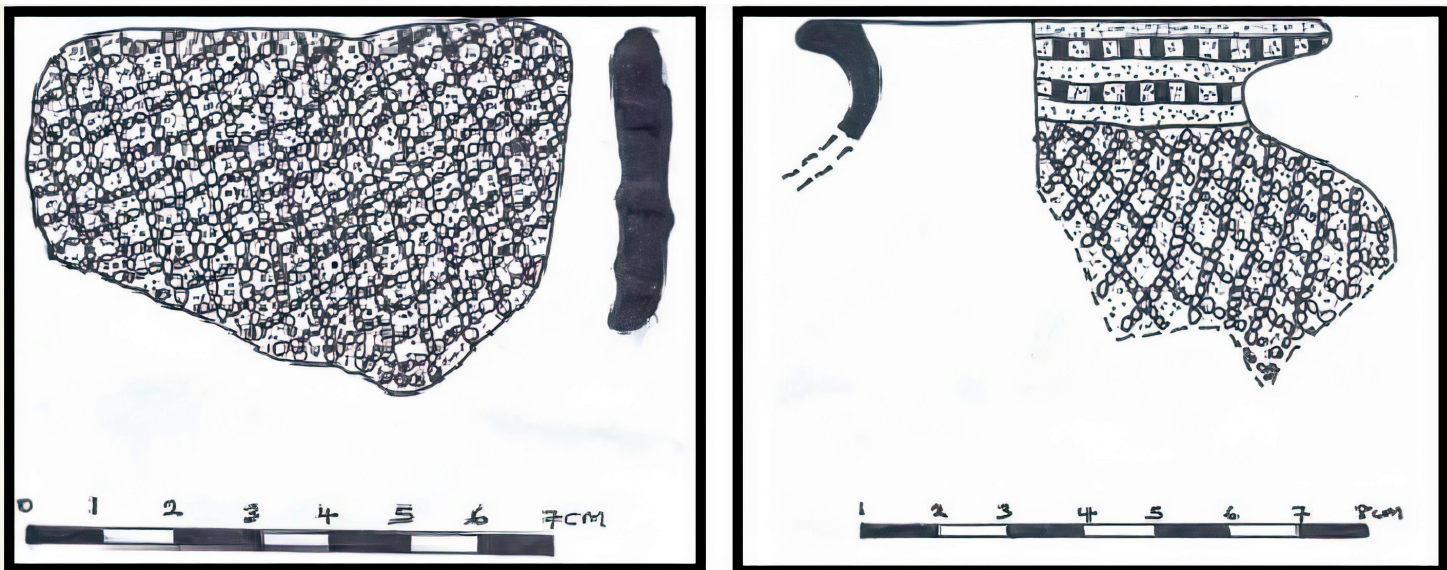


Figure 3: Reconstruction of body and rim sherds recovered from excavation (RS/10).

From the excavated pottery wares, pottery typology focuses on its attributes and functions. Pottery by attributes was categorically captioned type A, B and C. The type A category comprises globular/oval and spherical necked pots called *mgbuku/uguru-onu*. This belongs to the pot, characterised by the thickness measuring 6 cm and 9 cm respectively. It has heavy and sturdy rim potsherds with an average diameter of 21 cm. The vessel is similar to the pots excavated by Ibeanu at Uhuchukwu cave and Ihube in Okigwe Abia State, Nigeria (Ibeanu 2000). The set also has a pitcher pot and medium water pot with the rim measuring 2 cm and 3 cm in thickness and 7 cm and 9.5 cm in diameter respectively. The pot types are heavy with funnel mouths. The second category (type B) is the hemispherical wide and semi-wide neckless pots called *mgbuku/uguru-onu* and bowl called *oku* or *ite-ohe*. Others in these categories are *nja* and *oshishi* small pots and bowls labelled type C, represented with similar criteria; they are also heavy, sturdy and bigger in size. The thickness of the rims are 2.7 cm and 3.3 cm and diameter 8 cm and 7 cm, respectively. Other potsherds recovered from the different spit levels have the same decorative motif with the present potters wares. The people were not into much decoration, and burnish was abundant and most significant. Also common are composite designs.

Relevance of pottery to archaeology

According to Clark (1964) the work of the potter is highly prized in Japan and the proceeds from the sale of one pot are often very rewarding. The above statement re-assured us that pottery, as a craft is a valued work not only in the developed world, but also here in Ozizza town of Afikpo North Local Government Area of Ebony State, Nigeria.

Among the Ozizza, pottery wares are valuable objects for the promotion of cultural heritage. It is a symbol of material and spiritual heritage, well integrated into the living patterns of the people and inseparable from their spiritual philosophies. It is true that local crafts, of which pottery is a part, are an important element of the people's economy; and if strengthened, they hold the potential to develop and create jobs for Ozizza people.

Pottery is of great value to archaeology. One of the best ways of learning to appreciate pots, of course, is to visit museums and exhibitions (as well as production sites) (Trevor 1966). The value of pottery to archaeology cannot be overemphasized particularly in this part of the world where climatic conditions inhibit the preservation

of organic archaeological materials. As noted by Billington (1962) pottery cannot be destroyed by natural means and that is what makes potsherds so valuable to the archaeologists, who may find in them the only evidence of some vanished race.

Potsherds can also aid in the reconstruction of the people's way of life. The pottery tradition of a people can also give an insight into their agricultural life. As Clark (1970) puts it, this could be gleaned from the use of corn cob in decorating their wares. This type of decoration sets a time limit to the period when such pots were made because corn did not reach Africa until it was introduced from the new world (Clark 1970).

Agorsah (1983) effectively demonstrated the common origin of two settlements from petrographic analysis of potsherds. The discovery of material remains such as potsherds/pottery in an archaeological site is a discovery of great importance; hence, a great wealth of information can be gained from its study. By examining the method of manufacture, an archaeologist will be able to reveal the technological development of the group of people from which the pottery came.

Pottery to an archaeologist is almost an object of sedentism. Its appearance and development signify an important stride in the progress of man and it helps man to probe more about himself (Okpoko & Okonkwo 2010). Again, through a microscopic study of the residue left in a pot, the contents of an abandoned pot can be revealed. Ethnographic analogy can also be made through the typology of pottery. This can further be applied to the site itself where the pottery was excavated; more importantly too, the date of production can be more accurate if there is any decoration on the pot. Put in a summary form, archaeologists use pots and potsherds found in sites to study the culture, chronology, trade, processes of economic organization, etc. of a people. Thus, an in-depth knowledge of the heritage resources of Ozizza people can be obtained through a study of their pottery tradition.

Conclusion

This work is centered on the pottery tradition of Ozizza community in Afigbo North local government area, Ebony State, Nigeria. The study employed ethnoarchaeological method in its data collection; in the course of the oral interviews, we were informed of the existence of rock-shelters which we later studied. The rock shelters were studied and excavation was carried out in one

(RS/10); materials like potsherds were recovered. A total of 152 potsherds were recovered, the potsherds were compared with the pottery tradition of the extant Ozizza population focusing on the motifs, techniques and uses. Analysis of the potsherds further revealed continuity with insignificant change.

As in other parts of Nigeria, only traditional pots can be used to perform certain social, medicinal and ritual functions. In parts of Igboland for example, 'a type of hemispherical bowl (*Oku*) – in Ozizza, it is called *ite-erusi* and *nja-erusi* (used for ritual and sacrifices) – with all parts of its body covered with perforations acts as a special container for materials used in curing certain ailments' (Onwuejeogwu 1976). There is still a high demand for traditional pottery in Ozizza because of its relatively lower price and the various functions it still performs in spite of the presence of other types of wares (enamel, plastic and glass wares).

The ingenuity of Ozizza people in the collection of clay, the preparation, kneading, rolling and forming of pots as well as their decoration and firing etc, to a great extent attest to the technological advancement of a people whose culture has survived up to the present. In Ozizza, it is still one of the major occupations by women even though it is still associates with elderly women who are now very few in number. Their products are marketed mainly in Calabar, Cross River State; Aba in Abia State, Abakiliki and Afikpo in Ebonyi State and still flourishes to date, though technological advancement has enhanced its production and use. Pottery wares of Afikpo still catch up with time particularly with those meant for wine storage; local dry gin, cassava processing and ceremonial uses. All these propel their need despite modernity.

Finally, the documentation of pottery tradition in Ozizza now will afford us the opportunity to know the changes and trends in its development. This approach will leave an imprint for our future generations on the craftsmanship of pottery production in Ozizza in particular and Afikpo in general.

Acknowledgements

The authors wish to acknowledge the Laboratory Technologist in the Department of Mechanical Engineering, University of Nigeria, Nsukka for the hardness test carried out on the pottery materials. We also appreciate the assistance of Engr. Eze Chidiebere for using AutoCAD to draw all the reconstructed potsherds.

Declaration of Financial Interest

The authors wish to declare that there are no conflicting interests and no funding.

References cited

- Agorsah, E.K.
1983. 'An Ethnoarchaeological Study of Settlement and Behaviour Patterns of a West African Traditional Society'. PhD dissertation, University of California, Los Angeles.
- Agu, C.S.
1990. 'Pottery Tradition in Nrobo: An Archaeological Approach'. B.A. project, Department of Archaeology, University of Nigeria, Nsukka.
- Ali, V.E.
1991. 'Tradition and change in Afikpo Pottery'. B.A. thesis, University of Nigeria, Nsukka.
1999. 'Symbolism in Contemporary and Traditional Igbo Pottery'. *ENVIRON: Journal of Environmental Studies* 1 (2-3): 85-103.
2005. 'Pottery and Religion in Afikpo Traditional Society'. *ENVIRON: Journal of Environmental Studies* 2 (4): 36-47.
2009. 'Continuity and Change in Afikpo and Ishiagu Traditional Pottery Forms and Decorations: An Ethnographic Study'. Ph.D thesis. University of Nigeria, Nsukka.
- Aliyu, A.
2001. 'Sukur Cultural Landscape as a Tourist Asset'. Paper presented at a workshop organised by NCMM on the theme 'Wise Use of Heritage', in Gulak, Madagali Local Government Area of Adamawa State, 01-03 November 2001.
- Andah, B.W & Anozie, F.
- 1980/81. 'Preliminary Report on the Prehistoric site of Afikpo (Nigeria)'. *West African Journal of Archaeology* 10-11: 83-102.
- Billington, D.
1962. *The Techniques of Pottery*. London: B.T. Batsford Ltd.

Chikwendu, V.E.

1976. Afikpo: Excavations at Ugwuagu Rock shelter Site (1) and Abandoned

Clark, J.D.

1970. 'The Spread of Food Production in Sub-Saharan Africa'. In Fage, J.D. & Oliver, R.A. (eds.), *Papers in Africa Prehistory*. Cambridge: Cambridge University Press, pp. 25-43.

Clark, K.

1964. *Practical Pottery and Ceramics*. London: StudioVista Ltd.

Ekechukwu, L.

2002. 'Tourism Potentials of Archaeological Sites in Igboland: Nsukka – Okigwe Cuesta as a Case-Study'. PhD thesis. University of Nigeria, Nsukka.

Eyisi, A.P. & Okonkwo, E.E.

2019. 'Exploring the Sukur Cultural Landscape in the Adamawa State of Nigeria: A Methodological Discussion'. *Quality and Quantity: International Journal of Methodology* 53 (4): 2131-2141. <https://doi.org/10.1007/s11135-019-00862-0>

Hartle, D.D.

1966. 'Archaeology in Eastern Nigeria'. *West African Archaeological Newsletter* 5.

Holloway, I., Brown, L. & Shipway, R.

2010. 'Meaning Not Measurement: Using Ethnography to Bring a Deeper Understanding of the Participant Experience of Festivals and Events'. *International Journal of Event, Festival and Management* 1 (1): 74-85.

Ibeanu, A.M.

1989. 'Inyi: A probable centre for the Igbo-Ukwu pottery'. *West African Journal of Archaeology* 19: 137-159.
2000. 'A Contribution to the Archaeology of Okigwe and its Environs'. PhD thesis. University of Nigeria, Nsukka.

Ogundele, O.S.

2000. *Fundamentals of Archaeology: An Introduction*. Ibadan: Ejimso, Nigeria Enterprises.

Okonkwo, E.E. & Ikegwu, J.

2020. 'A Study of Ozizza Archaeological and Ethnographical Sites and Features in Ebonyi State of Nigeria: Research Methodological Discussion'. *Heliyon* 6(3). <https://doi.org/10.1016/j.heliyon.2020.e03583>

Okpoko, P.U. & Okonkwo, E.E.

2010. 'Pottery Tradition and Heritage Management in Sukur Kingdom, Nigeria'. *West African Journal of Archaeology* 40 (1/2): 1-20.

Okpoko, P.U. & Ezech, P.J.

2011. *Methods in Qualitative Research*, Second Ed. Great AP Express Publishers Ltd, Nsukka.

Onwuejeogwu, M.A.

1976. *Social Anthropology of Africa: An Introduction*. Heineman International Literature.

Oyeoku, O.K.

1976. 'Pottery Making in Afikpo'. B.A. thesis. University of Nigeria, Nsukka.
1999. 'Pottery Making in Nigeria: A Survey'. *West African Journal of Archaeology*, 29 (1 & 2): 28-33.
2000. 'Afikpo Pottery as a Cultural Heritage Resource'. PhD thesis. University of Nigeria, Nsukka.

Shaw, T.

1970. *Igbo Ukwu: An Account of Archaeological Discoveries in Eastern Nigeria*. London: Faber and Faber.

Trevor, H.

1966. *Pottery: Step-by-Step*. New York: Watson-Guption/Ballantine Books.

Somaliland

The 2020 field season at the medieval settlement of Fardowsa (Somaliland)

Jorge de Torres Rodríguez,¹ Alfredo González-Ruibal,¹ Manuel Antonio Franco Fernández,¹ Pablo Gutiérrez de León Juberías,¹ Candela Martínez Barrio,¹ Álvaro Minguito Palomares,¹ Ahmed Duale Jama²

Jorge.detorres-rodriguez@incipit.csic.es

¹Institute of Heritage Sciences, Spanish National Research Centre (Incipit-CSIC), Spain,

² Department of Archaeology, Ministry of Commerce, Industry and Tourism of Somaliland, Somaliland

Introduction

The medieval city of Fardowsa (also named as Ferdusa or Fedowsa) is located at the outskirts of the modern village of Sheikh, about 60 km south of Berbera, in a plateau immediately after the mountain pass that connects Berbera with the interior, a strategic position which undoubtedly was fundamental for its development and growth (Figure 1). Until the 1930s, the only settlement in the area was a small religious community – *tariqa* – which gave the name to the current village of Sheikh, which has progressively expanded, affecting the southern part of the site and destroying many of the structures in the periphery of the site. Although there are several references to the existence of ruins in the area by nineteenth century British travelers who used this pass on their way to the south of Somaliland (Swayne 1903: 23, Herbert 1908:

292), the site was only archaeologically identified in 2001 by Fauvelle-Aymar *et al.* (2011: 41-42), who visited it briefly and documented its general characteristics. The materials collected – an Arab coin, glass bangles, pottery sherds including Chinese porcelain – made them propose a chronology of the fourteenth to fifteenth centuries for the site, suggesting a height of occupation between the fourteenth and eighteenth centuries. The site was also briefly surveyed in 2015 by the Incipit-CSIC team, and in 2016 two test pits were conducted in Fardowsa to the northeast and the southwest of the site (González-Ruibal *et al.* 2017: 157-159). The first one documented a square structure with at least two rooms and several pots still in their original position. Under the foundations of the structure, numerous layers were documented alternating ashes and soil, which yielded a significant amount of animal bones and hand-made coarse pottery. The second test pit was conducted in a two-room building and provided information about the use and abandonment of what has been interpreted as an average house in the town.



Figure 1: Location of Fardowsa (Sheikh).

In 2020, the availability of resources and time allowed a more ambitious plan of excavation that included a new, bigger area of excavation to the east of the site. The selected area presented two rectangular concentrations of rubble corresponding to buildings (some parts of walls were still visible), coded as Contexts 3000 and 4000 and delimiting a rough L shape, and a lower area in front of them which was considered an open space (C-6000) (Figure 2). The area, of approximately 700 sq. m, was not as covered by vegetation and rubble as other parts of the site, allowing a fast clearing of the upper part of the collapse and the documentation of the structures underneath. This process allowed us to document a large area without

necessarily excavating all the structures in one field season. In addition, the existence of differentiated spaces has allowed us to analyze the relationships between complementary areas – houses and courtyards, for example – and to compare the differences in stratigraphy and materials assemblages. The study of the space interpreted as a courtyard was regarded as especially important, as an area where older phases of the site could be recorded and where a number of chemical and pollen analyses could be conducted.

The excavation

The excavation combined three different approaches to collect the maximum amount of information about the structures and open spaces in the area of study. Firstly, both accumulations of rubble were cleared of stones and vegetation in order to get basic information about the layout of the buildings. Secondly, one of these accumulations was partially excavated to collect information about

its chronology, history and use. Finally, some test pits were conducted to address important issues related to the interpretation of the area, or to collect specific data such as pollen or geochemical samples.

The clearing and partial removal of the upper collapse level has documented two large rectangular buildings (C-3000 and C-4100) and a smaller rectangular building (C-4300), all of them oriented North-South and delimitating an “L” shaped space with a short street running between buildings C-4100 and C-4300 (Figure 2). The larger buildings have very similar internal distributions, consisting of three rooms to the west and one long room to the east, with access to the building and the different rooms placed to the east. The first one (C-3000) has dimensions of 14 m by 7.4 m and an area of 100 sq. m; while the second one (C-4100) has dimensions of 12 m by 7 m and a total area of 85 sq. m. The smaller room, with dimensions of 8 m by 4 m, occupies an area of 31 sq. m.



Figure 2: General view of the site, with C-3000 to the left, C-4000 to the bottom right and C-6000 (courtyard) to the right front.



Figure 3: General view of C-3000.

The constructive technique of all the buildings is similar and consisted of the disposition of medium and large-sized stones in irregular rows, bound with earth and placing the stones with flatter, dressed faces to the exterior. From time to time, rows of small flat stones were laid horizontally; probably to help maintain horizontal levels during the construction of the building (Figure 3). There are some slight differences depending on the areas, and in some cases bigger stones used as irregular ashlar were used at the lower part of the walls, the corners and the jambs of the doors. There are also significant differences in the quality of the houses, with the smaller building showing a poorer quality of construction technique than the two main buildings. It has been possible to determine the constructive system: the perimeter wall was erected first and the partitions added at a later stage, untied to the main walls. Regarding the doors, two types of entrances have been located: some had a trapezoidal plan with the wider side to the east, and others a simpler rectangular plan. Only one of the thresholds could be excavated, but

no elements to fix a wooden door were found. This suggests that the entrance may have been covered by cloths. No windows have been documented in the building, although given that the maximum preserved height was only 1.40 m it is impossible to know if they never existed or if they are currently lost.

Our analysis of the data has revealed several instances of remodeling in the larger buildings, including rebuilt walls with slightly different orientations and construction techniques such as the presence of postholes representing posts that were probably introduced after the abandonment of the site. This data is consistent with the information gathered during the excavation of two rooms at C-3000, which shows the existence of several occupation phases for the building, the last one a squat-like occupation that took place when the building had lost its original use (Figure 4). Although the excavation of C-3000 could not be completed due to a lack of time, the analysis of the material culture collected in the different spaces of the house shows a radical distinction between



Figure 4: View of the north site of C-3000 showing an occupation floor.

the western smaller rooms and the long room to the east. The former has yielded a remarkable amount of imported materials including glazed pottery, porcelain, hand-made fine wares, glass vessels and bangles and different objects of metal, together with local hand-made pottery and numerous bones. To the west, in comparison, the amount of archaeological materials is significantly smaller and imported materials are scarcer. To the south of the longer room two medium sized, hand-made containers have been identified in their original position, slightly buried on the floor, a feature also documented in other excavation areas of Fardowsa.

These differences in the distribution of the amounts and types of archaeological evidences led us to think that the smaller, western rooms could have been roofed areas used as living rooms, stores or bedrooms, while the long spaces to the east with direct access from the exterior could correspond to open areas where productive activities took place. The upper levels of occupation, on the contrary, have evidence of fires and with bones inside

the west rooms, a type of evidence that would fit better with a sporadic occupation of the building after the abandonment of the town. This hypothesis will be checked in future campaigns, when the building C-3000 is fully excavated and the different occupation phases are recorded.

The open space to the west and northwest of the buildings was named C-6000 and has been identified as a courtyard delimited by a low wall – probably a fence with stone foundations – with some evidence of small rooms (pens?) attached to it. Although the outline of the fence could not be established, it surrounds the whole area occupied by the excavation area. Two test pits provided additional information about this area. The first one was a 3 m by 1.5 m located to the north of C-4100, which was set to document the preserved height of that building (about 1.1 m to the north). In addition, this test pit included part of a refuse heap which appears to be part of the courtyard and contained local hand-made pottery and an astonishing amount of bones (about 60 kg of faunal remains in an area of just 1.4 sq. meters and a depth of 80 cm). Most



Figure 5: View of a Chinese celadon bowl. A potter mark can be appreciated on its base.

of these bones are identified as camels and caprines, although other species (including gazelles) have also been documented. The presence of camel is especially relevant as it is a prestigious animal used as a beast of burden as well as for milk production, but whose consumption is reserved for special occasions. Its abundant presence in the test pit reinforces the idea of the large houses as wealthy households, a theory further supported by the numerous imported materials found during the excavation.

The second test pit (2 m by 1 m) was excavated in the middle of the courtyard with two objectives: 1) to identify the floor of the courtyard and the depth of the archaeological deposits in this area; and 2) to collect a soil column in order to provide information about the past uses of this open space. The excavation documented two occupation floors, the first at 35 cm of depth and the second one at 50 cm, both of which were made of packed earth. Archaeological materials were scarce and consisted of bones and hand-made local pottery.

The material culture

The material culture recovered in the 2020 excavation shows significant variety and at the same time a great coherence in terms of chronology. All of the collapse layers are undisturbed and therefore the material assemblages have been properly sealed. Of course, the state of preservation depends on the post-depositional processes that occurred in the different spaces: in some areas that were reoccupied, materials are very fragmented, while in other areas whole pieces were recovered. There were also noteworthy differences in the material assemblages of different rooms and spaces related to their different functions.

The amount of imported materials in the sample is remarkable, especially in some rooms of C-3000 where tens of pieces have been documented. Celadon fragments are relatively common, along with blue and white porcelain, while Martaban stoneware and Indian Red Slip Ware (IRSW) pieces are present, but scarce in the sample (Figure 5). Celadon pieces include some with flower/wavy



Figure 6: Materials documented during the excavation 1. Yemenite Cream Ware (white cream); 2. Thin Grey Ware; 3, 9. Speckled ware; 4-5. Blue and white porcelain; 6. Martaban; 7. Yemeni Mustard ware; 8. Green glazed and painted ware; 10. Rim of glass bottle; 11. Glass bangles; 12. fragments of glass bottles.

rims and two well-preserved bowl bases, one of them with potter marks. Speckled glazed pottery is also present in most of the rooms and spaces, while other types of glazed wares are less common. and include Persian green glazed and painted pottery as well as Yemenite Mustard wares Unglazed imported pottery is very abundant and includes two main types: 1) Yemenite white cream wares characterized by incisions and punctuations and 2) Thin Grey Ware fragments, a type of pottery decorated with incisions in floral, wavy and grid-like designs. Most of these types of potteries are widely documented throughout the Red Sea and Indian Ocean assemblages (Priestman 2013).

Along with pottery, glass is very abundant, usually corresponding to small perfume bottles and glass bangles of which about 50 have been found. The glass fragments are mostly green while the bangles correspond

to three main types: 1) black or dark blue bangles with fingernail impressions, 2) bangles combining colors and 3) spiral-like bangles combining wires. All these types are common in medieval and modern sites in Somaliland (González-Ruibal *et al.* 2017: 140). Other imported materials include cowries, which were numerous in some rooms, and metal objects which were recorded in C-3000 – a buckle, an earring, a *taweez* (cylindrical metal amulet to keep verses of the Quran) and a wire skein, all probably made of tin or bronze (iron pieces were very scarce and fragmented). These metal objects are exceptional in the archaeological record of Somaliland, where metal objects are very scarce. Other remarkable objects – although not all of them are imported – consist of a number of coral and agate (rock crystal) beads, ostrich eggshells, and a stone token.

Local pottery is numerous throughout the site and similar to the samples recovered in other sites dating to the medieval era (González-Ruibal *et al.* 2017, Torres *et al.* 2019). It mostly consists of hand-made vessels of medium size, corresponding to four main types: 1) semi globular containers with spouts, 2) globular pieces with inward flat rims, 3) bowls with the upper part of the rim slightly engrossed and 4) censers. In general, all have a good firing quality. Decorative patterns are highly standardized and are comprised of a series of parallel incised lines, although punctuations, grooves, finger or fingernails impressions of clay appliqués have also been documented. The decorations are usually located in the upper portion of the vessels, close to the neck. In the case of the inward globular pieces, the decorations are on the upper flat portion of the rim. Additionally, handles are very abundant and correspond to two main types: horizontal and slightly curved handles with triangular sections; and short vertical handles with circular sections. Finally, knobs are relatively common although some of them seem to have been just decorative elements.

The sample sets a chronological framework of the fifteenth to the sixteenth century and is an excellent summary of the different objects and wares that were available and widely distributed during the period of the Sultanate of Adal (1415-1577 AD). However, some of the imported types such as the Yemenite Mustard have an older chronology (thirteenth to fourteenth centuries), whereas examples of celadon found during the survey could date to the seventeenth century. Both dates are reasonable, as the strategic position of Fardowsa makes it logical to place the occupation prior to the fifteenth century. Regardless, all the evidence that we have shows a progressive abandonment of the site throughout the sixteenth century that could perfectly match with a marginal occupation during the seventeenth century.

Preliminary conclusions

The 2020 campaign in Fardowsa has provided a large amount of data regarding the urbanistic, architectural, economic, social and chronological context of the town. The quantity and quality of this information has been to some extent unexpected, as previous excavations in Fardowsa only revealed a maximum height of 50 cm of preserved archaeological remains. In the area excavated this year, this height reached 1.40 m in some areas of C-3000 and C-4000, which along with undisturbed and well-

sealed archaeological levels, provides an excellent context to understand the historical and material framework of Fardowsa during the medieval period. The amount, quality and state of preservation of the archaeological materials is also remarkable, offering an important set of well-contextualized assemblages which will be invaluable to establish the chronology of Fardowsa and its different stages of occupation.

One of the most relevant discoveries is the similarity between the layouts of C-3000 and C-4100, following the same constructive pattern that, with minor differences, points to a well-established design in the planning and use of these large houses. Obviously, these buildings do not correspond to the average house size and should be considered prestigious or wealthy households. In that way, the organization of the three buildings in an L shape and surrounded by a fence makes it very explicit that there existed a predetermined and conscious organization of space, including open areas which are usually considered just empty spaces and which have proved to be very relevant for our understanding of medieval settlements. Although this organization cannot be properly called urbanization, it nevertheless challenges the prior, simpler definitions of medieval settlements as a cluster of disseminated, individualized houses. Even though our analysis is still in progress, the identification of different functional areas is starting to shed some light on the spatial organization of these communities, with interesting social and economic implications.

The material culture recovered during the excavation of Fardowsa is especially relevant because it comes from a well-sealed context and offers a very coherent chronology with a main occupation period around the fifteenth and sixteenth centuries. The quality and variety of materials found in this season's excavation show the sophistication and wealth of Fardowsa during the Sultanate of Adal period. Obviously, the characteristics of the buildings excavated during the 2020 field season do not seem to be the norm, and point to the existence of a privileged and wealthy group within Fardowsa that had access to imported materials and regularly consumed expensive animals such as camels. This information, which will be expanded in future field seasons, will balance the data we have so far for Somaliland, mostly focused on the western region (Curle 1937), and will provide a more accurate overview of the social and economic parameters during this period in central Somaliland.

Acknowledgments

The research of the Incipit-CSIC team in Somaliland is funded by the Spanish National Programme for the Promotion of Scientific Research (project Ref. PGC2018-099932-B-I00), the Palarq Foundation and the European Union Research and Innovation Framework Programme, Horizon 2020, through the Marie Curie Actions Individual Fellowships (Proposal 795442). The authors would like to thank the Somaliland national and local authorities for their support during the excavations and the facilities given for the study of the samples.

References cited

Curle, A.T.
 1937. 'The ruined towns of Somaliland'. *Antiquity* 11: 315-327.

Fauvelle-Aymar, F.X., Hirsch, B., Bernard, R. & Champagne, F.
 2011. 'Le port de Zeyla et son arrière-pays au Moyen Âge. Investigations archéologiques et retour aux sources écrites'. In Fauvelle-Aymar, F.-X. & Hirsch, B. (eds), *Espaces musulmans de la Corne de l'Afrique au Moyen Âge. Études d'archéologie et d'histoire*. De Boccard/ Centre français d'Études éthiopiennes, pp. 26-74.

González-Ruibal, A. & Torres Rodríguez, J.
 2018. 'The fair and the sanctuary: gathering places in a nomadic landscape Somaliland, 1000-1600 AD'. *World Archaeology* 50: 23-40.

González-Ruibal, A., de Torres, J., Franco, M.A., Ali, M.A., 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: Archaeological Research in Africa* 52 (2): 135-172.

Herbert, A.
 1908. *Two Dianas in Somaliland: the record of a shooting trip*. London: John Lane, The Bodley Head.

Priestman, S.M.N.
 2013. 'A Quantitative Archaeological Analysis of Ceramic Exchange in the Persian Gulf and Western Indian Ocean, AD c.400-1275'. PhD dissertation. University of Southampton.

Swayne, H.G.C.
 1903. *Seventeen trips to Somaliland and a visit to Abissinia*. London: Rowland Ward.

de Torres, J., González-Ruibal, A., Franco, M.A. & Dualeh, A.
 2018. 'Medieval Archaeology in Somaliland: the 2018 Field Season of the Incipit-CSIC Project'. *Nyame Akuma* 90 (1): 30-35.

Tanzania

Conservation and archaeological project in Kua, Mafia, Tanzania (July-August 2018)

Stephane Pradines,¹ Pierre Blanchard,²
Heinz Ruther,³ Fabien Balestra⁴

Stephane.Pradines@aku.edu

¹ Aga Khan University, United Kingdom,

² World Monuments Fund, United States,

³ Cape Town University, South Africa,

⁴ Eveha International, France

Introduction

Up to now, no large-scale excavations were conducted on late Swahili sites and Kua is the perfect candidate to study a site contemporaneous to the Portuguese expansion in the Indian Ocean during the sixteenth and seventh centuries AD. Kua is located on the small island of Juani to the south-west of Mafia Island at the mouth of the Rufiji river in Tanzania (Figure 1). Kua is one of the largest Swahili sites in East Africa, and likely the least studied. Local chronicles related to Kua were recorded and published by Freeman Grenville (1962: 211-215). Although Kua is exceptional, little has been done to study and to preserve it. Just a small portion of the site has been cleared and only an archaeological survey would reveal the buildings through the jungle and below the sand. Physical decay is one of the main problems affecting the ruins. The site was never properly excavated, and our objectives were first to survey the whole site by establishing a new and accurate plan, followed by scientific archaeological excavations to establish the chronology of the site. The only map of the site was completed by Neville Chittick in 1958 (Mafia District, Tanzanian National Archives in Dar es-

Salaam). Limited architectural work at Kua includes that completed by Peter Garlake (1966: 164-168) who recorded a few houses and mosques at the site in the 1960s. Finally, a few small test pits were excavated in 2009-2010 for PhD fieldwork by Annalisa Christies (2011: 243-264).

Our project is an opportunity to promote Kua and to bring it the recognition it deserves. Working with our local partners (Division of Antiquities, Ministry of Natural Resources and Tourism, Tanzania; Mafia Island Marine Park; and a community-based organization (CBO) called the ‘Kua Ancient Swahili Town Conservation Society’), if handled properly, tourism can bring significant benefits to poor communities living adjacent to heritage sites. Visitor infrastructure at the site will help to draw these visitors to the island, which is one of the poorest places in Tanzania, creating employment and economic opportunities and thereby helping to tackle poverty.

Sustainable conservation in Kua: building local capacities through conservation

In 2016, the site of Kua was added to the World Monuments Watch list, recognizing that the surviving structures could collapse at any time, while the site as a whole is threatened by the continued effects of a harsh climate and destruction at the hands of explorers digging for fabled Swahili treasures. Unmanaged tourism from nearby resorts and potential commercial development put centuries of heritage at risk. Local villagers, mostly subsistence fishermen, were largely unaware of the significance of the ruins and were unable to maintain them. In 2017, the World Monuments Fund was awarded a grant by the Ambassadors Fund for Cultural Preservation to undertake a pilot preservation and community engagement project at the Kua ruins. In 2017 the Aga Khan University research council (AKU-URC) awarded a grant to the ISMC (Institute for the Study of Muslim Civilisations) to start a pilot project in Islamic archaeology on the site of Kua.

Our project at the ancient Swahili ruins of Kua had two main objectives: 1) to engage the community living on the island of Juani, where the ancient Swahili ruins of Kua are located in preservation and future management of the site and thereby develop a custodianship model that is more equitable and sustainable; and 2) to carry out physical conservation at the site based on international best practice in order to preserve it for future generations.

The project established a community-based organization (CBO) called the ‘Kua Ancient Swahili Town

Conservation Society', which is focused on heritage. The purpose of the CBO is to provide the community with a collective voice in custodianship of the site and a vehicle through which they can participate in future management and maintenance. Ensuring that benefits from investment in conservation reach the local population was a key objective of the project. The CBO facilitated the community's participation in the conservation work carried out on the ruins – over 235 people have been employed in some way during implementation of the project, with jobs ranging from seasonal workers and cooks, to carpenters and guards, and more. The entire workforce employed for the project was drawn from communities on the island, thereby maximizing benefits to local residents. The projects were highly labour-intensive operations created to alleviate poverty and unemployment by providing temporary job opportunities.

An additional responsibility of the CBO is to act as tour guides for the site. A training program was developed to provide basic tour-guiding and English skills. A leaflet has also been produced with a map and basic history of the site, which will be handed out to visitors on payment of the entrance fee.

The preservation component of the project had two main components: 1) the documentation of the site and standing ruins to identify their extent and location and create tools to improve management; and 2) the physical preservation of the most threatened structure at the site. Juani Island is remote, even from Mafia Island, and is accessible only by small boat, with no source of potable water or electricity. The logistics were very challenging with construction of facilities for conservation work and a project base camp had to be built as we did in Songo Mnara a few years ago.

The conservation work took the form of training the local community in the necessary know-how in conservation and maintenance techniques of the site. The project was implemented by the Antiquities Division which is in charge of all historic monuments in Tanzania in partnership with the Marine Park using a core team of skilled craftspeople trained in a precedent project in Kilwa. Four teams were created consisting of five workers supervised by one craftsman. Each team was responsible for conservation of one building at a time. The use of foreign experts was limited to missions requiring specific technical skills for preservation and training. In carrying out conservation work, the team followed international standards

of best practice with minimum intervention, repairing like with like. Work was focused on removing vegetation from masonry walls; strengthening walls by grouting and stone replacement; renovating top courses and inserting binding stones and mortar caps; insertion of lintels over openings; and (in limited cases) consolidating decorative elements such as carved mihrabs by anastylosis. The quality of work achieved is high and improved during the course of the project. Thirteen structures, including six mosques with adjacent tombs, six houses, and one cemetery have been conserved. The clearance of the site of invasive vegetation, revealed many structures, including the discovery of a new mosque.

Though much more remains to be done, the site has already been transformed from a few walls covered in dense bush, to a place where the outlines of a town and the traces of a lost community can be easily discerned. Anticipated future work will build on the achievements and momentum of the first phase, focusing on community participation in ongoing care of the site, continued physical conservation and improving the visitor experience. By engaging the community's participation in the conservation work, World Monuments Fund sought to foster positive change in the community on Juani Island and instill a sense of responsible stewardship of the site.

Conservation was highly labour-intensive. To maximize economic benefits for the local inhabitants, a system was agreed upon whereby workers would undergo a rotation every month to ensure that economic benefits were distributed as widely as possible on the island. Apart from directly improving the economic situation of inhabitants, all of whom survive on very low incomes, this system offered the community a direct return from the investment in heritage. However, some facets of the project created challenges. Rotation created some difficulties; workers with little experience of conservation lacked self-confidence and found it difficult to take initiative or responsibility and thus constant supervision was necessary. Eight workers from Juani were selected by the lead craftsmen and trained to become assistant craftsmen. Levels of dexterity, manual skills, analytic capacities, motivation, and professionalism varied among them, but generally the training results are satisfactory.

The only visitor infrastructure at the site before work commenced were a few paths through the dense bush. Improving access for visitors and providing basic information at the site is essential to encourage visitation.

Step one of site work was to clear bush at structures to be conserved and this has dramatically altered the ability of visitors to 'read' the site. New paths have also been cleared which make the ruins much more accessible.

Spatial Documentation Activities on Kua

The Zamani heritage-documentation research group from the University of Cape Town spatially documented the Kua site employing state-of-the-art technologies and methods. The equipment used comprised terrestrial laser scanners for the creation of 3D computer models and DSLR cameras for texturing, scan hole filling and for full dome panoramas. A DJI Phantom 4 Pro drone was deployed for the creation of an ortho-image of the entire site and a Trimble RTK-GNSS instrument was employed to determine the position of control points required to accurately geo-reference the scanned structures and the ortho-image.

Detailed meshed 3D models were derived from cm-accurate point clouds based on high resolution laser scans with a Z+F imager 5010X scanner. Surface point intervals are between 0.5 and 3 cm throughout. The meshed models were textured photogrammetrically. In this way six mosques, several houses and most of the associated tombs were recorded. Further scanning will be required to create models of the yet to be excavated structures. As it was impossible to scan and photograph all building surfaces from ground-based scanner setups or camera positions, the drone was used to capture aerial and oblique views of the structures. The final, photo-realistically textured models were created from a combination of terrestrial photography, drone-based photos, and laser scans. This resulted in practically complete (i.e. hole-free) models of all documented buildings.

Vertical and horizontal sections through all 3D models were generated to create ground and building plans. The scan-derived models also made it possible to produce elevations of the principal building facades. An important question of authenticity versus aesthetic appearance arose while producing the sections. Sections derived by 'cutting' through the highly detailed laser scan models reflect the natural irregular 'as-is' outlines of walls and surfaces. This resulted in plans and elevations which differ from the traditional idealized representation of heritage buildings, where walls are shown as straight lines and most angles are rectangular. This traditional, architectural approach to building diagrams is visually more appealing but less

accurate and less authentic. The former is suited for publications and scientific reports describing design and layout of a site, while the latter is required for conservation interventions and restoration projects. Both approaches to representing plans and sections were produced for Kua and introduced into the Kua-GIS project.

A panorama tour combining 136 individual full-dome panoramas has made it possible to visit Kua virtually, increasing awareness and interest in the site. Panorama tours are ideal for visitor centres or for online exposure of a site to tourism. The data generated by the Zamani documentation are sufficiently detailed and complete to create a Virtual Reality (VR) experience, which would provide for an even more realistic virtual visit of the currently recorded Kua ruins.

In addition to the drone flights for texturing and scan hole filling, separate drone flights following a traditional photogrammetric grid flight plan were carried out. Some 700 aerial images captured with the drone served to produce a high resolution ortho-photo of the site. The ortho-photo formed the basis of the Geographic Information System (GIS) generated dataset which combined all acquired data to which previously produced plans and diagrams were added (see Figure 2). The Kua GIS comprises 34 point polyline, polygon and raster layers.

A problem arose when establishing heights above sea-level (orthometric heights) for the site. GNSS (GPS) measurements provide height with respect to the WGS84 ellipsoid while heights above sea level are referenced to the geoid. The difference between the two systems, known as geoid undulation, varies with geographic location. Benchmarks with known sea-level heights, which normally serve to determine heights, were not available for Kua and the Zamani team had to revert to two different approaches to approximate sea level heights, one relying on known values for an international geoid (WGS84), the other on sea surface measurement and tide tables. The values for the geoid undulation in Kua based on the international geoid and sea surface as observed by the Zamani team were 28.22 and 27.02 respectively. A height correction constant (geoid undulation) for the site of 27.02 was subsequently adopted for the documentation and all GPS heights were corrected by adding this amount to the heights established by the GPS survey. Any future GPS derived heights should be adjusted by the same constant to guarantee consistency. The absence of an accurate sea-level height benchmark does not have a negative practical

KUA SITE MAP

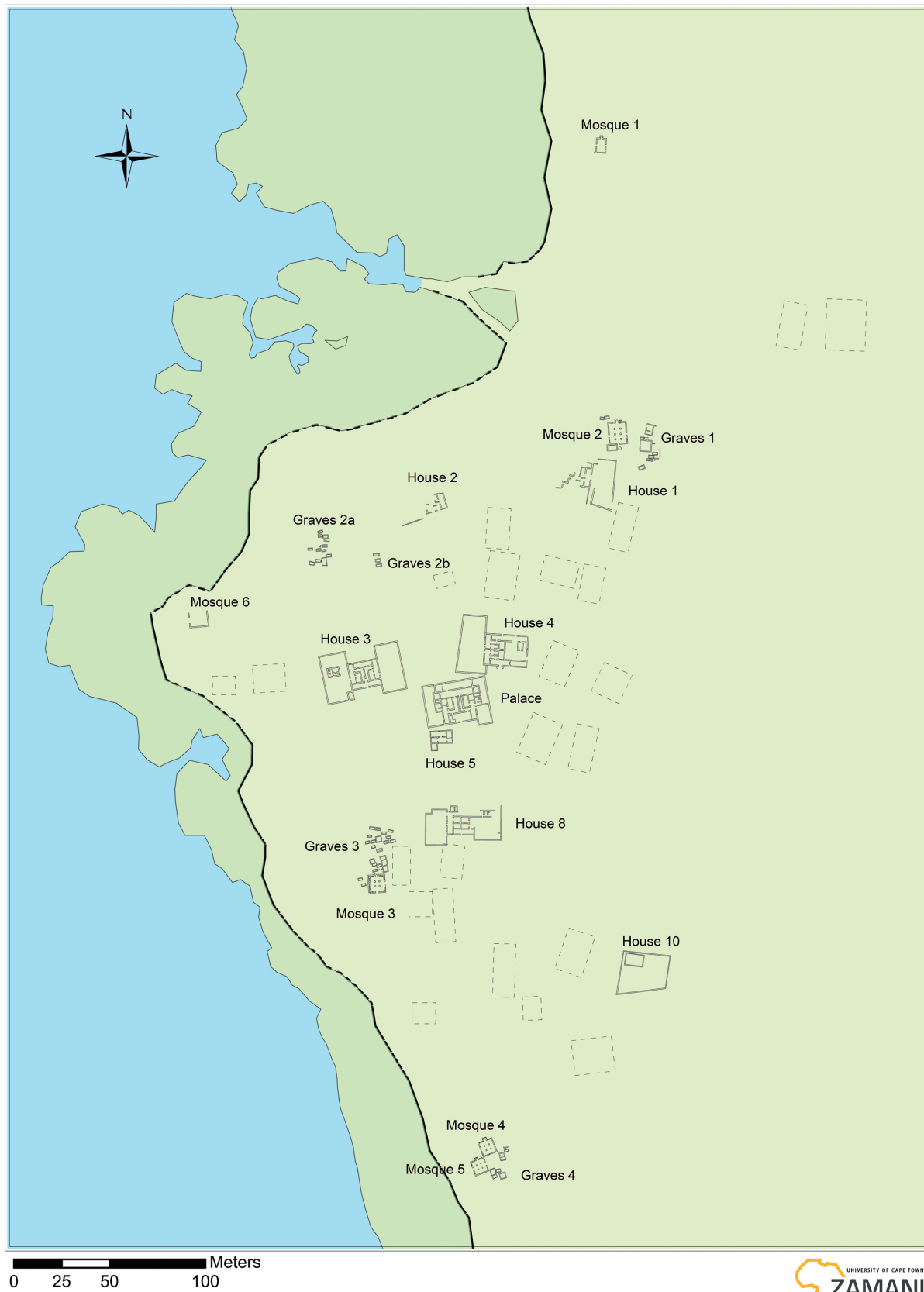


Figure 2: Plan / GIS of the site of Kua.



August 2018

House 5 (Kua)
Juani Island, Tanzania

Oblique View (North West)

House 5 (Kua)
Juani Island, Tanzania

Section A1
1m Gridlines

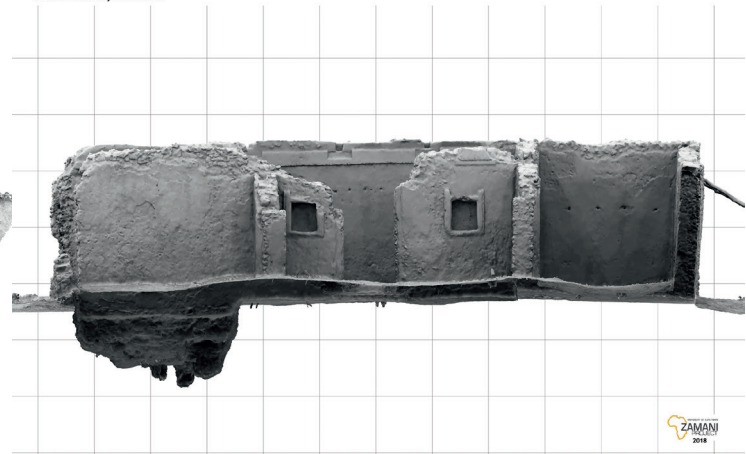


Figure 3: 3D scan of House 5 and elevation/ section (a & b).

impact on the heights on site as provided in the Zamani dataset. Relative heights for all structures on site are cm-accurate and the uncertainty of about 1 m for the absolute height is unlikely to be relevant in an archaeological context or for conservation interventions. The total spatial data volume acquired during the eight-day field campaign is about one terabyte.

Excavations and archaeological field school in Kua

During our first field season, six test pits were dug between 24 July and 22 August 2018 and it enabled us to reveal different phases of occupation on the site from the twelfth to seventeenth century AD. The placement of our excavations was decided with our colleagues, Heritage Architects, prior to their conservation work as is always the case in such collaborative projects. Our goal was to document the occupation layers of houses and mosques before restoration as well as to document the stratigraphy of the whole site. Prior to this effort, limited clearing work to expose the monuments was done by Neville Chittick in addition to a limited shovel test survey by Annalisa Christies that did not develop an in-depth chronology for the site. Our main objectives were to document the life of a Swahili site during the Portuguese era and to explore the changes in African material culture during this period, changes in Swahili architecture but also changes in the economic networks in the Indian Ocean through ceramic studies.

Although evidence of an early occupation was quite modest, at least one occupation layer in room 5 of

House 5 (Figure 3), layer 112, provided specific fragments of hatched sgraffiato pottery from the eleventh to twelfth century AD. One structure, a pit latrine, was associated with this early period, in room 1 of House 7. Nevertheless, other pieces of hatched sgraffiato were found during our surveys attesting the foundation of the site at least from the twelfth century.

The settlement gained prominence from the fifteenth century onward and several subdivisions were noticed in the different construction phases in room 1 of House 7. Our team did not find artefacts or occupation layers belonging to the ‘break-period’ between the twelfth and the fifteenth century in the middle of the site, but we did only two excavations to the North of the site and no test pits to the Southern part so maybe the twelfth and fifteenth century town is located in these areas. Plus, the absence of archaeological material from this period in the middle of the site might be due some erosion processes as recorded in the Comoros (Pradines, 2019: 111-113). Layers from the fifteenth century phase were observed in House 5 room 1 where some pieces of celadon wares were discovered in layers 131 & 133 (Figure 4). In Mosque 1, both architectural elements and decoration, in particular the inserted bowls within the *mihrab*, connect this religious building to the fifteenth century. During our surveys we identified a new large mosque built very close to the shore. Unfortunately, due to marine erosion, the qibla collapsed onto the beach and it was not possible to observe any *mihrab*.

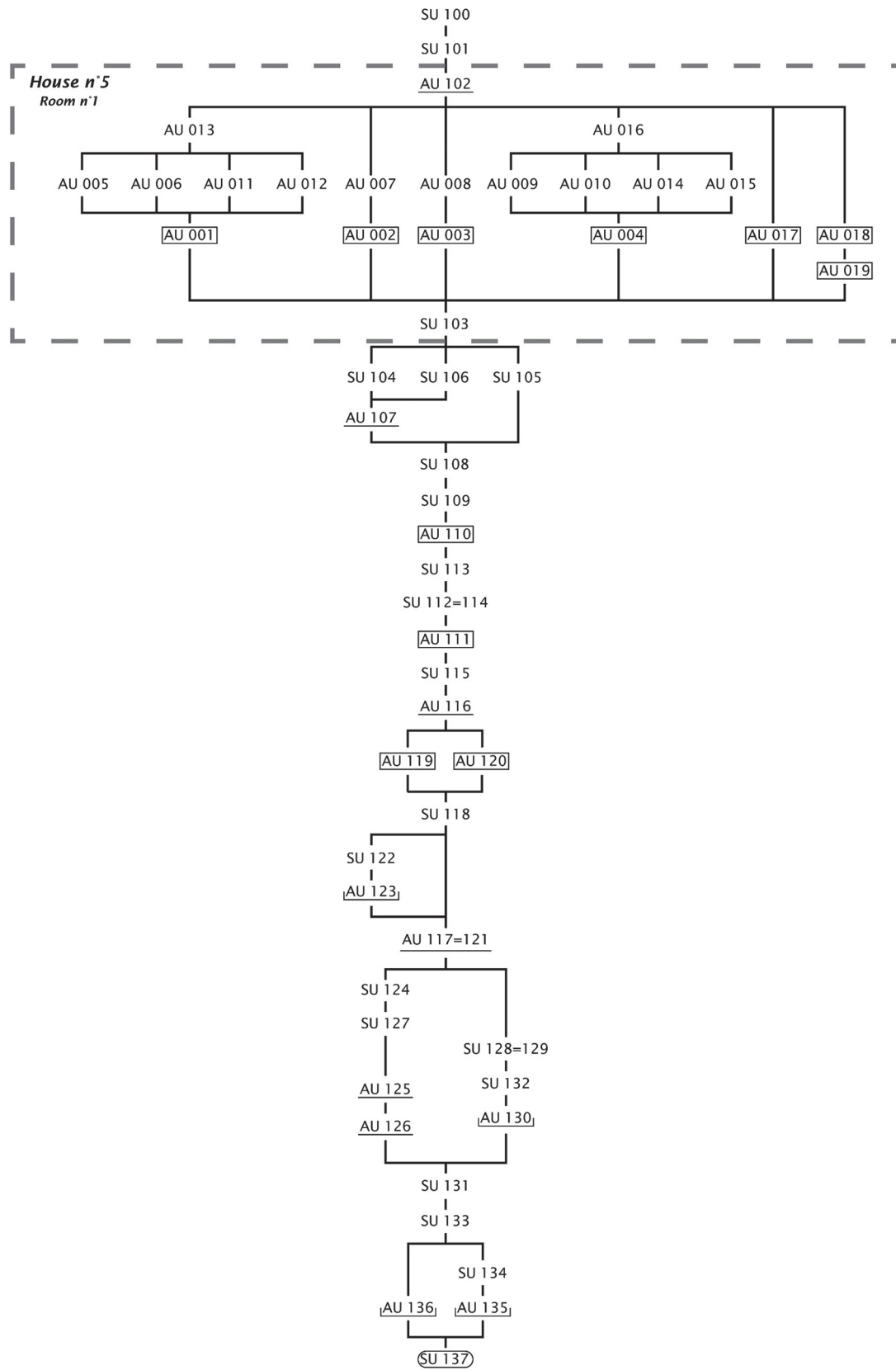


Figure 4: Harris matrix, House 5, room 1.

Mosque 2 (Kua)
Juani Island, Tanzania

Oblique View (South East)



Figure 5: Mosque 2 and water tank.

The main and principal occupation phase in Kua occurred during the sixteenth to the seventeenth century in many areas of the site. It was during this period, under the Portuguese era, that the town knew its biggest expansion with the creation of various compounds such as Houses 5 & 7 within the area of Mosque 3. The excavation enabled us to expose not only the occupation layers and floor levels, but we also recorded *in situ* pottery such as architectural unit 104 in House 5 room 5. This group of independent dwellings or compounds with large enclosure walls created the plan of the town visible nowadays. In addition to this urbanisation process, inhabitants built more small mosques such as Mosque 2. We recorded 6 mosques on the site, including the great mosque from the sixteenth to seventeenth century (Figure 5). A large water tank was added against the southern wall façade of the great mosque. Furthermore, the latter was filled with abandon layers 100/101 which contained huge numbers

of imported Chinese porcelain as well as a few complete pots showing pieces from local manufacture (Figure 6). Finally, our excavations exposed the well-preserved floors of House 5, Mosque 2 and floor 105 in House 5. All the archaeological material found in our test pit house 1 Northern sector is also from the sixteenth-seventeenth century.

Conclusion

To conclude, one important aspect of our project was the two field schools: archaeology and conservation. The Aga Khan University in East Africa supports research, education, heritage, tourism, sustainability and local development. Our activities were implemented in partnership with Tanzanian Antiquities, which is the government body responsible for heritage in Tanzania and the theoretical custodians of the site, the Marine Park and the WMF (World Monument Fund).

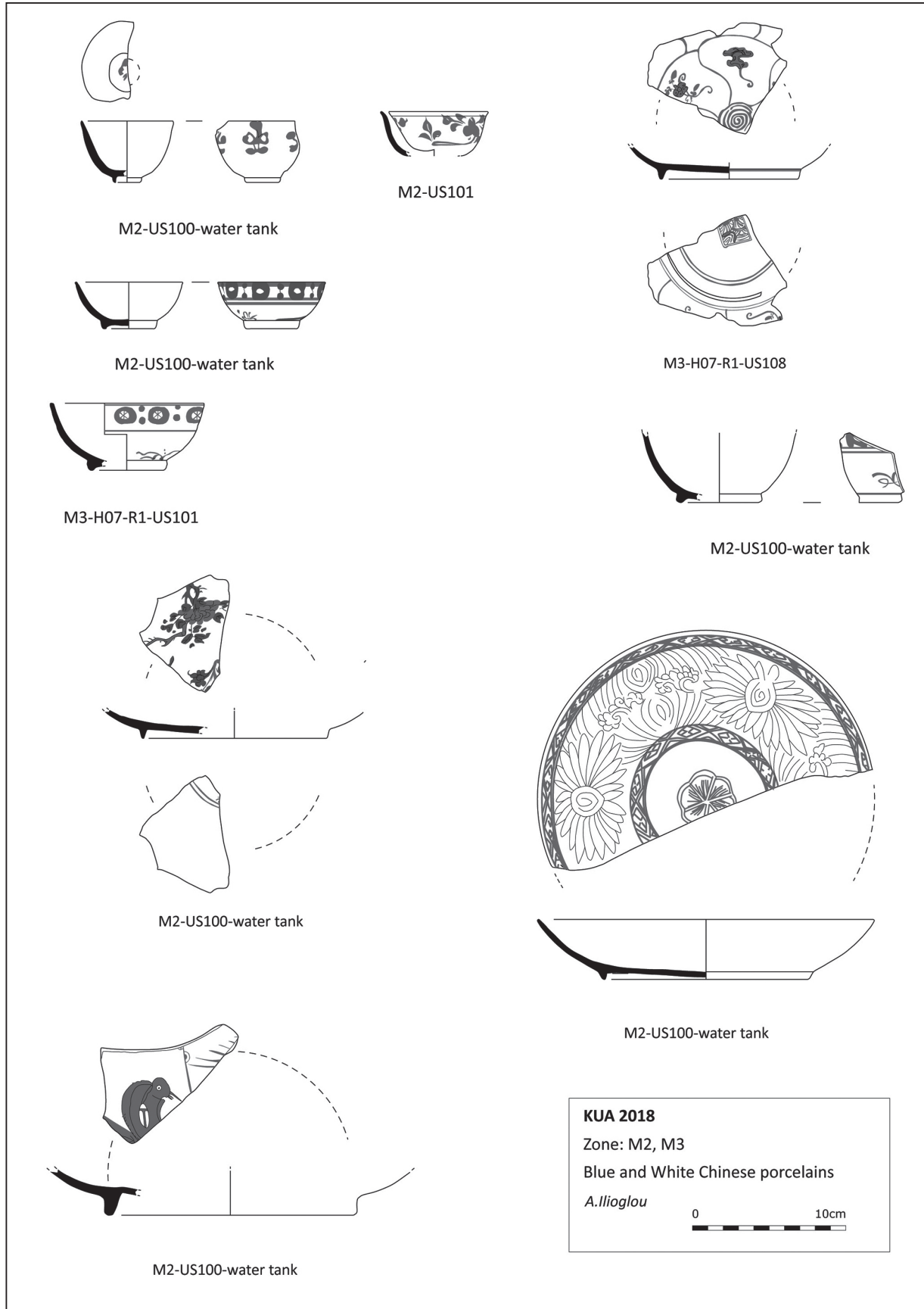


Figure 6: Chinese Blue and white porcelains from the water tank.

Acknowledgments

Dr. Fabian Kigadye, Director, Division of Antiquities, Ministry of Natural Resources and Tourism, Tanzania; Stephen Battle, Program Director, World Monuments Fund; Humphrey Mahudi, Mafia Island Marine Park; Fabien Balestra (archaeologist, Assistant Director); Ariadni Ilioglou (archaeologist-ceramologist); Kelvin Ngowi (Tanzanian Antiquities); Mercy Mbogela (Tanzanian Antiquities); Neema Mbwana (Tanzanian Antiquities); Emeritus Professor Dionisius Agius (Exeter University); Vera-Simone Schulz (Kunsthistorisches Institut in Florenz – Max-Planck-Institut); Professor Heinz Ruther (Cape Town University, Zamani project); Roshan Bhurtha (Cape Town University, Zamani project); Stephen Wessels (Cape Town University, Zamani project); Bruce McDonald (Cape Town University, Zamani project); Ralph Schroeder (Cape Town University, Zamani project); Edfonse Mloloka and all our workers in Kua.

References cited

Chittick, N.
 1959. ‘Tanganyika. Annual report for the department of antiquities 1958’. Dar es-Salaam.
 1961. ‘Kisimani Mafia (excavations at an islamic settlement on the East African Coast)’, Occasional Paper no. 1. Dar es-Salaam: Government Printer.

Christie, A.
 2011. ‘Exploring the Social Context of Maritime Exploitation in the Mafia Archipelago, Tanzania: An Archaeological Perspective’. PhD thesis, Department of Archaeology, University of York.
 Freeman-Grenville, G.S.P.
 1962. *The Medieval History of the Coast of Tanganyika (with special reference to recent archaeological discoveries)*. London: Oxford University Press.
 Garlake, P.
 1966. *The Early Islamic Architecture of the East African Coast*. Nairobi: BIEA.
 Pradines, S.
 2019. ‘Islamic Archaeology in the Comoros: The Swahili and the Rock Crystal Trade with the Abbasid and Fatimid Caliphates’. *Journal of Islamic Archaeology* 6.1: 109-134.

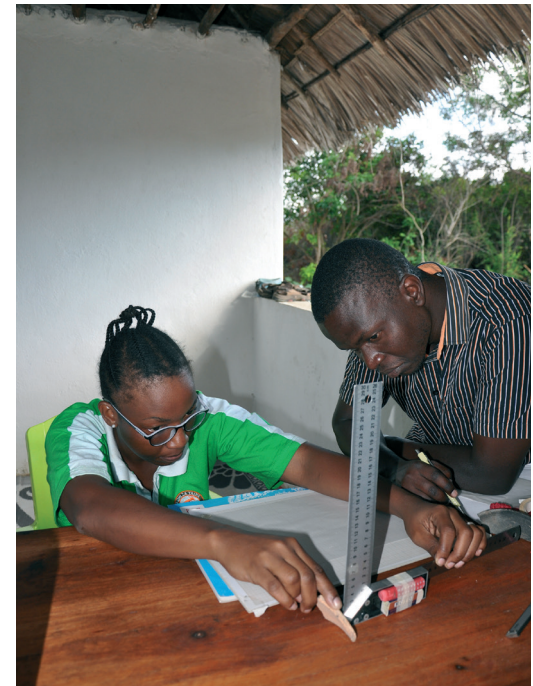


Figure 7 a & b: Photos of the field school (by Pradines).