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3

Kenyan Stone Age: the Louis Leakey Collection

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3.1 Introduction

Louis Seymour Bazett Leakey is considered to be the founding father of palaeoanthropology, and his donation of some 6,747 artefacts from several Kenyan sites to the Pitt Rivers Museum (PRM) make his one of the largest collections in the Museum. Leakey was passionate about human evolution and Africa, and was able to prove that the deep roots of human ancestry lay in his native east Africa. At Olduvai Gorge, Tanzania he excavated an extraordinary sequence of Pleistocene human evolution, discovering several hominin species and naming the earliest known human culture: the Oldowan. At Olorgesailie, Kenya, he excavated an Acheulean site that is still influential in our understanding of Lower Pleistocene human behaviour. On Rusinga Island in Lake Victoria, Kenya he found the Miocene ape ancestor *Proconsul*. He obtained funding to establish three of the most influential primatologists in their field, dubbed Leakey's 'ape women'; Jane Goodall, Dian Fossey and Birute Galdikas, who pioneered the study of chimpanzee, gorilla and orangutan behaviour respectively. His second wife Mary Leakey, whom he first hired as an artefact illustrator, went on to be a great researcher in her own right, surpassing Louis' work with her own excavations at Olduvai Gorge. Mary and Louis' son Richard followed his parents' career path initially, discovering many of the most important hominin fossils including KNM WT 15000 (the Nariokotome boy, a near complete *Homo ergaster* skeleton), KNM WT 17000 (the type specimen for *Paranthropus aethiopicus*), and KNM ER 1470 (the type specimen for *Homo rudolfensis* with an extremely well preserved endocranium).

Leakey excavated at Kariandusi and Gamble's Cave, and provided the PRM with small sample collections from these Kenyan sites in 1929. The rest of Leakey's donations to the PRM were accessioned in 1947, and include many surface assemblages as well as a larger sample of material from the Kariandusi excavations (*Table 3.1*). Leakey also made substantial donations from these early expeditions to the Cambridge University Museum of Archaeology and Anthropology and the Kenya National Museum in Nairobi, sometimes dividing assemblages between the three institutions. Leakey's collection makes up the bulk (96%) of the PRM's archaeological artefacts from Kenya. There were, however, several other minor donors to the PRM's Kenyan stone artefact collection who gave small handfuls of artefacts collected from various locations, two of whom are particularly noteworthy (cf. Chapter 2).

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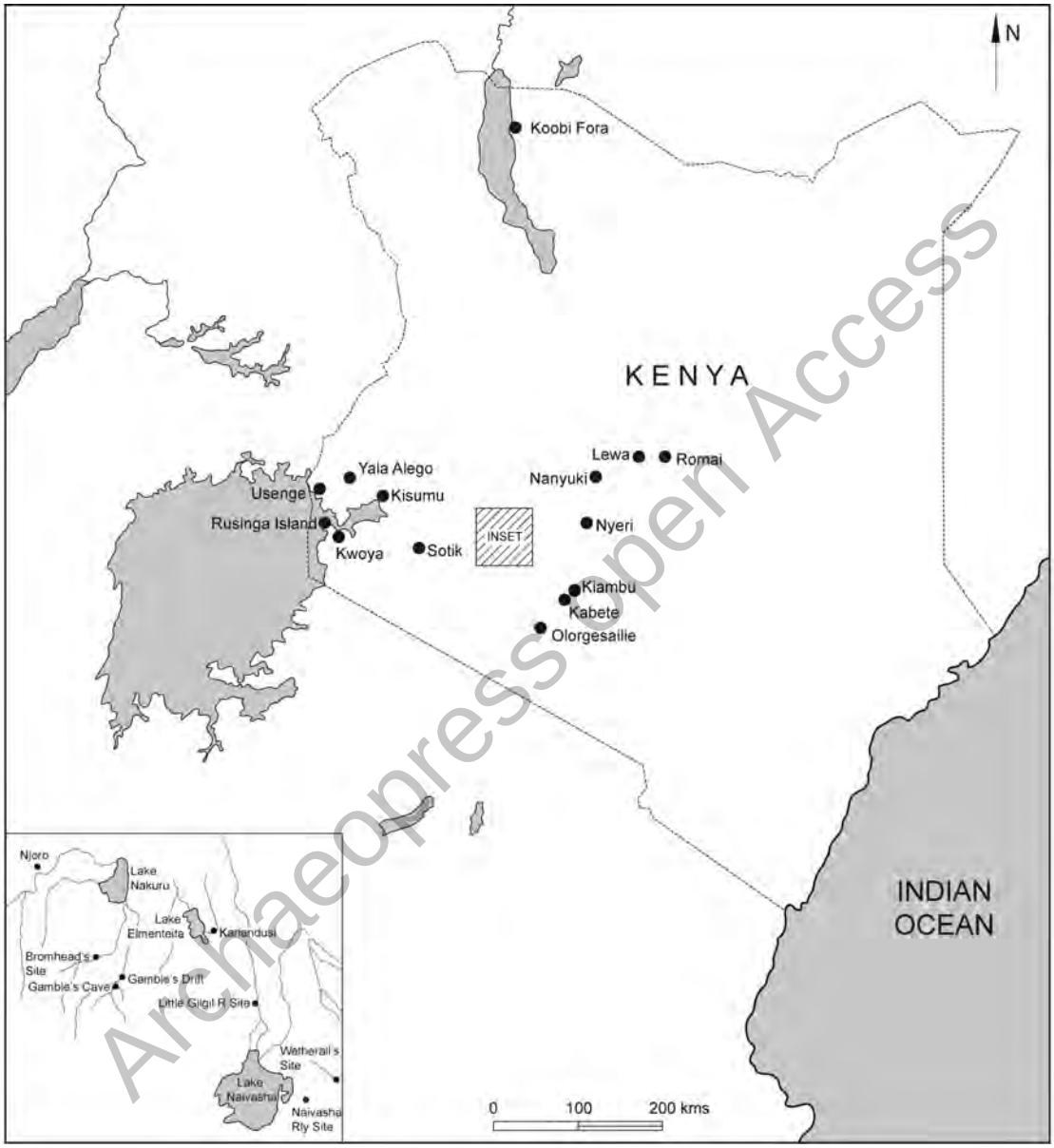

Figure 3.1 Map of Kenya showing the main Stone Age archaeological sites referred to in Chapter 3.

First, Henry Balfour, the then Curator of the PRM, visited Leakey both at his field camp and in Nairobi in 1928. Balfour collected artefacts from some of Leakey's sites and it may have been as a result of this visit that Leakey gave the PRM the small sample collections in 1929. Second, Walter Edwin Owen, Archdeacon of Nyanza Province, collected artefacts from the Winau Gulf, which he donated to the British Museum, Cambridge University Museum of Archaeology and Anthropology and PRM (accessioned in 1936), and which he and Leakey described in a later monograph (Leakey and Owen 1945). Altogether the collection covers the full range of East African prehistory (*Table 3.2*).

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Sites	Number of Artefacts
Kabete	3364
Little Gilgil River	1352
Njoro	536
Elmenteita	245
Kinangop Plateau	245
Kariandusi	228
Unprovenanced	180
Gamble's Cave	129
Sotik	109
Shore of Lake Elmenteita	88
Walter E Owen Donation	63
Naivasha	59
Nanyuki	53
Routledge Donation	42
Rusinga Isle	22
Mile 412 Kenya Uganda Railway	12
Bored Stones	7
Olorgesailie	7
Koobi Fora	4
Lewa	2
TOTAL	**6747**

Table 3.1 Kenyan sites from which stone artefact assemblages are held in the archaeological collections of the Pitt Rivers Museum, showing number of artefacts.

Period	Dates	Key Features
Oldowan	2,600,000–1,700,000 BP	Multi-platform cores, choppers
Acheulean	1,700,000–235,000 BP	Large bifaces: handaxes and cleavers
Middle Stone Age Sangoan-Lupemban	from 235,000 BP	Large elongate bifaces
Middle Stone Age Still Bay	from 235,000 BP	Bifacial and unifacial points
Middle Stone Age undifferentiated	from 235,000 BP	Radially prepared cores and medium sized-flakes
Late Stone Age Nasampolai	50,000–40,000 BP	Backed blades, geometric microliths, no radial cores or platform facetting
Late Stone Age Sakutiek	40,000–15,000 BP	Crescents and other backed artefacts, discoidal cores, thumbnail scrapers and bifacial knives
Late Stone Age Kiteko	15,000–13000 BP	Bladelets, burins, no backed artefacts
Late Stone Age Eburran	13,000–6000 BP	Backed blades, crescents and end-scrapers
Late Stone Age/ Neolithic transition	6000–3100 BP	Pottery from 5500 BP, caprines from 4200 BP, cattle from 3600 BP
Elmenteitan Neolithic	3100–1300 BP	Stone bowls, groundstone axes? Interaction with Bantu iron-using farmers from 2500 BP

Table 3.2 'Stone Age chronology of the Kenyan Great Lakes Region

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This chapter begins by briefly outlining Leakey's early career, from which the PRM collections largely derive (3.2). It then outlines the unprovenanced and mixed assemblages (3.3), and Neolithic (3.4), Late Stone Age (LSA) (3.5), Middle Stone Age (MSA) (3.6), and Early Stone Age (ESA) material. A Conclusion (3.8) considers the significance and potential of the Kenyan material.

3.2 Early Career of Louis Leakey

Louis Leakey was the son of English Christian missionaries, who were stationed in Kabete in the highlands of central Kenya (Bowman-Kruhm 2005). Leakey was born in Kabete in 1903, and was raised partly in Kenya and partly in England. In Kenya his family lived among the Kikuyu tribe who taught Leakey to hunt and whose language he spoke fluently. Louis and his siblings had a keen interest in the natural world, keeping a serval cat and a baboon as pets (an episode which he later regretted as cruel). He built and lived in a Kikuyu-style hut at the end of his parents' garden, which became home to his personal collection of skulls and eggs. After reading a book on the prehistory of Britain he began to collect stone tools and was encouraged in this activity by Arthur Loveridge, the first curator of the Natural History Museum in Nairobi (now the Kenya National Museum). Leakey matriculated at Cambridge University in 1922 where he insisted on being examined in Swahili and Kikuyu even though he was the only person capable of speaking these languages at the University. In 1924 he joined a fossil hunting expedition to Britain's newly acquired territory of Tanganyika (part of modern Tanzania). On returning to Cambridge, Leakey studied Archaeology and Anthropology under the tutorship of Arthur C. Haddon, and graduated in 1926 (Morell 1995).

After graduating Leakey raised funds for an East African Archaeological Expedition and set off at the end of 1926. The expedition ran for two seasons in 1926–1927 and 1928–1929 during which Leakey discovered the sites of Gamble's Cave, Bromhead's Site, Kariandusi, Njoro River Cave and Nanyuki amongst others (*Figure 3.2*). Hearing of the expedition many farm owners sent Leakey stone artefacts they had found on their properties. The great majority of the Kenyan stone artefacts in the PRM come from these early Leakey expeditions and from donations to him by amateur collectors.

3.3 Unprovenanced and Mixed Assemblages

3.3.1 Kabete

Kabete is the mission where Leakey was born and raised. As a teenager he began collecting stone artefacts and some of the 3,368 Kabete artefacts (1947.2.464–476) in the PRM may have been collected during that period. While staying at his home in Kabete in October 1926, prior to the first East African Archaeological Expedition, Leakey collected around 15,000 obsidian artefacts. These artefacts were from ploughed fields and cuttings, and Leakey thought they represented several different periods. Many of the PRM's artefacts appear to be from these collections. Some of the artefacts are physically labeled 'K' (probably for Kabete) followed by a number. This differs from the usual East African Archaeological Expedition numbering system, which includes the year of collection.

The PRM artefacts that appear to be from Kabete do not feature in any of Leakey's archaeological publications. They are for the most part surface finds, with the exception of 150 artefacts from Gamblian (Holocene) deposits, which were presumably collected by Leakey after he excavated Gamble's Cave during the East African Archaeological Expedition. In one bag there is a note describing the tools

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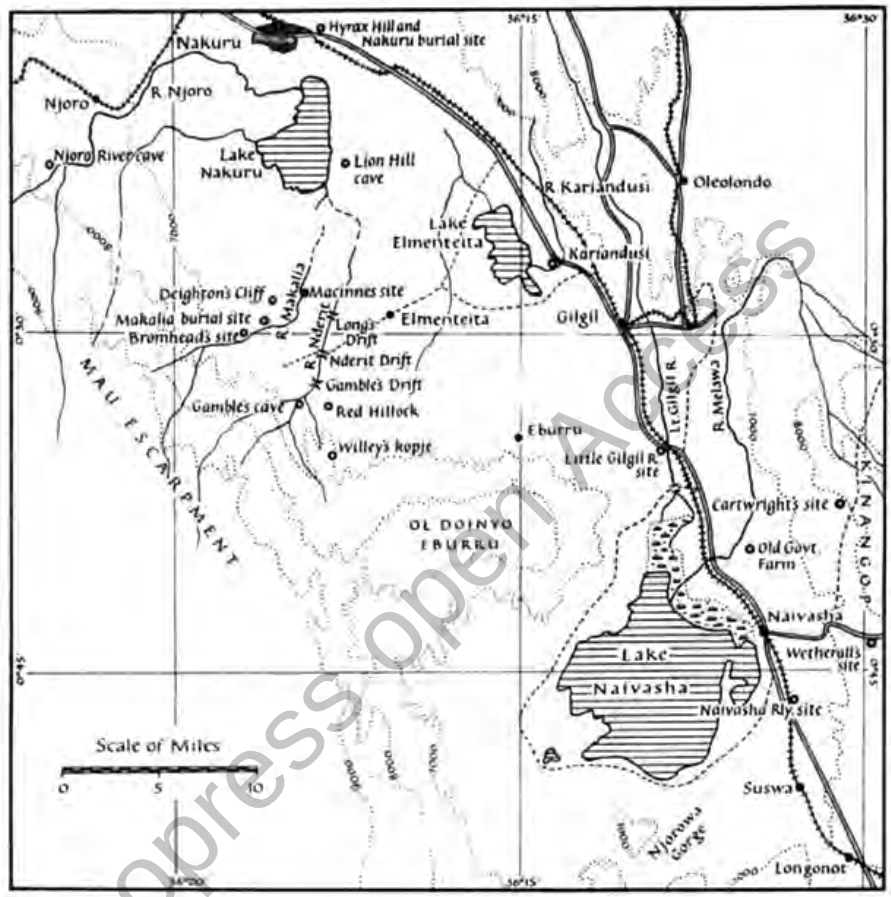

Figure 3.2 Location of sites found by the East African Archaeological Expedition (from Cole 1954a).

as being of 'Gamblian type', though this is a geological rather than an archaeological designation. The vast majority of artefacts are obsidian, although there are occasionally other materials such as chert. The artefacts include backed bladelets, geometric microliths, end and side scrapers, burins, and small blade and radial cores. In general they may be described as Late Stone Age (LSA), but it is likely that they represent collections from more than one locality. There is also a box of spherical quartz stones (1947.2.426–433) attributed to Kabete in the accession records, although there is no indication of provenance on the tools themselves. Leakey (1948) believed these to be bolas stones, although they may actually be hammerstones.

3.3.2 Rusinga Isle

Rusinga Isle is at the mouth of the gulf of Kavirondo on the north-eastern edge of Lake Victoria. The Leakeys first found ape fossils there in 1932 and were to visit the island numerous times over the next decade. The collection of 25 artefacts is a mixed bag of unprovenanced surface finds, which may have been collected throughout this period (1947.2.70, 1947.2.141–162). The artefacts include some rolled obsidian handaxes and large flake tools, and some fresh chert choppers, levallois cores, small flakes, and points. The variety of technologies, raw materials and weathering indicates that the artefacts are isolated finds from various periods.

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3.3.3 Mile 412 Kenya Uganda Railway

This site was first reported in Dewey and Hobley (1925), and Leakey collected 11 obsidian artefacts here in 1929 (1947.2.481). There is a note in the box reading 'Little Gilgil River surface finds collected by Nature' with an ink drawing of a stone tool on the reverse, which has been crossed out in the same pencil that the note was written in. Solomon (1931) states that Mile 408 is where there is a level crossing near Gilgil station. Mile 412 may be further towards Nairobi as the railway runs alongside the river at this point, but 4 miles would not be a sufficient distance to make it the same site as Little Gilgil River.

3.3.4 Other Sites

From Kiambu, north of Nairobi, 39 obsidian surface finds were collected between 8 and 12 October 1926, at the very beginning of the first East African Archaeological Expedition (1947.2.483). A total of 56 artefacts (1947.2.440–441) are simply labelled 'Kwoyo' in pencil, rather than the usual Leakey numbering system using a code written in white ink. As such they are probably not from the East African Archaeological Expedition and may not have been collected by Leakey at all, but were perhaps given to him by a landowner. The artefacts cover a range of raw materials and artefact technologies, suggesting they do not comprise a discrete assemblage. There are 16 obsidian artefacts from an unknown location with a note saying 'tools from a site beyond Lorp House toward Keilry[?]' (1947.2.480). Eight chipped-stone artefacts (7 chert, 1 quartz) were collected by Turner Henderson from near a waterfall on the Nairobi River, Arthi Plateau, and donated to the PRM in 1905, making them the earliest acquisitions in the PRM's Kenyan archaeological collections (1905.21.1–8). Seventeen obsidian artefacts were donated in 1966 by Dennis Alfred Jex Buxton from his estate in Kenya. From Two Tree Gulley, Long's Farm, there are a further 14 obsidian artefacts, collected from the surface in 1928 (1947.2.478). There are five obsidian artefacts from Gamble's Drift (1947.2.477) with a note saying '1st–2nd interpluvial = Gamblian pause. i.e. between first and second peaks of Gamblian'. Finally, from Romai, there are 15 surface finds, mostly of obsidian, but also other materials including one not of stone (1947.2.482).

3.4 Neolithic Assemblages

3.4.1 Njoro

The PRM artefacts from Njoro include one ostrich eggshell bead, one pot lug, 68 obsidian cores, 158 flakes, 16 'Stillbay' points, 92 scrapers, 86 backed artefacts, 60 miscellaneous retouched pieces, 3 flakes with flat invasive retouch, 3 awls, 27 blades with edge trimming, and 4 pebbles (1947.2.445–446). In general the technology is very similar to the Eburran industry, with scrapers, backed artefacts and edge-trimmed blades dominating the retouched pieces in both industries.

On July 1 1927, Leakey visited a farm near the town of Njoro where the foundations for a house were being dug and a series of shallow graves had been uncovered, in one of which was a polished stone axe. The burials were in extended position and arranged parallel to one another. Several small pieces of pottery and a number of obsidian flakes were recovered, but the site was destroyed to make way for the house. Leakey (1931) proposed the name Njoroan for this groundstone axe producing culture, with Njoro as its type-site. The label, however, did not catch on (Leakey 1943).

In 1938 the Leakeys excavated the nearby locality of Njoro River Cave, where they discovered over 70 cremated burials (Leakey 1938; Leakey and Leakey 1950).

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The cremations were found to have been achieved by placing the bound body in a shallow hole, offering grave goods and red ochre, covering these with earth, and then lighting a fire on top, a process that led to excellent preservation of organic artefacts. No metal was found in the excavation, rather the presence of stone bowls led to a Neolithic designation for the culture. Stone bowls were, however, still being produced in historical times and the PRM has some ethnographic stone bowls from Kenya on display. Hundreds of stone beads and pendants were also found, over half of which are opals thought to have been acquired (along with an ornately carved wooden vessel) by trading locally mined opals with larger, more complex societies (Leakey 1938; Leakey and Leakey 1950).

More recently, radiocarbon dates on charcoal put the burials at 1200 BCE (Merrick and Monaghan 1984). The pottery from the site was described by Posnansky (1961) as being similar to the preceding Elmenteitan (*Table 3.2*), but with more variety of form and decoration. The obsidian industry is characterized by conical cores, blades with retouch on either side (edge-trimmed), and broad crescents, while backed blades and end-scrapers are present but rare. The Leakey's likened this industry to the Elmenteitan and contrasted it with the Eburran, as the latter lacks double edge retouched blades and has narrower crescents (Leakey and Leakey 1950). Based on the skeletal remains, Leakey (1938) argued for population continuity between the River Cave and the preceding Elementeitan people.

It is uncertain if the PRM material derives from the original Njoro site or the River Cave. The substantial artefact numbers suggest the cave, as does the fact that the Njoro artefacts are not numbered, unlike the other assemblages collected by Louis Leakey in the early East African Archaeological Expeditions. Although the obsidian artefacts are reminiscent of Mary Leakey's descriptions with backed artefacts and edge-trimmed blades prevalent, they say only 3 cores and 5 scrapers were recovered, in contrast to the 68 cores and 92 scrapers in the PRM collection. To make matters more uncertain Leakey also sent two of his local labourers to Njoro in 1927 and they collected around 400 obsidian artefacts from the surface, so the PRM's assemblage might also be from that collection.

3.4.2 Elmenteita

Elmenteita is the name of a town and a lake in the Rift Valley. The Elmenteita assemblage consists of 245 obsidian artefacts.[1] The cores are small in comparison to the flakes, a common feature of these Kenyan assemblages, which probably reflects the fact that obsidian was a valuable material and the cores were curated and heavily reduced. There are occasional backed artefacts, end-scrapers are common, but there is no distinct blade element to the assemblage. This contrasts with the Leakey's characterization of the Elmenteitan industry in which the exact opposite artefact frequencies are proposed (Leakey and Leakey 1950). The artefacts are possibly from the Bromhead site, as this is often referred to as Elmenteita in the literature (e.g. Leakey 1935; Protsch 1978). However, Leakey first visited Bromhead briefly in 1926, then returned to excavate in 1927, but the artefacts that have been labelled have a date of 1928. Alternatively, the artefacts may be from Long's Drift, which was excavated in 1928 and has obsidian end-scrapers and backed artefacts. The artefact

[1] Accession number 1947.2.444 includes 22 cores, 22 backed artefacts, 6 points, 4 flakes with shallow invasive retouch, 4 blades with marginal utilization on both edges, 16 miscellaneous retouched pieces, 2 burins, 43 flakes and 82 scrapers (201 artefacts in total). Accession number 1947.2.443 has 44 artefacts. In a separate box are obsidian artefacts from the shore of Lake Elementeita collected in 1929, which constitute a separate assemblage (1947.2.442). These artefacts include 21 obsidian cores, 1 quartz core, 36 flakes, 20 scrapers, 5 bifacial points and 15 miscellaneous retouched pieces (88 artefacts in total).

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numbers as designated by Leakey are lower than for the excavated artefacts from Long's Drift that he illustrated (Leakey 1931), but form part of the same sequence. They may represent surface collection before excavation began. Leakey believed both the Bromhead's and Long's Drift material to be Mesolithic (LSA) (Leakey 1931, 1936). Pottery was found at Bromhead's and the Elmenteitan levels of Gamble's Cave (Leakey 1931). A radiocarbon date of 7410 BP was obtained from human bone at Bromhead's (Protsch 1978). The stratigraphy at Bromhead's is, however, disturbed so the association between the industry and the bones is not clear.

3.4.3 Routledge Donation

The PRM holds 20 obsidian artefacts (1913.5.25 .23–42) that were recovered from excavations 10 miles from Nyeri, and were donated by William S. Routledge in 1913. According to the notes found with the objects, the excavation was sited where a series of saucer-shaped depressions marked the location of former Gumba dwellings. Pottery has also been found at some Gumba sites, characterized by decorated raised bands (Zeuner 1948) and ten sherds were also recovered with these obsidian pieces (1913.5.25 .1–10), as were twelve seeds of wild banana (1913.5.25 .11–22). This seems to be one of the earliest known examples of archaeological reference to the Gumba, with the name subsequently used to designate a late Neolithic culture (Leakey 1931, 1934).

3.5 Late Stone Age Assemblages

3.5.1 Naivasha

There is an assemblage of 44 obsidian artefacts from the implementiferous deposits of the Naivasha lake beaches and the nearby gorge (1947.2.447–450). Of these, 9 were collected from Beale's Farm by Balfour (1929.41.49.1–6, 1929.41.50–52) and include a magnificent Mousterian point from the Malewa River near Beale's Farm (1929.45.3). A further 12 are from the Naivasha rockshelter overlooking the railway line (probably 1947.2.449). These artefacts include 1 core, 4 flakes, 2 miscellaneous retouched pieces, 2 backed blades and 3 scrapers. The Naivasha railway rockshelter was excavated by Leakey (1942), where he found an associated fossil skull and defined the material as Kenyan Aurignacian (Eburran).

3.5.2 Gamble's Cave

Gamble's Cave is one of Leakey's most important early sites as it formed the basis for his geological epoch the Gamblian, as well as yielding what he initially believed to be the Kenya Aurignacian industry (Leakey 1931). Leakey studied the site intensively, describing the excavation, material culture and human remains in great detail (Leakey 1931, 1936). There are in fact two adjacent caves on Gamble's Farm, but since only Gamble's Cave II yielded anything of note it is reasonable to assume that the PRM's artefacts derive from here. Although there are only 21 obsidian artefacts in the PRM from Gamble's Cave they are unusual for this collection, since they were excavated, rather than being surface finds (1929.45.6–20 and 1929.45.21.1–6). The artefacts derive from the lower levels of the excavation, which radiocarbon dates to 8000–9000 BP (Protsch 1978). Direct dating of the hydration layer on pieces of obsidian from Gamble's Cave gave ages ranging from 100 to 11,000 years ago (Friedman *et al.* 1960). The lower occupation levels of Gamble's Cave yielded double-edge retouched blades (*Figure 3.3*), backed blades (*Figure 3.4*) and end-scrapers reminiscent of the European Aurignacian (Leakey 1931). Leakey also found crude basket-impressed pottery from these levels of the cave, but their age makes these finds controversial.

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Figure 3.3 Large retouched obsidian blade from the lower levels of Gamble's Cave, Kenya (PRM Accession Number 1929.45.16*), which are 8–9000 years old.*

Figure 3.4 Seven backed obsidian artefacts from the lower levels of Gamble's Cave, Kenya (PRM Accession Numbers 1929.45.9–15*).*

Leakey eventually stopped calling the industry Aurignacian and instead preferred the label Capsian, a North African early Holocene industry (Leakey 1952). Finally, the local label Eburran was settled on for this East African mode 4 industry and the age estimate revised to 12–10,500 years ago (Ambrose *et al.* 1980). The Eburran replaces microlithic industries in this part of Kenya, paralleling the situation in South Africa where mode 4 also replaced mode 5, suggesting similar demographic processes may have been at work (Ambrose 2002).

Balfour wrote of his visit to Gamble's Cave (*Figure 3.5*) in 1928, describing collecting artefacts which included 108 worked obsidian objects held at the PRM (1928.21.1–4):

> 'We next motored to Gambles farm and walked on to a couple of shallow caves in a hill side a mile or two beyond the farm, picking up quantities of worked obsidian (including a very small typical lunate of Tardenoisian type) on the way'.[2]

3.5.3 Little Gilgil River

The Little Gilgil River site is principally a surface assemblage collected in 1928, as Leakey noted in his diary:

> '…worked flakes from surface Little Gilgil river (washed out of last upper diatomite deposit?). Elsewhere called Marendal[?] River erroneously. Picked up by ourselves LSBL.'

This note was found in a box of Kabete artefacts, although Kabete is nowhere near the Little Gilgil River so they cannot be from the same site. Solomon (1931) briefly describes the geology of the site, stating that the artefacts were derived from stony sands with rootlets that are inter-bedded with diatomaceous silts.

[2] Diary entry Wednesday 15 August 1928, source: Pitt Rivers Museum Manuscript Collection, Balfour Papers, Box 2, Item 1 'Diary of trip to Kenya and Uganda, June–September 1928'.

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Figure 3.5 Photograph of Gamble's Cave II, Kenya, with the excavation foreman. Photograph taken by Henry Balfour 15 August 1928 (PRM Manuscript Collections, Balfour Papers, Box 2, item 1, 'Diary of a trip to Kenya and Uganda, June-September 1928', p. 139).

This accords with Leakey's note and Solomon also suggests that the stony sands represent lakeshore deposits formed during oscillations of Lake Elmenteita. Leakey's fourth excavation report of the 1931–1932 season states that the Upper Gamblian beds at the site were excavated and yielded tools including points, burins and backed blades. A direct date of 122,000 years ago was obtained from a piece of obsidian (Friedman *et al.* 1960), while the presence of five pottery sherds in the assemblage (not in the PRM collection) suggests either that the age is wrong, or the site represents multiple periods. There are over 1,000 artefacts in the PRM's Little Gilgil River assemblage, the great majority made of obsidian. Technologically, these artefacts are a blade-based mode 4 industry. End-scrapers are common and there are also some backed artefacts, as well as both radial and conical blade cores, but these are far too small for some of the flakes. This probably reflects the value of obsidian as a material, which ensured the cores were heavily reduced. The assemblage appears very similar to that excavated from Gamble's Cave illustrated by Leakey (1931) and they are probably part of the same Eburran industry. Leakey (1934) includes Little Gilgil River in a table as a type station site and, although the table does not make it clear to what culture the site pertains; it is probably the Kenya Aurignacian (Eburran).

In the PRM's Walter William Bishop collection are a further 15 unaccessioned Eburran artefacts with a note saying they were collected from the Little Gilgil River, both down in the gorge and on the slopes. Balfour also collected 7 artefacts from Gilgil, but these may have been from the vicinity of the town rather than the Little Gilgil River site. Accession number 1947.2.463 includes numerous radial cores on patinated obsidian, the occasional backed artefact and a chopper, as well as 2 cobble cores that were previously on display (134 artefacts in total). Accession numbers 1947.2.451–462 include 88 cores, 204 flakes, 290 scrapers, 186 backed blades and geometric microliths, 52 edge nibbled blades, 1 notched piece, 2 awls, 1 drill, 11 points, 1 denticulate, 53 miscellaneous retouched pieces and 5 pot sherds. Ten artefacts collected from Little Gilgil River Beach 18 miles from Naivasha by Leakey and Balfour may also be from the Little Gilgil River site (1947.41.48). A

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series of Neolithic burial mounds were also found along the Little Gilgil River and excavated by the Leakeys, but these are a different locality.

3.6 Middle Stone Age Assemblages

3.6.1 Sotik

This is a discrete surface assemblage collected by Leakey's friend, the geologist J.D. Solomon, from the Kericho district. The 109 artefacts consist of medium-sized cores and flakes on coarse-grained materials mostly quartzite and silcrete, but also occasionally lava (1947.2.261–369). Most of the artefacts are fresh, although a few are rolled. The artefacts include radial cores, Levallois flakes, side and end scrapers, points and a small biface, and are fairly typical of an undifferentiated MSA assemblage. As Leakey (1936) states it is unfortunate that they were only a surface assemblage as they are a technological missing link between the ESA and the LSA.

3.6.2 Kinangop Plateau

The Kinangop artefacts were found weathering out of valley slopes cut by the Kerati River. They were found in lateritic white and brown marly silts stained with iron, which Leakey believed were formed by the drying up of a large lake, overlain by volcanic ash. The assemblage (currently a bulk accession with the number 2010.48.1) consists of 245 small obsidian and occasionally chert artefacts collected from the surface on the Kinangop Plateau in 1932. Technologically, the assemblage is unusual for a Kenyan obsidian site as it lacks blades and backed artefacts, and is instead characterized by triangular points struck off prepared cores and then marginally retouched. Uniquely for a Kenyan obsidian assemblage there is a tanged scraper, which is a characteristic artefact of the North African Aterian industry. Leakey's illustration of the Kinangop artefacts also shows a handaxe as part of the series (Leakey 1936: 53). Most of the Kinangop plateau artefacts are considered by Leakey and later authors to be late Acheulean or early MSA and are often described as pseudo-Stillbay (Clark 1988; Leakey 1931; Waweru 2002). The two main sites on the plateau are Cartwright's Farm and Wetherall's Farm [also recorded as Wetherill's, or Wetherell's], with the artefacts from this collection most likely from deposits above Cartwright's site and contemporary with Wetherall's, if not from Wetherall's site itself. Potassium-Argon dating yielded ages of 440 and 557,000 years ago for the MSA levels at Cartwright's and Wetherall's sites (Evernden and Curtis 1965), however these are not widely accepted (Clark 1988; Waweru 2002). Direct dating of the hydration layer on an obsidian artefact produced a date of 35,000 years. Analysis of obsidian sources suggests different raw material exploitation patterns between Cartwright's and Wetherall's, with the former using three sources and the latter using nine sources within a 50 km radius (Merrick and Brown 1984). Some of the artefacts are grey rather than the usual black obsidian, which may reflect different raw material sources or a patina.

3.6.3 Nanyuki

Leakey (1931) believed the Nanyukian industry to be transitional between the Acheulean and the MSA with the type-site at Nanyuki. This assemblage (1947.2.370– 422) probably mostly comes from Nanyuki itself as that is written on several of the artefacts and there is a similar range of raw materials and patination. Alternatively, the artefacts may come from the Nanyuki Forest Station site, to which Leakey (1931) refers. One artefact does, however, say 'Ohage Farm, Nyeri'

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on it. The assemblage consists of medium to large radial cores and flakes of various obsidian and quartz materials with one chert piece. Among the retouched artefacts are points, scrapers and a couple of small crude bifaces. The bifaces cannot be simply linked to the Acheulean as they are U-shaped at both ends, but the presence of a cleaver in Leakey's (1931) illustrations implies they may indeed be descended from the Acheulean tradition.

3.6.4 Walter E Owen Donation

Archdeacon Walter E Owen of Nyanza Province collected artefacts from around the gulf of Kavirondo, consisting of both isolated artefacts and discrete assemblages (1936.59.1–36; 1988.39.38). The isolated bifaces are probably both Acheulean and Sangoan and come from diverse locations around the gulf including Usenge, Maseno Magada, and Ober Awach. From Kericho Kisil, there is a series of 11 fresh quartz radial cores and a scraper.

From Kisumu, a series of large flakes was found lying on bedrock just below the surface during the construction of a tennis court in the town centre and were found lying on bedrock just below the surface. The Kisumu artefacts are all made of a khaki-coloured material, possibly limestone, and include some bifaces, which appear to be rejects or exhausted cores, indicating the locality was perhaps a workshop. Large flakes are not characteristic of the Sangoan, so this is probably an Acheulean assemblage.

From Alego in the Yala River Valley, a diverse collection of stone artefacts was recovered. Leakey and Owen (1945) report that both rolled Acheulean and fresher Tumbian bifaces were found in the Yala Valley. This Tumbian industry has since been incorporated into the Sangoan technocomplex (Bishop and Clark 1967) and this is one of its eastern most sites. The local industry, which is found at several sites north of the Kavirondo Gulf, is distinguished from other Sangoan assemblages by the predominance of heavy-duty tools (McBrearty 1988). One 28.5 cm-long lanceolate biface, recalling the Lupemban industry, stands out from the rest for its fine workmanship (1936.59.11; *Figure 3.6*). Owen (1945: 12) wrote:

> 'I cannot help a pang of regret that some very choice specimens now in the British, Pitt Rivers and Cambridge Museums are not available for illustration and description. What I regard as the finest specimen of the Middle Tumbian lancehead or dagger (from Yala Alego) which I have ever found is now in the Pitt Rivers Museum. Of it the late Professor Balfour wrote me in 1936: "As to the dagger-like blade, it is a dream! I had no idea that Uganda [really Kenya] produced such a type."'

These long bifacial lanceolate forms are rare, but present in the early Sangoan, foreshadowing the succeeding Lupemban industry (Clark 1988). Balfour goes on to say that while some of the other PRM bifaces appear to be early Acheulean, others may be early stages in dagger manufacture. In general the bifaces in the PRM collection are elongate, thick and heavily weathered. The shape of the bifaces in the PRM collection suggests they could either be early Acheulean or Sangoan, with the weathering indicating the former option, although this could also be a consequence of the raw material. In addition to the large bifaces this assemblage includes a series of fresh single-platform cores made on river cobbles, possibly of silcrete. One of these cobble cores (1988.39.38) was also donated by Walter William Bishop from the same site of Alego, Yala River. McBrearty (1988) excavated at the nearby site of Muguruk and found the Sangoan industry overlain by a Levalloisian MSA industry that

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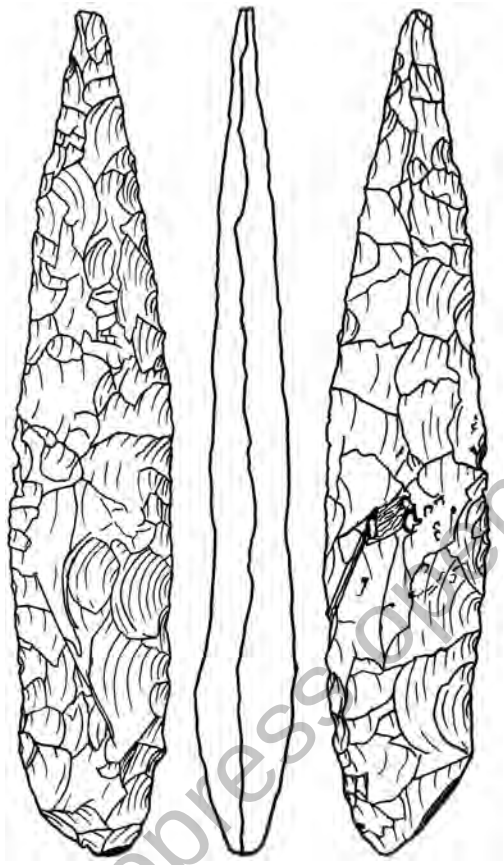

Figure 3.6 Drawing of fine Lupemban lanceolate stone implement from Yala Alego, Kenya (not to scale) (PRM Accession Number 1936.59.11*).*

lacked the large bifacial element. McBrearty (1988) uses the informal terms 'Ojalla' for the local Sangoan industry and 'Pundo Makwar' for the Levalloisian MSA, in case the higher-level categories are subsequently changed. At Yala Alego, Leakey and Owen (1945) distinguish between Acheulean, proto, Lower and Middle Tumbian (Sangoan) and the later MSA industry, which they call Magosian. As this is a surface assemblage these cultural divisions may be conflated in the assemblage. Nonetheless, the assemblage is valuable in exhibiting the range of biface variation in the Sangoan and the distinctive core types of the MSA.

3.7 Early Stone Age Assemblages

3.7.1 Kariandusi

Dr Solomon and Miss Kitson of the East African Archaeological Expedition discovered Kariandusi in May 1929. Excavations were carried out there as it was realized that there were Acheulean implements *in situ*. Solomon (1931) gives the geological sequence at the site as follows: lava overlain by volcanic sands and tuffs; overlain by diatomite; overlain by gravels, volcanic sands and tuffs (upper pumice beds) in which the Acheulean artefacts occur; overlain by fine stratified tuffs; overlain by gravels and silts. Leakey carried out three seasons of excavation at Kariandusi: the first in 1929, the second in 1931 and the third in 1946–1947. The East African Archaeological expedition also camped at Kariandusi River on November 18 1934, during which time they collected many handaxes. The PRM's collection of artefacts derives from the first two seasons of excavation. Leakey (1936: 46) states that 'we now have a collection of over two thousand specimens excavated from an area barely 10 feet square'. Around half of these artefacts probably stayed in the National Museum in Kenya, 721 were sent to the Cambridge University Museum of Archaeology and Anthropology, and the remaining 207 were sent to the PRM. In the 1929 season an area of 10 x 5 feet was excavated and 80% of the tools extracted were of fresh obsidian (Shipton 2011). In the 1931 season a second locus was excavated which produced rolled lava tools. An area 10 x 8 feet was excavated yielding over 1,200 artefacts, most of which were bifaces (Shipton 2011). In 1946–1947 a much larger area seems to have been opened up as the plan of the excavation illustrated in Gowlett and Crompton (1994) shows a 9 x 3 m trench. The bifaces from this excavation were left *in situ* for display in a field museum. These bifaces are mostly obsidian, while the vast majority (over 95%) of those in the Cambridge

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University Museum of Archaeology and Anthropology and the PRM are lava (mostly trachyte, but also phonolitic basalt and rhyolite). In general the obsidian bifaces are fresh while the lava bifaces are rolled. Leakey (1931) states that the rolled bifaces belong to earlier facies of the Acheulean, while the fresh bifaces belong to a later facies. Gowlett excavated another locality at Kariandusi in 1974 (Gowlett and Crompton 1994). Here he unearthed lava bifaces, large flakes and trachyte lava blocks in a secondary context, which he presumed to be younger than Leakey's *in situ* obsidian bifaces. Metric analysis indicates Gowlett's lava bifaces are similar to those from Olorgesailie while Leakey's obsidian bifaces are similar to the Late Acheulean bifaces of the Kapthurin Formation (Gowlett and Crompton 1994).

Faunal comparison shows that the Kariandusi Acheulean industries were broadly contemporary with Olduvai Gorge Bed IV (Cole 1954b), *c.*1 million years old. Potassium-argon dates from pieces of tuff associated with the Kariandusi bifaces yielded dates of 1.1 and 0.93 million years ago (Evernden and Curtis 1965). Palaeomagnetism on pumice overlying the artefacts suggests they must be at least 0.73 million years old (Gowlett and Crompton 1994).

Sourcing studies indicate the obsidian was transported distances of up to 30 km from three different sources (Merrick and Monaghan 1994). The Gilgil trachyte source is just 80 m from the site, while the minimum transport distance for the rhyolite is estimated to be 15 km (Gowlett and Crompton 1994).

The PRM collection of Kariandusi artefacts consists largely of bifaces as well as the occasional large flake and a couple of possible hammerstones (1947.2.1–139; 1947.2.163–260). In general the PRM collection is very similar in composition to the Cambridge University Museum of Archaeology and Anthropology collection. Both handaxes and cleavers are represented, with the great majority of bifaces made on large flakes although there is the odd example of the use of a tabular piece of trachyte. The assemblage includes numerous rolled trachyte bifaces, occasional rolled phonolite and rhyolite bifaces, occasional fresh trachyte and phonolite bifaces, and occasional fresh obsidian bifaces. On the rolled bifaces the degree of rounding varies between pieces indicating differential transport distances before their redeposition (Shipton 2011). The sandy matrix still adheres to many of the rolled trachyte bifaces. The fresher lava bifaces nearly all come from the 1929 excavation season when locus 1 was excavated and they have a finer matrix adhering to them, suggesting they were deposited under a different regime and constitute a separate assemblage (Shipton 2011).

3.7.2 Olorgesailie

The PRM holds one handaxe collected by Mary Leakey when she and her husband originally visited Olorgesailie in 1943 (1978.1.1). There are 2 handaxes from bed 6 or 7, one collected by Louis Leakey and one collected by Sonia Cole. Additionally, there is a fourth handaxe (1988.39.41), a small core and a small bifacial knife, which are possibly from Olorgesailie as they made from similar raw material as the other handaxes. Finally, there is an unprovenanced obsidian biface collected by Sonia Cole, which could be from Lewa or Olorgesailie (not yet accessioned).

3.7.3 Lewa

The PRM holds 2 handaxes from the Late Acheulean site of Lewa Swamp in central Kenya collected by Sonia Cole in 1946 (1988.22.1–2). The Cambridge University Museum of Archaeology and Anthropology holds a large collection of artefacts from this site.

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3.7.4 Koobi Fora

The handful of artefacts from the site of Koobi Fora held at the PRM includes a large symmetrical, finely-made Acheulean handaxe collected by Mr John M. Devereux-Colebourne in the late 1950s or early 1960s (1997.30.1). A diminutive handaxe donated by Walter William Bishop is unlabelled, but the raw material is similar to the Devereux-Colebourne handaxe so it may also be from Koobi Fora. There are also three choppers from the KBS tuff at Koobi Fora and Bed I at Olduvai Gorge collected by Bishop, however the labels have become loose and it is now uncertain which is which (1988.39.29–31). With both these strata being around 1.8 million years old these choppers are probably the oldest artefacts in the PRM. They are both remarkably fresh and they are bifacially flaked around three quarters of the perimeter with the remaining quarter left cortical.

3.8 Conclusion

The PRM's Kenya Stone Age collection, collected largely by Louis Leakey, covers the range of East African prehistory from the ESA, through the MSA and LSA to the Neolithic. The collections are an important resource for the history of archaeology because they document most of Louis Leakey's early work in Kenya, including his childhood collections from Kabete; the numerous sites discovered in the Rift Valley during the East African Archaeological Expeditions of 1926–1929; his early excavations at Gamble's Cave and Kariandusi; the type sites for his geological and cultural sequences, including Nanyuki, Gamble's Cave, Elmenteita, and Njoro (Leakey 1934); and his initial visits to Olorgesailie and Rusinga Isle.

The LSA and Neolithic are complex periods in Kenyan prehistory. A series of Late Pleistocene microlithic industries is succeeded by the Eburran mode 4 industry 12,000 years ago. The Eburran continues right up until the Iron Age in some areas, such as the Mau escarpment (Barham and Mitchell 2008). This probably reflects the complex interaction between hunter-gatherers and agriculturalists, which occurred in the Holocene. The Leakeys' own view was that there were distinct Elmenteitan and then Neolithic industries succeeding the Eburran (Leakey 1934). While there may be subtle differences in these industries it must be acknowledged that there is broad continuity in lithic technology with both the Eburran and subsequent industries characterized by obsidian assemblages of backed artefacts, double-sided retouched blades and end-scrapers. What is distinctive about the later industries is the introduction of new technologies. Pottery is securely dated in Kenya from the site of Enkapune ya Muto to 5500 BP (Ambrose 1998), however Leakey reported pottery from the Lower Levels of Gamble's Cave (*c.*9000 BP) and from Bromhead's (7410 BP). Sheep-goat pastoralism was introduced to southern Kenya around 4,200 years BP (Barham and Mitchell, 2008). Stone bowl production dates to at least 3200 BP at Njoro River Cave, while a groundstone axe producing industry although undated attests to a Neolithic-like culture. It is clear that more work needs to be done to write the Holocene culture history of this part of Kenya, and the PRM's collections may play an important role in offering comparisons with newly excavated material.

The diversity of MSA material in the PRM collection is remarkable. Kenya appears to be in a crossroads position, as it has both the Sangoan tools of west and central Africa, the Levalloisian industry of the Horn of Africa, and perhaps the Stillbay industry of South Africa (Clark 1988), or even the Aterian of North Africa. In the PRM's collection there are the typical medium-sized Levallois cores and flakes from Sotik; the pseudo-Stillbay obsidian points from the Kinangop plateau; the small U-shaped bifaces from Nanyuki; and the Sangoan core axes, pebble cores and radial

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cores from Yala Alego. Future research into untangling the relationships between these technologies may be profitable.

Finally, there is the site of Kariandusi, which probably has the highest research potential of any Kenyan site in the PRM's collection, being an excavated site of the order of 1 million years old. Although many of the Kariandusi bifaces are in a secondary context, there are clearly some that have not been transported far and there is scope for understanding the taphonomy of the site through studying the artefacts (Shipton 2011). From a technological perspective the Kariandusi artefacts could shed light on hominin behaviour 1 million years ago, as they represent a classic large flake, high biface density Acheulean assemblage (Shipton 2011). Comparison with other dated Acheulean assemblages housed in the PRM from other parts of the world, such as Wolvercote and Barnfield Pit in the UK, Tabun in the Levant and Nsongezi in Uganda, may elucidate behavioural variation in the Acheulean.

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