The Archaeology of Kakoro and Komuge Rock Art Sites in Eastern Uganda

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Abstract

This paper presents the archaeology of Eastern Uganda's Komuge and Kakoro rock art sites. The paper is set out to examine the relationships between the archaeological assemblage and rock art with reference to chronology and authorship. Methodologically, the research employed systematic and unsystematic surveys to identify sites for excavations to aid in identifying archaeological materials associated with rock art. The study results demonstrate a clear cultural sequence spanning from the Later Stone Age (LSA) to the Later Iron Age (LIA) evidenced by the presence of lithic, faunal remains, pottery and rock art dating to 1,675BP. The archaeological remains at both sites indicate that the LSA communities that depended on wild and domesticated animals authored the rock art. Continuity in the settlement is marked by the presence of all types of classic Early Iron Age, Transitional Urewe, Middle Iron Age and Later Iron Age (IA) roulette ware superimposed

on LSA lithics. Remarkably, the similarity of designs in rock art and ceramics indicates the continuity of inherited traits.

Keywords: *Rock Art, Later Stone Age, Iron Age, Early Iron Age, Kakoro, Komuge*

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Introduction

This paper presents results of an archaeological investigation at Kakoro and Komuge rock art sites. Komuge was excavated in April 2014 and Kakoro in September 2015. The two sites are part of what the government of Uganda proposes, together with Nyero and other hunter-gatherers' geometric rock art sites in Eastern Uganda, to become a UNESCO World Heritage Site. Despite being under consideration for world heritage listing, archaeological research on these rock art sites is still limited (Namono, 2010a). Many published reports on these sites document rock art without examining the associated cultural materials (Nyiracyiza & Turrucheta, 2013; Namono, 2010a-b, 2012; Chaplin, 1974; Lawrance, 1958). About 90 rock shelters have been documented with paintings in eastern Uganda. Among the documented rock art sites, Nyero is "one of the six geosites" in the area (Namono, 2010b, p. 5), which a few scholars have talked about (Harwich, 1945; Posnansky & Nelson, 1968; Nakawesa, 2011). The latter examined the transition from the Later Stone Age (LSA) to the Iron Age (IA). Despite the privileged research position of Nyero rock

arts, most works were still restricted to "random archaeological site visits" (Okeny *et al.*, 2020, p. 17).

Kakoro, on the other hand, was first described by Lawrance (1958) and later Namono (2010), who also interpreted most of the rock art sites in eastern Uganda to be related to the pygmy hunter-gatherer tradition. Namono's (2010) position contends with Coulson and Campbell's (2003) hypothesis of Twa's hunter-gatherer tradition though the latter did not give any ethnographic evidence to justify their findings. Nyiracyiza and Turrucheta (2013) argue that the dominance of geometric rock art makes this area distinctive from the other "hunter-gatherer" rock art regions in Africa for they contain a high percentage of brush-painted animals, human and human-animal conflations.

The current paper emanates from the need: (i) to examine the archaeological assemblage of Komuge and Kakoro, (ii) to define the chronological sequence at the two rock art sites, and (iii) to situate the archaeological materials from the two rock art sites into the existing debate concerning rock art authorship. Notably, earlier researchers attributed the geometric designs to the pygmy hunter-gatherer tradition, which still exists in the forest region of Congo and some parts of southern Uganda (Namono, 2010). This study uses archaeological remains to establish the presence of LSA hunter-gatherers thought to have authored rock art. The archaeological data recovered from Komuge and

Kakoro contribute to the existing rock art sites' interpretations in eastern Uganda.

The research sites

Komuge and Kakoro rock art sites are 4km apart between Pallisa and Bukedea districts in Eastern Uganda (Figure 1). The two sites are close to the Mount Elgon ranges and have remained archaeologically unexplored. Geologically, Kakoro and Komuge are in the Teso region characterized by organic complexes with granite rocks made of gneiss and quartz inselberg hills visible from a distance with flat land and swamps. Whereas the plain altitude ranges between 900m and 1200m above sea level, the gneiss relief is at an average level of 1230-1260m above sea level (Turrucheta, 2013).

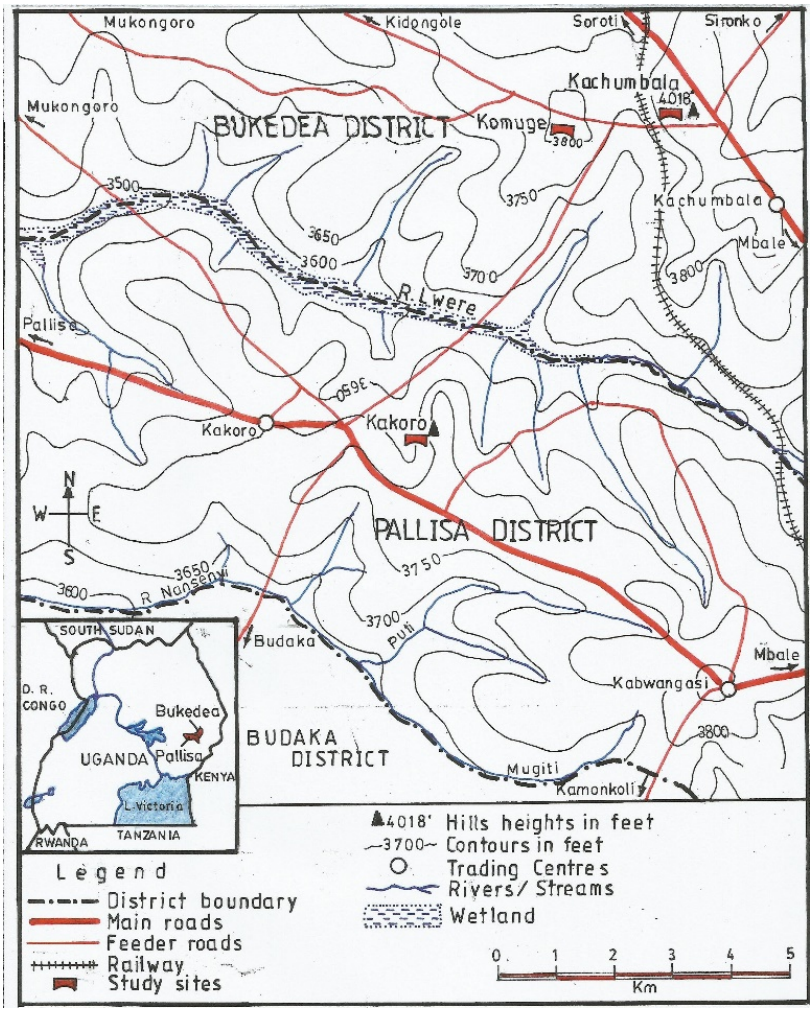

Figure 1. Location of Kakoro and Komuge rock art sites

Methodology

The data presented in this article were obtained through surveys and excavations to examine the nature of the archaeological record associated with the Kakoro rock art

paintings. In 2014, we surveyed the surroundings of Komuge to see if there could be potential sites worth excavating apart from the rock art area. Our survey was mainly unsystematic and purposeful because we only moved to open places such as gardens covering an area of 3km^2 between the two sites. Using an unsystematic survey enabled us to avoid River Lwere and other small swamps that limit site access. In open places such as gardens, we used systematic survey moving in transects. The mixed survey methods adopted assured effective coverage of the sites. Similarly, in 2015, a survey was undertaken around Kakoro Hill to select sites for excavations. The excavation targeted sites with a high concentration of archaeological remains on the surface.

Mapping of the sites was conducted before excavation. The team established a union grid that assisted in locating the excavation units. A site plan and map allowed us to see site stratigraphy and provenance (Shafer, 2009). All sites were mapped using a David Whites dumpy level, Geographical Positioning System (GPS), different sizes of metre tapes, and campus to capture the sites' topographic features. Six trenches were excavated during the two field seasons: two at Komuge and four at Kakoro. The unit sizes ranged between 1-x-1m^2 and 1-x-1.5m^2. The excavation followed 10cm spit levels to reveal the stratification, obtain datable samples, and establish the cultural sequences. An initial 20cm level was often removed for each excavation unit

before taking the 10cm spit levels. The initial 20cm surface removal intended to sort out materials that may have been contaminated due to ongoing agricultural activities. The stratigraphy of the units was identified based on the soil colour change, texture, and composition.

Trench 1 at Komuge was established close to the rock art site. Trench 2 (1-x-1m²) was established in a cave with a concentration of lithics and pottery on the surface. In addition to the surface scatters, unit 2 was established on a less disturbed area near where ritual practices occur. At Kakoro, four units were excavated. Excavation proceeded from level 1, where the soil was a bit disturbed, to level 3. At level 2, the rock boulder started appearing and at level 3, the unit became sterile. Kakoro Trench 2 and 3, measuring 1-x-1m² and 1-x-1.5m², respectively, were established at areas with cultural material concentration. Trench 4 was established under a rock shelter with a fading rock art painting. The shelter is two metres northeast of the main Kakoro 1 painting.

The recovered archaeological materials from all the trenches were sieved using a 5mm screen. The identified materials were collected, bagged, and transported to the Uganda National Museum for further analysis. The analysis of pottery was based on the attributes of shape, decoration, surface finishing and temper. The decoration attributes included the decoration elements and placement. The form

analysis focused on the vessel shape and sherd structure. This helped to understand the cultural identity of the people who made the ceramic materials. Lithic artefacts were analysed using Nelson and Posnansky's (1970) and Kyazike's (2013) schemes. Both schemes were preferred because they examine the morphological attributes including shape, artefact type, raw materials used and secondary modifications. Faunal remains were also analysed based on the morphological characteristics of the bones to understand the social and economic lifestyles of the communities that utilized the respective cultural materials. All these helped to understand whether it was the same people who authored the rock arts or not.

Komuge Excavation Results

Komuge Trench 1 yielded 447 artefacts (Table 1). The lithic artefacts constituted the majority with a total of 251 (56.2%) followed by ceramics (n=107, 23.9%), bones (n=87, 19.5%), shell (n=1, 0.2%) and seed (n=1, 0.2%). Stratigraphically, Komuge Trench 1 had two productive layers characterized by different soil colours. Layer 1 was about 30cm thick and had dark, loam-grey soils (4/1, HUE 10YR). The layer comprised 2 arbitrary levels (0-20) cm and (20-30) cm. The layer yielded 69 potsherds, 86 lithics, 46 bones, one (1) seed and one (1) shell. Of the 69 recovered potsherds, 16 came from 20-30cm. The second layer, which extended up to 60cm, with brownish-grey loam soils (6/2, HUE 10YR), yielded 38 potsherds, 165 lithic artefacts and 39 bones.

The second trench exhibited a much clearer sequence with a depth stretching from 0-90cm below the surface. The trench had a total of 396 artefacts (Table 2), including 145 bones (36.6%), 143 lithics (36.1 %) and 104 ceramics (26.3 %) as well as three shells and a seed. Stratigraphically, the trench had three visible layers (Fig. 2). Layer 1 (0-20) cm had dark grey (4/1, HUE10YR) loose soils and yielded 29 bones, 18 potsherds and one seed. Eight of the potsherds were associated with a burnt bone. The second layer (20-50) cm with dark brown soils had more materials when compared to the previous layer. Layer 3 (50-90) with reddish brown (3/3, HUE 5YR) soils had an intrusion of ash classified as a feature. This layer yielded 32 bones, 51 potsherds and 143 lithic artefacts. Layer four in yellowish brown (5/4, HUE 10YR) soils was completely sterile.

Table 1: Inventory of Komuge trench 1 artefacts

				Fauna remains				
Level	**Depth**	**Ceramics**	**Lithics**	**Bones**	**Shell**	**Seed**	**Total**	**Percentage**
1	0-20 cm	47	46	26	1	1	121	27.1
2	20-30 cm	22	40	22			84	18.8
3	30-40 cm	25	31	33			89	19.9
4	40-50 cm	12	54	6			72	16.1
5	50-60 cm	1	59				60	13.4
6	60-70 cm		21				21	4.7
Total		**107**	**251**	**87**	**1**	**1**	**447**	100
Percentage		23.9	56.2	19.5	0.2	0.2	100	

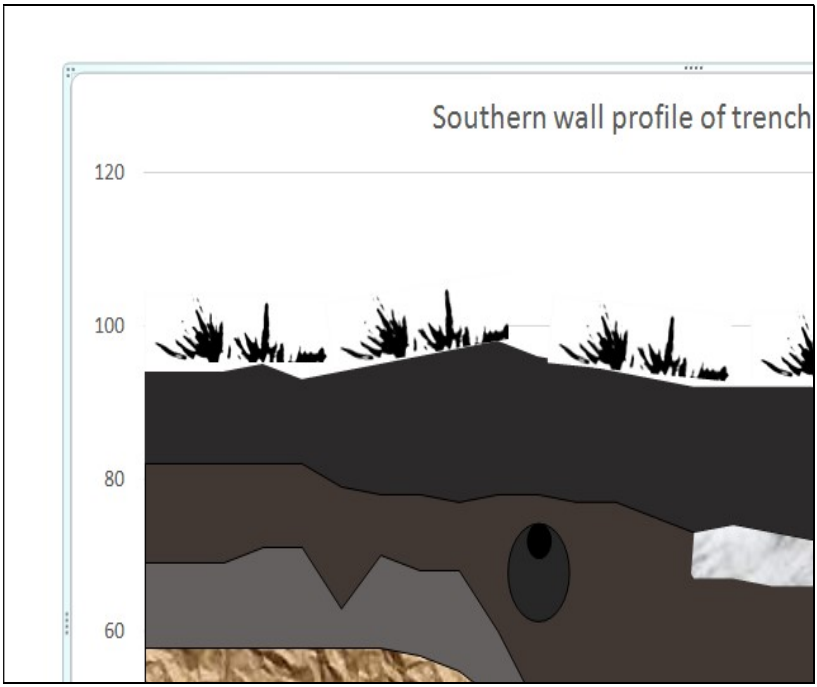

Figure 2. Southern Wall Profile of Komuge Trench 2

Pottery Analysis

The Komuge Trench 1 potsherds comprised two decoration elements: curved wood roulette which was common between the 12th -14th centuries (Soper, 1971) and knotted string or strip roulette types that are still used to date in some areas of Uganda. Forty-nine potsherds were characterized by plaited roulette, five curved wood wavy lines, and three curved wood hatched ladder-like. Likewise, three ceramics were curved hatched with wavy lines, two with plain rims, one plaited roulette underlain with curved wavy lines, one decorated with curved impressed ladder,

one with string knotted roulette and one with hatched ladder decoration.

In terms of sherd structure, those that could be categorised included 45 body parts, three (3) rims, three rim/body and one shoulder/body part. However, all the rims were too tiny to tell the shapes of the vessels. The small size of the rims would suggest that they are from very small vessels since they measured approximately 7.8mm, 7.5mm and 8.0mm, respectively. The surface finishing was all done using a slip for almost all potsherds. In some instances, the surface finishing could not be established due to abrasion. For example, in Trench 1, one of the rouletted sherds was abraded, including the interior and this could suggest use-ware (Reid & Young, 2000) probably due to the mingling of grain foods.

The decorations on ceramics were placed on rims and shoulders. The vertical rim too had hatched ladder impressions below the rim. At 20-30 cm, we recovered a very thick potsherd measuring 12.0 mm. The interior of the thick potsherd was tainted with soot and had some signs of residues. The pottery colours were black (n=1), reddish brown (n=2), dark grey (n=6), light reddish brown (n=4), dark brown (n=7), and light grey (n=4). The remaining ceramics were light grey in colour. The profiles for the rim sherds were upturn (n=1), slightly outturn(n=1), and 1 vertical/flared(n=1). The temper or inclusions were sand,

grog and mica. The rim vertical measurements were approximately 23.3mm thick, 17.1mm, 12.7mm and 12.1mm.

The decoration elements of the 7 potsherds in level 40-50 cm included: plaited roulette (n=2), plain rim (n=1), curved wood impressed hatched triangles(n=2), and curved wood hatched ladders (n=2). Regarding sherd structure, five were body sherds, one rim and one rim/body. The rim profiles included one upturning and one vertical rim. The surface finishing was all done with a slip. The potsherd had the following colours: two dark grey, four reddish grey and one reddish brown. The rims were too tinny to tell the vessel shapes. The 104 potsherds from trench 2 included 67 with plaited roulette decoration that engulfed the whole potsherd. Other roulette decorations were made in the form of curved wood with wavy lines, fern-branch-shape, comb-like impressions, impressed concentric circles, and hatched ladders plaited with herringbone forms of decoration. The decoration was plaited roulette that formed a herringbone structure like those identified by Soper (1971) at Chobe in northern Uganda. The identification of the vessel type based on the rim/body revealed that this was a slightly constricted hemispherical bowl. In terms of colour, there were five reddish brown and one dark reddish grey piece suggesting that pottery traditions at Komuge belonged to the Late Iron Age.

The decoration elements of 8 potsherds from layer 1 of trench 2 included one with curved wood roulette mixed with concentric circles, one curved wood roulette with comb-like impressions, five plaited roulette and one curved wavy line. All the sherds were bodies with decoration engulfing the entire piece. The roulette decorations were oriented in both directions making it appear like a herringbone structure. In terms of colour, three were dark grey and five were reddish brown. The inclusion in the clay was sand only. The burnt bone at this level may imply fire use possibly for sacrifices, confirmed by oral interviews.

Layer two of trench 2 had seven decorated sherds whose decoration elements were plaited roulette (n=5) and ladder fern branch hatched lines (n=2). The hatches were oblique and had a clear correlation with the rock art. Surface finishing was done by slip. Level 3 (30-40) cm had 15 body sherds and 1 rim. In terms of surface finishing the rim was plain and burnished and slightly thicker suggestive of an Early Iron Age. The other decoration elements included plaited roulette (n=12) engulfing the entire body, impressed concentric circles of curved wood (n=1) and a curved hatched ladder (n=1). The 15 pieces had slipped surfaces since one was burnished, while the common tempering material was sand mixed with little grog.

Level 4 (40-50) cm had 9 decorated and 1 plain sherd. The latter had an extra-ordinarily thick body. Seven of the

sherds were plaited roulette and finished with a slip, one had curved wavy lines and another curved hatched ladders. One sherd with a very smooth interior was less burnished while others were rough. The body thickness of the undecorated sherd was approximately 3.3 mm making it relatively thinner compared to others with 7.6mm average. The sherd structures were entirely body parts that could not be used to establish the vessel shapes. Among the 32 potsherds recovered from level 5 (50-60) cm, 25 were decorated with plaited roulette, 4 had curved concentric circles. One of the potsherds had comb impressions characteristic of the Early Iron Age (EIA). Another potsherd had a rim with 12.8mm maximum thickness. The comb impressed potsherds were light brown in colour an evidence of good firing conditions. Level 6 (60-70) cm yielded 11 sherds. The decoration elements in the level included 8 with plaited roulette and 1 with concentric circles, wavy lines underlain by hatched ladders and triple vertical lines typical of the EIA. Whereas the rim maximum thickness measured 14.8 mm that of body was 12.7 mm. The potsherd colours were dark grey (n=8), reddish brown (n=2) and light grey (n=1). The plaited roulette sherd was banded while the rest had decorations covering the entire body (Figure 4).

Fig. 3. Urewe and Roulette pottery decorations

Key: a-j: curved wood roulettes; l-m: horizontal heavy grooved lines with oblique lines on a thickened body sherd; k: grooved lines; k, n, p and q: horizontal and vertical lines (Transitional Urewe); r: comb stamps Urewe potsherd; o: Akira ware

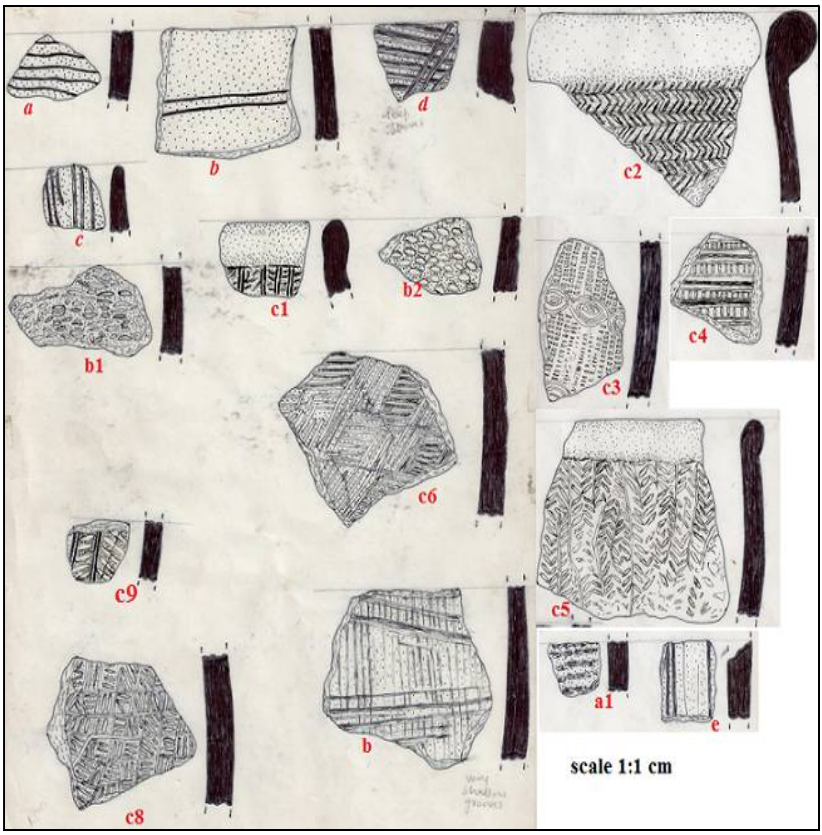

Figure 4. Pottery decoration elements

Key: (a1) Urewe potsherd, (a-e) Transitional Urewe potsherds (b): Akira ware and curved wood, (c1) mamillated roulette (c2) herringbone and (d1-d8) curved wood roulette.

Lithics Analysis

The lithic types analysed from Komuge belonged to the broad lithic types of cores (34), shaped tools (16), backed pieces (5) and debitage (192). Debitage included 66 whole flakes, 49 flake fragments, one core fragment and 76 angular

fragments. The shaped tools were all scrapers that included 4 double-sided and 12 convex single-sided scrapers. The backed pieces comprised 2 crescents and 3 backed pieces. The existence of backed pieces implied that this was a LSA industry (Posnansky 1975). Trench 2 also had 4 broad lithic categories including 20 shaped tools, 1 backed piece, 79 debitage and 22 cores. The shaped tools were further categorized into scrapers and denticulate. The scrapers based on the side of the retouch included 2 circular scrapers, 1 convex-concave side, 8 convex sided, 1 nosed, 1 notched, 3 double-sided and 4 core scrapers. A denticulate was also identified among the shaped tools while among the backed pieces there was a crescent. The debitage comprised 65 flake fragments, 14 whole flakes and 1 utilized flake.

Kakoro Excavation Results

Four trenches were excavated at Kakoro site. Trenches 1 and 2 were very shallow and yielded no significant cultural materials. Trench 3 yielded a total of 1,387 artefacts: 305 (22%) potsherds, 1009 (72.7%) lithic and 73(5.3%) faunal remains (Table 3). Kakoro Trench 3 had three visible layers along the eastern wall with lithic and pottery artefacts. Layer 1 which was 5cm thick, yielded 53 lithic and 41 potsherds. Layer 2 (05-50) cm with dark grey (HUE 3/1, 7.5 YR) soils yielded 256 ceramic and 517 lithic artefacts. Layer 3 (50-70) cm of dark brown (HUE 3/2, 7.5YR) was a bedrock and yielded 5 potsherds and 530 lithic artefacts. The

extension of trench 3 at level 50-60cm, yielded lithics, pottery and faunal materials.

Trench 4 had the deepest stratigraphy ending at 130cm below the surface. The unit yielded 693 artefacts (Table 4) dominated by faunal remains including 251 bones and 9 shells. The trench did also yield 258 potsherds and 175 lithic artefacts. The trench had two stratigraphic layers observed along the eastern wall profile. Layer 1 (0-70) cm yielded a total of 547 artefacts that included 236 potsherds, 242 bones, 60 lithics and 9 shells. Layer 2 (70-130) cm had 146 artefacts and 9 faunal remains.

Table 3: An inventory of cultural material from Kakoro Trench 3

Level	**Depth**	**Ceramics**	**Lithics**	**Fauna remains**		**Total**
				Bones	Shells	
Surface	0	41	**53**			94
1	0-20cm	116	**75**	68	1	260
2	20-30cm	86	**202**	2		290
3	30-40cm	33	**90**			123
4	40-50cm	24	**208**			232
5	50-60cm	5	**194**	2		201
6	60-70cm	0	**187**			187
Total		**305**	**1009**	**72**	**1**	**1387**
%		22.0	72.7	5.2	0.1	100

Table 4: An inventory of cultural material from Kakoro Trench 4

Level	Depth	Ceramics	Lithics	Fauna remains		Total
				Bones	**Shells**	
Surface	0	1				1
1	0-20cm	59	9	67		135
2	20-30	64	16	59	3	142
3	30-40	25	3	23	2	53
4	40-50	58	15	74	4	151
5	50-60	15	15	8		38
6	60-70	14	2	11		27
7	70-80	8	1	3		12
8	80-90	7	3	6		16
9	90-100	3	5			8
10	100-110	2	8			10
11	110-120	2	98			100
12	120-130	-	-	-	-	
Total		**258**	**175**	**251**	**9**	**693**
%		**37.2**	**25.3**	**36.2**	**1.3**	**100**

Pottery Analysis

The 1,042 potsherds from the Kakoro rock art site had similar decoration designs to those of Komuge. This was mainly curved wood roulette with different patterns: interlocked vertical incisions, wavy lines, bands of horizontal and vertical lines, and bands of rectangular incisions. There are also bands of oblique alternating lines, alternating bands of fine oblique and vertical incisions, fern leaf, concentric circles, hatched ladders, and comb-like stamps. Despite the few transitional Urewe in the

assemblage, it does not justify the habitation of Urewe inhabitants on the site. Certainly, these were brought on-site through trade or any other means of co-existing with the neighbours. The potsherds from both sites had quartz as temper and the surfaces were slipped. The potsherd colours identified included black, light grey, light brown, dark grey, dark brown, red-black and a few reds. Most of the potsherds had a thickness of approximately 9-15mm, a few others with 5-7mm.

Kakoro pottery had varied rim forms and types including the vertical, inverted at 20-45^{0,} rounded and flat. Though the slip for surface finishing had various colours such as black, the dominant colour was reddish black. In terms of temper, quartz dominated with a single exception of lime. Similarity with central Kenya and Karamoja attributed to 'Akira Ware' whose dates ranged from 1255-1510 BP (Bower et al., 1977) was identified. Akira ware shares attributes with curved wood roulette including having a thickness of about 5mm. A unique curved wood roulette with a heavy zigzag impression was not found anywhere in Uganda.

About 50 potsherds from the 4 excavation units were of transitional Urewe with horizontal lines, cross-hatched designs, and grooved lines. The dates from Kakoro Trench 4 close to the main rock art site correlate with dates for Transitional Urewe derived from charcoal dates. These

suggest potsherd use or the beginning of agriculture at Kakoro which could have begun at 1220+/-30 BP. In general, Kakoro presents three cultural affinities derived from pottery implying that pottery was used from around AD 700 to the present. The presence of lithic technologies and transitional Urewe suggest either a shift in cultural occupation or continuity between the LSA and EIA.

Lithic Analysis

At Kakoro the lithics were littered more on top of the hill than on the lower parts. Trenches 3 and 4, respectively, yielded 1,184 lithic artefacts. Like Komuge, Kakoro trenches 3 and 4 lower levels yielded lithics only suggesting hunter-gatherers' occupations. Typologically, trench 3 had 248 cores classified into bipolar, pyramidal, and amorphous. The debitage category involved 304 whole flakes, 68 blades, 5 utilised flakes, 234 flake fragments and 2 river cobbles. The shaped tools were scrapers with 71 artefacts and 18 other tools. The shaped tools included 6 points, 1 burin, 5 denticulate, 2 *outil escailles* and 4 becs. In Layer 2 there was an increase in lithics compared to the upper levels. The lower level had only lithics indicating a sequence from the Stone to the Iron Age. Of the 530 lithics recovered in layer 3 (50-70) cm, the flakes had the highest percentage of (35%) followed by cores (27%), angular fragments (20%), blades (8%), microlithic tools (6%) and shaped tools (4%). The cores belonged to pyramidal, bipolar, and amorphous core types. Level 6 (60-70cm) had 187 lithic artefacts only.

Notably, as potsherds decreased, lithics increased in the lower levels implying either different cultural groups settling in this area in time and space or a multi-component site.

The LSA lithics dominated Kakoro, especially from 100-120 cm associated with a charcoal sample and 98 lithic artefacts. The lithic artefacts encompassed 30 whole flakes, 58 fragments, and 9 cores, two bipolar cores, one point, four scrapers, one denticulate and five whole blades. The charcoal sample collected from this level dated 1220+/-30bp. On calibration (2 sigma, calibration) using intercept of radiocarbon age with the calibration curve, this date is cal.775 (Cal BP 1175). Similarly, closer to the Kakoro rock art site the white pigment sample had a date of 1,745+/-40 giving Cal AD 240- 344 (Nyiracyiza & Turrucheta, 2013).

Trench 3 had an assemblage made up of milky quartz, translucent quartz, basalt, chert, mudstone, and sandstone. The highest percentage (95.9%) in this assemblage was quartz (milky and translucent quartz). Certainly, this is because granite with quartz raw materials is readily available in the region. Twenty-four lithic artefacts were made from chert that probably indicate trade and long-distance movement by hunter-gatherers. This is because chert was not observed in any nearby area. Chert is common in the western Albertine rift valley and on the north-eastern side towards Turkana. The presence of

mudstone shows that there was use of available resources. Mudstones are usually found in swampy areas since they were originally swampy with many rivers crossing them (Andrefsky, 2005; Nyiracyiza & Turruchetta, 2013).

The presence of points and other microlithic blades, becs, and triangles indicate these people lived a LSA hunter-gatherer life and made tools for technical use. Note that backed pieces such as crescents, triangles and curved backed tools were usually hafted to act as arrows or spears (Bushozi, 2011). Points came from trench 3 and 4 and are an indication of hunting. The presence of becs/ notched scrapers indicates that these hunter-gatherers shaped stones for specific use. For instance, becs could be used for extracting bone marrow and burins, which were also quite numerous. However, Nelson and Posnansky (1970) note that some burins were accidental instead of 'deliberate'. In the case of deliberate burins, we recognized only 2 and termed them 'technical burins". With more than 30% of angular fragments in trench 4, it is a good indication that we are dealing with LSA tools as flint knappers left behind many fragments (Bushozi, 2011). In this assemblage, 99.8 % of cores lacked cortex. The remaining percentage was from river pebbles implying that knappers flaked from used cores or cores where the cortex had been removed (Kessy et al., 2019). This means these hunter-gatherers were dealing with already used materials they re-used.

Among the cores recovered from trench 3, 248 (24.6%) had no cortex, implying that most of the flakes, tools and fragments were detached from these cores off-site. River pebbles had strike marks signifying their usage as hammer stones. Some of the types of cores analysed were multi-platform, single-platform, double-platform, pyramidal, bipolar, and amorphous cores. According to Seitsonen (2010), bipolar cores were probably preceded by earlier hunter-gatherer use-life as demonstrated by core types. Both the Komuge and Kakoro assemblages comprised of opposed-double platform, single platform, and multi-platform pyramidal and amorphous cores very common in LSA bipolar technology. However, only 2 flakes had two bulbs indicating true bipolar technology (McBrearty & Brooks, 2000; Seitsonen, 2010; Biittner, 2011). Also, the high percentage of fragments, microlithic tools, flakes and blades indicates a workshop at Kakoro, unlike Komuge, which had more scrapers and not many microlithic tools.

Faunal remains

Faunal remains comprised of bones and shells. The bones dominated with 554 pieces compared to 14 shells. Whereas Kakoro trench 4 had 251, Komuge trench 1 and 2 had 87 and 144 bone fragments, respectively. In terms of sequence, more bones came from between 0-60 cm and thereafter the number dwindled. The shells were scattered with nine from Kakoro 4, two from Komuge Trench 2 while Komuge Trench 1 and Kakoro Trench 3 each yielded one shell. The

faunal remains were both diagnostic and non-diagnostic bones.

The bones are of fish and mammals of mainly medium size. Caprines were also visible on some levels at both sites. The results suggested that the hunter-gatherers mainly exploited small animals such as medium and small-sized antelopes, duikers, bovids, zebra and buffalo. A few catfish bones were also observed in the assemblage. This implies that people in this area could have eaten wild animals until a few hundred years before the present. Since the Pian-Upe and Mount Elgon game reserves are near these sites, animals were easily trapped. Komuge Trench 1 had some bones of mammals, an implication of hunter-gathering. Kakoro trench 3 common faunal remains included large antelopes, small bovidae, birds, catfish and Limicolaria shells. Since most bones were recovered from the upper levels (0-60) cm, there is a possibility that subsisted on wild game continued up to the 19th Century AD. The bones from Kakoro trench 4 included medium seized antelope, zebra, large antelopes, dicker, medium-sized Bovidae and fragments with some bearing characteristics of bovids (Pickford, Per comm 2017).

Discussion

The research presented in this paper recovered archaeological assemblage that comprised of pottery, lithics and faunal remains. The findings from the archaeological

research at Komuge and Kakoro suggest the existence of multicomponent sites due to the material mixture in the upper levels. Kyazike (2022a-b) suggests that the mix of cultural materials as one recorded at Komuge and Kakoro means cultural interactions and co-existence of different cultural periods rather than disturbance as hitherto had been held based on the law of superimposition.

Using pottery decoration relative dating, cultural materials indicate a clear transition from the LSA to the IA as confirmed by Nakaweesa (2011) at Nyero. The two sites have similarities in terms of pottery decoration, tradition, fabric, and form. Most of the sherd decorations span from the Early Iron Age (EIA) to the Later Iron Age. EIA decorations included the hatched lines, and incisions in form of horizontal, vertical, and oblique lines. There are also interlocked vertical incisions, wavy lines, bands of horizontal and vertical lines, and bands of rectangular incisions, bands of oblique alternating lines. Other decorations include alternating bands of fine oblique and vertical incisions, fern leaf, concentric circles, hatched ladders, and comb-like stamps that are typical EIA decorations. There were a few sherds of transitional Urewe ware at both Komuge and Kakoro associated with lithics. This suggests that the white paintings superimposed at Komuge may have been authored by EIA settlers in this area as they also harnessed for fertility (Namono, 2010).

At both sites no classic Urewe with dimple bases, bevelled, and fluted rims were retrieved. The only sherd closer to Urewe with punctuates might have resulted from interactions such as trade or gifts among the communities or even inheritance of unique technological traits. However, the evidence was too scanty to make a substantial conclusion of trade activities. There was also a unique curved wood roulette with a heavy zigzag impression (Figure 6) found at Kakoro. Soper (1971) observed similar curved wood sherds in Murchison Falls National Park at Chobe. However, the potsherds of Kakoro and Komuge present a unique pattern of concentric circles, which resemble concentric images in paintings at rock shelters. These types of sherds have been observed at eastern Ugandan rock art sites of Nyero, Mukongoro, and Ngora. The deep zigzag impressed groves over rocky stamps were so far seen in Kakoro and named Kakoro EIA ware. The rivet holes which were used for hanging pots with precious goods were like those Ashley (2010:147) viewed as assets used for repairing pots. Ashley (2010) compared the revert holes on Tswana pots and attributed the same function which could not be the same since the EIA ones were close to the rim suggesting a different function. A unique decorative motif of bourdine-like horizontal coiled sherd with heavily banded incised oblique lines existed.

In terms of absolute chronology, some of the sherds at Kakoro were like those found in central Kenya and

Karamoja that were attributed to 'Akira Ware' whose dates range from 1255-1510 BP. Most of the Akira ware attributes are like those of curved wood roulette (Bower et al. 1977). Arguably, Komuge could have been occupied in the Later Stone Age (LSA) period and later Middle Iron Age (MIA) to Later Iron Age (LIA). The presence of concentric circles and oblique lines of fern-like designs on potsherds could mean that the inhabitants then imitated what was on the rock art and therefore pottery makers may not have been the right authors of the art. There is a high probability that the rock art was made by forest hunter-gatherers who used animal fat and other plant materials to paint the caves they lived in. However, there were some traces of EIA pottery especially in the last levels although mixed with some roulette, it could be due to the animal burrows that this mixture could have happened. This at least shades light on the cultural sequence spanning from LSA to IA with the last levels having lithics, which do not appear in the upper levels at all. The EIA was confirmed with sherds coming in lower levels with EIA decorative elements. The horizontal wavy lines banded with double vertical lines and other EIA elements make us conclude that the sites around Komuge were settled in from the 1st millennium AD or BC/AD change over (Chami, 2006). Willoughby (2011:35) suggests that microliths characterised the LSA and that the period may have marked the beginning of behavioural modernity. It should however be noted that Middle Stone Age (MSA) and LSA mark the beginning of modern hunter-gatherer

existence which contributes to the debate of the rock art author ship.

Examination of the lithic typology yielded four broad types of shaped tools, backed pieces, cores and debitage. Categories of lithic materials for Komuge indicate a higher percentage of fragments (51%). This implies that the assemblage was LSA microlithic industry. More so, the presence of backed pieces justifies the industry due to crescents commonality in LSA (Posnansky, 1975). The presence of points and other microlithic blades, becs, and triangles, indicates that these people practised a purely LSA hunter-gatherer life and made technical tools for technical use. Backed pieces such as crescents, triangles and others were usually inserted to act as arrows or spears (Bushozi 2011) and indicate hunting. According to Nelson and Posnansky (1970), points usually exhibit finely retouched edges adjacent to the tip. The presence of becs/ notched scrapers at both sites indicates that these hunter-gatherers shaped stones for specific purposes. For instance, becs could be used for extracting bone marrow, as well as and burins, also quite numerous. In the case of burins, Nelson and Posnansky (1970) noted that there are some burins which were accidental and others technical or what they termed as "deliberate' burins. In the case of deliberate burins, only two (2) 'technical burins" exhibited facets from the flake talons. With more than 30% of angular fragments in Kakoro unit 4, it is a good indication that we are dealing

with LSA tools as flint knappers left behind many fragments due to the time they spent there and knapping for a purpose (Bushozi, 2011). In units 3 and 4, lithic materials dominated material assemblage. This implies that these hunter-gatherers preferred settling on hilltops to be able to observe the surrounding for any danger.

The dominant raw material being quartz suggested the use of locally available resources since it could be procured from the surrounding rocks like basalt, mudstone, and sandstone. The dominance of quartz as a raw material was due to the presence of granite rocks where quartz is readily available in the region. The existence of exotic raw materials such as chert that did not exist in the surrounding areas suggest a high possibility of procurement of raw materials from a long distance. The presence of chert also implied that there was trade/exchange networks and possible interactions between these societies (Ambrose, 2003) and long-distance movement by hunter-gatherers. Chert is common in the western Albertine rift valley and the north-eastern side towards Turkana.

The technology used on the two sites was mainly bipolar and some prismatic technology. A good indication of a bipolar product was where the distal flaking created a pointed edge that could be taken for a point. In most cases, bipolar technology created a triangular kind of retouch that could sometimes be mistaken for shaped tools. Lithic

technology recorded in this area; judging was purely LSA based on the bipolar technology. Some of the types of core types such as multi-platform, single platform, double platform, and pyramidal to mention a few confirm that the sites are LSA. According to Seitsonen (2010), bipolar cores were probably preceded by earlier hunter-gatherer use-life as demonstrated by these core types. Most of the core types in Komuge and Kakoro assemblage were opposed double platform, single platform, and multi-platform; pyramidal and amorphous that are very common in LSA bipolar technology. However, only two whole flakes had two bulbs indicating true bipolar technology (McBrearty & Brooks, 2000; Seitsonen, 2010; Biittner, 2011). The high percentage of fragments, microlithic tools, flakes and blades is another good indication that there was a workshop at Kakoro, unlike Komuge, which had more scrapers and few microlithic tools.

The lithic assemblage displayed that the hunter-gatherers practice was associated with several faunal remains that ranged from large bovids to catfish most evident at Kakoro. Kakoro unit 4 was dated to (Cal 775AD and the sample was associated with Transitional Urewe sherds. The presence of sherds in association with lithics shows that hunter-gatherers and agriculturalists in this area may been contemporaneous hence a multicomponent site. A high percentage of the bones were fragments unidentifiable to species, but this could be due to decomposition as usually

bones are easily decomposed. For Instance, a bone and jaw with calcium carbonate stuck on them indicated that they had stayed in the soil longer indicating early stages of fossilization.

As the above-mentioned evidence demonstrates, the two sites; Komuge and Kakoro have produced a clear sequence of cultural occupations that occurred in the first and second millennium AD. The ceramic remains ranging from EIA, MIA, and LIA in association with LSA microlithic tools suggest that there could have been inherited skills, especially the use of curved wood roulette to create concentric circles on pottery imitating what the EIA settlers as shown by Ashley (2010:163). This is also observed by LSA lithic producers who later employed less prismatic core technology to bipolar since the latter was less time-consuming. Similarly, the MIA users adopted a similar design but changed technology to be more efficient to supply the growing agriculturalist populations which is also reflected on the rock art.

Most faunal remains comprised of a fish bone, and mammals that were medium sized. Caprine were also visible in some levels at both sites. The faunal remains also confirm the presence of the hunter-gatherers who lived mainly on small animals such as medium sized antelopes, small antelope such as duikers, medium sized bovids, zebra and buffalo. A few catfish were also observed within this

assemblage. This implies that indeed the behaviour changes and what people consumed occurred in time and space since communities along this landscape fed on wild animals until last few decades. It is therefore hypothesized that Komuge and Kakoro could have been occupied in the LSA period and later MIA to LIA. The white geometric paintings rock art sites in question are close to River Lwere and one would conclude that probably was made by Bantu herders in BC/AD change over (Smith & Blundel, 2004, p. 257).

The earliest occupants of these sites therefore were the LSA hunter-gatherers. This is observed by a sharp decrease in pottery in lower levels, faunal remains, and increase of lithics. Data collected near the rock art displayed the presence of hunter gatherers who are also the authors of rock art. This implies that the rock art of Komuge and Kakoro was painted by LSA hunter gatherers who later co-existed with early farmers in the first millennium AD.

Conclusions

The archaeological assemblage of Komuge and Kakoro comprised of Late Stone Age to the Late Iron Age lithics, pottery and faunal remains that related with the rock art of the two sites. Therefore, the LSA hunter-gatherers authored the red geometric and orange designs at the two sites as they harnessed for fertility (Namono, 2010, 2012). The white tradition at both sites authored by agriculturalists who co-existed with hunter gatherers in the first millennium AD.

The pigment (cal 240-344 AD) and charcoal (cal 775AD) demonstrates that the settlement was more sedentary, and knowledge was passed on from one generation to another. The material culture especially the pottery decorations imitated the rock art. Despite that ethnographically, Namono (2010: 233-252) suggested that different designs on the rock art were used differently in other places (Namomo 2010, figures, 102 and 106). In Nyero (Posnansky, 1961, p. 108; Posnansky & Nelson, 1968:156-7 and Namono, 2010:252-255) supported the contextual associations of material culture in archaeology and rock art. For example, one of the major rock art designs is the bone design with concentric circles that was recovered by Posnansky (1961). Nyero rock art site north of Kakoro and Komuge belongs to the same cluster of Kyoga-Victoria Basin rock art sites, which are mainly geometrics and have been attributed to pygmy or Twa hunter gatherers (Chaplain, 1974; Coulson & Campbell, 2001; Namono, 2010).

Critical to note is the fact that earlier researchers like Namono (2010, 2012) attributed the geometric designs to the Pygmy hunter-gatherer tradition. This group still exists in the forest region of Congo and some parts of southern Uganda. Archaeological studies at rock art sites in Uganda were conducted only at Nyero and Dolwe (Harwich, 1945; Posnansky and Nelson, 1968, Posnansky *et al.* 2005). This means that results from this study shed more light on the kind of archaeology associated with rock art and their

significance. According to ethnographical records, concentric circles on rock art and rain-making site whose symbol was a tree stamp was recorded at Komuge. At Kakoro main rock art site, people have often found sacrificed blood by people who come to ask gods for children. This shows that the inherited traits did not stop only at making utensils and art but also beliefs and customs that current communities still practice.

We therefore conclude that Red and Orange geometric rock art at Komuge and Kakoro was authored by hunter gatherers before the coming of the agriculturalists probably in the last century BC. The presence of LSA points, backed pieces, flakes, blades justify the sites as generic LSA occupants. It is also clear that at Kakoro the LSA pre-ceramic horizons were below 50cm which implies 'pure 'hunter gatherers settled in these spaces before the coming in of agriculturalists. Similar in stratigraphic records with Urewe sherds appearing in lower levels at Komuge and Kakoro suggests there was gradual transition to ceramic use. This is demonstrated though EIA incisions with curved wood roulette and perhaps most interesting when juxtaposed against the emerging evidence for pre-ceramic material culture in lower LSA levels. At these sites, therefore the delayed return hunter-gatherer system was in operation with established permanent settlements even if some of the associated activities like butchering and other functional attributes need to be further investigated. The

sites excavated indicate that the cultural sequence of the area was gradual without much interaction since there is no Kansyore sherd found on site and yet it was identified in Nyero dated 5000BP.

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