The transition to farming in eastern Africa: new faunal and dating evidence from Wadh Lang'o and Usenge, Kenya

Paul Lane[1], Ceri Ashley[2], Oula Seitsonen[3], Paul Harvey[4], Sada Mire[4] & Frederick Odede[5]

The exploratory investigation of two sites in Kenya throws new light on the transition from a 'stone age' to an 'iron age'. The model of widespread cultural replacement by Bantu-speaking iron producers is questioned and instead the authors propose a long interaction with regional variations. In matters of lithics, ceramics, hunting, gathering, husbandry and cooking, East African people created local and eclectic packages of change between 1500BC and AD500.

Keywords: Africa, Kenya, Late Stone Age, Iron Age, food production, ceramics, pottery, Urewe, Kansyore, hunter-farmer interactions

Introduction

One of the most important developments in African archaeology and cognate disciplines over the last few decades has been the increasing sophistication of the types of model used to document and explain the so-called 'Bantu Expansion'. In the 1960s and 1970s, the spread of Bantu languages, early farming communities and the knowledge of iron working across vast areas of sub-Saharan Africa were generally regarded as having been coterminous, and to have occurred relatively rapidly as a consequence of population growth and migration (e.g. Oliver 1966; Hiernaux 1968; Posnansky 1968). In Eastern Africa, social and economic changes have been traditionally chronicled by means of a range of pottery types: *Kansyore* pottery marks the Later Stone Age (to 3000–2400 BP) while *Nderit* and *Elmenteitan* pottery labels pastoral communities of the fifth to second millennia BP (Table 1). *Urewe* pottery, named after the type of site where it was first documented (Leakey *et al.* 1948), has long been regarded as the main *fossile directeur* of the transition from Later Stone Age (LSA) mobile hunter-gatherer societies to Early Iron Age (EIA) sedentary farmers (Posnansky 1968; Phillipson 1977).

As more data (and ^{14}C dates) have become available and a wider range of possible sources has been taken into consideration, it has become increasingly apparent that the processes

1 *Department of Archaeology, University of York, UK (Email: paul.lane@orange.fr)*
2 *Cotsen Institue of Archaeology, University of California, Los Angeles, USA*
3 *Department of Archaeology, University of Helsinki, Finland*
4 *Institute of Archaeology, University College London, London, UK*
5 *Department of History, Maseno University, Kenya*

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Table 1. Chronology of major ceramic traditions mentioned in the text.

Period	Ceramic	Chronology
Later Stone Age (LSA)	Kansyore	8200 – 2400 BP (Kusimba & Kusimba 2005) 8000 – 3000 BP (Dale *et al.* 2004)
Pastoral Neolithic/Eburran 5	Nderit	4500 – 3000 BP (Gifford-Gonzalez 1998)
Pastoral Neolithic (PN)	Elmenteitan	3300 – 1300 BP (Karega-Mũnene 2002)
Early Iron Age (EIA)	Urewe	2550 – 1000 BP (Clist 1987)

of demographic, linguistic, economic and technological change were vastly more complex than initially presumed (e.g. Vansina 1995; Ehret 2001; Salas *et al*. 2002), and may well have operated independently of one another. This in turn has encouraged scholars to explore alternative models (e.g. Robertson & Bradley 2000; Karega-Mũnene 2002; Lane 2004) and to develop a more regional focus to their enquiries (e.g. MacLean 1994/5; Eggert 2005; Kusimba & Kusimba 2005). As the number of such regional studies has accumulated, knowledge of the distribution and dating of early farming and iron-working sites has certainly improved.

In Eastern Africa, however, with the notable exception of studies of iron-smelting technology and its associated symbolism (e.g. Schmidt 1997), the archaeological manifestations of other aspects of these societies remain poorly understood (Reid 1994/5). Current models concerning the emergence and spread of domestication across the region are also further constrained by the relative lack of plant remains and large faunal assemblages from securely dated contexts (Young & Thompson 1999; Marshall 2000), and a dearth of well-stratified sites spanning the transition from hunting-gathering-fishing to herding and farming (Sutton 1994/5: 267-8).

Here, we report on preliminary results from two recent excavation projects in Nyanza Province, Kenya which shed new light on some of these issues, focusing in particular on the ceramic, lithic and faunal evidence from the multi-component site at **Wadh Lang'o**, excavated by a team from the National Museums of Kenya (NMK) in collaboration with the British Institute in Eastern Africa (BIEA), and subsequently by Ashley, and the lithic, fauna and ceramic data sets from the site of **Usenge 3,** excavated by Lane and Ashley as part of a broader BIEA investigation of the later Holocene landscape archaeology of northern Nyanza Province (see Figure 1).

Wadh Lang'o

The site of Wadh Lang'o (GrJd9) was first encountered in 1999, during an impact assessment of areas under threat from the construction of a dam and hydroelectricity plant on the Sondu River, South Nyanza. The discovery of extensive scatters of ceramic types including 'Later Stone Age' *Kansyore*, 'Pastoral Neolithic' *Elmenteitan*, and 'Early Iron Age' *Urewe*, as well as later materials, over an area of at least 0.6ha, and evidence of *in situ* preservation of deposits prompted further investigation by a joint NMK and BIEA team a few months later. During this phase eight test-pits, mostly 1 × 1m, were excavated at various localities across the site so as to determine the depth of deposits and quality of preservation. This demonstrated the

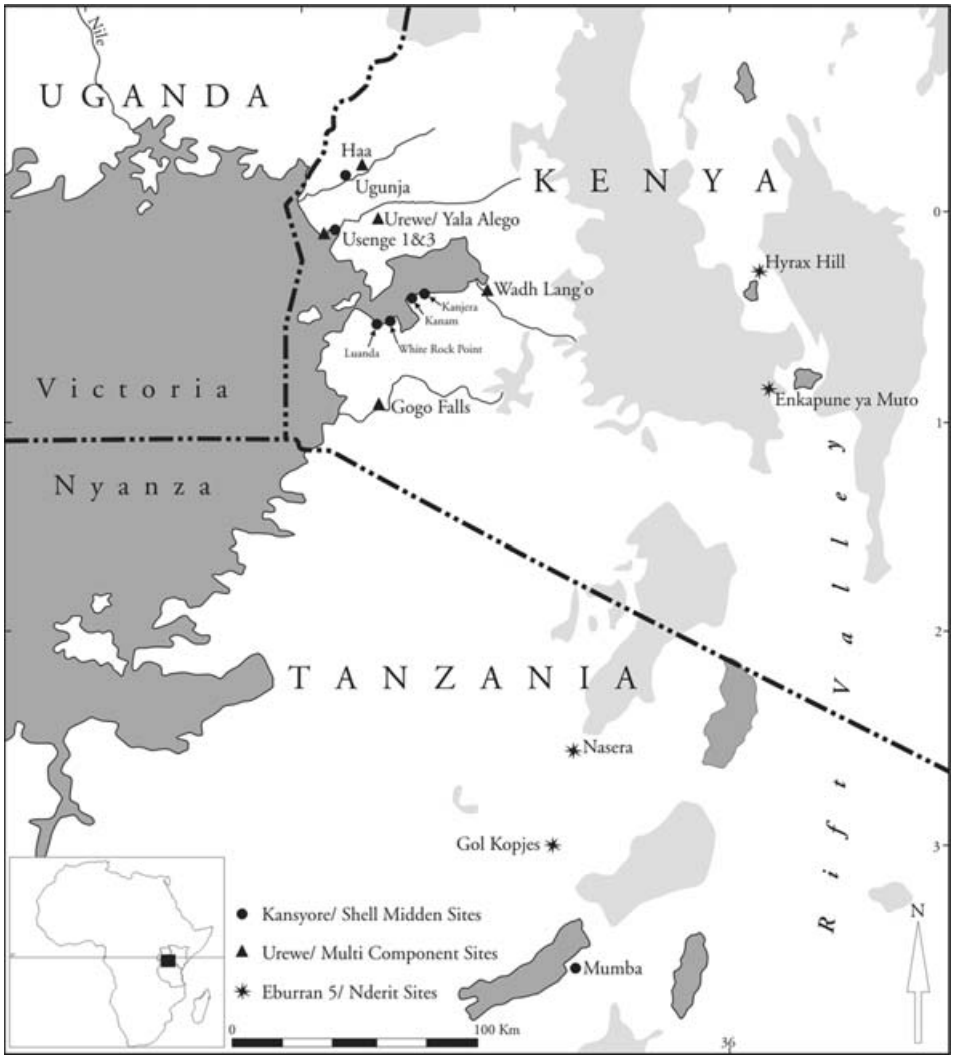

Figure 1. Map showing sites mentioned in the text and selected others.

presence of a well-stratified sequence of deposits extending back at least to the pre-ceramic LSA, with successive layers of Kansyore, Elmenteitan, Urewe, post-Urewe 'Middle Iron Age' (MIA) wares, and historic Luo material, in each case associated with well-preserved faunal assemblages (Onjala *et al*. 1999).

In view of the obvious significance of these deposits for understanding cultural and economic developments in the region during the later Holocene, and the possible threat to the site posed by planned construction of a secondary hydroelectric plant in the vicinity, supplementary funds were provided by NMK and the BIEA for a rescue excavation at the site in June and July 2001. This phase of archaeological work was directed by Frederick Odede and Isaya Onjala from NMK, with the BIEA acting in an advisory capacity. As part of the mitigation work, a 5 × 5m trench was excavated a few metres upslope from Trench 5

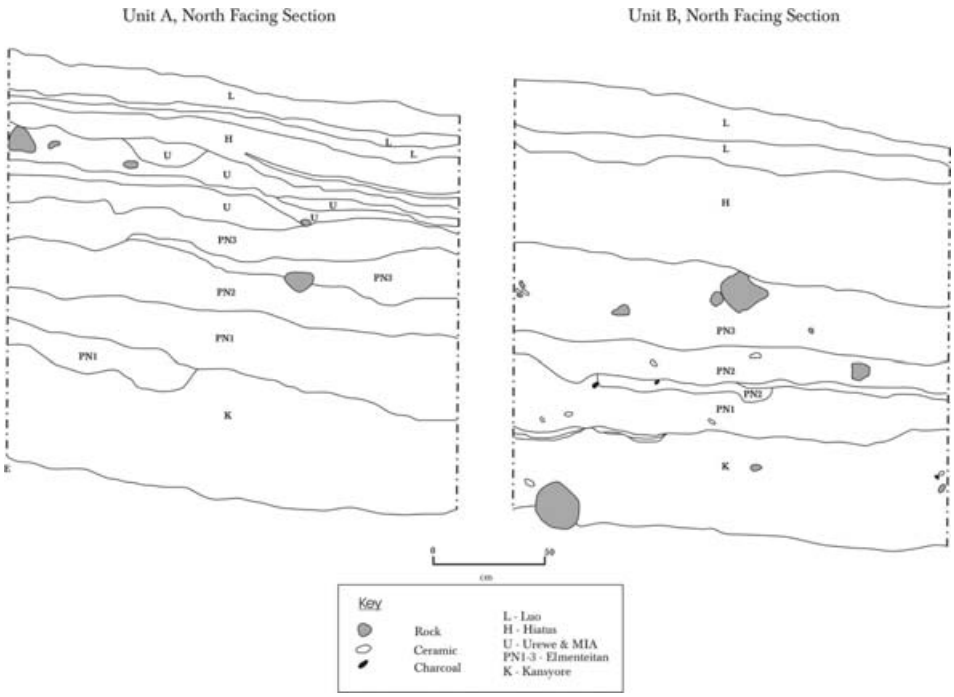

Figure 2. North-facing sections of Units A & B, Wadh Lang'o, showing position of the main cultural horizons in relation to site stratigraphy.

of the 2000 season. The natural subsoil was reached at *c*. 3.2m below ground surface and in all, seven broad horizons were identified spanning the pre-ceramic LSA to historic/modern Luo horizons. Because of the dry, ashy nature of the soil some divisions within these may have been missed during excavation; there was, however, very little evidence for bioturbation or other forms of post-depositional disturbance, especially below 0.4m.

A third and final phase of excavation was carried out at the site in January 2004 by Ceri Ashley, aimed at collecting additional samples for dating and analysis. This entailed the excavation of two 2 × 2m test pits to the south-west and south-east of the main 2001 excavation (Units A and B respectively), which reached to a maximum depth of 1.88m. Broadly corresponding with the occupational sequence identified in previous investigations, five major phases of site activity were recognised; the lowermost deposit ('K') of silty loam was associated with Kansyore ceramics (Figure 2), and contained a piled stone cairn. Overlying this, three major ashy deposits containing a series of isolated lenses of burning suggestive of temporary hearths were defined as PN 1-3, and were principally associated with Elmenteitan ceramics of the Pastoral Neolithic tradition. Above PN3, Unit A revealed a series of mixed ashy/loam deposits associated with Urewe and MIA ceramics ('U'), whilst Unit B showed limited Urewe-related activity, with only a few sherds recovered from the lowermost 5-10cm of 'H', a thick occupational hiatus measuring *c*. 0.5m depth. In Unit A this 'H' deposit was also recognised, albeit thinner, occurring as a sterile layer of rounded gravelly sand. Above 'H', the uppermost layers ('L') are associated with modern Luo activity at the site.

Table 2. AMS Radiocarbon dates from Wadh Lang'o and Usenge 3.

Site	Sample Number	Date BP	Calibrated age range (2 sigma)	Provenance (all wood charcoal samples)
Wadh Lang'o	OxA-14499	1449 ± 28	AD 610-700	Unit A, Urewe/MIA
Wadh Lang'o	OxA-14500	1484 ± 26	AD 590-690	Unit A, Urewe/MIA hearth
Wadh Lang'o	OxA-14501	1741 ± 28	AD 280-440	Unit A, Urewe
Wadh Lang'o	OxA-14502	1698 ± 28	AD 300-470	Unit B, Urewe
Wadh Lang'o	OxA-14503	1746 ± 28	AD 280-400	Unit B, mixed Urewe/Elmenteitan
Wadh Lang'o	OxA-14504	1742 ± 27	AD 280-400	Unit B, mixed Urewe/Elmenteitan
Wadh Lang'o	OxA-14505	1819 ± 28	AD 170-310	Unit B, earliest Elmenteitan
Wadh Lang'o	OxA-14506	1989 ± 28	AD 1-120	Unit A, Kansyore
Usenge 3	Beta-186498	170 ± 40	AD1950-1890 AD1910-1950	Luo deposits
Usenge 3	Beta-190746	1560 ± 40	AD 410-600	Urewe ceramic midden
Usenge 3	Beta-190747	3310 ± 40	1690-1500 BC	Kansyore shell midden
Usenge 3	Beta-186499	3240 ± 70	1680-1390 BC	Kansyore shell midden

Unlike the only other comparable multi-component site in the region, Gogo Falls, where issues of stratigraphic integrity and bioturbation have impeded discussion (Robertshaw 1991; Karega-Mũnene 2002), the stratigraphic sequence at Wadh Lang'o is intact, and the lower deposits of interest here are also sealed from modern activity by the undisturbed occupational hiatus ('H'). As a result, this site represents a key interpretive resource, and an initial programme of dating was undertaken by the Oxford Radiocarbon Dating Service (Table 2). Perhaps surprisingly, considering the potential temporal span of such a multi-component site (cf. the dated sequence at Gogo Falls, which minimally spanned 1600 years and conceivably may have extended, with hiatuses, over six millennia), occupation of Wadh Lang'o appears to be restricted to *c*. 700 years (excluding the modern/historic Luo phases). This circumstance is significant as it suggests a settlement sequence that is temporally inter-connected, despite the discrete changes in strata and ceramics observed. Indeed as Table 2 shows there is significant overlap at the 2-sigma range between the dates associated with Elmenteitan- and Urewe-bearing deposits. Furthermore, while there is no direct overlap between the Kansyore-related date (OxA-14506) and the earliest Elmenteitan related date (OxA-14505), the interval between them is insubstantial, and the single available date from the 'K' deposits was sourced deep within the context rather than at its terminal boundary. This notion of inter-connection and relationship between the different stratigraphic/occupational phases is also substantiated by associated evidence from ceramics, lithics and faunal remains, as discussed below.

Faunal and artefactual evidence from Wadh Lang'o

The assemblages from Wadh Lang'o, as at Usenge 3, were subject to a high level of recovery: all deposits were dry sieved through 5mm mesh sieves, and 5-25lt bulk samples taken for flotation and wet sieving for each context and/or excavation spit. Ceramic evidence, although demonstrating the presence of typologically discrete traditions, when collated

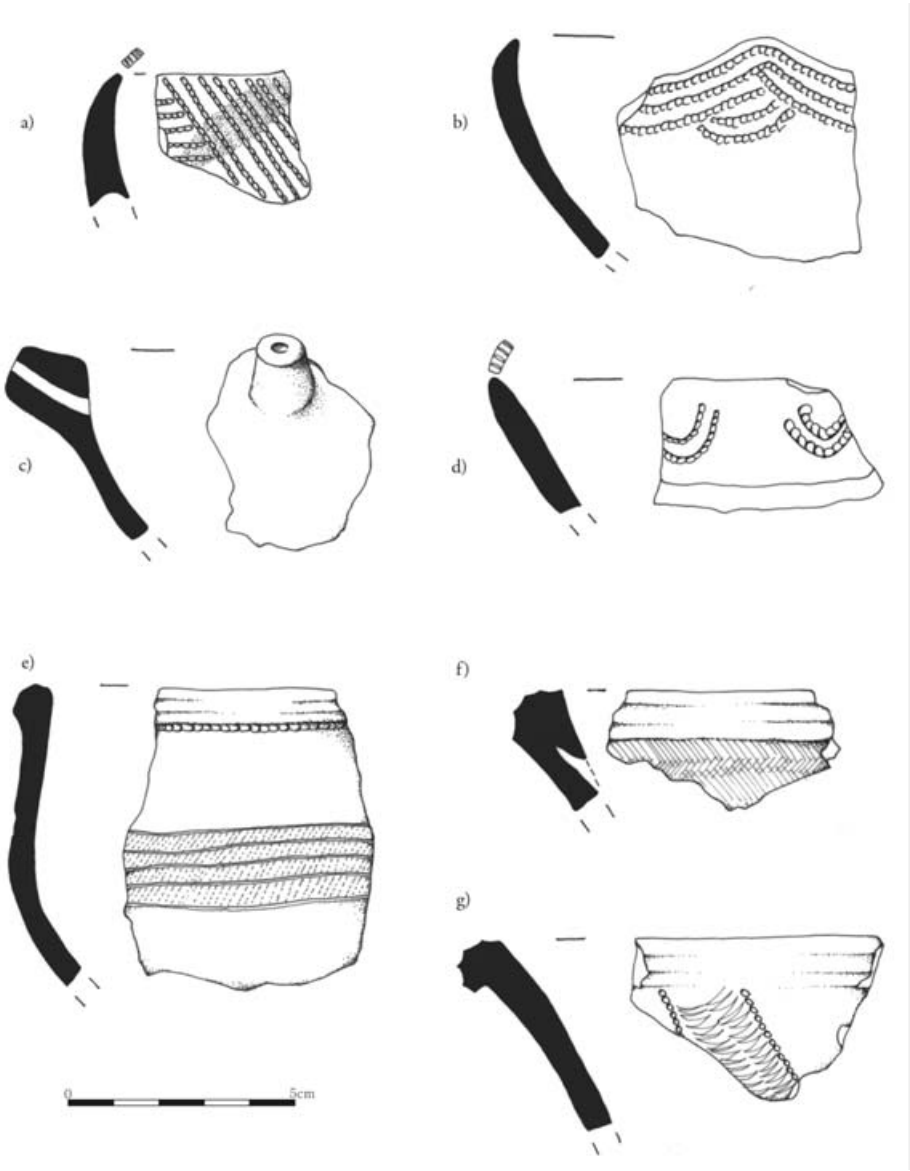

Figure 3. Ceramics from Wadh Lang'o (units A & B): a-b Kansyore ceramic, c-d Elmenteitan ceramic, e-g Urewe ceramic.

with stratigraphic evidence demonstrates that discrete ceramic styles were present/in use contemporaneously at certain key periods of site occupation (Ashley 2005). This is particularly notable in the interface of Elmenteitan and Urewe ceramics in Unit B during the terminal phase of PN3 (AD 280-400). Here the quite distinct ceramic traditions (Figure 3) are found in co-existence for a short period, and are indeed found in some instances to be using similar raw material sources in their clay.

Table 3. Lithic raw material use at Wadh Lang'o and Usenge 3.

Site & Phase	Obsidian	Chert	Quartz	Quartzite	Other	Σ
Wadh Lang'o – U	857	19	16	3	16	911
	94 %	2 %	2 %	<1 %	2 %	
Wadh Lang'o – PN	4884	102	55	14	50	5105
	96 %	2 %	1 %	<1 %	1 %	
Wadh Lang'o – K	192	652	1904	204	568	3520
	5 %	19 %	54 %	6 %	16 %	
Usenge 3	–	33	661	11	97	802
	–	4 %	82 %	1 %	12 %	
Σ	5933	806	2636	232	731	10338

Table 4. Composition of the Wadh Lang'o and Usenge 3 lithic assemblages.

Site & Phase	Microliths	Scrapers	Large utilised blades	Other retouched pieces	Cores (*outils écaillés* in parentheses)	Utilised pieces & debitage	Σ
Wadh Lang'o – U	82	9	6	50	24 (23)	740	911
	9 %	1 %	1 %	5 %	3 %	81 %	
Wadh Lang'o – PN	347	61	29	78	203 (149)	4387	5105
	7 %	1 %	1 %	2 %	4 %	86 %	
Wadh Lang'o – K	93	67	4	54	194 (120)	3108	3520
	3 %	2 %	<1 %	2 %	6 %	88 %	
Usenge 3	3	2	–	5	15 (7)	777	802
	<1 %	<1%	–	1 %	2 %	97 %	
Σ	525	139	39	187	436	9012	10338

Similarly, the Urewe and the so-called MIA ceramics were found in direct association in Unit A in 'U' deposits. Previously, Robertshaw (1991) had tentatively suggested that MIA ceramics might represent a devolution of Urewe (the transition from the EIA to the MIA, hence the name), thereby reflecting later occupation of the broader region. Evidence from Wadh Lang'o, only the second site containing MIA ceramics to be reported, suggests that this was not the case, and that instead there was coeval use of both ceramic traditions, well within the accepted time-frame for Urewe-using societies (OxA-14499, OxA-14500) and that MIA ceramics cannot therefore be a later chronological degeneration.

Analysis by Oula Seitsonen of lithics recovered in the 2001 and 2004 seasons (Seitsonen 2004; in prep.), supports these arguments for levels of continuity and inter-connection between different phases of site use, set against contrasting evidence for change. For instance, lithics from contexts analogous to the 'K' deposits show a reliance on quartz with some limited use of chert, quartzite, obsidian, basalt and other igneous rocks (Table 3). These raw materials were used to fashion a microlithic technology reminiscent of the 'non-descript' microlithic collections recorded in association with Kansyore ceramics elsewhere around Victoria Nyanza (Table 4). However, these Kansyore lithic assemblages are not as undefined as has been suggested previously, and the technology actually exhibits a degree

of standardisation (Seitsonen in prep.). At Wadh Lang'o, a combination of bipolar and platform reduction, that was partly based on formal microblade production (blade to flake ratio of 1:6), was used. Attention was also paid to the differing flaking characteristics of the raw materials, the rock-crystal-like quartz with few or no internal cracks, chert and obsidian being selected preferentially for tool and microblade production.

As shown in Table 3, large utilised blades and *outils écaillés* (in this case bipolar cores; no tool-like *outils écaillés* were observed in the assemblage) are present in the 'PN' deposits, although microliths still dominate. Also, based on assessments of obsidian colour (cf. Robertshaw 1991: 94), obsidian appears to have been mainly derived during the 'PN' from the same Central Kenyan Rift Valley sources as were utilised during the Kansyore phases. At the very least, this points to recurring connections between the two areas, perhaps in the form of social exchange networks, which could have also been the source of other cultural influences. Nevertheless, a significant shift does occur with the transition to the 'PN' layers, in that non-local obsidian comes to dominate the raw material used (Table 3). Due to their different flaking characteristics, quartz and obsidian require a completely different set of motor skills (and by implication mental template) from the stoneworker and, as might be expected, blade technology was more extensively used with obsidian than in the quartz-based Kansyore assemblage (blade to flake ratio of nearly 1:3). As in the 'K' levels, both platform and bipolar reduction were used, although there was higher reliance on the bipolar technology in the later phases of the reduction sequence than in the preceding 'K' layers. This most probably mirrors attempts to preserve the exotic obsidian raw material.

The changes in formal tool type frequencies, artefact production and tool repair may also suggest a shift towards more curated technology in 'PN' layers. This might mirror a shift to a more sedentary settlement pattern, perhaps closer to the collector end of the forager-collector continuum (*sensu* Binford 1979). However, even the 'K' deposits exhibit signs of collector-like behaviour, so this development might simply be a difference in emphases (Seitsonen in prep.; see also Dale *et al.* 2004 for discussion of Kansyore-using communities as delayed-return hunter-gatherers). These patterns of raw material exploitation and lithic technology are largely replicated in the 'U' layers (Table 4). This again suggests high levels of technological continuity from 'PN' to 'U' layers, as well as an intriguing reliance on lithic tools into the putative 'Iron Age', albeit with a possible shift towards less curated technology.

Faunal analysis of the collections from Ashley's excavations (and test-pits 2, 4 and 5 excavated in 2000) conducted by Paul Harvey (2005), also revealed interesting signs of economic and subsistence continuity between different stratigraphic/occupational phases (although it needs to be noted that the total number of identifiable specimens from each horizon is low, as is the overall faunal sample from the Kansyore levels). Kansyore-associated fauna show a wide range of wild taxa being exploited, including larger bovids such as eland and buffalo (Table 5). However, 46 per cent of the sample (based on NISP) was found to represent domesticated ovicaprines, with virtually all body parts except the radius being represented. The age profile (although rather speculative as it is based on assessment of the fusion ages of bones owing to the small sample of teeth recovered for sheep and goat), suggests a 15 per cent drop in individuals over two years of age and a progressive drop thereafter, broadly consistent with a management strategy aimed at increasing herd size while

Table 5. Taxonomic quantification of the Wadh Lang'o mammal, bird and fish fauna by NISP & MNI.

Phase:	*Kansyore*		*Elmenteitan*		*Urewe*	
Taxon	**NISP**	**MNI**	**NISP**	**MNI**	**NISP**	**MNI**
Baboon *Papio sp.*	3	1	19	2		
Bohors Reedbuck *Redunca redunca*	3	1	11	2	3	1
Buffalo *Syncerus caffer*	3	1	7	1	8	1
Canine *Canis sp.*	1	1	1	1		
Cattle *Bos sp.*			14	2	1	1
Dik Dik *Madoqua sp.*					2	1
Duiker *Cephalophinae*	2	2	9	2	1	1
Eagle Owl *Bubo sp.*			1	1		
Eland *Taurotragus oryx*	6	1				
Hartebeest *Alcelaphus buselaphus*	1	1	2	1		
Hyena *Crocuta crocuta*			1	1		
Impala *Aepyceros melampus*	3	3	58	3	7	2
Klipspringer *Oreotragus oreotragus*			1	1		
Oribi *Ourebia ourebi*			4	2		
Ovicaprine	41	3	494	18	124	5
Steenbok *Raphicerus campestris*			2	1		
Thompson's Gazelle *Gazella thomsoni*	12	3	35	3	10	2
Warthog *Phacochoerus africanus*	1	1			1	1
Total	**76**	**18**	**659**	**41**	**157**	**15**
Cyprinidae	32	3	1377	28	7	2
Bagridae	4	1	15	1		
Cichlidae	4	3	765	8		
Claridae	8	1	169	5		
Citharinidae			4	1		
Protopterus aeathiopicus			20	3		
Total	**48**	**8**	**2350**	**46**	**7**	**2**
No. unidentified, all levels = 1550						

still utilising the flock for meat (Harvey 2005: 43). This mixed wild/domesticate profile is particularly notable as previous research has tended to emphasise the role of wild or aquatic resources in this nominal hunter-gatherer community (see Sutton 1994/5). The exception is Karega-Mũnene (2002), who has argued for a significant domesticate (ovicaprines) presence among Kansyore-using communities at Gogo Falls. However, issues of stratigraphic integrity prompted the original excavator to urge caution over this association (Robertshaw 1991). The present evidence from Wadh Lang'o of securely provenanced domesticates associated with Kansyore ceramics therefore seems to substantiate Karega-Mũnene's earlier assertions.

Fauna associated with the Elmenteitan ceramic levels show a significant decrease in the quantity of wild animal exploitation (22 per cent) and also the appearance of *Bos sp*. for the first time (although ovicaprines continued to be exploited). Nevertheless, the pattern of body part representation (BPR) and age profile for sheep and goat remain similar to those for the Kansyore levels, suggesting some level of herd management continuity. Similarly, 'U'

Table 6. Notable characteristics of the Wadh Lang'o faunal assemblage.

Variable	*Kansyore*	*Elmenteitan*	*Urewe*
Wild:Domestic %	54:46	22:78	21:79
Mammals:Fish %	23:77	24:76	62:38
Cut marks: General	4% of total, light shallow cut marks	6% of total; predominantly shallow slice marks	5% of total, typically deep & numerous – possibly indicative of use of iron tools
Cut marks: on wild fauna	Common, on limb bones & consistent with disarticulation	Present, mostly restricted to phalanges, consistent with skinning	Present on 60% of buffalo; only on vertebrae, possibly associated with removal of skull
Cut marks: on domestic fauna	None	>5% of all sheep/goat; mostly slices on long bones consistent with disarticulation	9% of all sheep/goat; mostly slices on long bones consistent with disarticulation
Burning	14% of total, only limb bones (irrespective of whether wild or domestic)	7% of total, all elements (irrespective of whether wild or domestic)	2% of total, all elements, but only domestic animals

deposits show an almost analogous distribution and range of wild/domesticated fauna to those of 'PN' (21:79 per cent), reiterating the earlier notion of close compatibility between the Elmenteitan- and Urewe-using communities.

There are, however, some faunal differences between strata, which indicate shifting patterns of animal exploitation and consumption; for example there is a change between Kansyore and Elmenteitan levels in the ways in which wild and domestic fauna were butchered and possibly cooked (Table 6). The fish remains from different levels also hint at changes over time. The Kansyore levels are dominated by cichlids (>70 per cent), with Cyprinidae comprising 22 per cent of the total; this pattern is reversed in the PN levels, with Cyprinidae rising to 59 per cent and cichlids dropping to 33 per cent. While this may represent evidence for a change in fishing strategies or perhaps species selection, more precise species identification is required than was achievable in the time available and the reference collections to hand during this stage of the analysis. Perhaps of more significance is that while the ratio of fish to mammal is roughly the same for the Kansyore and PN levels, there is a much higher proportion of mammal bones to fish in the Urewe levels, which may be indicative of dietary change.

Usenge 3

The Usenge 3 (GqJa 3) site was first located during archaeological survey in North Nyanza District in November 2000 below a low bluff, which probably represents a former shoreline (cf. Temple 1964), on the north-western side of Lake Saru (Figure 4). During this survey at least eight shell-midden sites with Kansyore and later deposits were located along this bluff,

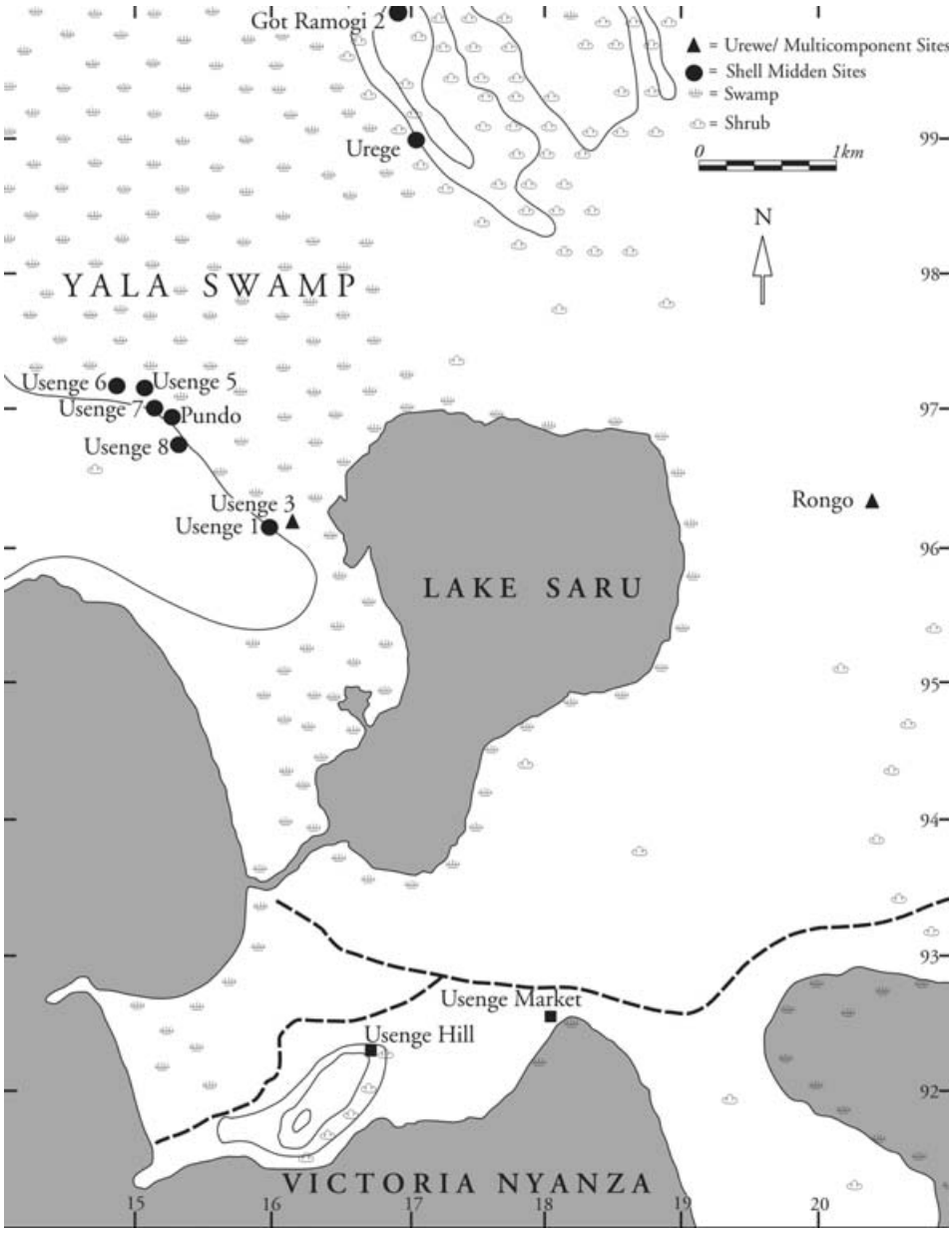

Figure 4. Map showing Lake Saru area sites.

the nearest of which (Usenge 1, GqJa 1) is about 120m away to the west (Lane *et al*. 2006). Usenge 3 is currently subject to hoe cultivation, and two of the test-pits excavated (B & C) showed signs of modern disturbance (including a child burial). Nevertheless, a third 5 × 3m unit (Trench A) revealed intact deposits, apparently protected from modern interference by a nearby hedge. Like Usenge 1, Usenge 3 showed an early use of Kansyore ceramics in association with a dense build up of shellfish debris (Figure 5). Above this horizon, Urewe

Figure 5. Midden deposit, Kansyore levels, Usenge 3.

ceramics were encountered in a rare state of horizontal preservation including a moulded clay stand for holding a large pot and a series of ceramic scatters, the most impressive of which probably represents a discrete rubbish midden. The uppermost occupational horizon revealed a series of pits and hollows and was clearly linked to recent Luo activity at the site, with roulette-decorated ceramics dominating the material culture assemblage from these contexts. Based on the available AMS radiocarbon dates (Table 2), the dated sequence recovered concurs with the extant chronology for the wider region, but also shows significant hiatuses of occupation between the different horizons.

Faunal and artefactual evidence from Usenge 3

Kansyore ceramics from Usenge 3 fall within the typical typological definition, being dominated by simple wide-mouthed bowls with tapered lips and extensive stab-drag/impressed covering patterns. Associated lithics also conform to the known definition, being primarily of quartz with low quantities of formal microlithic tools. Analysis of the faunal evidence by Sada Mire indicates that, in contrast to Wadh Lang'o, subsistence strategies at Usenge 3 during the Kansyore phase were almost exclusively based on hunting, gathering and fishing. Exploitation of aquatic resources is abundantly displayed in the concentrated shell matrix and high quantities of fish bones, as well as wild mammals such as hippo and sitatunga, and different reptiles (Table 7). Of the six identifiable fish taxa, cichlids and *Protopteorus aethiopicus* (African lung-fish) are the most common, with each making up roughly 27 per cent of the identifiable elements. A few domesticates (<1 per cent of the total) are also present, and as with the Kansyore levels at Wadh Lang'o these are limited

Table 7. Taxonomic quantification of fauna from Kansyore and Urewe levels, Usenge 3 (NB many bones, and especially fish bones from the Kansyore levels were heavily concreted, hence the overall weights of different parts of the assemblage should be treated with caution).

Phase	*Kansyore*		*Urewe*	
Taxon	**NISP**	**MNI**	**NISP**	**MNI**
Wild Mammals				
Antelope	1	1		
Bovid small	11	5	7	3
Bovid large	2	2		
Canine *Canis sp.*	2	1		
Buffalo *Syncerus caffer*			2	2
Bushbuck *Tragelaphus scriptus*	1	1	1	1
Common Duiker *Sylvicapra grimmia*			1	1
Duiker *Cephalophinae*	1	1		
Gazelle *Gazella sp.*	5	3		
Giraffe *Giraffa camelopardalis*	1	1	1	1
Hippo *Hippopotamus amphibius*	1	1	3	2
Herpestine Mongoose *Herpestidae* family	1	1		
Mongoose – generic *Herpestidae* family			1	1
Pig *Sus scrofa*	1	1		
Sitatunga *Tragelaphus spekeii*	13	1	2	1
Thomson's Gazelle *Gazella thomsoni*	2	2		
Warthog *Phacochoerus africanus*	1	1	1	1
Domestic Mammals				
Cattle *Bos sp.*			2	2
Ovicaprines	2	1	5	2
Primates				
Generic, non-human primate	3	2		
Baboon *Papio sp.*	3	1		
Black & white colobus *Colobus sp.*	8	1		
Vervet Monkey *Chlorocebus pygerythrus*	9	1		
Human *Homo sapiens sapiens*	1	1		
Birds				
Bird – generic	4	3	3	1
African darter *Anhinga rufa*	1	1		
Eagle/Hawks	1	1		
Kori bustard *Ardeotis kori*	6	1		
Laughing dove *Streptopelia senegalensis*	1	1		
Rodents				
Rodent - generic	3	2	5	2
Giant Elephant Shrew *Rhynchocyon chrysopygus*	1	1		
Reptiles/Amphibians				
Snake - generic			1	1
Mamba (snake) *Dendroaspis sp.*	2	2		
Nile Monitor Lizard *Varanus niloticus*	2	2	1	1
Marsh Terrapin *Pelomedusa subrufa*	4	2		
Turtle			2	1
Total identified mammal/bird/reptile	95	46	37	22
Unidentified mammal	**No.** 379	**Wt.** 1400g	**No.** 681	**Wt.** 1031g
Identified fish species	**No.** 880	**Wt.** 75g	**No.** 373	**Wt.** 20g
Unidentified fish	**No.** 3992		**No.** 1796	

Table 8. Notable Characteristics of the Usenge 3 Faunal Assemblage.

	Kansyore	*Urewe*
Wild:Domestic %*	99:>1	81:19
Mammals:Fish %	17:83	16:84
Cut marks: general	Undiagnostic cut on one long-bone	>3%, on unidentifiable and 4 cranial elements
Cut marks on wild fauna	No observation	>1%, particularly on Buffalo
Cut marks on domestic fauna	None as only domestic fauna recovered were sheep/goat teeth	One sheep/goat bone
Burning	Difficult to say due to colour modification and heavy concretion	Similar observations as Kansyore

* Excluding birds, humans and rodents.

to ovicaprines (Mire n.d.). However, as the ^{14}C dates show, this is an earlier instance of domesticate exploitation within a nominal hunter-gatherer society, being *c*. 1000-1500 years older than those examples dated at Wadh Lang'o.

The second occupational phase in the mid-first millennium AD closely correlates with known dates for Urewe-related activity in western Kenya, with the nearby type site of Urewe/Yala Alego also dated to the fifth century AD (Soper 1969). Fauna from this horizon shows a modest shift in the mixture of wild/domesticated (ratio of 81:19 per cent) exploitation (Table 8), and the first presence of *Bos sp*. suggesting an extension of the domesticate portfolio. Nevertheless, alongside this apparent expansion into larger animal husbandry it is still notable that large wild ungulates continue to be exploited in tandem, with remains of water buffalo recovered within the pottery scatters found at this level. Similarly, a large range of small wild mammals and fish were also found and, overall, hunting and fishing may well have remained the basis of the subsistence economy. Moreover, following arguments in Marshall & Stewart (1994), the faunal assemblage suggests that these were specialist and accomplished hunters rather than opportunistic kills made by individuals primarily engaged in a domestic economy. For example, Marshall & Stewart (1994: 14-15) argue that the danger involved in hunting buffalo is such that only experienced hunters would attempt it. Equally, the range of small mammals and fish argues for an exploitation and understanding of the whole spectrum of wild resources. Hence, while there appears to be an expanding domesticate sector (which suggests economic change), the exploitation of wild resources remained an integral element of the subsistence calendar, albeit with possible changing strategies from the preceding horizon. For instance, among the identifiable fish remains from the Urewe levels, Claridae make up 40 per cent of the identifiable elements, while both cichlids and *Protopterus aethiopicus* decline slightly to 25 per cent and 24 per cent, respectively.

The lithic evidence shows even greater levels of continuity between the technologies found in association with both Kansyore and Urewe ceramics, once again reinforcing the notion of long-term continuity. There are no significant differences in the assemblages connected to different stratigraphic contexts (Seitsonen in prep.), a point which is reminiscent of observations made at Nsongezi rockshelter (Nelson & Posnansky 1970) and Ugunja (Mosley

& Davison 1992: 132-4). The lithic technology used is also largely analogous with that recorded for the Wadh Lang'o 'K' layers and at other Kansyore sites in the area. Throughout the sequence lithics are characterised by a relatively expedient, quartz-based technology. Also, while chert, quartzite and igneous rocks were used, no obsidian was found (Table 3). This might be connected to the greater age of Usenge 3 compared with the dated Kansyore levels at Wadh Lang'o, especially since the as-yet-undated lowest excavation spits of the 2001 trench at Wadh Lang'o were also totally devoid of obsidian. As with Wadh Lang'o, the lithic technology at Usenge 3 seems more standardised than has been described previously for other quartz-based Kansyore assemblages (Robertshaw *et al.* 1983: 34). Both platform and bipolar reduction were used and a clear microblade element is present, although in a smaller proportion than at Wadh Lang'o (blade to flake ratio is 1:8). Only a few formal retouched tools were encountered, microliths being most common (Table 4).

The high reliance on local raw materials, as well as some characteristics of tool production and curation suggest that the inhabitants of Usenge 3 were possibly logistically more mobile on a local level, stayed at the site for shorter periods than was the case at Wadh Lang'o, and possibly lacked some of the contact networks available to the inhabitants of Wadh Lang'o (Seitsonen in prep.). The observed differences in the lithic data from the two sites might be connected to varying topographical, chronological, cultural and/or functional differences between them. However, these inferences remain tentative, and more studies of the Kansyore and later lithic assemblages are needed to support them.

Whilst economic and technological evidence points to significant levels of continuity across the horizons, ceramic evidence seems superficially to show a more obvious disjunction, with the first appearance of Urewe ceramics. This ceramic, which is the hallmark of the supposed EIA package right across the Great Lakes region, is characterised by well-made and crafted vessels exhibiting a range of distinguishing features including dimpled bases, bevelled rims and an extensive and complex decorative palette of incised patterns. Within the Usenge 3 assemblage eight of the possible 262 reconstructable vessels perfectly conform to this model (see Figure 6a-c); however, the majority are distinct in many respects and require separate attention.

This differentiation is particularly notable because it does not represent an entirely new ceramic tradition to Urewe; rather the ceramics superficially resemble Urewe in many of the typological features (e.g. forms, faceted rims), but yet are sufficiently dissimilar in the details of technological production and morphology to be considered distinct. Most striking are the differences in the fabric of the Usenge 3 vessels and their relative lack of decoration. In contrast to the typical fabric matrix of Urewe vessels, which is generally fairly well sorted with only isolated inclusions, the ceramics from Usenge 3 are coarse and heavily tempered by large and irregular quartzite inclusions. This high incidence of tempering has weakened the clay matrix and results in a fractured and friable vessel body, liable to fissure along the lines of protruding inclusions (see Figure 6d-e). These irregularities create an uneven surface that is not suitable for the detailed decoration typically associated with Urewe ceramics, and it is notable that in the Usenge 3 collection less than 3 per cent of the sherds are decorated. This is in contrast to figure ranges of 66-85 per cent found in more typical Urewe assemblages from right across the Great Lakes region (Van Grunderbeek 1988; Ashley 2005).

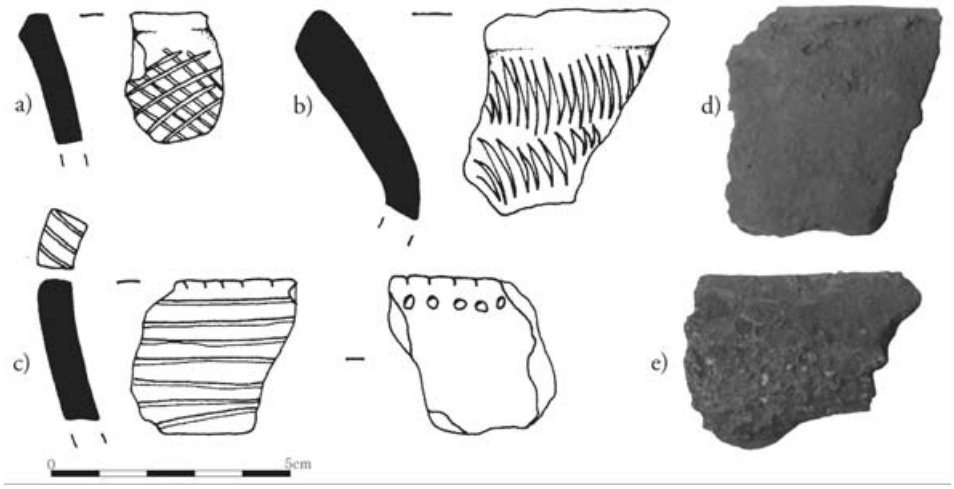

Figure 6. Ceramics from Usenge 3: a-c Urewe ceramic, d-e Contact Urewe.

These distinctions are intriguing and cannot be linked to any known intra-Urewe variations such as Posnansky's Devolved Urewe (Posnansky 1973; Posnansky *et al.* 2005) or later variants recently recognised from research in Buganda (Reid 2002; Ashley 2005). These examples all retain a higher level of morphological and technological similarity to the typical Urewe ware, and are also believed to represent chronological devolutions, which cannot be the case at Usenge 3 where the ceramics are dated well within the accepted Urewe-using time-frame. Instead it is suggested that the ceramics encountered at Usenge 3 represent a unique and highly localised phenomenon, which is restricted to the immediate lake basin environment, and is defined by the pre-existing socio-cultural and economic system. Reconstructing the *chaîne opératoire* of Usenge ceramic production, it is clear that the high levels of investment and habitual skills (pyrotechnical, aesthetic, motor) evident from the typical finely made Urewe ceramic are missing at Usenge, and that a simplified version of the ware is selected instead. This suggests that the community behind the Usenge ceramics did not have a long-term familiarity with the process of Urewe ceramic production, and/or did not have the social structure or desire to invest in such semi-specialist craft production. Combined with the lithic and faunal evidence that attest to deeply rooted continuity over the period of site use, it is suggested that these hybrid ceramics are the product of the existing hunter-gathering community who were slowly and intermittently appropriating and adapting the trappings of the farming lifestyle, including its material cultures, resulting in a creolised ceramic unique to the region.

Discussion

The evidence outlined above represents a significant empirical contribution to the understanding of the late Holocene archaeology of a relatively poorly known area. In contrast to many other sites in the wider region which have suffered from deflation and bioturbation, Usenge 3 and Wadh Lang'o provide excellent stratigraphic integrity, ensuring chronological, artefactual and faunal detail that afford interpretive depth and security. The

work presented here is, of course, partial, and further research will no doubt add clarity to some of the debates; for instance, archaeobotanical investigation could potentially respond to the recent suggestion, based on phytolith data, that Kansyore ceramic users may have been progenitor banana cultivators as early as the fourth millennium BC (Lejju *et al.* 2006).

Nevertheless, despite the incomplete picture, even at this preliminary stage there is ample evidence that the transition to farming was a complex, fluctuating and perhaps incomplete, process. For instance, and in support of Karega-Mũnene's earlier assertions with reference to Gogo Falls, the quality of stratigraphic preservation at Wadh Lang'o conclusively proves the presence of domesticates (in fairly significant proportions) within the economy of the ostensible hunting-gathering-fishing community using Kansyore pottery. With the available dates it may be that this adaptation at Wadh Lang'o represents a very late transition in the history of Kansyore-using communities. Nevertheless, even if this is a terminal transformation, it still warrants a re-adjustment in existing explanations of the transitions to animal husbandry and domestication, demonstrating that the process may have been gradual and localised rather than the dramatic result of a 'Pastoral Neolithic' revolution.

Equally pertinent to this kind of debate is the evidence from Usenge 3, which points unequivocally to domesticated ovicaprines in association with Kansyore ceramics *c*. 1000-1500 years before the first dated occurrence of Urewe ceramics in northern Nyanza, and only slightly later than the reported first occurrence of ovicaprines at Gogo Falls (see Karega-Mũnene 2002: 101). Given the evident continuity in lithic technology and raw material selection at Usenge 3, and the associated ceramic evidence for the development of a distinctive ceramic repertoire, termed here 'Contact Urewe', the sequence at Usenge 3 may well represent an instance of 'neolithization' by an entirely autochthonous community of hunter-gatherer-fishers, as also tentatively postulated for the nearby site of Ugunja (Mosley & Davison 1992: 134). Certainly, the analysed data from both sites undermine the still prevalent notion that the process of domestication around Victoria Nyanza formed part of a broader 'package' that simultaneously entailed the adoption of iron metallurgy and the spread of Bantu languages.

Similarly, preconceptions of the shift from Elmenteitan-using communities of the Pastoral Neolithic to the assumed impact of migrating Urewe-using agriculturalists need to be re-assessed, as the evidence from ^{14}C dates, ceramics and lithics at Wadh Lang'o all argues for significant and substantial overlap and continuity between the otherwise discrete stratigraphic phases. Thus the transition from 'Stone Age' to 'Iron Age' was a rather fluid process. In this regard, it should also be noted that similar observations can be made with reference to the southerly expansion of early herding communities along the Eastern Rift between *c*. 4500-3000 BP, as evidenced by the variable associations between Nderit pottery, Eburran Phase 5 LSA lithics and wild and domestic fauna found on different Savanna Pastoral Neolithic sites (e.g. Gifford-Gonzalez 1998: 128-9; see Table 1).

The ceramic evidence is also illustrative, showing that during Kansyore- and Elmenteitan-using periods at Wadh Lang'o and the Kansyore levels at Usenge 3 a limited range of vessel forms was in use, generally restricted to moderately sized bowls with large open mouths, suitable for a range of functions, but not specifically orientated towards a single role. The exception to this is the rare addition of a spout to the Elmenteitan vessels, an addition which is clearly designed for liquids, and was possibly a response to the growing pastoral element

and the importance of milk. Urewe/Contact Urewe ceramics on the other hand have a much wider range of forms and sizes, with similar multi-purpose hemispherical bowls, but also open plates/dishes, narrow-mouthed bowls and globular jars, each of which is restricted in function by its shape (e.g. plates are not suitable for storage). The combined evidence therefore seems to indicate a declining role for roasted foodstuffs in the Urewe-using period, and a growing sophistication of pot-based food production and consumption. As MacLean (1998) has argued, this broadening of ceramic repertoires is a characteristic of Urewe sites throughout the Great Lakes region, and may well signal wider sociological changes associated with the reconfiguration of gender relations.

On the basis of the evidence from Usenge and Wadh Lang'o, we would also argue that unlike traditional explanations of the transition to farming in this region which identified change as profound and over-arching, change and transformation are instead to be recognised in more nuanced differences, as deeply embedded cultural processes such as cooking and ceramic production adapt and transform according to circumstance and against the context of perhaps several 'moving frontiers' of domestication (cf. Gifford-Gonzalez 1998; Lane 2004). After all, 'domestication' is surely as much something in the mind as it is a practical processes, and the evidence archaeologists find may need to be interpreted in symbolic and structural terms as well as with reference to more conventional chronological and functional criteria.

Conclusions

In the light of these points, we suggest that just as wider discourse is recognising that the Bantu expansion model is not universally homogenous and replicating, the question of change and social transition must be re-focused to look at local conditions, collapsing the scale of analysis from the generic to the specific. Thus, it is clear that typological change in ceramics does not automatically herald a socio-cultural shift, as is implicit in its widespread use as a *fossile directeur*, and that ceramic boundaries may not be binding. Instead, the process of change needs to be examined more carefully and subtly, using the available resources to develop a more nuanced perspective that does not make *a priori* behavioural assumptions about the material culture patterning.

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Note:

With respect to the Wadh Lang'o site note that, to date, only the ceramic and faunal assemblages from Ashley's excavations, some of the 2000 test-pit fauna, and the entire lithic assemblage have been the subject of detailed study (Ashley 2005; Harvey 2005; Seitsonen 2004, in prep.). Work is still ongoing on the ceramics and fauna from the 1999-2001 excavations by, respectively, Frederick Odede (Maseno University) and Mary Prendergast (Harvard University) as part of their PhD studies. The AMS dating of additional charcoal samples and analysis of the plant remains recovered by flotation are also planned. The interpretation of the remains from the Wadh Lang'o site must therefore be regarded as provisional.

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