

A preliminary report of potsherd pavements in Northern Nigeria: a new light from Zigam hilltop site, Bauchi state, Nigeria

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Abstract

The use of potsherds as a pavement in rooms, kitchens, religion house, granaries, animal pens and passage areas is found commonly in Nigerian societies between the eleventh to sixteen centuries CE. This practice is found mostly in swampy areas characterized by a waterlogged environment. It is also associated with religious practices in many societies. The goal of this paper is to explain the uniqueness of this practice at Zigam settlement in comparison with other archaeological sites where knowledge of potsherds pavement is obtainable in Nigeria, through the use of historical sources (oral tradition and written information); archaeological finds (including thin-section analysis) and features situated on the landscape of Zigam hilltop site.

Introduction

A potsherd pavement is an arrangement of potsherds on a ground in an either flatly-laid or edge-laid structure in order to depict a distinctive floor. Such potsherds can also be referred to as ceramic tiles, a term used interchangeably with potsherd pavements in this text. Most pavements are arranged in herringbone or, in some rare cases, circular patterns. Numerous archaeological sites where potsherd pavements have been identified are found in northern Nigeria (Connah 1981: 87). Among these are the sites of Yelwa Ediya in north-central Nigeria; Kahan, Warji and

Zigam settlements in north-eastern Nigeria; and Fadan-Kagoma in north-western Nigeria. Unlike the southern part of the country where extensive archaeological investigations of potsherd pavement sites have been conducted (cf. Orijemie & Ogiogowa 2016; Ige & Ajayi 2009; Folorunso *et al.* 2006; Aleru 2000; Ogundiran 2000; Agbaje-William 1995; Ogunfolakan 1994; Shaw 1978; Eyo 1974; Garlake 1974; Willet 1967), the northern Nigerian sites have not received the same degree of archaeological attention. This paper is a preliminary investigation to fill the noted gap in the study of potsherd pavement sites in northern Nigeria, by highlighting the uniqueness of potsherd pavement practices at the Zigam settlement through the study of the decorative motifs and thin-section analysis of the sherds.

Research methods

This paper relies on ethnographic data (gathered through observation) and oral interviews gathered from the present inhabitants of Zigam settlement on pottery production practices, pavement studies and installations, and the significance of the pavement in the past, as recorded in oral tradition. Twenty-two oral informants were selected representing different genders and ages. They were interviewed between 18-19 January 2020 using an unstructured interview technique (see Table 1 for the full list of oral informants).

In addition to interviews, a survey was conducted. This involved the documentation and description of the artifacts and features in terms of size, position and bearing of data on the surface of the Zigam hilltop site. The survey took place simultaneously with the collection of oral information at the community. A simple field-walking method of archaeological survey was adopted, and GPS units were used to record the coordinates of finds and features. Hand mapping

using a compass for position and bearing and measuring tape to record length, height, breadth and distances between materials was also employed.

The coordinates of every find and feature were documented and used to produce a site map (see Abdulmalik *et al.* 2021). Lastly, thin-section analysis on selected samples of the sherds from the site were carried out at the Geology Laboratory, Department of Geology, Ahmadu Bello University Zaria, Nigeria and the results of the analysis assisted in determining the source of clay and the mineral constituents of the sherds.

S/N	Names	Age (years)	Occupation	Sex	Information	Interview site	Interview date
1.	Adamu Abdullahi	45	farming and teaching	M	oral tradition	Zigam	19 Jan. 2020
2.	Yakubu Rasha'a	53	farming and building	M	oral narration	Zigam	19 Jan. 2020
3.	Haruna Issa	48	Teaching	M	oral tradition	Zigam	19 Jan. 2020
4.	Muhammad Ahmad	73	Farming	M	oral tradition	Kaliya	18 Jan. 2020
5.	Falalo Yahaya	58	farming and civil servant	M	oral tradition	Zigam	19 Jan. 2020
6.	Haruna Hussain	28	Student	M	oral tradition	Kaliya	18 Jan. 2020
7.	Gala Yahaya	57	Farming	M	oral tradition	Zigam	19 Jan. 2020
8.	Waziri Alhasan	93	farming and hunting	M	oral tradition	Kaliya	19 Jan. 2020
9.	Musa Muhammadu	85	Farming	M	oral tradition	Zigam	19 Jan. 2020
10.	Musa Amzat	75	Farming	M	oral tradition	Kaliya	18 Jan. 2020
11.	Dan-masani Muhammadu	70	farming and building	M	oral tradition	Kaliya	18 Jan. 2020
12.	Ibrahim Muhammad	55	housewife	M	oral tradition	Kaliya	18 Jan. 2020
13.	Khadijat Umar	34	housewife	F	oral tradition	Zigam	19 Jan. 2020
14.	Aishat Muhammad	58	housewife	F	oral tradition	Zigam	19 Jan. 2020
15.	Amina Aliyu	47	trading and building	F	oral tradition	Zigam	19 Jan. 2020
16.	Hanatu Yunus	52	Farming	F	oral tradition	Kaliya	18 Jan. 2020
17.	Aishat Ibrahim	39	Trading	F	oral tradition	Kaliya	18 Jan. 2020
18.	Fatimah Ibrahim	24	student	F	oral tradition	Zigam	18 Jan. 2020

19.	Nana-Auwau Mustapha	46	civil servant	F	oral tradition	Kaliya	18 Jan. 2020
20.	Hassanat Abdulbaqi	29	trading and farming	F	oral tradition	Zigam	19 Jan. 2020
21.	Asiyat Gala	53	trading and farming	F	oral tradition	Zigam	19 Jan. 2020
22.	Halimah Babawo	19	trading and studying	F	oral tradition	Zigam	19 Jan. 2020

Table 1. List of oral informants from Zigam settlement, with the date of their interview. Table by A.A. Abdulmalik.

Research area

Zigam is a hilltop settlement situated in the Ganjuwa Local Government Area of Bauchi State, Nigeria. The site is 2.5 km southwest of the present settlement. It is located 15 km northwest from Maraban Mai-Alewa which is on the main road from Bauchi, Birnin-Kudu and Kano expressway. Zigam is bordered by Wuro to the west, Kariya to the south, Gala to the east and Labba to the north respectively. The geographical coordinates of the settlement are latitude N 10 59 10 to N 10 59 40 and longitude E 09 45 50 to E 09 46 10 (see Figure 1). Zigam is recognized as a premier settlement among the settlements in Ganjuwa region and is characterized by three different sections (*ungwani*). These sections were demarcated with compound walls on the same hilltop with a flat and partly undulating surface, rocky outcrops, short grasses, and tall trees such as tamarind, baobab, and neem, among others (Abdulmalik *et al.* 2021: 22).

Figure 1. Zigam in Northern Nigeria. (Map by Wurga.)

The region experiences two different seasons: dry and wet. The seasons are guided by the movement of two air masses of tropical continental pressure. In harmattan or dry season, from November to March, the air mass is blowing southwest from the northeastern Saharan and is

characterized by dust-like particles, while equatorial maritime air blows usually from May to September creating the rainy season. The climate of the area is influenced by the subsistence patterns of the local population, and the rainy season is usually the busiest time of the year with farming activities at their peak. The dry season, on the other hand, is the period for harvesting, seedling preparation, clearing and preparing of farmland for the next planting season, building of new huts and renovation of old ones, hunting for game, fishing, and crafting.

Soil is clayey on some parts of the site and loamy in others. Areas with loamy soils are used for farming activities annually during the rainy season. Some soils were characterized by an ash colour, while others were darkish brown in colour. The area of the site with high ash levels were once used for dyeing activities, while the darkish brown soils were closely located along the Rafi Tsamia stream, whose water allowed for irrigation farming. Meanwhile, areas with clay concentrations from the stream are used for pottery production and building constructions.

The oral histories focusing on the settlement attests that past economic activity at Zigam included dyeing, cloth weaving, traditional building, blacksmithing, butchering, hunting, pottery production and wood carving. Most of these economic activities are no longer practiced due to constant and rapid changes and the introduction of modern technology (Sanusi, personal communication 2020).

The source of clay (as identified in the course of archaeological survey) at the settlement supported the pottery practices as well as local architecture; an environment suitable for the growth of tall trees supported wood carving practices as claimed in the historical narration, and the bush environment allowed for hunting in the region by the inhabitants of the settlement. From ethnographic observations of the inhabitants of the settlement, there was a division of labour with men (both younger and elder) traders in the market, while women wove cotton,

prepared food for the family and completed other household activities. In the past, women and their guards came down to the foot of the hill at Rafi Tsamia stream to obtain clay and fetch water; while the men were responsible for the construction and roofing of their buildings (Aminu, personal communication 2020). The people of Zigam buried their dead according to Islamic norms and the corpse would be laid in a dug pit and covered by half broken pots before soil was placed on top. They buried both the title holders and ordinary members of the community in the same location, but they usually placed a big stone at the edge of the grave of title holders (Adamu, personal communication 2020).

Findings

The Zigam settlement is characterized by the presence of three sections demarcated by compound walls. These sections were characterized by house and granary foundations with the presence of potsherd pavements. An abundance of foundations (houses and granaries) was identified at the site. In addition, potsherd scatters and other materials such as a shrine, collapsed building, rock hollow, fragmented lower and upper grinding stones, exposed buried pot, stone anvil, a dyeing complex, and a source of clay constituted surface deposits (see Abdulmalik *et al.* 2021 for details of material culture situated on the landscape of Zigam settlement). The granaries and house foundations identified were characterized by arrangements of stones in a circular shape and in different sizes (Abdulmalik *et al.* 2021: 25), with the presence of potsherds arranged on the floor of many of the foundations as pavements. Many of the foundations, including the potsherd pavement, were disturbed (see Figure 2). This was probably the result of partial reoccupation for farming and or erosion over time. A total of 220 potsherds were gathered across the surface of the site (from the three zones) and were randomly collected for analysis and

testing from pavements through the simple sample collection technique, along with potsherds found scattered on the parts of the settlement other than the foundations.

Figure 2. Sample of disturbed house foundation with traces of potsherd pavements from Zigam settlement. (Photo by A.A. Abdulmalik.)

As the sherds were examined and analyzed, it was observed that an additional layer of clay was attached to the pottery produced and used as pavement in Zigam and organic items (grasses) were used to create a rough pattern at leather hard stage, which later turned to irregular decorations referred to as organic impressions on the potsherds (Figure 3). The Zigam sherds are generally 0.9-1.8 cm in thicknesses, while the sherds produced and used as pavement are 2.1-2.4 cm in thicknesses.

Figure 3: Sample of the potsherd pavements with additional layer and organic impressions. (Photo by A.A. Abdulmalik.)

Twelve samples of potsherds were subjected to thin-section analysis. Six of the 12 samples were selected from parts of pavement (two sherds from each section). Also sent was a clay sample collected from an identified source of clay said to have supplied the settlement. The result of the analysis showed that all 12 potsherd samples and the clay sample from the site all had the same mineral constituents (Table 2). The findings of this analysis include: (i) that the number of potsherds gathered from the settlement were all sourced from a single source, and (ii) the potsherds from the site are products of the claimed clay source for the settlement.

S/ N	Constituent	Sample A %	Sample B %	Sample C %	Sample D %	Sample E %	Sample F %	Clay Sample
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1.	Quartz	39	25	18	51	38	11	23
2.	Plagioclase	18	15	39	15	27	49	18
3.	Orthoclase	26	11	17	12	25	15	17
4.	Clay	17	49	26	22	10	25	42
	Total	100%	100%	100%	100%	100%	100%	100%

Table 2. Summary of the constituents of the 6 potsherd pavement samples and clay sample. Table by A.A. Abdulmalik

Discussion and conclusion

One unique feature of potsherd pavements from the Zigam site was the addition of a layer to the pottery after firing. The examination of potsherd pavement samples across the site (from the three sections) revealed that an additional layer of clay was attached to the pottery after the pot has been burnished and the layer would therefore be treated further before being utilized as pavement. Oral history interviews suggest that the extra layer was only added to pavement sherds as a means of strengthening them and providing durability.

One could infer as well that the pottery produced for pavements at Zigam were made specifically for that use and not taken from broken pots, both from the extra layer of clay and the decorative pattern (organic impressions) added to the sherds. The decorated sherds are fairly unique to this site. This is seen in comparison with the Ope-Odu site in southwestern Nigeria where the potsherd pavements were comprised of plain wares (Orijemie & Ogiogwa 2016:110), and at the site of Ilare-Ijesa, the majority of sherds were plain, though a few stamped decorated sherds were recovered (Ogundiran 2000:35). The paved floors provided a cleaner surface that was more durable and easier to maintain than unfinished ground in animal pens, kitchens, and passageways. Thus, this architectural innovation assists our understanding of the technological know-how of the people and how they were able to solve their basic sanitary needs and beautify their environment. This includes the added layer of clay which has not been reported at other sites with potsherd pavements.

The thin-section analysis revealed that the mineral constituents were the same in all pavement and non-pavement sherds analyzed. Additionally, the composition matched the identified clay source indicating local production of the paving sherds. The analysis also revealed that the potsherds from the site are brownish in colour, unlike the site of Ilare-Ijesha with red surface colour on their ceramic tiles, and the Ope-Odu site having a mixture of both brownish and black colours on their ceramic tiles.

Published sources addressing potsherd pavements in Nigeria state that the ceramic tile practice is a renowned and unique tradition that spanned the eleventh to sixteenth centuries (Oriemie & Ogiogwa 2016; Ogundiran 2000; Agbaje-Williams 1995; Garlake 1975; Connah 1975; Eyo 1974; Willet 1967). To date, there is no known absolute date attributed to the potsherd pavements from Zigam settlement. It is assumed here that the practice of potsherd pavement in the region falls within the already established eleventh-to-sixteenth century span.

Lastly, it is not clear if the people of Zigam utilized potsherds as pavement in their graves, since this investigation did not involve excavations of any part of the site and the protruding pot along the area demarcated as a burial site on the hilltop (Abdulmalik *et al.* 2021:23) was not dug up for further examination to explain the pattern and decorative motifs depicted on the potsherd. Further excavation is therefore recommended to learn more about the pottery traditions in terms of production and utilitarian purposes among the people of Zigam settlement in the past, and most especially the arrangements of their sherds as pavements in the site, since most of the pavements have been covered by sediment while others have been disturbed.

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References cited

- Abdulmalik, A.A., Sule, A.S. & Giade, A.A.
2021. 'Expanding the history of past settlements of north-eastern Nigeria: A report of preliminary survey of Zigam Settlement in Bauchi State'. *Journal of Archaeology and Tourism Research (JATR)* 1 (1): 19-31.
- Agbaje-Williams, B.
1995. *Archaeological investigation of Itagunmodi potsherd pavement site, Ijeshaland, Osun State, Nigeria, 1991/1992*. Ibadan: IFRA Publication, Institute of African Studies, University of Ibadan.
- Aleru, J.O.
2000. 'Thin section spectrographic and petrographic analysis of pottery from Igbominaland, North Central Yorubalandé. *West African Journal of Archaeology* 30 (2): 93-110.
- Connah, G.
1981. *Three Thousand Years in Africa: Man and His Environment in the Lake Chad Region of Nigeria*. Cambridge: Cambridge University Press.
- Eyo, E.

1974. 'Excavations at Odo Ogbe Street and Lafogido, Ife, Nigeria'. *West African Journal of Archaeology* 4: 99-109.

Folorunso, C.A., Oyelaran, P.A., Tubosun, B.A. & Ajekigbe, P.G.

2006. 'Revisiting old Oyo: Report on an interdisciplinary field study'. Paper presented at the 18th Biennial Conference of the Society of Africanist Archaeologists, Calgary, Canada.

Garlake, P.

1974. 'Excavations on the Obalara's Land, Ife, Nigeria'. *West African Journal of Archaeology* 4: 111-148.

Ige, O.A. & Ajayi, E.O.B

2009. 'Chemical characterization of some potsherd pavements from parts of Yorubaland in Southwestern Nigeria'. *Journal of Archaeological Science* 36 (1): 90-99.

Ogundiran, A.

2000. 'Potsherd pavements in Ilare-Ijesa, Yorubaland: A regional perspective'. *Nyame Akuma* 53: 35-41.

Ogunfolakan, B.

1994. 'Archaeological survey of Osun North-East. Osun State, Nigeria'. MSc. dissertation, University of Ibadan, Nigeria.

Orijemie, E.A. & Ogiogwa, J.M.I.

2016. 'Potsherd Pavements in Ope-Odu, Ibadan: autochthonous or migrant phenomenon?'. *Nyame Akuma* 85: 101-113.

Shaw, T.

1978. 'Preliminary report on third season's archaeological work in the Wushishi area, dry season 1977-1978'. *Zaria Archaeology Papers* 3 (1).

Willet, F.

1967. *Ife in the history of West African sculpture*. London: Thames and Hudson.