

# ***Evidence for early trade between the coast and interior of east Africa***

C. M. NELSON

## **The Jarigole ossuary complex**

The Jarigole ossuary complex (Merrick, Koch & Nelson *In Preparation*) consists of a series of ossuaries and related sites which ring Lake Turkana (Fig. 1). The most complex of these sites are pillar ossuaries and include Jarigole, the Kalokol pillar site (Ng'amoritung'a II) (Lynch & Robbins 1978; Soper 1982), the Lothagam pillar site, the Il Lokeridede pillar site (C. Koch, *pers. comm.*) and the Suguta pillar site (Robbins & Lynch 1975, p. 8). The essential associations at these sites are low mounds of gravel, usually contained by curbs of cobbles, and into which burials and bundles of bones and grave goods were interred, natural columns of stone brought to the sites and erected on and adjacent to the mounds, and ceramics of Nderit ware as the principle grave goods. The complex also includes very small sites which may contain internments or pits used to prepare the dead before their bones were moved to an ossuary (e.g. GbJj4 at Jarigole; Kamau 1991). These smaller sites also contain ceramics of Nderit ware.

## **The Jarigole pillar site**

Only two of the pillar sites have been tested (for a detailed description of the Jarigole pillar site: see Nelson Forthcoming). The evidence for early trade reported in this paper comes from the pillar site at Jarigole (GbJj1) and is based on a five percent sample of the central mound (Table 1). The stratigraphic context is simple, but chaotic. After construction, the central mound, which is 15 m in diameter and one meter high, was used as a repository for interments and bundles containing bones and grave goods which were brought to the ossuary. The contents may already have been fragmentary at the time they were buried. Repeated excavations of small pits to deposit burials and grave goods ensured that earlier pits were intruded and their contents scattered in the tailings and pit fillings of more recent interments, a process which further fragmented the artefacts and exposed them on the surface for long enough periods to be destroyed by weathering. Sherds with evidence of prior weathering at the surface are common. The weathering histories of some individual sherds reveal as many as two whole and one half cycle of exposure and reburial (original

burial, exposure, reburial, re-exposure, reburial). As a result, much of the original content of the mound has been lost and what remains has been badly fragmented. Nevertheless, it still contains the remains of some 200,000 artifacts (estimate of number of objects before fragmentation). A brief summary of these objects is presented in Table 1.

## **Cultural context**

The people who created the Jarigole ossuary complex were pastoralists. We know this for two reasons. First, the Jarigole pillar site has yielded four cattle figurines and one which may be supposed to represent a sheep. Second, the site of Dongodian, which contains an Nderit ceramic assemblage like that from Jarigole, also contains the bones of cattle and ovicaprids (Barthelmé 1984). Sites containing Nderit ware are spread widely in the Turkana basin at elevations which are several meters above that of the present lake (Robbins & Lynch 1975, p. 14; Barthlemé 1981, p. 548). They are conspicuously absent from lower localities, such as Eliye Springs, which have long and diverse records of occupation. These facts suggest occupation of the basin at a time when the lake was consistently much higher than today, but well below the overflow level.

Most Nderit sites are relatively small and larger sites, such as Dongodian, are probably a palimpsest of sporadic seasonal occupations, quite possibly over long periods. No structural remains have been found and both stone tool and ceramic densities are modest, compared to many later pastoral neolithic occurrences from the Central highlands. Nderit ware develops into Ileret ware in the northeast quadrant of the Turkana basin. Sites containing Ileret ware reveal the same basic site patterns as their earlier counterparts, but developed forms of the ware, at GaJj13 and GaJi13, are found at lower elevations, suggesting that the lake fell significantly during the Ileret period.

The picture which emerges is that of a pastoral society which occupied a very large area and may have been fully nomadic, but which made what is arguably the most complex of all pastoral neolithic ceramic wares and buried many of its dead in central sites which required a great amount of labor to construct and maintain.

## **Dating**

Direct dates for the Jarigole ossuary complex have yet to be published. The Jarigole pillar site, though made of well-drained gravel and in an arid environment, is nonetheless quite active geochemically, making dating a complicated issue in the absence of well associated charcoal samples. For the moment, we must fall back on ceramic correlation with

assemblages which are reasonably well dated. Fortunately, there is a clear evolution of Ileret ware out of Nderit ware which involves changes in motif frequencies, basic decorative techniques, the specific techniques of design element production, design structure within motifs, rim forms, rim decorations, and vessel shapes. For example, to make one of the major motif clusters in Nderit ware, the surface of the vessel is prepared with a fine repetitive design which is used as a ground for the description of broad, curvilinear channels to form a bold design. This motif cluster survives as a minor element in the earliest stage of Ileret ware, but repetitive ground design is made using a typical Ileret decorative technique and decorative implement, rather than one of the ground techniques typical of Nderit ware. Several lines of evidence such as this all indicate that the Ileret Stone Bowl site (Barthelmé 1981, pp. 260–301; Barthelmé 1984; Barthelmé 1985) represents an early stage in the development of Ileret ware out of Nderit ware, and that Dongodian (Barthelmé 1981, pp. 204–59; Barthelmé 1984; Barthelmé 1985), GaJi2 (Barthelmé 1981, pp. 182–203; Barthelmé 1985), Apia (Robbins & Lynch 1975, p. 13), Kangatotha and Site Bb-14 (Robbins 1972) are all mainstream Nderit sites. The  $^{14}\text{C}$ -dates from these sites are presented in Table 2.

The Ileret Stone Bowl site has a  $^{13}\text{C}$  corrected bone apatite date of  $4000 \pm 140$  BP ( $3660 \pm 140$  bp, uncorrected), while Dongodian, which has the most recent dates associated with Nderit ware in the Turkana basin, has a wide spread of dates on a variety of materials. The most reliable of these are most likely the two uncalibrated charcoal dates of  $3890 \pm 60$  bp and  $3945 \pm 135$  bp. These agree closely with the uncalibrated charcoal dates of  $4160 \pm 110$  bp and  $3970 \pm 60$  bp from a second site on Karari Ridge, GaJi2. Given our lack of experience with the  $^{13}\text{C}$  correction of charcoal dates in the active geochemical environments of the Turkana basin, it is probably not wise to rely on an arithmetic calibration of these dates.  $^{13}\text{C}$  correction would certainly have increased their age, but by exactly how much is uncertain. This suite of dates suggests that the changeover from Nderit ware to Ileret ware occurred about 4000 BP, while the dates from Apia, Bb-14 and Kangatotha suggest that the Nderit occupation of the Turkana basin may exceed a thousand years in duration, ample time for the creation and use of ossuaries.

There is, however, one clearly anomalous date in the series:  $3125 \pm 210$  bp from the Six Mile Airstrip burial site (Barthelmé 1981, pp. 357–66). Two partially intact burials were excavated here about 1.5 meters apart. Burial 1 contains two vessels which are most comfortably accommodated within Nderit ware, but could possibly come from an early phase of Ileret ware. Fragments of human bone from this burial produced a modern date based on apatite and contained gelatin which was too poorly preserved to date. The bones from this burial are described by Barthelmé (1981; 1985) as partly fossilized and by the

laboratory as being in an advanced state of weathering. The apatite produced a  $^{13}\text{C}$  value of -10.3, considered anomalous for uncontaminated human bone. Burial 2 contained an ostrich egg shell necklace but no ceramics. It produced the date of 3125 on apatite, but the gelatin was again too poorly preserved to date (cf. Barthelmé 1981; Barthelmé 1985 for treatment of these dates). Barthelmé describes the bone from this burial as highly weathered but not as being partially fossilized. The poor condition of the bone raises questions about the accuracy of the date while the differences in preservation between the two burials raises a further question of association since the date is not on the burial containing the probable Nderit pots. For these reasons, the date should be set aside until corroborated.

### **Evidence for trade with the Indian Ocean coast**

*Strigatella paupercula* has been identified by Dr. Pieter W. Kat (National Museums of Kenya) on the basis of thirteen specimens from the central mound at the Jarigole pillar site. It is a small snail common on the beaches of the Indian Ocean from South Africa to the Horn. Fresh, the shell is typically white and brownish red. Some of the specimens from Jarigole preserve this reddish pigment in narrow bands which spiral up the body of the shell, following its whorls. The color is similar to that of many of the ceramic vessels, which were finished with mineral slips and paints that fired to various hues of red and orange. Other specimens are weathered until chalky at the surface. These do not preserve the pigmentation. Like the ceramics, the beads have probably been subjected to exposure and reburial, which explains their variable conditions.

*Strigatella* beads were manufactured by grinding away the surface on the face opposite the mouth of the shell in the same manner as the money cowry is prepared for sewing onto clothing (Fig. 2). Usually the ground opening is formed by a single facet parallel to the ventral face of the shell, but sometimes there are two facets forming the opening as if the bead were designed to be laid in the angle between two intersecting surfaces or doubled side-to-side with a second bead. Fishermen on the coast of Kenya commonly use *Strigatella* as bait and prepare them by breaking through the back of the shell to expose the flesh within. The specimens from Jarigole are carefully ground and were probably sewn on articles of clothing, but they could have begun their cultural careers as someone's bait before being turned into ornaments.

### **Coastal trade from an interior perspective**

*Strigatella paupercula* is a very common shell on the east African coast. Its supply is virtually infinite when considered in economic terms. Why is it then that a gathering of about 260 such beads in a 4000-year-old ossuary (containing some 200,000 objects), on the shores of Lake Turkana, is important? This question needs to be placed into a broader context and given the perspective of scale by contrasting the transport of *Strigatella* shells, which were brought some 840 kilometers from the coast, with the transport of more local items of trade or portage which occur at Jarigole. Of particular interest among these are beads and pendants of amazonite, a gem quality form of feldspar. These come from a single source which must be very small in extent and located someplace in the basement complex, most probably to the east or northeast. No known Kenyan source matches the specimens from Jarigole, but there is an Ethiopian source which might. In any event, what we know of the regional geology suggests a transport distance between 150 and 300 kilometers. Amazonite is about twice as abundant as *Strigatella* shells at Jarigole.

Local raw materials of hard stone, such as agate, are abundant and widespread in alluvial sources, but beads of these materials are less common than those of amazonite. They are also not as well finished and usually have larger perforations, suggesting that the amazonite is being traded mostly in the form of finished beads rather than raw material. On the other hand, ceramics which contain no obvious volcanic temper, but large amounts of quartz derived from the basement complex, are abundant and almost certainly account for more than 1000 vessels from the ossuary as a whole. These must have been made at a distance of at least 80 to 120 kilometers. Likewise, artefacts of obsidian, most of which are likely to come from a mere 60 to 80 km northward, number in the thousands.

Taken together, these facts suggest that the obsidian and ceramics are coming from within the territory of the kin-group(s) using the ossuary and are subject to conditions of internal trade and portage, while the amazonite and *Strigatella* come from outside this territory and are subject to conditions of external trade and portage. In these circumstances, the low frequencies of externally procured items is suggestive of two interpretations. First, direct long-distance trade between the coast and the Turkana basin is highly unlikely. There should be a much higher frequency of exotic items among the artefacts from the Jarigole pillar site if such trade existed. Second, a trickle-in model of exchange without professional traders in the interior hinterland is sufficient to explain the material at Jarigole.

## **Continuity of coastal trade in pastoral societies**

Nderit ware and the Jarigole ossuary complex are associated with the earliest known, fully pastoral society in eastern Africa. The design structure and production technology of its ceramics are arguably the most diverse and complex of any pastoral neolithic society in the region. The ossuaries include the largest and most labor intensive cemeteries associated with pastoral societies in eastern Africa.

Nderit ware spreads southward along the rift and in the adjoining highlands as far southward as Tanzania at an early date (Leakey 1931; Bower 1973; Nelson 1976; Bower, Nelson, Waibel & Wandibba 1977, pp. 140–1) and is probably the base-line pastoral occupation in most parts of this central corridor. Sites with early stylistic expressions of Nderit ware are shown in Figure 1. At present, however, the only well associated radiocarbon date from south of the Turkana basin comes from GvJm4 at Lukenya Hill. Here the lowest occurrence contains Nderit ware, found beneath a date of  $3290 \pm 145$  (GX-5348, charcoal,  $^{13}\text{C}$  corrected; the uncorrected age is  $3285 \pm 145$  bp). There is also a limiting date from Seronera of 2020 BP at SE2 (Bower 1973, p. 85). What follows the spread of Nderit ware in this entire region, including the Turkana basin, is the simplification of the material expression of the ceramic and funerary traditions. It is fair to ask to what extent this apparent simplification reflects a broader simplification of social and economic organization, including participation in long-distance exchange networks.

The problem of sample structures makes it almost impossible to answer this question in any straightforward or definitive way. If the makers of Nderit ware in the Turkana basin did not have ossuaries which they packed full of material goods we would not have found the early evidence for trade with the coast. Changing burial practices, which include the evident proscription first of ostrich egg shell and ceramics, and later of all ornaments as appropriate grave goods, means that we must rely almost exclusively on open sites for the recovery of traded shells. In this context, both locally made and traded ornaments are very uncommon.

Nevertheless, some interesting points can be made. The one complex cemetery in which grave goods are abundant is Njoro River Cave (Leakey & Leakey 1950), dating to 3000 BP (Merrick & Monaghan 1984). Although stone beads were relatively common here, ostrich egg shell beads and shell beads of coastal origin are not present. It is interesting, however, that the stone beads include one amazonite specimen which is visually identical to the specimens from Jarigole, indicating a southern extension of the exchange network in operation in the Jarigole region some centuries earlier.

Although no direct evidence of coastal trade in the interior is reported in the literature, there are a few fragments of pendants made from marine shells from the central ash deposit at Vaave Makongo (GvJm48) on Lukenya Hill, just east of Nairobi (Nelson

1976). This is a pastoral neolithic occurrence with a date on the central ash heap of  $1810 \pm 135$  bp (GX-5347G) on bone gelatin. In addition, obsidian was transported widely and in great quantities during the pastoral neolithic period. Raw material from the Naivasha basin in the Central Rift valley is found as far east as Kilungu (Merrick & Brown 1984), south of Machakos, and the foothills of Mount Kilimanjaro (Mturi 1986). These localities are about 400 kilometers from the coast and range from 140 to 250 kilometers from the obsidian sources, and well east of Lukenya Hill, where the pendent fragments of marine shell are associated with abundant obsidian debris and tools. On the east side of the Rift, overlap in the distribution of coastal shells and obsidian from the Central Rift shows that the exchange network extended from the Rift to the coast. On the west side of the Rift, obsidian from the same sources was transported nearly to the shores of Lake Victoria, a distance of 170 kilometers (Robertshaw 1990). Thus, it is likely that the exchange network extended all the way from the coast to Lake Victoria.

Although the evidence is scanty, it is clear that, once established, pastoral exchange networks endured and were available for development as trading ports emerged along the coast of eastern Africa. However, a great deal more work needs to be done to determine to what extent, and how early, such pastoral networks were actually used.

### **Interior trade from a coastal perspective**

The trade of shells from the coast of east Africa to far off Jarigole, however modest, is nevertheless quite significant. It demonstrates that there was an extensive trading network in existence before the rise of coastal trading ports or the involvement of interior-derived commodities in an international system of trade between states. This pre-existing trading network is likely to have been the basis for the early stages of larger-scale coastal/interior trade.

More interesting still is the fact that pastoralists were involved in extensive trading networks from their earliest well documented penetration into eastern Africa. Pastoral peoples maintain large territories within which they are highly mobile and they maintain far-flung contacts to facilitate the movement and pasturage of stock during times of drought. This also places them in a position to facilitate trade in ways which hunters and gatherers or hill-bound agriculturists not are able to. Among these are armed escorts, locally supplied beasts of burden, and safe passage for considerable distances. By 2000 years ago, pastoral communities dominated the landscape from Kilimanjaro to Lake Victoria and from Lake Eyasi to the Ethiopian highlands, a vast potential market already accessible through established exchange networks.

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Table 1. Contents of the mound at the Jarigole pillar site (GbJ1).

Items in bold have been transported more than 60 kilometers.

| <b>Description</b>                            | <b>Sample Projected</b> |               | <b>Source</b>                                      |
|-----------------------------------------------|-------------------------|---------------|----------------------------------------------------|
| Figurines                                     | 12                      | 200           | Mostly local                                       |
| Ceramic vessels of Nderit ware                | >650                    | >13,000       | <b>About 40 % made outside the volcanic area</b>   |
| Ostrich egg shell vessels                     | 6                       | 120           | Local                                              |
| Ostrich egg shell beads                       | 6200                    | 120 000       | Local                                              |
| Ivory beads & ornament fragments              | 19                      | 380           | Local                                              |
| Ivory-like mystery beads                      | 7                       | 140           | Possibly tortoise toes                             |
| Bone beads & ornaments                        | 11                      | 220           | Local                                              |
| <b>Beads of <i>Strigatella paupercula</i></b> | <b>13</b>               | <b>260</b>    | <b>From the coast of the Indian Ocean</b>          |
| Other shell beads & ornaments                 | 10                      | 200           | Local                                              |
| <b>Amazonite beads &amp; pendants</b>         | <b>30</b>               | <b>600</b>    | <b>Not local, possibly from southern Ethiopia</b>  |
| <b>Other basement complex beads</b>           | <b>11</b>               | <b>220</b>    | <b>From outside the volcanic area of the basin</b> |
| Carnelian beads                               | 2                       | 40            | Local                                              |
| Agate beads                                   | 3                       | 60            | Local                                              |
| Calcite beads                                 | 19                      | 380           | Local                                              |
| Soft stone beads (includes Fluorite)          | 41                      | 820           | Origin uncertain                                   |
| Phallic ornaments                             | 5                       | 100           | 3 of these included in bead categories above       |
| Small stone spheres                           | 3                       | 60            | Local?                                             |
| <b>Polished pebbles of quartz</b>             | <b>11</b>               | <b>220</b>    | <b>From outside the volcanic area of the basin</b> |
| Porphyry pebbles                              | 2                       | 40            | Origin uncertain                                   |
| Pestle rubbers (for ochre?)                   | 2                       | 40            | From outside the volcanic area of the basin        |
| Large palette                                 | 1                       | 20            | Local                                              |
| Small whet stones                             | 6                       | 120           | Local                                              |
| Flaked basalt                                 | 725                     | 14 000        | Local                                              |
| Flaked silica                                 | 170                     | 3400          | Local                                              |
| Flaked vein quartz                            | 7                       | 140           | From outside the volcanic area of the basin        |
| <b>Flaked obsidian</b>                        | <b>2240</b>             | <b>44 800</b> | <b>Nearest source about 80 km</b>                  |

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