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Review Paper

A NEWLY DISCOVERED MSA/LSA VARIANT OR MASASIAN: REPORT OF ARCHAEOLOGICAL INVESTIGATION OF SOUTH EASTERN TANZANIA

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Compared to the rest of Tanzania, especially northern, central and coastal Tanzania where there is good knowledge of the archaeological potential, southeastern Tanzania is very poorly known. Until the current investigation, this part of Tanzania was so much dominated by Historical, archaeological studies championed by Chittick's detailed publications on the Kilwa Monuments and later followed by scholars from the University of Dar es Salaam,that it was assumed there were no earlier human activities (Chittick 1966, 1974, Chami 2009, Chami, et al 2001, Chami, 2001, Matiyas 2001, Msemwa 2001, Wafula, 2001, Kwekason 2011). Not only has the current research on the Tanzanian Makonde Plateau and its outliers proved such notions wrong, but it has shown that there are assemblages which, subsequent work might perhaps show technological and typological resemblances to southern African and northern Mozambique MSA/LSA mode of existence. For example, recent research in Mozambique has demonstrated exploitation of wild cereal by the MSA folks (Mercader et al 2008). The assemblages reported here exhibit unequivocal MSA and LSA affinities and seem to be distributed in the northern hill tops and slopes within the Makonde Plateau. Iron Age artifacts in the form of pottery are also present but rare. However, this report deals particularly with the MSA/LSA in Nachingwea, Masasi and Newala Districts in S.E. Tanzania. The analysis, though preliminary, indicates that these assemblages are dominated by Middle Stone Age (MSA) tools, and an increasing frequency of Later Stone Age (LSA) bladelet production, and are therefore transitional between the MSA and the LSA. As has been argued by some authors, occurrence and recognition of MSA and LSA transitional assemblages suggests that no cut and dried classification into MSA or LSA can be applied to all late Pleistocene assemblages and supports a gradualist view of the MSA/LSA transition in this region (Clark 1997). It is hoped further fieldwork might generate more spatially comparable data that would justify the creation of an informal name for such southern Tanzanian industries, the Masasian.

Keywords: South east Tanzania, Makonde Plateau, MSA/LSA assemblages.

INTRODUCTION

Literature Review

Search of the literature for archaeological work in the study area is bound to usher in rather poor results. In an attempt to find information relevant to the area one cannot help focusing north into Rufiji valley system and Kilwa, some 150 and 100km respectively north of the study area. The later has had an older history going as far back as 1958 when J Kirkman excavated Kilwa (Kirkman 1958) followed by the indomitable work by Chittick (1965,1966 1974) which not only described the pottery and ruins but also demonstrated the presence of Stone Age cultures with MSA and LSA features (Isaac 1974). Subsequent in depth study of the Kilwa pottery has revealed pottery type which according to Chami (2004, 2005) bears resemblances with the Narosura pottery of Rift Valley. South of Kilwa, in Tendaguru, stone tools has been reported, but their statigraphic belongingness is yet to be established (Chami and Kwekason 2003). The same authors have also reported stone tools at Kitere in Mtwara.

The Rufiji region, thanks to the untiring efforts of Chani and his cohorts, has been subjected to archaeological survey and excavations for over two decades now. The sites of

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Songa, Misimbo, Mkukutu Kibito for example have yielded EIW Kwale microliths and grooves stone (Chami 2001). However, prior to Chami's research onslaught, Schmidt and Karoma had conducted the first field work in the area (Scmidt 1987) followed by another fieldwork led by Fawcett and LaViolette in 1990, but these attempts hardly ventured south of Kilwa. Given the paucity of information to characterize the archaeology of southeastern Tanzania, this study has succumbed to the temptation to look across the border to neighbouring Mozambique for close correlates.

Bio and Physiogeographical background

The ancient rock formations in the study area are related to the Karoo and include calcified sandstone as well as igneous and metamorphic types, particularly granite and quartzite. Jurassic rocks occur in three areas, north in Tanga area and the hinterland of Dar es Salaam and southern Tanzania (Fig.1). The Jurassic sediments south of the Rufiji basin represent the southernmost Jurassic occurrence on the African continent excluding Madagascar (Saggerson 1962). On the other hand, marine lower Cretaceous occurs in the south and is represented by marls, limestone and sandstones, while continental deposits of the same age are referred as the Makonde Sandstones (Ibid). Upper Cretaceous rocks are reported from numerous localities on the coast where the Touronian is represented. Red sandstones from the Lake Rukwa trough and northwest of Nyasa are also considered to be Cretaceous (Ibid). Presumably, these have been metamorphosed into red ortho-quartzite, which abounds in the area and predominates the raw material for artifact manufacture.

The coastal plain and the Makonde plateau in the interior occupy a large part of the research area. In addition, there is also a relatively large area, which would fall under the river flood plain, the most conspicuous being the Lukeledi river valley. On the coastal plain and the Makonde plateau, the sediments can be described as sandy with various inclusions of silt and gravel, while in the river valley there are clays, sand and silt.A chalcedony-like cryptocrystalline material also occurs, but this research was not able to investigate whether it is exotic or occurs locally. Sedimentary types such as limestone also occur, but where they outcrop they are badly weathered. Where the land has not been impinged by cultivation, the vegetation on the Makonde plateau can be described as woodland with Brachystegia or Miombo woodland or old planted cashew and mango trees (Ball & Gregory 2007). However, tree growth is secondary or bush in areas such as the lower hill slopes and river valley, presumably because such areas have come under cultivation for a long time. Though no wild animals other than monkeys and baboons were observed during the survey, there is no reason to surmise that the area was devoid of animals in prehistoric times, especially given the fact that the Selous Game Reserve which abounds in the game cannot be more than 200km away. In fact informants claimed that where the habitats have not seriously been impacted by human activities,antelopes (bovids) are known to have frequented them on occasions.

Gully erosion (fig 2) is a significant geomorphological feature. Overall, gullies are common and spread equally over different landscape units. Both human activity and nature of the sediments i.e. deep highly weathered sandy soils are factors that influence the susceptibility of the Makonde Plateau to gully erosion. Appreciating differences in susceptibility to gully erosion between landscape units is most relevant for targeting soil conservation measures (Achten, Wouter M.J. et al 2008). Aside from the relevance to conservation is the fact that the erosion, especially on the escarpment has improved the archaeological visibility though simultaneously contributing to the destruction of archaeological sites.

Field Work

Most archaeological field work has two components; survey and excavation. The amount of each depends on a number of factors, all of which make up the research design. Factors to be taken into consideration include purposes for which the fieldwork is and logistics considerations. For this project whose main purpose is the investigation of the archaeological heritage of Mtwara, the two component were found necessary and indeed complimentary. In the first phase the field work was dominated by the survey, but a few excavations were also conducted. Logically, the second phase was dominated by excavations, but a limited amount of survey was undertaken in order to augment knowledge about the distribution of archaeological sites, particularly in Masasi District.

Survey Methodology

With field gear and appropriate topographical maps of the area,the team drove from one village to another on the main road (Mtwara-Mingoyo-Masasi) stopping and camping at convenient places proximal to expose sediments of the escarpment. The team then visited all the areas where the sediments had been exposed by either natural forces or by human activities within walking distance from the nearest car park. Subsequently, it was learnt that most of the exposed sediments on the hill slopes and river valley banks are presumably attributed to the 1990 heavy rainfall and floods, which broke the record in the area. The team perambulated as much of the exposed ground as time allowed and whenever in doubt shovel test pits were employed and complimented by occasional poking of the ground with small picks to establish stratification, if any, of archeological remains. The survey revealed variable spatial scatter of archaeological materials as reported below, but there were also areas that did not show any archaeological traces on the ground or stratified subsurface. Starting from Mtwara due north the team surveyed exposed sediments on the road to Mingoyo (Mnazi Mmoja) and then due west on the road to Masasi as shown by the two red arrows in fig. 3. Altogether 10 sites were discovered, but only assemblages from six of them are discussed below reproduced in the appendix.

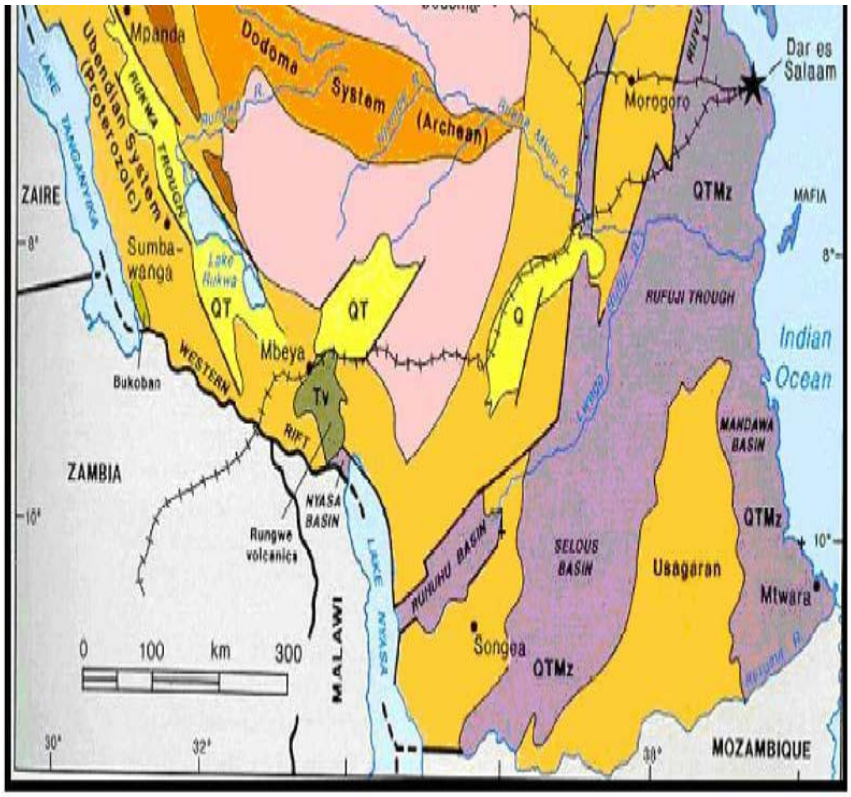

Fig 1: Geology of southern Tanzania after Google

Fig 2: The Makonde Plateau escarpment showing gully erosion after Google

Nanganga Ridge

The survey team moved farther west from Mingoyo at the junction of the Mtwara Lindi and Mnazi Mmoja Masasi roads to Nanganga Ridge (Newala District) where an area of ca. 1km2 was subjected to intensive survey concentrating on the northern slopes of the hill. On account of the poor archaeological visibility, very few archaeological remains were seen on the surface. However, scattered on the surfaces which, had been exposed by either natural forces of erosion or through excavation for road fill, were many artifacts of quartzite. Nanganga Ridge can roughly be divided into

Nanganga Ridge 1 or Nanganga West, Central Nanganga and Eastern Nanganga.

Fig 3, Southern Tanzania and northern Mozambique showing the area covered (arrows) by the fieldwork. Artifact recovery strategies included survey and test pitting. The survey proceeded to the sites of Fini Nkungu, Ndolo, Ndelele (Masai District) and, Njenga (Newala District),

Excavations

The following sites were excavated:

Nanganga West 37052509/8850988

In addition to the surface finds a 2x1m trench was laid on the northern slope of the ridge in an area exposed by erosion, but very few artifacts were recovered as shown in table 2 below. The choice of the site was influenced by the large concentration of artifacts lying on the surface. The excavation revealed a single stratigraphic unit whose lithology is described as gravel-rich brown silty clay. The size of the gravel increases with depth. Artifacts, all of which are made from the red and white quartzite were found within the unit. At the bottom boulders of quartzite and few artifacts were observed.

Trench II. A 1x4m trench was laid on the foot slopes of the hill at GPS 370520527/8851038 about 50m west of Trench I. Two stratigraphic units were recognized; a black humus soil with lots of boulders, but with no artifacts and a gravel soil with many gravel pieces and few artifacts. The lithology is yellowish brown clay. This was excavated to 88 cm below surface and thereafter no more artifacts were observed and hence further digging was stopped.

Trench III. GPS 370520152/8851076: A 1x1m test pit was excavated through the black humus, and the yellowish brown sandy clay to a horizon of huge gneissic weathered boulders at about 50cm depth below surface (dbs). A few artifacts were found after the 10cm thick humus soil. Artifacts from the survey and test pit are summarized in table 2 below

Ndolo at GPS 370503813/8839656: A 2x1m trench was laid on the southeastern slopes. The excavation revealed a single stratigraphic unit which can be described as red sandy clay with very few artifacts. The raw material from which the artifacts are made is a sort of cloudy quartzite. Artifacts were observed to decrease appreciably with depth so that beyond 57cm dbs, no more artifacts were observed. Other excavations were conducted at Fini Nkungu, Chilonji, Ndelelo and Njenga. Njenga revealed the deepest stratigraphy which has been adopted as the general stratigraphy of the area and reproduced below

Generalized Stratigraphy

On the basis of the excavations conducted at the six sites the general stratigraphy can be summarized into four broad units which measured from the western wall are (Fig 4)

1. Top chocolate brown lose sandy clay unit full of roots and rubble and measuring 25cm on the average. Artifacts the majority of which are microlithic and therefore suggesting LSA belongingness were found
2. Brown compact sand/silty clay with a few artifacts which, unlike in the overlying layer are larger in size and summoning the MSA. Average thickness is 20cm
3. Brown boulder-rich compact silty clay with few artifacts which on the basis of types are MSA. The average thickness is 15cm
4. Brown compact gravely layer with no artifacts. The excavations were taken down to an average depth of 1.0m after which further digging was brought to a halt on account of the sediments being sterile.

The Finds (Assemblage)

The combination of the above approaches recovered a total of 3941 of which 3145 were obtained from excavations and the rest from sites'survey and trench surfaces as summarized in the tables (Table 1, & 2) at the end. There are many forms such as a variety of bifacially modified pieces, core axes, picks, discoidal cores, kombewa flakes, and flake blades, some of which are products of the Levallois reduction technique and described as belonging to MSA and LSA. The Middle Stone Age (MSA) as defined by Goodwin (1929) includes flake tool industries, which succeed the Acheulean, but precede blade-based microlithic industries. The absence of handaxes and cleavers, the employment of the Levalloisian and particularly the faceted platform techniques, convergent and parallel flaking on flakes, and a variety of flake-tool forms are some of the dominant features of these cultures (Malan 1957, Masao 1992). The MSA is characterized by typological variation among stone artifact assemblages. This variability has been interpreted as a reflection of different economic activities, different materials or different environmental adaptation by MSA populations (Clark 1988). The MSA, or Mode 3 Industries, are denoted by the presence of flakes with features suggestive of the prepared core technique. The prepared core or Levalloisian technique, which was developed during the Acheulean, reached the peak of perfection during the terminal stages of the Acheulean and survived to the MSA. In the present assemblage there is also a significant component of artifacts which due to their types, size and reduction techniques belong to industries that succeeded the MSA industries. These are LSA and are represented by microlithic forms such as scrapers, notched pieces, percoirs and bipolar cores. These are stratified together with the MSA component and are therefore suggestive of a MSA/LSA transition.

Flakes and Blades

A total of 1382(35.1%) detached pieces were recovered. Of these, 216 (5.5%) are Levalloisian flakes while 109 (2.8%) are blades recognized as such on account of their being at least twice as long as they are broad. There is a wide variety of flakes, distinguished on the basis of the type platform, number of dorsal scars, absence or presence of cortex, and length width ratios. While the majority of the flakes exhibit facetted platforms there are also some with point and scaled platforms signifying the bipolar core reducing technique though bipolar cores are rather rare in the assemblage. Most of levallois flakes exhibit broad dorsal negative scars again signifying employment of the prepared core technique.

Fig 3: South eastern Tanzania after Tanzania atlas showing the transect of the study area

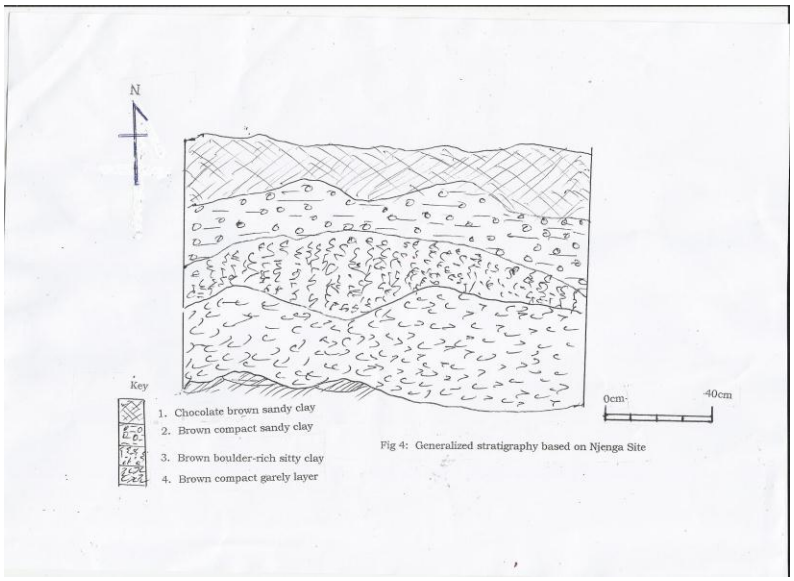

Fig 4: Stratigraphical section as revealed by one of the excavations

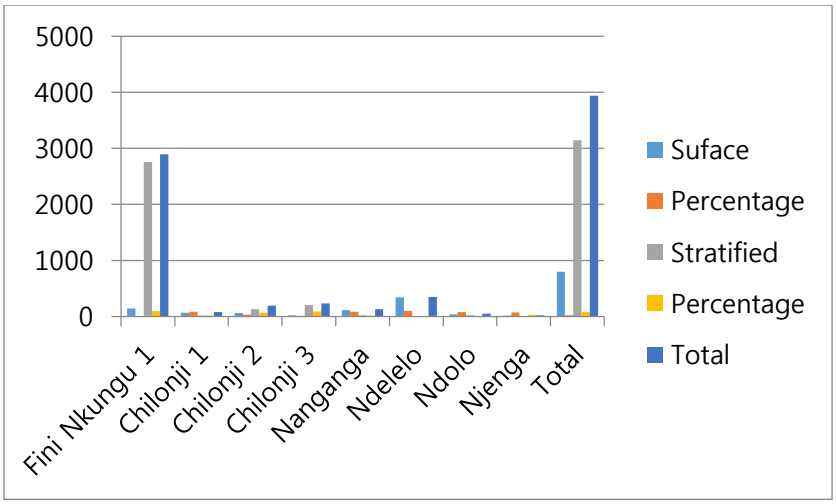

Fig 5: Percentage distribution of surface and stratified materials according to sites

Utilized flake/blades

Flakes and blades are also known as technical knives, a functional category implying that they were used to perform activities related to cutting on account of their sharp edges. A total of 302 (7.7%) of all flakes/blades exhibited some edge damage, which could have resulted from utilization. However, since the majorities are of quartzite, most of which is coarse grained, it is also conceivable that part of the edge damage seen is natural. While flakes and blades can easily be subsumed into the utilizable artifacts category due to exhibiting edge damage, core tools such as scrapers and cores have also been shown to have been used to process plant food (Mercader 2009).

Kombewa flakes

Two flakes displaying double bulbs of percussion, known as Kombewa flakes were also recognized. Kombewa flakes are also a feature associated with the MSA (Clark 1970)

Scrapers

Most types of scrapers are represented in this assemblage and form the third most frequent artifact type after flakes and utilized flakes and the largest formal tool category accounting for a total of 156 (3.96%) of the assemblage. End and side scrapers are equally represented, but other types such as thumbnail, core and irregular scrapers were present but few in numbers.

Percoirs/burins

These are implements which are technically or intentionally spalled/flaked at one end to produce a bit-like point, presumably for boring. They make up an insignificant proportion of the assemblage and account for 30 or (0.8%).

Unifacial and Bifacial Points

Although there were only 11 (0.3%) such artifacts, they are considered important as being among the fossil fossiles directeurs of the MSA. They measured 10cm in average length and exhibited a pointed end achieved by trimming the implement either from one or both sides. They are all made of quartzite.

Biface

A total of 11 (0,28%) bifaces two of which can be considered diminutive with an average length of 8cm were recovered. They are all intensely worked from both sides to produce an almond shaped implement. They could pass for picks.

Core axes and Picks

These are also considered to be the fossil fossiles directeurs of the MSA. Six implements were on account of the bifacial short stepped trimming at one end while leaving the butt crude and unworked, were recognized as either picks or core axes. All are made of coarse grained quartzite. A total of 27 (0.67%) implements were scored as core axes and picks.

Cores

A total of 161 (4.1%) flaked pieces were recognized as cores, thus making this the second largest category after flakes and blades. On the basis of where the flaking originates and the direction of the flaking, they may be classed into four main categories:-

1. Polyhedral: cores that are characterized by several striking platforms with multiple flaking directions. This was the most dominant category accounting for 67.5% of all the cores.
2. Single platform: cores that possess one platform from which the flaking originates. They can easily intergrade with core scrapers especially when the flake scars are small and close to each other. Only 29 such pieces were recognized
3. Discoidal: Cores in which the flaking originates from one platform, but in opposite directions so that a flaking perimeter or equator is created. Although only six of such cores were recovered it nevertheless an important observation because this type is associated with MSA and earlier industries (Masao 2009)
4. Bipolar: a type of cores in which the flaking originates from opposite ends, perhaps by placing the core on an anvil during flaking of which a total of 36 were recognized as such. Cores of this type will exhibit scaling or crushing on one or both ends. The bipolar core reduction technology is more associated with LSA, which has a considerable component of microlithic implements.

Angular Waste made of broken chips,which could have resulted from the process of tool making recognized as suchfrom the angularity. They have therefore been scored as core fragments andflake fragments. At 2075 pieces accounting for 53% of the assemblage were recorded. Since some of them could have resulted from natural breakage of the rocks, their significance cannot be correctly assessed.

Discussions

All the hill slopes visible from the Mingoyo Masasi road were found to contain scatters of artifacts in varying degrees of concentration. From the surface material it appears that there are two technologically different assemblage representing two culturally and temporally different industries; the LSA with some microlithic flakesand the MSA in which the unifacial and bifacial core tool element appears in significant proportions. A later industry, Iron Age, may have capped the sequence, but the onslaught of slope wash may have eroded it away. Very few Iron Age shards were observed even at the base of the hill slopes.The LSA is represented by forms such as a variety of microlithic scrapers, utilized flakes, unmodified flakes and bipolar cores. On the other hand, the MSA, which is more dominant is represented by types such as core axes, miscellaneous bifacial pieces including diminutives hand axes, picks, unifacial pieces, scrapers some of which are peculiar in that they are highly keeled dorsally, large flakes some of which are levalloisian, modified flakes and blades, and many types of cores including discoidal types. (see illustrations figs. 5-8). However, there was no discernible stratigraphic separation from the MSA to the LSA, which suggest that the assemblages are transitional MSA/LSA. Curiously at Nangana West, a few of the artifacts turned out to be conjoinable and hence corroborating the surmise that the site was a factory site.

Fig 6: Unifacial points, scrapers and discs indicative of MSA from Finni and Njenga

Fig 7: Bifacial points from Finni, Ndelelo and Njenga

Fig 8: Diminutive bifaces from Finni, Ndolo, Njenga and Ndelelo

The dominant raw material from which artifacts are made is ortho-quartzite, which occurs as huge boulders all over most of southern Tanzania. It is recognized by the large grains, but color is not a diagnostic feature since it can occur in red, brown, gray, and shades of white. The other material is a cryptocrystalline rock material, which looks like chalcedony. Ordinary or grainless meta-quartzite is also used, but not as frequently as the other two rock materials.

The assemblage is very similar to that described from Kilwa as Kilwan by Masao in 1992. As noted in the Kilwan assemblage the raw material is dominated by calcified sandstone. Like the Kilwan, the assemblage discussed here, also exhibits a fair amount of quartzite. Both display features and types which are usually associated with the Middle Paleolithic or Middle Stone Age, as such industries are known south of the Sahara, but it has a clear component of LSA features in terms of artifact types and the reduction process. Broadly typologically comparable industries have been described in northern Tanzania, especially from Lake Eyasi as Mumba and Lake Natron, but they are also known from southern Africa (Mehlman 1979, Clark 1999, Masao in prep). Methods of lithic production and the chronology of the MSA/LSA transition and associated behavior have been studied elsewhere and findings suggest that there was not a dramatic innovation in technology, but rather continuity between MSA and LSA (Clark 1999).

The implications of finding MSA/LSA industries in southern Tanzania are far and wide. MSA industries are roughly dated to between 20,000-200,000 yrs B.P., but the earliest date so far reported in Tanzania for such industries is 120,000 yrs Bp. This date comes from Laetoli where it was associated with the skull of archaic Homo sapiens, otherwise known as Ngaloba Skull or LH 18. The MSA or mode 3 industries are the Sub-Saharan rough chronostratigraphic equivalent of the Middle Palaeolithic in Europe and North Africa and like the European counterpart industries, they are associated with the emergence and spread of anatomically full modern man, successor of Archaic Homo sapiens (Allsworth-Jones 1993, Mellars 1992, Clark 1970, 1975,1981, Singer& Wymer 1982 Brauer 1989,) The first anatomically modern humans and Middle Paleolithic or MSA industries may have emerged between 251,000-195,000 BP, but the earliest modern people are almost 200,000 yrs old. Early moderns are associated with Middle Palaeolithic or MSA assemblages, while archaic humans are often found with Acheulean artifacts However, there are transitional forms between archaic and modern which in Africa include among others, specimens from Eliye Springs (Kenya), Florisbad (South Africa), Ngaloba (Tanzania), Omo Kibish (Ethiopia), etc. (Willoughby 1993).

This implies that the settlement of southern Tanzania can be extended back to the Middle Pleistocene. The tool kit also shows technical features which are normally associated with the Sangoan/Lupemban, a stone industry adapted to the exploitation of forest resources (Clark 1970), a speculation which may seem to be less far-fetched than it appears at first sight since this area of Tanzania must have harbored dense equatorial forests during the Middle Pleistocene times. Alternatively, the industry, at least the MSA component, could be broadly comparable to the MSA of Klasies River Mouth in South Africa (Singer and Wymer 1982).

However, the last decade has witnessed the expansion of the MSA and MSA/LSA to southern and south eastern Tanzania. As back as 1970, Clark et al (1970) had surveyed the Songwe River and reported MSA deposits from the lower sediments of its branch, the Nyara River. A second survey in the same region by S. McBrearty, T .Wynn and S.A.C. Waane (Mc Brearty et.al. 1982, 1984) located MSA materials in both stratigraphic contexts and on the surface of flood plain. Recently, Harvey (1993) has carried out further field work in the area and discovered 17 MSA and MSA sites while Bushozi (2011) working northeast of the Area in Iringa has also reported MSA and MSA/LSA deposits at Magubike and Mlambalasi Rock shelters (Collins 2009).

The chronology of the MSA in Tanzania is not yet well resolved. Thanks to the work of Mehlman (1989) in the L Eyasi Basin and southern Serengeti in Tanzania, particularly at the Skull site, Mumba Hole and Nasera, and other recent scholars (Glicanic et. al. 2012) who have recognized and adequately described a long cultural sequence which includes three typical MSA (Njarasan, Sanzako, Kisele) two MSA/LSA (Mumba, Naseran) and three fully developed LSA industries (Lemuta, Silale and Olmoti), and provided some chronometric dating (Mehlman 1989). The industries are named after local geophysical features in the Serengeti and L. Eyasi basin. In the Lake Eyasi Basin previous uranium-series dating technique has produced dates of 131,000 years ago for the Sanzako while Kisele industry was estimated to be 90,000 BP, but recent dating attempts using multiple approaches including optically stimulated luminescence (OSL) and infrared stimulate luminescence (IRSL) have provided dates for the deposits associated with latest MSA Kisele Indusrty and the earliest MSA/LSA Mumba Industry ranging from 63.4± 5.7 to 56.9±4.8 ka (Mabulla 1996,Gliganic, et al 2012), while an age of 49±4.3 ka .has been obtained for the latest Mumba Industry containing ostrich egg shell beads (Gliganic 2012). The only other Tanzanian well-documented MSA/LSA industries reported in the literature come from the Serengeti open air site of Loyangalani, the Ndutu and Nasiusiu Beds at Olduvai and Kisese rock shelter in central Tanzania (Bower 1981: 54, Bower, et.al. 1985 Leakey et.al 1972, Mabulla 1996, Skinner et al. 2003, Masao 2006). The Loiyangalani site has produced both MSA and LSA whereby the MSA includes many scrapers, borers, few points or bifaces along with disc and levallois cores (Bower 1981: 54).

Notwithstanding the foregoing the best dated evidence for the beginning of the MSA is from the Kapthurin Formation in northern Kenya (McBearty et. al 1996) that is dated to 250,000 years ago. In northern (Crater Highlands area)Tanzania Mehlmann (1989, 1991) has recorded a Sangoan-like Njarasa industry in the mid-Middle Pleistocene Eyasi beds on the basis of fauna. The Eyasi beds are stratigraphically older than the long MSA sequence at the nearby Mumba cave, where the base of the sequence is dated to the beginning of the Late Pleistocene (130,000 years). If the assemblage reported here is confirmed to be part of a transitional MSA/LSA, industry, then its closest counterpart in Tanzania is the Mumba industry a Howiesons Poort-like Culture dated to 65,000 years at Mumba stratigraphically succeeded by another MSA/LSA industry the Naseran, date between 40,000 and 20, 000. Mumba has produced early modern human remains dating to the early Late Pleistocene. Age determinations for other MSA occurrences in East African gave a spread of results; 181,000 years in Gaddamotte Ethiopia (Wendorf, et al., 1975), 129,000 years for the Ngaloba beds in Laetoli Tanzania, (Hay 1987,) 90,000 years in Katanda Congo (Brooks et al 1995) and 46.000 at Enkapune ya Muto, Kenya (Ambrose 1998). The data fromEast Africa are consistent with an early modern population expansion in the beginning of the Late Pleistocene.

Table 1: Summary of artifacts retrieved from the six sites

ARTIFACT TYPES	Fini Mkungu	Chilonji	Nanganga	Ndelelo	Ndolo	Njenga	TOTAL	Percentage
Flakes plain	605	92	54	100	10	5	866	22.00
Flake blade plain	56	2	15	0	0	2	75	1.90
Flake plain utilized	151	3	10	42	5	0	211	5.40
Flake blade utilized	22	0	0	4	8	0	34	0.86
Flake Levalloisian	123	32	0	2	0	2	159	4.03
Flake Levalloisian utilized	46	3	3	4	1	0	57	1.44
Kombewa flake	2	0	1	0	0	0	3	0.07
Scraper	77	38	6	32	2	1	156	3.95
Biface point	3	0	0	0	0	0	3	0.07
Unifacial point	7	0	1	0	0	0	8	0.20
Backed pcs	3	1	0	3	2	1	10	0.30
Percoirs/burin	19	1	11	20	4	0	55	1.40
Biface	6	1	2	0	0	0	9	0.22
Biface diminutive	2	0	0	0	0	0	2	0.05
Pick	5	1	0	3	1	0	10	0.30
Core axe	7	4	1	5	0	0	17	0.43
Polyhedral core	60	9	5	9	7	0	90	2.28
Single plant core	24	0	0	2	1	2	29	0.73
Bipolar core	23	9	0	0	1	3	36	0.91
Discoid	3	0	1	2	0	0	6	0.15
Hammer stone	9	0	0	0	0	0	9	0.22
Split coble	11	0	0	0	0	0	11	0.27
Core frags.	890	69	0	17	0	5	981	24.90
Flake frag	740	234	22	100	8	0	1104	28.01
	2894	499	132	345	50	21	3941	101

Table 2: Surface and stratified artifacts from the three sites compared

	Suface	Percentage	Stratified	Percentage	Total
Fini Nkungu 1	139	4.80	2755	95.20	2894
Chilonji 1	66	83.54	13	13.50	79
Chilonji 2	61	32.12	129	67.90	190
Chilonji 3	24	10.43	206	89.57	230
Nanganga	111	84.09	21	15.90	132
Ndelelo	340	98.55	5	1.45	345
Ndolo	40	80.00	20.0	7.0	50
Njenga	15	71.42	6	28.57	21
Total	796	20.19	3145	79.80	3941

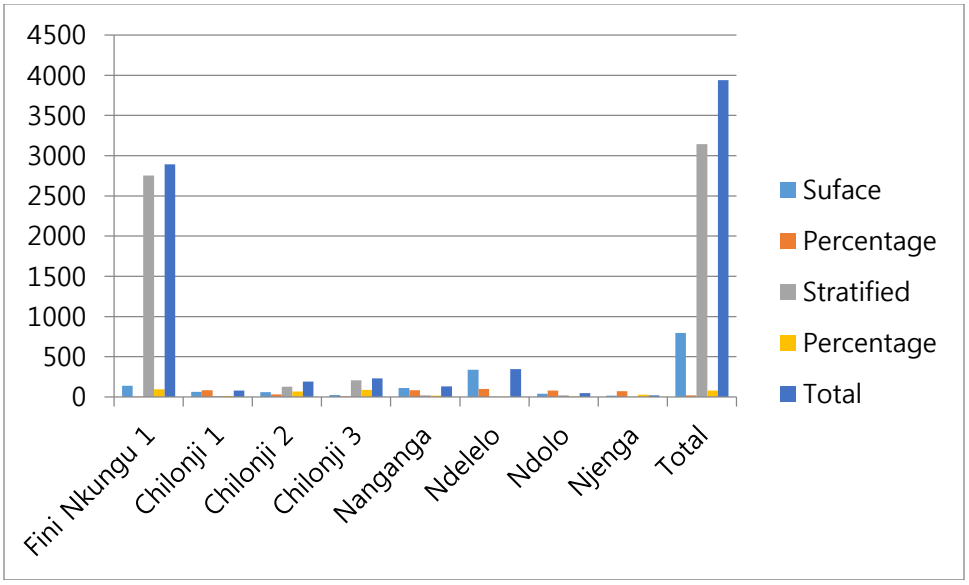

Fig 11: Percentage distribution of surface and stratified materials according to sites

Though the industry could typologically be broadly comparable to the MSA of Klasies River Mouth in South Africa (Singer and Wymer 1982) as previously surmised, closer to southeastern Tanzania is the northern Mozambican site of Ngalue where extensive work by Mercander (2009) has recovered an MSA industry characterized by the use of the discoidal reduction technique. A significant typological feature is the presence of formal types such as points, scrapers, awls, and microliths (Mercander, et al 2009) and in that case comparable to the MSA assemblages described here except for the LSA component. The Ngalue assemblages from the Middle Beds are reported to be technologically and typologically comparable to those from other Middle Stone Age sites located in Malawi, Tanzania, Zambia, and Zimbabwe (Armstrong, 1931; Clark and Haynes, 1970; Barham, 2000; Clark and Brown, 2001; Mercander et al 2009, Sinclair et al. 1919, Willoughby, 2001).

Unfortunately, the lithic assemblages have not been found to be associated with faunal remains. Associated faunal remains would be very informative not only in terms of encouraging speculation about the dietary habits of the early ancestors, but they could provide samples for chronometric dating (Brooks 1990) as well as for relative dating of the assemblages. It is presumed that the pH value of the sediments is not conducive to organic preservation and hence no bones have been preserved. It must however be mentioned that this conclusion is very provisional and indeed tentative for

further and more extensive investigation might dramatically change the picture. During the MSA our species (Homo sapiens) emerged in Africa.

Evidence of human occupation dated to the early Late Pleistocene has been found yet in this part of Africa. Here scholars have shown, based on results from a radiometrically-dated cave section of the Mozambican segment of the Malawi (Nyasa/ Niassa) Rift called Ngalue, a record of human occupation between 105-42ka during the Middle StoneAge. Ngalue contains evidence of human presence in the cave during multiple inhabitation episodes of unknown duration each. These occupations were spread over the course of more than 50,000 years. They represent the only terrestrial record available for the reconstruction of human settlement on the Mozambican side of the central Malawi basin (cf. Clark and Haynes, 1970; Bromage et al. 1995; Juwayeyi and Betzler, 1995; Cohen et al., 2007; Scholz et al., 2007) and one of the few directly-dated Pleistocene sites located along the biogeographical corridor for modern human dispersals that links east, central, and southern Africa (cf. Barham, 2000).

The MSA or mode 3 industries are the Sub-Saharan rough chronostratigraphic equivalent of the Middle Palaeolithic in Europe and North Africa and like the European counterpart industries, they are associated with the emergence and spread of anatomically full modern man, successor of Archaic Homo sapiens (Allsworth-Jones 1993, 1990, Mellars 1992, Clark 1970, 1975,1981, Singer& Wymer 1982 Brauer 1984, 1989,) The first anatomically modern humans and Middle Paleolithic or MSA industries may have emerged between 251,000-195,000 BP, but the earliest modern people are almost 200,000 yrs old. Early moderns are associated with Middle Palaeolithic or MSA assemblages, while archaic humans are often found with Acheulean artifacts However, there are transitional forms between archaic and modern which in Africa include, among others, specimens from Eliye Springs (Kenya), Florisbad (South Africa), Ngaloba (Tanzania), Omo Kibish (Ethiopia), etc. (Willoughby 2007).

Given the paucity of MSA sites in Tanzania, the importance of the discovery of Mode 3 industries in south east Tanzania cannot be over-exaggerated. The discovery raises more questions than answers this brief encounter could attempt to address. One would like to know how extensive the MSA occurrences discovered in the study area and the immediate vicinity are, whether or not there are any faunal remains associated with the industry, what the complete toolkit was like and by inference what sort of environmental exploitation it was specialized for, where the raw material especially the good quality quartzite and chert came from, etc. In order to attempt to address any of these questions, one not only needs a larger sample from a larger area, but the sample must come from sealed deposits in primary stratigraphical context.

The Later Stone Age: In addition to the MSA industries, there is another component and that is the LSA. Unlike the MSA, the LSA has been more extensively studied. We know that the LSA industrial complex represents the cultural expression of Homo sapiens sapiens which, inter alia, had attained a highly specialized mode of hunting while later and in some areas in northwestern Tanzania, e.g. the Serengeti, there was an incipient food production based on pastoralism or the Pastoral Neolithic (PN) as some people would call it. To perform activities such as advanced hunting and food production, the tool kit had to have improved from that of the MSA. This improvement is referred to in the literature as the microlithic revolution of the LSA or Mode 5 industries. The assemblage reported here, while possessing an element of LSA such as microliths, lacks geometrics and a variety of scrapers that would make it a fully-fledged LSA.

Although some of the artifacts recovered are from the surface and thus “offsite”, they nevertheless leave no doubt that southern Tanzania has as important evidence pertaining to the emergence of Anatomically Modern man as the better studied northern Tanzania and southern Africa sites. This discovery should, I hope, stimulate other more systematic research into the area so that a better picture of the cultural heritage of the south unfolds. When this happens the Tanzania Cultural Trust Fund (TCTF) and Palaeontological Scientific Trust (PAST) who financed this pilot study will take all the credit for opening up the south.

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