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Multi-Directional Connectivity in Eastern and Southern Africa during the First and Early Second Millennia AD: Archaeological Evidence from Lupilo, Southern Tanzania

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Abstract

Archaeology of connectivity has attracted researchers since the beginning of the discipline when migration theories reigned in archaeological research. In East Africa, it started close to the mid-twentieth century with a strong emphasis on coastal archaeology, because that is where imported and datable materials such as glass beads and porcelain were plentiful. Apart from contributing to the chronology of the culture history of the west coast of the Indian Ocean, such materials also acted as strong proofs for the connectivity between East Africa and the northern coast of the Indian Ocean and the Far East. As archaeological research expanded into the interior, these materials came to be used as markers of connectivity between the coast and the hinterland, and through it with the eastern world. Gradually, false assumptions emerged: first, that connectivity is almost always coast-interior oriented, and second, that it is almost always evinced by imported materials. This paper attempts to refute these assumptions using an inland site from southern Tanzania, which has proven to have strong links with the coast and, more strongly, with other inland sites as far as in what is today Zambia, Malawi, Zimbabwe, Botswana, and South Africa. The evidence for this connectivity varies from symbolism and technology to trade objects.

Keywords

multi-directional connections – Lupilo – Lake Nyasa zone – Tanzania

1 Background

The last three decades have witnessed an increase in archaeological research interests into eastern Africa's continental hinterland (e.g. Abungu 1989; Msemwa 2001; Mapunda 2004; Walz 2010; Biginagwa 2012; Biginagwa & Mapunda 2018; Kusimba & Kusimba 2018), as opposed to the previous emphasis along the Indian Ocean coastal strip (also known as the Swahili Coast) (e.g. Chittick 1974; Horton 1986; Chami 1994; Croucher & Wynne-Jones 2006; Wynne-Jones 2010; Mjema 2015; Wynne-Jones & Fleisher 2015). However, as Mapunda (2017) notes, the majority of the studies that take interest into the interior focus more on coast-interior interactions, particularly looking at the last three centuries when the ivory and slave trade became the prime factor for economic vibrancy in the Indian seaboard and the world at large (Kusimba 2004; Wynne-Jones 2010; Biginagwa 2009, 2012, 2015; Coutu 2011; Kelly 2019). While these studies are commendable for taking a new spatial direction, and more specifically for revealing the *longue durée* of coast-interior connections (e.g. Walz 2018; Biginagwa & Mapunda 2018; Kusimba & Kusimba 2018) and the contributions made by interior communities to the growth and prosperity of intercontinental coastal trade (e.g. Abungu & Mutoro 1993; Horton & Middleton 2000; Kusimba & Kusimba 2000), there remain some shortfalls in these connectivity studies that require new interventions.

The first shortcoming is the inadequacy of archaeological research specifically geared towards unraveling the sociocultural dynamics of interior communities, including their

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own interactions (for a few exceptions in East Africa see e.g. Mapunda & Burg 1991; Msemwa 2001; Mapunda 2017). Two interrelated issues emerge from the observed current trend. The first involves portraying a wrong image that the socio-cultural dynamics among interior communities were spurred and/or determined by connections with the coastal communities, and the second is the impression that coast-interior connectivity is a more important topic to research than any other connections developed among interior communities themselves (e.g. Mapunda 2008; Kimambo 1996). At this point it is worth mentioning that studies that have begun focusing on intra-interior connectivity (e.g. Mapunda & Burg 1991; Mapunda 2004; Msemwa 2001; Kusimba & Kusimba 2018) have unearthed evidence indicative of long-term established multi-directional interactions among interior communities themselves prior to interactions with the coast. These studies, thus, have revealed the enormous potential for additional research to unravel the deeper antiquity of such intra-interior connections and the resultant socio-cultural and ecological consequences in the region (Lane 2010).

The second shortfall is the compartmentalization of archaeological research in the region (Masao 2005; Mapunda 2008). It is notably clear that patchy studies that attempt to give due attention to multi-directionality of interior networks fall short of establishing a holistic regional understanding of such connections. Mapunda (2008: 85) notices that researchers have been deceived by the contemporary geo-political boundaries, treating countries as self-contained cultural entities as if they have been existing forever, forgetting that they are recent colonial creations. Prior to colonial portioning, the inhabitants of the region had different and more flexible borders than the ones imposed in the nineteenth century (Biginagwa 2012; Biginagwa & Ichumbaki 2018). In this regard, for example, archaeologists working in Kenya have unnecessarily restricted their research in the hinterland region abutting coastal monumental sites such as Shanga, Gedi and Mtwapa (e.g. Abungu & Mutoro 1993; Helm 2000; Kusimba & Kusimba 2000), while those researching in Tanzania do the same in the hinterland regions near coastal sites such Mtang'ata and Pangani bays in northeastern Tanzania (e.g. Soper 1967; Schmidt 1989; Walz 2010; Biginagwa 2012), Bagamoyo on the central coast of Tanzania (e.g. Haaland & Msuya 2000; Wynne-Jones & Croucher 2007), as well as Kilwa coast and the Mikindani region in southern Tanzania (e.g. Pawlowicz 2013; Mapunda 2017; Biginagwa & Mapunda 2018; Biginagwa & Katto 2020).

Mapunda (2008) argues that parochial modeling of research areas has denied archaeologists a better understanding of the region's deep and connected past. Mapunda's observation was addressed in 2014 by the *Society of Africanist Archaeologists* (SAfA) and the *Pan African Archaeological Association for Prehistory and Related Studies* (PANAF), when they themed their joint conference in Johannesburg, South Africa, as "*African Archaeology without Frontiers*". Among other things, the theme sought to "challenge archaeologists to start transcending national, linguistics, disciplinary and epochal boundaries that separate archaeology's practitioners in Africa" (Sadr et al. 2016: xxi).

The third shortcoming concerns the nature and type of archaeological evidence of connectivity. In particular, inter-regional connectivity is almost always evinced by means of materials of coastal origin found in the interior, notably imported trade items such as glass beads, cowry shells, and certain ceramic traditions, especially the "Triangular Incised Ware" (TIW), also known as "Tana Tradition" (TT) (see e.g. Soper 1967; Haaland & Msuya 2000; Mapunda 2008; Walz 2010; Biginagwa 2012). Consequently, material culture originating from the interior as well as non-trade items such as ritual objects (and associated practices) that would have equally spread across regions through various forms of interactions are generally ignored (Collar et al. 2015). This is in addition to various technologies that would have spread across geographically distant regions, including iron-production technology (Mapunda 2008). Thus, the failure to recognize and consider such different evidence impedes our fuller understanding of the nature, direction, and scale of ancient interactions among various communities in Africa.

Against this background our paper seeks to address some of the outlined *lacunae* in connectivity research in the region. We use both conventional and non-conventional exchange items unearthed from the Iron Age site of Lupilo located in southwestern Tanzania to demonstrate long-established multi-directional connections with geographically far distant regions of eastern, central and southern Africa during the first and early second millennia AD. This set of evidence is key to start addressing the spatial-temporal and thematic imbalances that have dominated connectivity research in the region.

2 Study Area and Site

The Lupilo site (10°52′04″S 35°10′46″E) is located within the administrative boundaries of Mbinga district in the Ruvuma region, southwestern Tanzania. It is located about 65 kilometers west of Songea town, and almost

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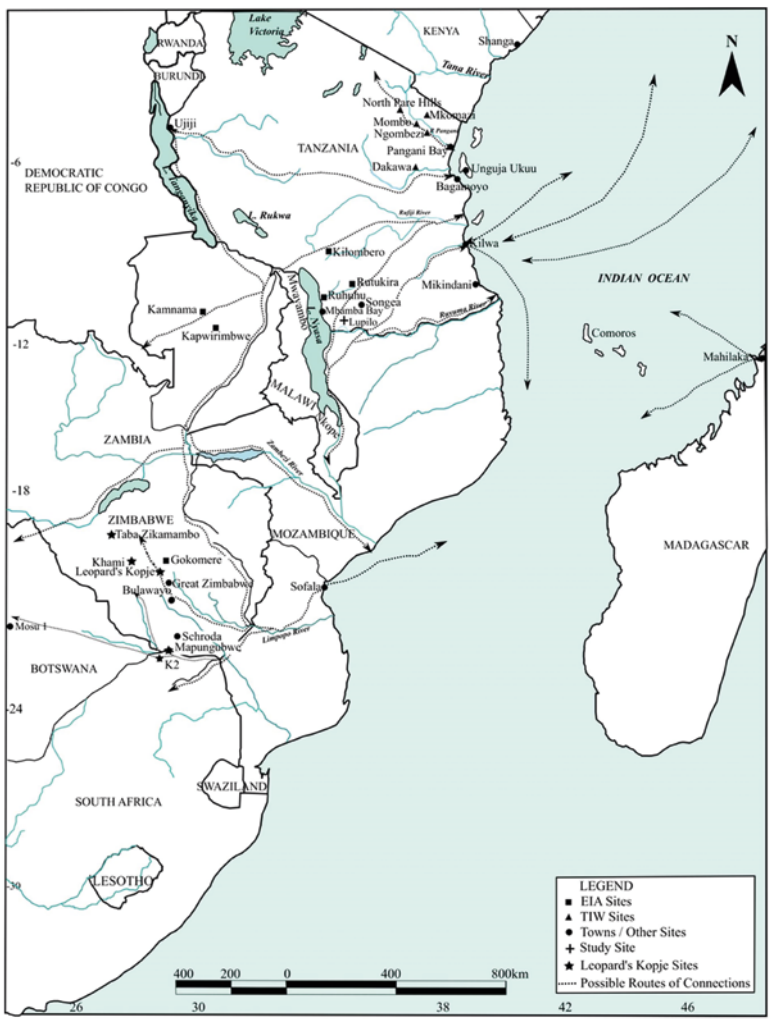


FIGURE 1 Map of eastern and southern Africa showing the approximate location of the studied site of Lupilo (near Lake Nyasa, SW-Tanzania) and other sites and settlements mentioned in the text

680 kilometers east from Tanzania's southernmost coastal town of Mikindani (Fig. 1). The distance from Lupilo to Mbamba Bay on the eastern shore of Lake Nyasa is about 60 kilometers. As shall be shown later in the paper, the proximity to Lake Nyasa can rightfully place Lupilo within the broader Lake Nyasa socio-economic zone (also referred to as "Unyanja" area).

The site of Lupilo was reported to the second author by Mr. Richard Chale (age 65) in 2014 when the team was conducting archaeological research in the Ruvuma region, exploring the consequences of the expansion of the 19th century caravan trade on the agronomies of the local communities (Biginagwa & Mapunda 2018; Katto 2016; Mgombere 2017; Biginagwa & Katto 2020). During our fieldwork, Mr. Chale revealed to have been told about the site of Lupilo some years back by his friend, Mr. Francis Siza. Mr. Siza (age 81) claimed to have witnessed, in 1984, a bulldozer exposing dozens of human skeletal remains during the construction of the dusty road that traverses Lupilo forest (Fig. 2A). Serving as a watchman of the forest, which is owned by the nuns of the Benedictine's Catholic Mission stationed at Chipole, Mr. Siza took deliberate measures to rebury the skeletal remains just by the roadside, a few meters from where they were unearthed. He marked the point with a large boulder on top of which he engraved the inscription: "*wana lupilo wamelala hapa zaidi ya 20 ezi ya wahalabu*" (Fig. 2B), loosely translated as "more than 20 Lupilo people [killed] during the Arab period are laid to rest here". According to Mr. Siza, the remains included about 20 skulls.

The Lupilo site is bounded by two river streams, namely Lupilo and Namagwina, to the west and to the south, respectively (Fig. 3A). The two streams merge at the southwestern end of the site and flows towards western direction for almost a kilometer to join a tributary of Ruvuma River (also spelled Rovuma). The soil at the site

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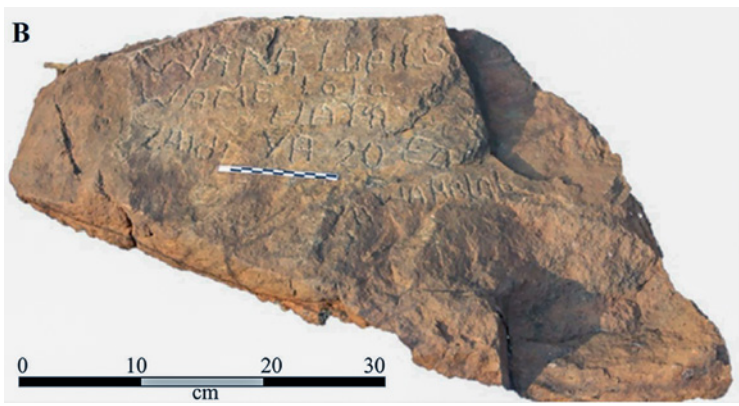


FIGURE 2 (A) Section view of cleaned road cut wall from which human skeletal remains were unearthed by a bulldozer in 1984; (B) engraved boulder made to mark the reburial point
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is gneissic in origin, with deeply weathered and well-drained red sandy clays (Msanya et al. 1995). The organic content is high in top soil but seemingly very susceptible to erosion due to friability. This soil supports varieties of natural vegetation, largely *Miombo* woodland (Kamanga 2011), as well as different types of crops as was observed in the nearby farmed areas. The crops grown include maize, peas, beans, cassava, and bananas (Msanya et al. 1995). The usual fauna in the area as reported by the local people include common duikers, antelopes, gazelles, monkeys, crocodiles, and hippopotamus; the last two being common in Ruvuma River, but also occasionally moving up Lupilo River during the rainy season when the Ruvuma and its tributaries swell up. During the fieldwork elders reported to have witnessed herds of elephants common in the area until the 1980s. Others reported to have encountered skeletal remains of elephants while tilling their farms (Francis Siza, pers. comment, 25 July 2015).

Lupilo shares most of its climatic aspects with the broader Ungoni area. The climate is generally cool tropical with a unimodal rainfall pattern. The average annual rainfall is 1224 mm, ranging between 1000 and 1600 mm per annum (Msanya et al. 1995). The onset of rain is normally at the end of November with the wet season extending from December to April. The months of May to October are dry with peaks being September and October (Msanya et al. 1995). The average minimum and maximum temperatures are 19–23°C and 29–31°C, respectively. Taken together, the environmental attributes – soil, vegetation, fauna, and climate – must have supported a range of extensive economies such as farming, livestock keeping, iron production, pottery making, and hunting, among several others. Arguably, it is most likely that the surpluses generated from some of the outlined activities were traded and/or exchanged with communities inhabiting different ecological zones, hence implying connectivity, as this paper seeks to unravel.

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3 Fieldwork

Archaeological exploration at Lupilo took place from July to September 2015. Our interest in this newly reported site was heightened and guided by two major hypotheses: first, that Lupilo could have been a 19th century ivory and slave caravan node, which was the primary goal of our research (Biginagwa & Mapunda 2018). It had been well documented that the Lake Nyasa zone was among the oldest sources of ivory and slave in eastern Africa (Beachey 1967; Alpers 1975; Iliffe 1979; Sheriff 1987; Sutton 1990). Second, and more important, was the expectation that Lupilo could have been one of the much earlier nodes of interactions in the interior. This hypothesis was guided by more recent scholarly observations that the 19th century connectivity, characterized by caravan networks, assimilated preexisting webs and nodes of interaction (e.g. Haaland & Msuaya 2000; Walz 2005, 2018; Mapunda 2017; Kusimba & Kusimba 2018; Biginagwa & Ichumbaki 2018). Indeed, the archaeology of Lupilo detailed in this paper rightly proves this hypothesis.

A brief archaeological survey established the site's extent, which measured about 0.8 hectares, with the core area being on the hilly cliff. Scatters of potsherds littered the ground surface. Moreover, dozens of potsherds and some severely weathered human bone fragments were visible projecting from the wall of about 30 meter long road cut. Some furrows traversed some sections of the core area of the site. According to Mr. Siza, they were made by tractors that used to go across the site regularly prior to the construction of the current road. They may be one cause of disturbance at the site as remarked below.

Four excavation units of various sizes were laid out in the core area of the site (Fig. 3A). The types of cultural materials recovered and the amounts for all four units are given in Table 1, showing the similarity of materials in the trenches.

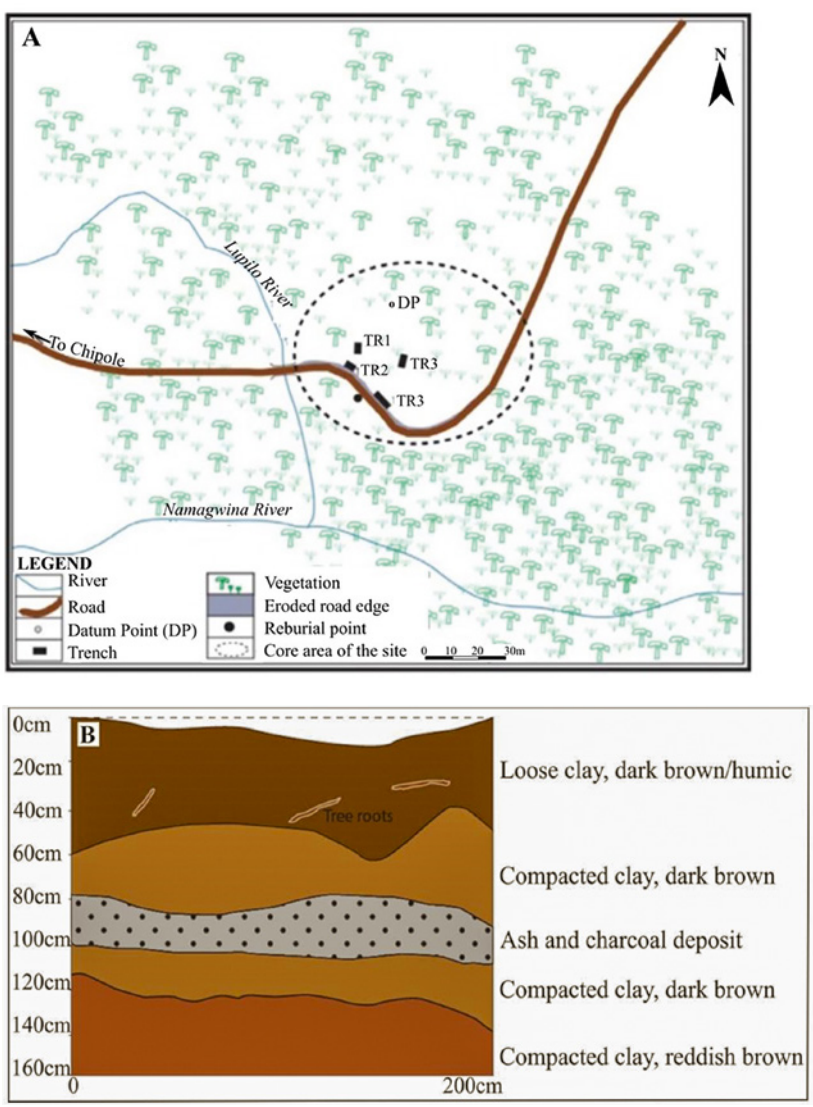


FIGURE 3 (A) Lupilo site plan; (B) Trench 1, eastern-facing wall profile

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TABLE 1 Number of finds by type of cultural material, for excavation units 1–4 and the "reburial point"

Excavation unit	Final depth (cm)	Cultural materials								
		Local pottery	Animal bones	Human remains	Glass beads	Metal objects	Daub	Slag	Salt strainer	Others
Trench 1 (1 × 2 m)	160	1,360	89			1	15	8	7	1 grooved sherd
Trench 2 (2 × 2 m)	180	4,519	148	2 human skeletons	4	10	43	6	24	28 water worn rounded cobbles
Trench 3 (1 × 3 m)	160	1,291	21						2	
Trench 4 (1 × 4 m)	130	1,776	66			2	15	11	4	
Reburial (2.5 × 2.5 m)	90	1,332	21		2	7	32	26	37	1 clay figurine
Totals		10,278	345		6	20	105	51	74	

Trench 1, measuring 1 × 2 m, was established near the centre of the site. It was excavated to the depth of 160 cm below modern ground surface (Fig. 3B). The soil of the first three levels (0–60 cm) was loose fine dark-brown clay, seemingly rich in humus. Thereafter, the soil turned into compact clay through to the base of the anthropogenic deposit. The soil colour of the last two basal levels, at approximately 120–160 cm, turned reddish brown. Tree roots were the main disturbance in the top three levels between 0–60 cm. A notable feature in this trench was a dense concentration of charcoal fragments and ash plus a countable number of slag fragments encountered at the depth of approximately 80–100 cm below ground surface. Both, size and amount of slag suggest blacksmithing (rather than smelting) took place at the site. However, the presence of ash and charcoal could also indicate an episode of burning of the entire settlement, since the same feature was also encountered in other excavated trenches. Trench 1 also yielded pieces of daub, some with wood impressions – suggesting the presence of collapsed wattle-and-daub house structures at the site.

A charcoal sample taken from Layer 8 (160 cm below modern ground surface) was submitted to Poznan Radiocarbon Laboratory at Adam Mickiewicz University in Poland and yielded a date of 965 ± 30 BP (Poz-78585). This suggests a calibrated occupation timeframe for Lupilo between the tenth and twelfth century AD. As detailed below, this age determination matches well with those from other sites with similar archaeological materials as at Lupilo. Interestingly, however, Lupilo also yielded some pottery characteristic of the Early Iron Age dating to the first half of the first millennium AD, suggesting that the site had attracted human settlement much earlier. This comes without surprise, since both the riparian environment and the soil fertility were key attractions for an EIA settlement.

Trench 2, measuring 2 × 2 m, was established almost 20 m due south of Trench 1, very close to the eroded road edge (Fig. 3A). Soil characteristics and layering mimic those recorded in Trench 1. Likewise, a dense concentration of charcoal fragments appeared at about 80–90 cm below ground surface. Disturbances were recorded in the top four levels (0–80 cm) in forms of tree roots and rodent holes. However, a major feature in this trench was a burial. During excavation a human skull (SK 1) appeared at the depth of 80 cm below modern ground surface lying towards the northeastern corner of the trench. This necessitated the extension of the trench by one meter in northern direction in order to expose the complete skeleton. While doing this, a second skeleton (SK 2) appeared in the same level, with the skull positioned west of SK 1. Ultimately, two complete human skeletons were exposed at the depth of 80–120 cm. The legs of both individuals were positioned towards the southeastern corner of the trench.

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Excavation of the remaining section of Trench 2 continued to sterile ground at a depth of 180 cm below modern ground surface. Grave cut was not discernible from the excavation, perhaps due to the old age of the burials. A tooth from one individual (SK 1) submitted to Poznan Radiocarbon Laboratory at Adam Mickiewicz University in Poland yielded a date of 755 ± 30 BP (Poz-78586). This suggests that the two individuals died between the 13th and 14th century AD. The exposed human skeletons in this trench were associated with metal arrow heads (n = 3), translucent green-blue glass beads (n = 4), and water-worn rounded cobbles (n = 28). All these objects are likely to have been deliberately placed there as burial goods. The type of glass beads recovered as well as their burial context is similar to that reported at K2 (also known as Bambandyanalo) site (AD 1000–1220) found in northern South Africa (Wood 2000). This signifies the possibility of shared cultural practices between these two geographically distant areas.

Trench 3 (1 × 3 m) was positioned 25 m due east of Trench 1. It was excavated to the depth of 160 cm below ground surface. Grayish-brown powdery clay and pockets of ash made up almost the top third of the stratigraphy (c. 0–50 cm). Thereafter, the soil turned compact and reddish brown as in Trenches 1 & 2. This was the most disturbed trench in terms of tree roots and rodent holes, almost down to about 80 cm below ground surface.

Trench 4 (1 × 4 m) was located about 12 m southeast of Trench 2. It was oriented in east-west direction, paralleling the road, just behind the point where allegedly human skeletal remains had been accidentally unearthed by a bulldozer. Its placement sought to test the presence of more human skeletal remains *in situ* that would help to explain those remains protruding from the road cutting. The trench was dug to the depth of 130 cm below modern ground surface. The deposit from the eastern half of the trench was less compact dark-brown clay, while that from the western portion was compact reddish brown clay as in other excavated trenches at the site. Most likely the eastern portion of Trench 4 was part of what we suspect to be a mass grave, while the western half was part of a house floor as attested by the recovery of pieces of daub. No human remains were encountered.

Having completed the four trench excavations, the focus shifted to the point where Mr. Siza claimed to have reburied human skulls unearthed during road construction in 1984. In addition to ascertaining the reburial itself, we hoped to gain insights into the nature and causes of death through examination of the human remains. Consequently, an area measuring 2.5 × 2.5 m was carefully excavated down to 90 cm below modern ground surface, in order to expose the reburied human skeletal remains. Unfortunately, the point of the reburial was missed since no human skeletal remains were encountered. We suspect that the boulder placed by Mr. Siza to mark the reburial point had been shifted over time, possibly through periodic maintenance of the road or by curious passersby. However, this trench yielded a large quantity of local ceramics, two possible "Garden Roller" glass beads and a clay figurine (Table 1). Although these materials came from a likely disturbed archaeological context, they were all analyzed in order to enrich our understanding of the site.

4 Major Finds

The site of Lupilo yielded a wide range of finds, including ceramics, glass beads, faunal remains, a clay figurine, metal objects, and human remains (Table 1). As stated in the previous chapter, these materials date to the first and early second millennia AD. Here, we present the results of the analyses of the recovered materials.

4.1 *Pottery*

As shown in Table 1, local pottery, ranging from the Early to Late Iron Age, dominates the material findings (n = 10,278). At least three different pottery traditions were discernible in the diagnostic sample (n = 2,071) as evidenced by vessel forms, rim forms and profiles, as well as decoration motifs and their placement (after Phillipson 1976: 21–23). The highest share of Lupilo diagnostic pottery (n = 1,387; 67%) belongs to what has been described as an Early Iron Age (EIA) pottery tradition (Phillipson 1968, 1976; Mapunda 2008). Stratigraphically this pottery tradition dominated the basal levels of the excavated trenches in Lupilo, appearing roughly from 120 cm below the ground surface downwards. The dominant vessel type is a necked pot with pronounced in-turned rim, which is typically thickened externally. A few hemispherical bowls are also present in this assemblage. Most vessels of this tradition have thick walls, are hard and well-fired, and display grey-brown to red-brown fabrics. Lip ends are mostly rounded, only a few are square. Decorations occur typically on the thickened rim bands of the necked pots, in the form of diagonal comb stamping or cross-hatching incision (either far or closely spaced and of various sizes and depths) (Fig. 4A–B).

The Lupilo EIA pottery compares well with pottery of the same time period reported from sites in the Upper Rufiji catchment (Msemwa 2001), Kilombero Valley (Mapunda 2008), and the Lower and Upper Ruhuhu River

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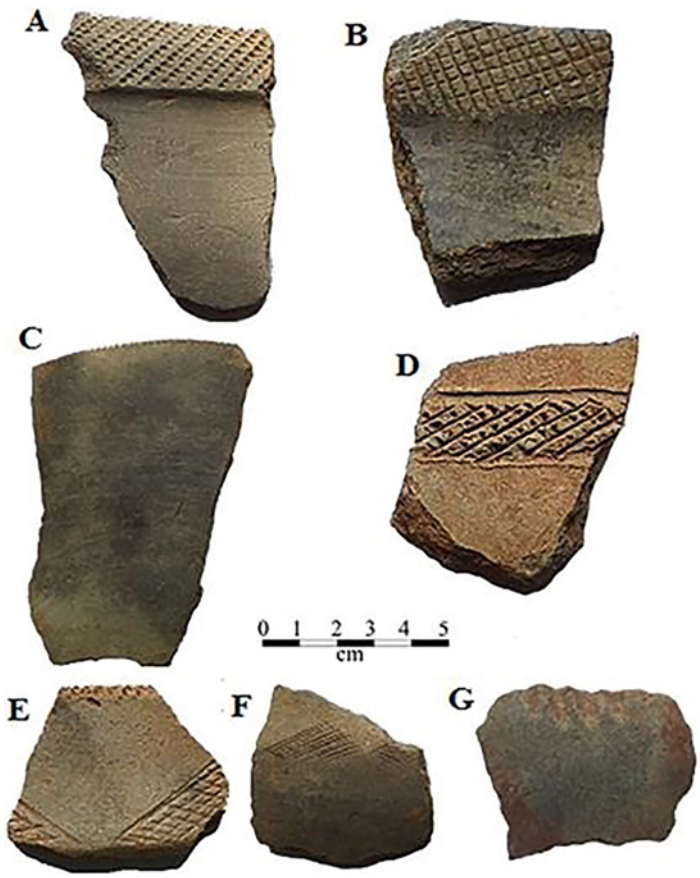


FIGURE 4 A sample of potsherds representing the various pottery traditions and an object discussed in the text: (A–B) EIA pottery; (C–D) Leopard's Kopje pottery; (E–F) TIW samples; (G) Potsherd with grooved lines
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Basin (Mapunda & Burg 1991). These sites are located approximately 150–300 km due north of Lupilo (Fig. 1). Interestingly, similar pottery is widely distributed in central and southern Africa under various names (Fig. 1). These include Gokomere pottery named after the type site in Zimbabwe (Gardner et al. 1940), Mwavambo and Nkope ware in northern and southern Malawi respectively (Robinson & Sandelowsky 1968), and Kamnama and Kapwirimbwe pottery in eastern and central Zambia respectively (Phillipson 1974: 5–6). Some researchers have also reported a similar pottery tradition in the northern Transvaal region in the present-day Republic of South Africa (De Vaal 1943; Prinsloo 1974). It is widely established that the Gokomere Tradition began sometime around the second quarter of the first millennium AD (Summers 1970: 100–102; Soper 1971: 12).

Just above the EIA horizon at Lupilo, two pottery traditions appear simultaneously. Generally, they occur from about the middle of the stratigraphy (c. 100 cm) upwards. The more dominant pottery tradition (n = 497; 23.9%) comprises material attributable to the Leopard's Kopje culture (after Robinson 1966). The common vessel types are shouldered pots with concave neck, black burnished beakers, beaker bowls, as well as bowls with restricted openings. The remarkable feature of this tradition is the thinner and well-fired fabric (Robinson 1966: 15). Decoration is generally rare; the few recorded occur mainly on the neck of the shouldered pots in form of chevron patterns produced by a dragging stick or a bunch of grass talks, or as a roughly incised ladder pattern (Fig. 4C–D).

Similar pottery has been reported from a number of Middle Iron Age (MIA) archaeological sites belonging to the Leopard's Kopje culture, especially Phase II (AD 950–1100), which are spread in what is today southwestern Zimbabwe and further south to the Limpopo River (Robinson 1966; Phillipson 1968; see also Fig. 1). These sites include the Leopard's Kopje (a type site) and Taba Zikamambo in present-day Zimbabwe (Robinson 1966) as well as K2 and Mapungubwe Hill in present-day

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northern South Africa, both dated to AD 1000–1300 (Chirikure et al. 2018). Interestingly, the mentioned sites have also yielded human figurines and glass beads similar to those unearthed at Lupilo and presented in this paper.

The second ceramic tradition, which is less abundant among the diagnostic Lupilo pottery (n = 187; 9%), comprises sherds from round-bottomed, open pots with a slight shoulder from which the upper part slopes inwards and upwards to more or less vertical rims (Fig. 4E–F). The vessel fabric is generally buff red and the most common decorative motifs are rows of triangles pointing upwards. These triangles may be incised or impressed, or a combination of both. The decorations bear great affinity with the MIA pottery from the eastern African coast commonly known as "Triangular Incised Ware" (TIW), named after its prevalent decorative motifs (Chami 1994), or "Tana Tradition" after a type site in eastern Kenya (Phillipson 1979). Generally, this tradition has been dated to between the 8th and 12th centuries AD (Chami 1994; Fleisher & Wynne-Jones 2011).

Sites that yielded TIW pottery include Kilwa Kisiwani where Chittick (1974) referred to it as "Kitchen ware", Misasa and Kiwangwa in Bagamoyo along the central coast of Tanzania (Chami 1994), and Unguja Ukuu on Zanzibar (Juma 2004). Furthermore, similar pottery has been reported from immediate coastal hinterland sites such as Dakawa in east-central Tanzania (Haaland & Msuya 2000), the North Pare Hills (Soper 1967), Mbugani at Mombo (Walz 2005) and Ngombezi (Biginagwa & Ichumbaki 2018) in northeastern Tanzania (Fig. 1). Studies undertaken in the far interior continue to report TIW pottery, which suggests a wider geographical distribution than previously thought. For instance, TIW ceramics have been found at sites along the eastern shores of Lake Nyasa and Lake Tanganyika (Mapunda & Burg 1991; Mapunda 1995, 2010; Wynne-Jones 2010), and at Rutukira (Upper Ruhuhu River Basin) in southern Tanzania (Mapunda 2008).

While Mapunda (2008) seems to suggest the possibility of TIW pottery found in the interior to have emerged/evolved organically from the preceding EIA pottery (thus indicating continuity), other researchers (e.g. Haaland & Msuya 2000; Walz 2010; Biginagwa & Ichumbaki 2018) link the widespread distribution of TIW pottery to trade contacts between coastal and interior communities. The latter argument is built on the fact that some sites with TIW pottery, for example Dakawa, Ngombezi, those in North Pare Hills, Mkomazi Valley, and Ujiji on the shore of Lake Tanganyika, are located along the 19th century corridors of ivory and slave trade, implying that these trade routes have a deep history. Whatever the case may be, such a wide distribution of various pottery traditions signifies some sort of socio-cultural interactions of different communities. This argument is extended in the discussion chapter.

Lupilo also yielded one potsherd with grooved lines (Fig. 4G), which is commonly described as a "bead grinder" (Flexner et al. 2008). The main use of the grooved potsherds has not been established, but the most popular assumption is that they resulted from the manufacture of shell beads, that is from grinding and smoothening the edges of the beads. No shell beads were found at Lupilo, however. Either only few shell beads were produced there or the sherd was used for another purpose that we are yet to detect. Pollard and Kinyera (2017) argue for other possible uses, including rubbing of pottery sherds to make tokens, or making spindle whorls, or leather working and sharpening of combs. It is worth noting that potsherds with grooved lines have been recovered at several sites on the East African coast that contain TIW pottery such as Shanga, Kilwa Kisiwani, Kaole, and Pangani Bay (Chittick 1974; Chami 1994; Walz 2010; Pollard & Kinyera 2017), as well as at inland sites such as Mbugani and Kwa Mgogo in Mkomazi Valley, northeastern Tanzania (Walz 2010), mostly dating to the late first millennium AD.

4.2 *Glass Beads*

A total of 14 glass beads have been unearthed at Lupilo: four from Trench 2, two from the alleged reburial point, and eight were plucked from the road cutting. These beads fall into two categories: small (n = 12) and large (n = 2). The small beads have diameters ranging from 2–4 mm and lengths between 2 and 4.7 mm (Fig. 5A). Marilee Wood, a bead analyst, describes them as "drawn green-blue translucent, roughly cylindrical in shape, with heat-treated ends" (pers. comment, 8 August 2018). Elsewhere Wood (2005: 93) remarked that "because the cutting and heating processes are done by hand, the shapes of [these] beads vary considerably from the true cylinders to the occasional oblates". With their origin in India and Southeast Asia, this bead type is also common at the K2 and Mapungubwe sites located in the Shashe-Limpopo Basin in present-day northern South Africa, where it dates to AD 1000–1290 (Wood 2000). Such beads have also been found in small quantities at some sites along the East African coast such as Kaole (Wood 2002), Kilwa Kisiwani (Chittick 1974), Kisimani Mafia (Chittick 1966), and Chwaka (LaViolette & Fleisher 2009). Likewise, Radimilahy (1998) reports the same bead type from Mahilaka in northwestern Madagascar (Fig. 1).

The two large beads are turquoise-blue to green in colour (Fig. 5B) and may be so-called "Garden Roller" beads (Robertshaw et al. 2010). They measure 10.1 and 10.3 mm

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FIGURE 5
(A) small, translucent green-blue glass beads; (B) large, possible "garden roller" beads
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in length, both have a diameter of 10.3 mm. Garden Roller beads are usually barrel shaped, but other forms occur as well, including nearly spherical and cylindrical form, some of which have ends that were grounded flat (Wood 2000: 81). Chemical analyses undertaken elsewhere have confirmed that Garden Roller beads were made at the K2 site from recycled K2 series glass beads (Davison 1973; Robertshaw et al. 2010; Pawlowicz et al. 2020). Moreover, archaeologists working in southern Africa (e.g. Kinahan 2000; Wood 2011) have observed that a few Garden Roller beads occur together with beads of the translucent green-blue category, the same category that occurs at Lupilo. Similar to Lupilo, the rarity of Garden Roller beads has been acknowledged at archaeological sites in central and southern Africa. For instance, only two beads were found at Chivowa Hill in southwestern Zimbabwe, one at Pati in Zambia (Wood 2011: 41), and another one was reported more recently at Miyoba in Zambia (Pawlowicz et al. 2020). Based on their distribution and rarity, Wood (2011) hypothesizes that Garden Roller beads were likely popular prestige objects during their time.

4.3 *Clay Figurine*

A human-type clay figurine devoid of lower extremities was recovered from the reburial point (Fig. 6A). It has a head with all facial features, short arms, an enlarged navel, and breasts (symbolizing a female representation). A deeply grooved line around the base of the figurine's trunk seems to emphasize a waistline. Figurines similar to this one have been unearthed from several sites in southern Africa, notably the northern part of South Africa, eastern Botswana and the southwestern parts of Zimbabwe (Dederen 2010). Dederen (2010: 35) remarks that "the phallic female icon belonged to a wider tradition of figurine making in this cultural region". Matenga's (1993) analysis of 1,180 clay figurines from 124 sites in Zimbabwe established that the golden era of clay figurine production in the region was from AD 900–1500, the majority of figurines belonging to Phase II of the Leopard's Kopje culture. He also noted that two thirds of the figurines belonged to the female torso category. Dederen (2010) argues that some figurines were designed to be carried around rather than to be placed in a standing position. This may explain why some figurines, like the one from Lupilo, lack lower extremities.

Clay figurines have been reported in many parts of Africa and were used into the more recent past (Van Wyk 2013). Their meaning and symbolism vary in space and time. Matenga (1993) suggests that many of the human figurines, which include carvings of male and female genitalia, were probably used in connection with fertility rituals. Van Wyk (2013) notes that among the Chagga of Kilimanjaro region in northeastern Tanzania, as reported by European missionaries in the late nineteenth to early twentieth centuries, female figurines without lower extremities, but with pronounced genitalia, were used in ritualistic cures of infertility. Cory (1956) reports the use of human figurines among the Zigua and Pare of northeastern Tanzania, often in connection with puberty rites and initiation practices. Similarly, the Zaramo on the central coast of Tanzania still use figurines today – the *Mwana hiti* (wood child) or *mwana sesele* (gourd child) – in the initiation as symbols of a girl's future children and her fertility (Felix 1990; Mshana 2016). The "empowered" figurine is thus given to a girl during her puberty ceremony to dress and treat it as if it were her own child (Swantz 1986; Mshana 2016). This doll would then be stored until the next daughter comes of age (Felix 1990). Similar uses of clay figurines were common among the Bemba people of northern Zambia. These depicted many things – a woman,

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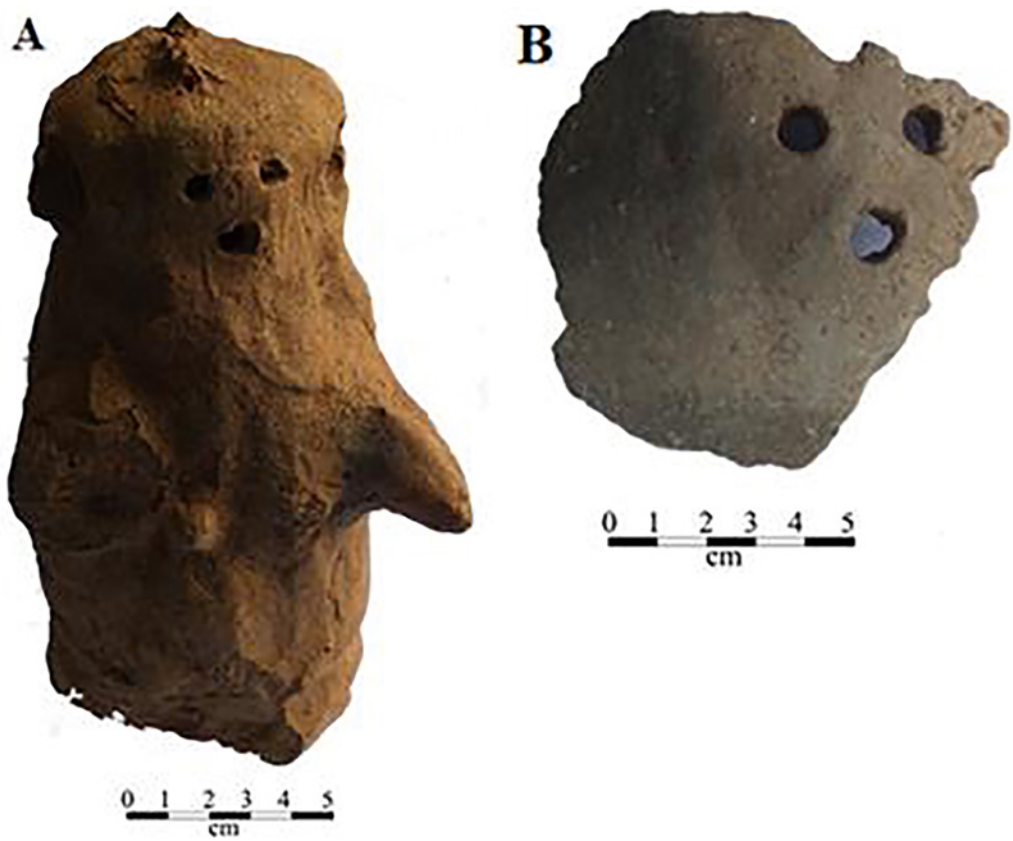


FIGURE 6 (A) Human-type clay figurine; (B) ceramic strainer fragment
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a nursing mother, a pregnant woman, and a supernatural animal (Richards 2013).

4.4 *Human Remains*

The excavation at Lupilo exposed a relatively large amount of human remains. As reported above, two complete human skeletons were found in Trench 2 at a depth of 80–120 cm below ground surface. However, we refrain from a more substantive interpretation and discussion of the human remains in this paper because of the kind of meticulousness needed in interpreting such remains. This will come in a separate report.

4.5 *Miscellaneous*

Other cultural materials include ceramic salt strainers, faunal remains, and metal objects (Table 1). Their presence informs about a variety of economic activities undertaken at the site. As argued above and elsewhere (e.g. Pawlowicz et al. 2020), such activities may have triggered a wider network of contacts through trade and exchange of various products between communities inhabiting different geographical and ecological zones. Ceramic fragments with drilled holes (Fig. 6B) have long been regarded as evidence of salt production among Iron Age communities in Africa (Antonites 2013). It is reported that perforated ceramic strainers were used to leach salt-rich material (soil or plant ash) to make brine, which was then reduced into crystalline salt through boiling (Davison 1993). Due to the fact that not all areas, especially inland, have good sources of salt such as saline springs and soils, the places where salt was produced must have had a wider distribution range.

Fagan (1969) has argued that salt was an important commodity widely traded among the Iron Age communities during the first and second millennia AD. Similarly, Connah (1991) highlights that salt production and trade in Kibiro (Uganda) took place for over a millennium. It is widely agreed amongst scholars that salt was traded for various precious goods, including beads (Fagan 1969; Connah 1991; Antonites 2013; Pawlowicz et al. 2020).

About a quarter (n = 132; 26%) of the recovered animal bones from Lupilo were diagnostic enough to warrant their maximum identification – both to skeletal elements and to specific taxa. Domestic cattle (*Bos taurus*) and sheep/goat (*Ovis*/*Capra*) dominate this small sample, totaling 76 and 27 NISP (Number of Identified Specimens), respectively. A few remaining elements represent chicken (*Gallus gallus*), common duikers (*O. grimii*) and cane rat

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(*Thryonomys* sp) totaling 6, 4 and 5 specimens respectively. Although in small amounts, the presence of bones from all skeletal zones of both bovid size classes II (sheep/goat) and IV (cattle; after Brain 1981) suggests that these domesticates were kept and slaughtered at the site. The recovery of a metal cattle bell at the site supports this proposition (Fig. 7A).

Although limited in number, a range of corroded metal artefacts (Fig. 7), some probably used for subsistence tasks such as farming, hunting, clearing bush, and perhaps for defense, have been unearthed at Lupilo. Mapunda (2018) argues that iron was an important exchange item among pre-colonial societies because it was vital for subsistence economies and production of luxury items. Likewise, Kusimba and Kusimba (2005) note that iron remained very important throughout the first and second millennia AD because it enabled humans to kill elephants whose ivory was in high demand in Asia and later in Europe. The fact that three arrow heads (Fig. 7B) have been found in a burial context (Trench 2) suggests that iron was an important item in the socio-economic and cultural milieu of the early residents of Lupilo.

5 Discussion

The cultural materials recovered at Lupilo and that reported by other archaeologists working in southwestern Tanzania (e.g. Mapunda & Burg 1991; Mapunda 2008, 2017; Katto 2016; Biginagwa & Mapunda 2018) suggest that the inhabitants of Lupilo, and perhaps of the entire Lake Nyasa zone, flourished through time on their own while also engaging in multi-directional exchange contacts with nearby and far-distant communities to supplement their daily needs. Archaeological evidence from Lupilo and other sites in the region testify to the existence of socio-cultural connections with the Swahili coast on the one hand and with other interior communities as far as in what is today Zambia, Malawi, Zimbabwe, Botswana, and South Africa, on the other hand (Fig. 1). The recovered glass beads may suggest that the densely populated areas around Lake Nyasa may have succumbed to the early Indian Ocean demand for ivory and perhaps slaves (Horton & Middleton 2000; Kusimba & Kusimba 2005). If that was the case, interior-to-coast and interior-to-interior connections of substantial dimensions must have existed in the region about a millennium or even more ago, possibly comparable to more recent times. Most likely, ancient trade and travel routes followed similar paths in the last two millennia (Walz 2005).

Material evidence from Lupilo suggests that the Lake Nyasa zone has been an inland gateway of trade connections between the East African coast and southern Africa since the first millennium AD. Indeed, there is a scholarly consensus that major drainage channels, including rivers such as Rufiji, Ruvuma, Ruhuhu, Zambezi, and



FIGURE 7
Assorted metal objects mentioned in the text: A) cattle bell, B) arrow head, C) knife

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Limpopo, facilitated trade connections between and among ancient communities in Africa (Mapunda 2008, 2010; Pawlowicz 2013; Chirikure 2014; Moffet & Chirikure 2016). In this regard, Pawlowicz (2013), for instance, argues that the Ruvuma watershed would have played an important role for the observed similarity of the late first and early second millennia AD pottery traditions between the Mikindani region, northern Malawi and northern Mozambique. He further argues that networks of cultural and economic exchange between these geographically distant areas followed the major watersheds. Similarly, Moffet and Chirikure (2016: 348) argue that before the Portuguese intrusion, Swahili traders ventured into the interior of southern Africa through major navigable rivers such as Limpopo, Zambezi, Save and Runde (see also Pikirayi 2001), serving as media for bringing goods in and out of southern Zambezia region (Chirikure 2014).

Glass beads, porcelain vessels and cloth were among the main commodities coming into the interior of Africa during the early second millennium AD (Horton & Middleton 2000; Chirikure 2014). These items were exchanged mainly for ivory which formed an important staple of trade and exchange relationships between hinterland and coastal settlements (Calabrese 2000; Huffman 2009; Kusimba & Killick 2003). Cattle, agricultural produce, salt and iron were some of the local products used in a variety of exchange and consumption contexts (Moffet & Chirikure 2016; Pawlowicz et al. 2020). Notably, sites in the Shashe-Limpopo Basin such as Schroda, Khami, K2 and Mosu I (Fig. 1), which are contemporaneous with Lupilo, have yielded evidence of ivory working and other finished ivory items (Hanisch 1981; Reid & Segobye 2000; Mitchell 2005).

It can therefore be argued that given the current ecology, coupled with the local narratives that until the 1980s herds of elephants were commonly seen in Lupilo, the entire area of Unyanja most likely actively engaged in ivory trade with the Indian Ocean during the first and early second millennia AD. This may also explain why the caravan route between the coast of East Africa and the Lake Nyasa region is regarded as the oldest route of trade in elephant ivory (and later in slaves) in East Africa (Beachey 1967; Alpers 1975; Iliffe 1979; Sheriff 1987; Biginagwa & Mapunda 2018). It is worth noting that only 20 km north of Lupilo, Mapunda (2004) mentions two 19th century slave and ivory warehouses at Mang'ua and Kikole, owned by a Kilwa-based Arab trader by the name of Masoud bin Rashid. The two places, located 10 km apart, were used as collection points prior to commanding a caravan trip to Kilwa. Thus, we can suggest that the lack of evidence for ivory working at Lupilo could just be a result of the limited research there.

Mapunda (2017) offers additional evidence for sociocultural contacts between far-distant communities of southern Tanzania and beyond that would have involved population movements. He links the movements of the Matumbi people from areas around Lake Nyasa (from the late first millennium AD) to the Matumbi Hills in the immediate hinterland of Kilwa coast with the spread of pottery with "ribbed motifs". He also observes that this pottery tradition has a wider geographical distribution, along Lake Nyasa, Lake Tanganyika, northern Malawi, the Matumbi Hills near Kilwa coast, Kilwa Kivinje and Kilwa Kisiwani. He further notices that the timeframe for the occurrence of ribbed pottery on the Kilwa coast and its immediate hinterland corresponds well with historical-linguistic postulations that place the arrival of the Matumbi along the coast around the late first millennium AD (Ehret 1998).

In the Upper Ruhuhu River Basin, almost 150 km north of Lupilo, Mapunda (2008) reports to have found an exotic miniature soap-stone vessel at the site of Rutukira. According to him (Mapunda 2008: 92), the origin of this object, which could have had ritual functions (for example as medicinal container or incense burner), is likely to be outside the boundaries of what is today Tanzania, since there is no talc deposit in Tanzania. Given that "the nearest source of talc is Zambia, Zimbabwe and Madagascar," Mapunda argues, "it is likely that this object arrived at Rutukira through interaction". Similarly, Chittick (1974) found a number of talc vessels in his excavation at Kilwa Kisiwani and suspected Madagascar to be the most likely source of the Kilwa talc vessels. Taken together, these findings are an indication of an exchange of some kind between southern Tanzanians and the immediate and distant neighbours to all directions during the past two millennia.

Furthermore, Mapunda (1995, 2008, 2010) observes that between the 15th and the 19th centuries the region extending from southwestern Tanzania to central Zimbabwe shared a common technology of iron smelting which employed "dwarfed" globular furnaces known in Fipa language as *Katukutu*. What is unique about the technology, according to Mapunda, is that it deployed a convectional (natural draft) mode of combustion, contrary to the conventional understanding that natural draft works with tall furnaces (locally known as *Malungu*). As convincingly argued by Mapunda (2008: 94), such resemblance of technology suggests cultural interactions in the broad region of eastern and southern African interior.

The long-distance connectivity could have occurred in different forms, apart from actual movement of people. It seems highly likely that materials, ideas, beliefs, practices, and technology were diffusing between far-distant places. For instance, Lupilo shares burial practices with

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some far-distant communities. One example is the occurrence of translucent blue-green glass beads in the burial context in Trench 2 at Lupilo which mimics that recorded at the contemporaneous sites of K2 and Mapungubwe in northern South Africa (Steyn et al. 1999; Wood 2000). Moreover, the water-worn rounded pebbles in the same burial context are similar to those reported from sites along the East African coast and southern Africa. At Songo Mnara in Kilwa, for instance, Wynne-Jones and Fleisher (2015) encountered a grave that contained over 5,000 quartz pebbles, which they described as offerings (see also Ichumbaki & Pollard 2015; Horton et al. 2017).

Richard Burton, a 19th century European explorer, also reports of ritualized pebbles when he visited Songo Mnara. He witnessed an "ancient custom … [by which] small stones are washed, perfumed and sundried … finally they are strewed with prayers upon the tomb" (Burton 1872: 359). At the K2 site in northern South Africa, Steyn and Nienaber (2000) report stone artefacts, including polished pebbles, associated with human burials. In one example, several stones were found placed over the body of an individual who had suffered from severe osteomyelitis; it was suggested that the stones were meant to keep the spirit of the buried individual from troubling people (Steyn & Nienaber: 2000:113). According to local narratives in Lupilo, those stones are locally known as *Ngulunga* and are believed to have protective power. Their use as grave goods could mean that the deceased had been using them as protective objects, or that they were freshly placed in the burial in order to protect the deceased in the life after death.

6 Conclusion

Archaeological findings from Lupilo augment those from other sites in south and southwestern Tanzania in providing important insights to researchers working on regional connectivity. The paper urges archaeologists to change their mindset when it comes to looking for evidence of connectivity. Our common assumption has been that connectivity always took place between the coast and the interior; and as such the evidence has always been coast-based trade items such as cowry shells, glass beads, foreign ceramics, and the like. Lack of such objects at any given site in the interior has been equated to lack of involvement in trade and contacts. This has been demonstrated in this paper to be wrong. It is important to consider other evidence of connectivity such as technology (for example, local pottery, iron working and other locally produced material) and intangible cultural aspects, including burial practices (for example, grave goods and offerings), as well as the production and application of ritual objects such as anthropomorphic figurines.

The findings from Lupilo are equally important for environmental studies. We know that the established socio-cultural connections must have involved extractive economies which played a key role in the regional and extra-regional economy such as elephant hunting for ivory, iron smelting and smithing, and salt making, among several others (e.g. Haaland & Msuya 2000; Walz 2017; Kusimba & Kusimba 2018; Pawlowicz et al. 2020). Such an established long-term perspective of resource extraction in the region should therefore serve to inform policies directed toward the management, protection, enhancement and/or restoration of regional landscapes and their associated habitats. Unfortunately, most of the current policies are driven by a restricted set of untested environmental narratives mediated by colonial libraries (Leach & Mearns 1996; Schmidt & Ichumbaki 2020; Biginagwa & Katto 2020), which indeed contradict the findings of the current research. Most common is the widely perceived view that the surviving areas of high biodiversity and/or dense concentration of wildlife represent the remnants of "pristine" environments barely touched by human activities and from which humans have to be excluded if their long-term survival is to be ensured (Roe 1991).

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