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RE-EVALUATING THE BONE TOOLS IN THE FORAGER TOOL-KITS OF KHANGKHUI CAVE NO. 3, UKHRUL DISTRICT, MANIPUR, INDIA

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ABSTRACT

Anthropologists define foragers as people who depend largely on wild resources by way of hunting and gathering for their food. Ember and Ember (1995: 232) suggested that the recent hunter-gatherers typically get their food more from gathering and fishing than from hunting. The tool-kits of the Khangkhui Cave No. 3 include both stone and bone artifacts. These artifacts might be used in foraging for their subsistence. The faunal remains that might be hunted by the Khangkhui cave people include cervus, sus, bobide, lizard and wild fowls. The majority of the stone tools are made of limestone quarried from the cave itself. Besides the stone tools, they made tools out of bone probably of the hunted games by using grooving-splitting / snapping, and pressure flaking techniques. Exploring the probability of using bone as raw material for making tools is the indicator of the emergence of human modernity, and then the Khangkhui cave man might belong to the modern human species arrived from East Asia through the land bridge made during the late Plaeistocene along the island of Southeast Asia. It is proposed to discuss these bone tools.

Keywords: *Khangkhui cave, bone artifacts, faunal remains, grooving-splitting/snapping, pressure flaking techniques, Late Pleistocene.*

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Introduction

The state of Manipur is one of the northeastern states of India located at the border adjacent to Myanmar (Fig. 1). Khangkhui is the name of a Tangkhul tribal village in Ukhrul district of Manipur. This village is at about 11 km away from Ukhrul district head-quarters towards southeast. There are four caves at this site, at an altitude of 1767 m above sea level,

of which the biggest one is cave no. 3 and situated near the peak of the hill range. This third cave is well lighted except at the extreme rear end. There are two entrances facing east and southeast and the walls tapers towards the back with a constriction at about the middle. A numbers of stalactites are hanging from the roof and walls of the cave. An experimental digging was done by the author in 1969 and 1972 and, the first report appeared in the Indian Archaeology 1968-69 – A Review (1971) and subsequently the Khangkhui cave materials appeared at various reports (Singh, O.K. 1972, 1980, 1988, 1997, 2009; Singh, M.J. 1991 and Sharma, T.C. 1991). Ryan J. Rabett & Philip J. Piper (2012) stated that, 'The occurrence of 'bone technology' …….. has been seen as one of the classic markers of emergent human modernity …….'. This led the present author to re-examine the bone tool types previously unearthed from the Khangkhui cave. Here an attempt has been made to evaluate the probable utilities of the reclassified bone artifacts to see the behavior pattern of the Khangkhui cave people.

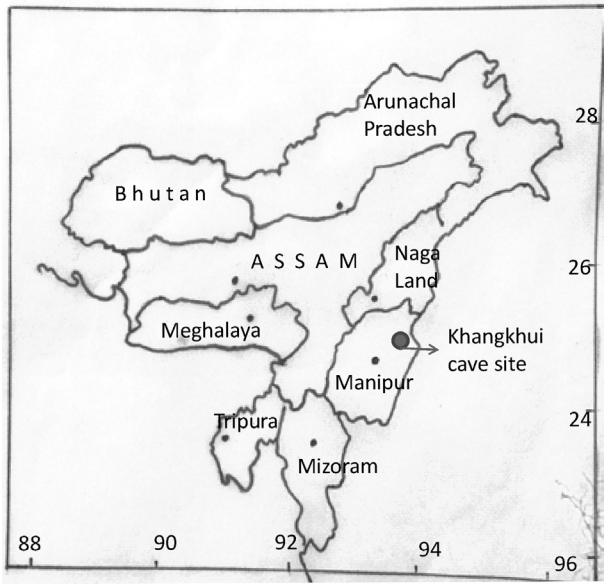

Figure 1: Map of Northeast India showing the location of Khangkhui cave site

Background

The cave is of the cretaceous origin limestone. A tributary stream of the Thoubal River flows at the western fool-hill of the cave site. In the exploratory digging in the cave the author could exposed four layers up to a depth of 1.523 m unearthing bone artifacts in association with lithic tools for the first time in north-east India and estimated based on the faunal remains to the time period sometime in the Late Pleistocene (Singh: 1997), though no absolute date is done so far. Limestone (96.4%), rarely sandstone (2.2 %) and chert (1.4%) were used as the raw materials in making the lithic artifacts. These raw materials were locally available; sandstone might have been collected from the stream bed at the foothill while chert is also found in pockets of the limestone deposit of the cave site. The question that arises is that, in spite of the raw materials for making lithic artifacts being locally available, why did the Khnagkhui cave people also selected bone as a raw material in making artifacts/tools? Lithic tool types include blades, points, scrapers, borers, burins and a few hand axes, cleavers, and chopping tools. The lithic artifacts were dominantly based on flake-blade industry without much significant secondary retouch. Among the bone tools are scrapers, points, blunted back knife and perforators including one with a side notch near the tip. There are a large number of broken bone pieces and a grooved bone in the assemblage.

Among the faunal remains identified are cervus, sus, bovine, small reptile (Lizard?) and wild fowls (Table 1 & Fig. 2) and these could be of Late Pleistocene (Singh 1997). Most of the broken bone pieces appear to have longitudinal fracture after breaking the limb bones by smashing with stone hammer in between the two ends. This is evident by the presence of fractured bones with terminal ends of the long bones (Fig.2:10-12). The presence of bone piece with a groove along thin and narrow fluting scars present at the cutting edge of scrapers (Figs.7 & 8) and at the side of a triangular point (Fig,3:3) might be the result of using pressure flaking technique. This pressure flaking could be done with the burin type of stone tools present in the artifact assemblage. Its length (Fig.4) suggested using of grooving and splitting technique for obtaining the desired shape and size for making tools. The two shallow and small chipping scars at the butt end of the point (Fig.5) seem to have been removed by snapping with a small cylindrical hammer. Very thin and narrow fluting scars present at the cutting

edge of scrapers (Figs.7 & 8) and at the side of a triangular point (Fig,3:3) might be the result of using pressure flaking technique. This pressure flaking could be done with the burin type of stone tools present in the artifact assemblage. Among the perforators, one has a small side notch (Fig.6). This side notch and the blunting of the thick back of the blade (Fig. 9) also could be the result of the pressure flaking with the tip of burin. A small perforator has smooth and polished tip that might be the result of the anthropogenic working.

Among the perforators, one has a small side notch (Fig. 6). This side notch and the blunting of the thick back of the blade (Fig. 9) could also be the result of the pressure flaking with the tip of a burin. A small perforator has smooth and polished tip that might be the result of the anthropogenic working.

Discussion

In Southeast Asia bone technology was reported from many sites. In the Niah cave point forms without the evidence of use was reported as early as c. 45,000 B.P., and at Lang Rongrien also there was some evidences of anthropogenic working on bone with grooving-and-snap technique dating to about 42,358 +_885 B.P (Rabett & Piper 2012). During the last Termination (c.22,000 – 11,700 B.P.) bone technology appears to have attained a more central position in forager subsistence and continued into the Holocene, particularly in Island Southeast Asia. The appearance of the technology coincides with a shift towards a greater hunting emphasis on arboreal taxa at Lobang Hangus, elephant, macaqus, etc., as well as exploitation of marine mollusca that was evident during the early Holocene at Song Terus cave in the Puung Karst of East Java. It is also evident that edge-ground bone tools, probably of early Holocene period, were predominantly found higher in the sequence at the Gua Lawa rock shelter near the village of Sampung in East Java. At Niah a range of bone implements including 'spatulate' and 'adze' edged forms and points continue to be produced until the Metal Age (Rabett & Piper 2012). A complex bone technology using scraping, grinding and polishing techniques was also evident in the Ma'anshan cave in South China dating to about 35 ka cal BP (Shungquan Zhang, *et al* 2016). In South India Murthy (1974) reported on the Late Pleistocene bone tool industry found in the Muchchatla Chinamanu Gavi cave. In this cave knocking-off, chipping and grooving are the main technique for obtaining the bone blanks, and finished the tools with pressure flaking, but rarely grinding (Murty 1974:213). The .techno-typology shows close similarity with the Khangkhui cave bone tool industry. Nimal Perera, *et al* (2016) also reported on the recovery of 204 bone points from the Batadomba-Lena rock shelter as part of rainforest subsistence strategy by at least 36,000 cal years BP.

In the case of the Khangkhui cave bone assemblage we do not notice the using of grinding technique, but in some small bone perforators there are evidence of having very smooth and lustrous surface at and around the working tip that probably might be the result of use in piercing the animals' hide to produce their dress. The presence of a perforator with a side notch to carry the thread in stitching might indicate dress making of animal skin that were hunted. The faunal remains as stated above include that of cervus, sus and bovide. Scrapers of both stone and bone found in the Khangkhui cave tool assemblage might have been used in the process of skinning the hide to soften it for using in making dress. Again, scraper made of the half of a split limb bone, like the one shown in figure 8, would also help in making the cylindrical shaft of arrows or spear tips. Using of bow and arrow is also indicated by the presence of wild fowls in the faunal assemblage of the Khangkhui cave. The faunal remains again suggest the hunting of both arboreal and terrestrial animals by the Khangkhui man.

Conclusion

If inventory of bone tool technology is the indicator of the emergence of human modernity, then the Khangkhui cave man might belong to the modern human species. But it is difficult to identify the type of people (who were they?), as there is no direct evidence of human fossil so far in the Khangkhui cave. Ofer Bar-Yosef (2015:89) stated that several investigators demonstrated that organic objects used for hunting, shaping wooden and bamboo tools, clothing, strings, etc. should

signify the evolution of the human mind. But the rare preservation of these objects has created a far cry from really understanding the minds of the makers of the Palaeolithic records. Even then the presence of burins, scrapers (including bone hollow convex edge), and the bone perforator with thin side notch in the tool assemblage show definitely well developed mental behavior of the Khangkhui people foreseeing the consequent future activities related to their survival.

Joyce C. White (2011:11) states that technological style provides an enhanced avenue for archaeologists to document communities that share ways of life, social interaction systems, etc., and further noted that decorative styles can span cultural boundaries through trade and imitation, while technological styles endure through learning frameworks thereby enabling the archaeologists to distinguish the past groupings of peoples. Solheim (1974:294) was also of the opinion that the method of manufacture has close relationship with the movement of people. Whether the movement of people from Southeast Asia is indicated, for obtaining the bones to make bone tools (by using grooving and splitting/ snapping technique) found in the Khangkhui cave bone tools is yet to be confirmed. However, the probable origin and route of migration of the Khangkhui cave culture from the Chinese Choukoutien locality-15 culture passing through the Island Southeast Asia when the sea level was very low forming a land bridge as continental shelves in the region has already been discussed (Singh,O.K. 1997:121-23). It is also said that Sumatra, Java, Palawan and Taiwan were geographically isolated by only about 11,000 – 10,000 years B.P. (Dunn 1970:1044). Further study of the cave will definitely help in solving many archaeological puzzles in this region.

Layers	Cervus	Bovidae			Sus		Fowl	Reptile	Small mammal	
	Phalanges	Upper molar	Incisor	Lower pre- molar	Upper teeth fragment	Canine	Fore- limb	Femur (lizard?)	Forelimb (herbivorous mammal)	
1	x	x	1	1(L)	1		1	3	1	2
2	Faunal remains from the second layer are too fragmentary to identify.									
3	3	1	x		2(R)+	x	x	x	x	x

Figure 1: Types of Faunal Remains from Khangkhui Cave No. 3

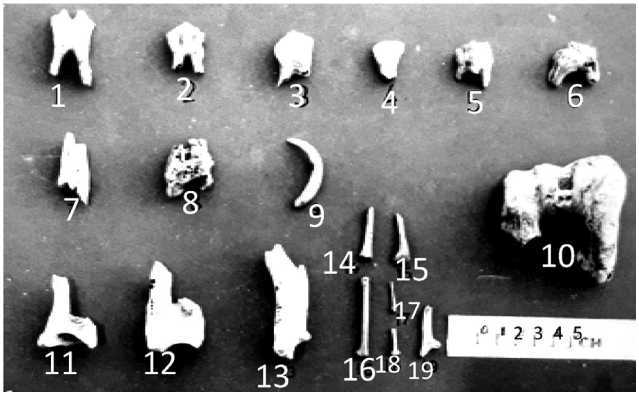

Figure 2: Faunal remains of Khangkhui cave No. 3

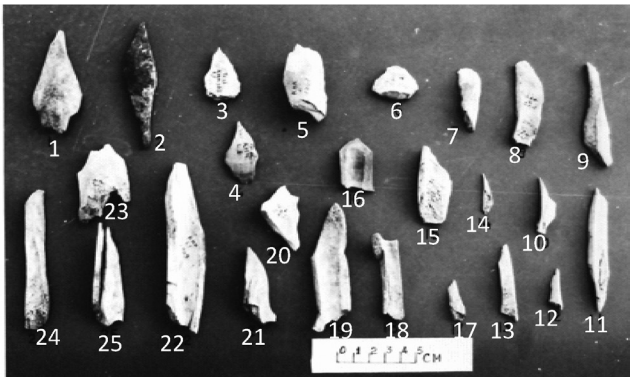

Figure 3: Bone artifacts of Khangkhui cave: 1-4, points; 5-7, scrapers; 8,blade; 9-14, perforators; 15-24, flaked bones; 25, bone fragment with a groove

Figure 4: A grooved bone (scale in centimeter).

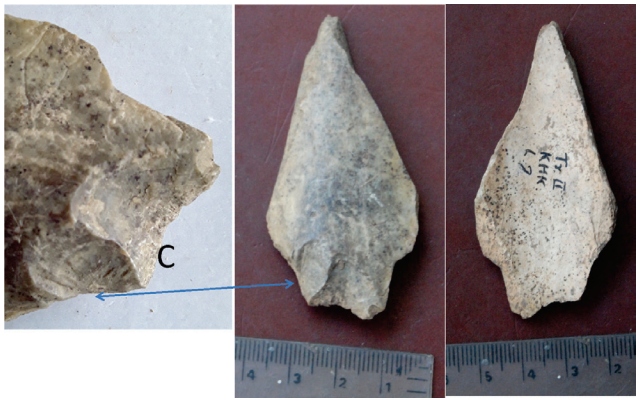

Figure 5: A bone point of Khangkhui cave no.3: A, dorsal view; B, ventral view & C, an enlarged view of the tang showing the snapping scars

Figure 6: A bone perforator with a side notch (scale in centimeter)

Figure 7: A bone scraper (scale in centimeter) & B, an enlarged view showing the presser flaking scars

Figure 8: Two views of a bone scraper (scale in centimeter) & C, the enlarged view of the working edge showing pressure flaking scars

Figure 9: Two views of a bone blade with blunted back (scale in centimeter)

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