

Microlithic Succession & Mesolithic Cultures

Prof. Vidula Jayaswal

The checkered pattern of the history of flaking technology in Indian with early origins and late survivals of tool making traditions, which was characteristics of the Pleistocene period continued in the Holocene period also. Parts of Ganga plains and the adjoining hilly tracts lying within the administrative boundaries of Madhya Pradesh, southern Uttar Pradesh and Bihar, retain significant archaeological remains for the study of the growth, expansion and isolation of techno-culture traits of Mesolithic culture and the implements (Jayaswal, V. 1997). The prevalence of technologies and mode of subsistence for the select theme is highly influenced by the geo-morphology and the ecology of the habitat.

Geography & Environment

The twin geological compositions of the area, - The alluvial plains of the rivers belonging to the Ganga System and the Vindhya-Kaimur hill bordering it, have played dual role in the development of cultures on one hand, and in preservation of some of the earlier culture traditions on the other. It may be held after Subbarao, that the thick fertile alluvial, had been the 'area of attraction' or the 'perennial nuclear region' (Subbarao, B. 1958 : 12), for the growth of cultures, from the later prehistoric times. The geographical features of this zone provided impetus for the origin and development of various levels of cultures, which ultimately developed into the urban centres during the early historical and historical periods. Contrary to this, the forest covered hills provided shelter and protected such groups of societies which could not keep pace with technological growth of the area and survived in some what culture-isolation, till very recently. These have been identified by Subbarao as 'areas of isolation' or '*Cults-de-sac*',.... "where people have managed to survive in perfect ecological equilibrium in small communities with simple life suited to their technological attainments" (Subbarao, B. 1958:12, 142). Each of the two regions, scores over the other in one way, or the other. For instance, the striking advantage of the alluvial plains is its thick fertile cover of soil, which is suitable for growing crops. Hilly terrains are devoid of this advantage. The year round cultivation in this area is also possible for the reason that the entire region is well drained by the rivers which have water throughout the year. Attraction for this area by the communities having agriculture-base subsistence, is thus logical. But, this area is completely devoid of mineral resources, which are profuse in the hills. At the stage when metal became an essential part of livelihood, the inhabitants of the plains must have been receiving a feedback of raw material from the

hills. Use of metal though had become one of the important traits of the early historical societies, its resource area did not attract human settlements. For, the need of surplus food production and the interaction between communities of near and far regions could only be fulfilled by large river systems. Thus, the alluvial ecozones intercepted by large rivers continued to be the seat of the growth of civilization, while the hills gradually acquired the status of the isolated zone.

Technological Modifications & Innovations

Microlith is the diagnostic technological trait of the Mesolithic period. The tiny artifacts of this category are characterized by two features, - one that these are made on bladelets, or the micro-blades, and the other, that at least one of the edges of these tools is deliberately blunted, by high angle retouching. Both geometric and non-geometric forms may be produced in this category. The geometric forms include, - triangle and trapeze, while the non-geometric forms comprise lunate and various types of backed bladelets. The blunting of an edge was required for facilitating hafting of microliths, which were used mostly in composite form. The presumption that this group of tools was used in setting more than one tool on a base of wood or bone, gets support from the fact that microliths are very small to be used individually and without hafting on a base.

The technology of microlith making appears to be of local origin in India. The appearance and the earliest existence of microliths in our area of study were in association with the full-fledged blade industries or the Upper Palaeolithic period. The technological features borne by microliths indicate that this technocratic group was modification and development over the blade technology and was not an invention. The dimension of the blade element was reduced to form bladelets. Besides, the earlier tradition of modifying edge/edges at high angle was also adopted as an essential process for giving shapes to the implements. It may, therefore, be held that the technique to produce microlith was the acquisition of the developmental process of flaking technology. Production of micro-blade marks the point of culmination of flaking technology, which aimed at producing effective working parts with nominal expenditure of stone and labour input. Besides, modification of the edge of these tools evidence high skill of controlled flaking/retouching, which was the second stage of the production of flake or blade tools.

The new technique, which was initiated during the Mesolithic times was the production of large size kitchen equipments. Made of hard stone blocks this group comprises, quern, muller, bola, mace-head etc. Pecking and grinding of the surface of some of these equipments were performed in accordance with the Neolithic technological practices. Utilized primarily as food processing tools, their occurrence in some of the

Mesolithic sites, such as Chopani-mando etc., is not only significant for the history of technology, but it also indicates change in subsistence. Perhaps there was an increase in the consumption of wild cereals as is testified by this category of implements. The other inference which could be drawn in this line is that the subsistence now had a strong bias towards food gathering strategies.

Though microliths may be identified as the diagnostic trait of the Mesolithic stage, their occurrence is not restricted to the Mesolithic period only. It has long history, in which Mesolithic is one, but a significant section. I have identified eight different culture contexts in which these pigmy tools occur. These are - The Upper Palaeolithic, the 'Epi-Palaeolithic', the Early Mesolithic, the Late Mesolithic, the Neolithic, the Chalcolithic, the early Iron Age, and the isolated post-Mesolithic Microlithic Cultures (Jayaswal, V. 1997 : 37). These stages for general discussions may be divided into four major techno-culture stages, - the pre-Mesolithic, the Mesolithic, the post-Mesolithic : stages of technological developments, and, the post-Mesolithic: Microlithic Culture. Needless to mention that contribution of each of the stage is significant in the history of microlithic technology. In view of formulation prevalence and technological status, these stages have been designated the labels, - Stage of Innovation, Stage of Formative theme, Stage of Survival and Stage of conservatism, and follow the successive order of the geo-chronology.

Stage of Innovation

The appearance and earliest existence of microliths in our area of study is in association with the full-fledged blade industries of the Upper Palaeolithic period (Pant, P.C. 1982: 101-102). The techno-typological attributes borne by microliths, as was discussed earlier, indicate that this technocratic group was modification and development over the blade technology. The beginnings of microlith-making in our area of study are dateable to *circa* twenty-fourth millennium BC. The archaeological remains from Gravel III of the Belan-Seoti valley and the later Pleistocene deposits of the Son Valley (Sharma G.R. & J.D. Clark. 1983), indicate that the Upper Palaeolithic industries which are datable by the Radiocarbon method between 24,000 and 18,000 BC, are associated with microliths. It is interesting to note that right from the beginning when pigmy tools formed only 10% of the total implement collection, the microlithic technology appears in developed form, - the specimens are made on well made bladelets (micro-blade having less than 12 mm width), and characterized by abruptly retouched side/sides, - two morphological distinctions for indications of a typical microlith. But the forms of implements are mostly non-specific. For, the tool-kit is dominated by backed bladelets

and presence of a few lunates. Such perfect geometric forms as triangle and trapeze are either absent or when present, as is the case with triangles, these are in negligible proportion and mostly of a typical form. I have therefore, summarized that making of microliths emerged as a subordinate trait to the full-fledged blade based industries, during the terminal Pleistocene. It may further be held that, the origin of this techno-culture trait, was an innovation and not an invention or diffusion, in Uttar Pradesh, where its earliest context is well documented (Jayasawal, V. 1997: 38).

Stage of Formative Theme

All the archaeological remains of the post-Pleistocene and the earlier part of the Holocene are dominated by microliths. This technocratic group not only appears to have formed diagnostic culture trait, but also seems to have multiple growth in the form of variety of non-specific and specific implement types. The blade element and blade-based tools gave way to microliths and recessed to the subordinate position. In archaeological reports the reminiscents of this stage are recorded as 'Epi-Palaeolithic'. 'Early Mesolithic' and 'Advanced Mesolithic/Proto-Neolithic' (Sharma, G.R. *et.al.* 1980: 33-76).

The stone tool collection which, succeeds the Upper Palaeolithic industries in the area of our study, has been identified by the investigators as that of the 'Epi-Palaeolithic' stage (Sharma, G.R. *et.al.* 1980: 37). I have reservations for the use of this term. Since in most parts of the world such as European and African continents this term is used to mark continuity of the Palaeolithic way of life in the post-Pleistocene period. In southern Uttar Pradesh this term denotes a phase belonging to the terminal Pleistocene, when a transition from the Palaeolithic to the Mesolithic was in vogue. If the general nature of artifacts and other associated remains from Chopani-mando Phase I, - which has been recognized as 'Epi-Palaeolithic' is taken into account, it appears to have Early Mesolithic characteristics. For, not only microliths became very pronounced (up to 80% of the finished tools in collections), but, germs of semi-sedentism can also be noted in the associated deposits. The post-holes and the floors, which are remains of huts, indicate feature of semi-sedentary life. In the words of G.R.Sharma, the excavator, the... "possibility of the first hut being associated with the late phase of the Epi-Palaeolithic cannot be ruled out" (Sharma, G.R. *et.al.* 1980: 37). Besides, on account of the stratigraphical considerations also, this group of evidence can be placed in post-Pleistocene period. The terrace formation of Chopani-mando, above which lies the habitation deposits under study, is related to the final Pleistocene activities of the river Belan. One of the contemporary deposits of the group was Gravel IV, which has a Radiocarbon date of 8080 ± 115 BC. If this date marks the time of the formation of Gravel IV, then the

habitational deposit of the Epi-Palaeolithic overlying this, as at Chopani-mando, would post-date ninth millennium BC, and therefore, would fall outside the date-bracket of the Pleistocene, which came to an end around 10,000 Bp, in most of the parts of the world. All these evidence when put together would suggest that at the time of the beginning of the Holocene, Mesolithic stage had fully developed in the area of our study. The diagnostic trait or the formative theme of which was microliths.

It may be put to record that such alluvial plains were suitable region for the formulation of the Mesolithism, which were situated in the vicinity of the hills. Evidence from Belan is a demonstrative example of this. But, gradually the alluvial eco-zones lying at a distance from the hills were also fully exploited. This hypothesis is based on the wide distribution of mesolithic sites in the middle Ganga plains. About two hundred sites have been located in the Sultanpur, Pratapgarh and Varanasi districts of Uttar Pradesh (Sharma, G.R. *et.al.* 1980: 123-131). This group of sites suggests short duration of occupation of various parts of the plains, rich in food resources. The evidence unearthed at Sarai-nahar-rai, Damdama and Mahadaha, clearly demonstrates that the sides of horse-shoe-lakes were the preferred habitats of these hunter-gatherers, who appear to have been attracted to the alluvial eco-system. Savanah-type of grass cover with patches of deciduous forests and small pools of water in the form of horse-shoe-lakes and small rivers were the geographical features, which appear to be attracting Mesolithic population in this region. The attraction of alluvial ecology was so strong that, even the scarcity of raw material in this region was not felt as a serious drawback. It was overcome by a long distance transportation of raw material, - from the Vindhyan hills. Besides, bone and antler were also used as substitute media for tools, to overcome this drawback. Use of bone and antler tools at Sarai-nahar-rai is significant.

This group has been referred to as 'Early Mesolithic'. Both on stratigraphic and techno-typological considerations it may be identified as a stage of continuity. For, at Chopani-mando there is positive evidence for the development of the Mesolithic from Phase I. This like the early one is also marked by the preponderance of microliths and non-use of ceramic and food processing equipments. However, there was a marked change in the habitational behaviour. This can be viewed in terms of long distance migrations in small groups and construction of temporary shelters or huts. Though middle Ganga plain was the most suitable habitat of this time, some other alluvial patches which formed parts of the Son and Damodar valleys were also under occupation (Sharma, G.R. & J.D. Clark. 1983; Lal, B.B. 1958).

The subsistence of this time appears to have strong tendency for hunting, which is evident from the faunal remains of the excavated sites. The wild species of animals identified at the horse-shoe-lake sites include big and small animals and good amount of aquatic creature. It is also significant to note that use of pots and heavy-duty tools, a clue to large amount of cereal consumption was perhaps still not under practice. But elements of semi-sedentism are evident in the remains of shelters. At Chopani-mando, reminiscents of seven huts were unearthed in Phase II, while at Sarai-nahar-rai post-holes and remains of floors indicate construction of shelters of more temporary nature (Sharma, G.R. *et.al.* 1980: 33-37 & 140). The size and location of hearths, at Sarai-nahar-rai, suggest community living and somewhat organized behaviour. The evidence for burying the dead in and around the settlement area was perhaps indication of patterned social behavior.

On-account of the Radiocarbon dates from Sarai-nahar-rai (8395 ± 110 BC) and Bagor II (6380 ± 220 BC), it may be held that between ninth and seventh millennium BC (Sharma, G.R. *et.al.* 1980; Sharma, G.R. & J.D. Clark. 1983), not only did the microliths acquire status of formative theme, but this techno-cultural trait may be accepted as identification of the Mesolithism in archaeological records (Jaysawal, V. 1997: 40). It may be emphasized that parallel to microliths, there is no other culture trait such as pottery or significant heavy-duty tool, which can be ascertained as yardstick for recognizing this techno-economic stage. Soon after the microlith-dominated subsistence was well adapted in the alluvial eco-system of the middle Ganga plain, it appears to undergo change which was in terms of a major shift from hunting-gathering strategies to incipient food producing economy. A few new technologies such as potting and ground stone tool making were also initiated, which along with the new mode of subsistence was a major breakthrough in the history of this region. This process of transformation shall be discussed a little later with Neolithic stage.

It needs to be mentioned that the post-Mesolithic occurrence of microliths in the area of our study falls within two categories,- one which continued with the main line of techno-cultural progress, the other, which survived in isolation as the dominant culture trait. The earlier category has been identified by me as, - 'Stage of Survival', while the latter as, - 'Stage of Conservatism'. Scrutiny of Radiocarbon dates and the contemporary archaeological findings from various Microlithic, Neolithic and Chalcolithic sites of southern Uttar Pradesh and Madhya Pradesh indicate that it was around six millennium BC, that these two culture-setups drifted from one and the other.

Stage of Survivalism

The archaeological remains dating between sixth millennium BC, and the early Christian era belongs the three technological stages, the Neolithic, the Chalcolithic and the early Iron Age. A continuous development of technologies and cultures in uni-linear process of growth is noteworthy feature of this group. It may be clarified that while specifying the main line of culture growth, I do not incline to suggest, that this line was formed by an undisrupted continuous process of evolution. Similar to the microlithic trait, there must be quite a few offshoots of techno-economic traits at various culture-levels.

In this category, microlithic technology seems to exist parallel to the advanced technologies, which formed the basis for the Neolithic, Chalcolithic and Iron Age cultures. But, the technology of pigmy tools, now appears to have acquired subordinate position to the new technological innovations. It may be useful to note that though there is gradual decrease of general frequency of microliths from the Mesolithic to the Neolithic and the Chalcolithic periods, there is sudden decrease in their proportion during the early Iron Age. Besides, the general techno-typology of the microlithic-kit remains somewhat unchanged during the earlier three culture stages, while there is marked increase in trapeze during the Iron Age. All these evidences suggest that till the time when stone technologies provided base to the human subsistence, microliths appear to have survived as one of the important culture traits. Its continuation in the later times was perhaps confined to a group of specialized and restricted activities only.

Stage of Conservatism

This category survived as a parallel branch to the main stream of culture growth discussed earlier. Since microliths are the most prominent culture trait of this group of cultures, it has been named by me- the 'Microlithic Culture', The attitude to cling to the microlithic technology and the resistance towards change is so strong in this case, that, it reflects conservative attitude of the culture makeup. This cultural conservatism is further marked by the tendency to confine to the geographically isolated areas, - like the periphery of western deserts, and hills of Vindhya-Kaimur systems. Both of these tendencies appear to reveal tribal character of Microlithic Cultures (Jaysawal, V. 1997: 43-45).

Scrutiny of Radiocarbon dates from the microlithic deposits of various rock-shelters of the region indicates that Microlithic Culture of the Vindhyan Kaimur region had survived for about five to six thousand years. The date from Adamgarh (5500 ± 130 BC) is noteworthy, as it is so far the earliest date for the Microlithic Culture. On account of which sixth/fifth millennium BC, may be ascertained as the beginning for the Microlithic Culture. Similarly, the dates obtained from Bhimbetka, help in fixing the

end of this date-bracket to around 1500 BC (Jayaswal, V. 1997: 45). Its late survival in restricted parts might even have continued up to the historical period, *circa* A.D. 1000 (date from Bhimbetka of 950 ± 110 Bp).

The Vindhyan Microlithic Cultures may be divided within two chrono-cultural stages. Its earlier stage, appears to date between sixth and third millennium BC. Marked by pastoralism, - one of the Neolithic subsistence, this culture trait appears an intrusion from the neighbourhood, - alluvial plains. The later stage which post-date 2500 BC, is marked by borrowed elements of Chalcolithic and Iron Age cultures of the plains. In the early phase of Microlithic Culture, though hunting was practised, evidence for animal husbandry is also pronounced. The faunal remains from Bagor and Adamgarh sites suggest that both, - hunting and domestication of animals formed the basis for the subsistence of this culture. Besides, the rock paintings depict a number of hunting scenes. Nomadic tendency in which large rock-shelters were occupied as the epi-centres of dwelling activities, was perhaps another noteworthy culture trait of the Vindhya-Kaimur Microlithic Culture. The thick habitation *debris* unearthed from the rock-shelters Adamgarh (Joshi, R.V 1978) and Laharia-dih (Pant. P.C. 1982), support this presumption where undisrupted microlithic habitation deposits have been exposed. The tendency to occupy natural shelters and not to built huts for habitation was the dwelling tendency of the Microlith using communities occupying the hilly terrain.

In the early phase of Microlithic Culture, though hunting was practised, evidence for animal husbandry is also pronounced. The faunal remains from Bagor and Adamgarh sites suggest that both the hunting and domestication of animals formed the basis for subsistence of cultural tradition. The ratio between the wild and domesticated animals from living refuge noted at Adamgarh is 1:1 (Joshi, R.V. 1978:38). The identified species, the one humped cattle, buffalo, goat/sheep *etc.*, indicate breeding for food resources.

The hunting gathering way of life aided with pastoralism persisted during the later phase of the Microlithic Culture also. Besides nomadism, which was essential for hunting-gathering, as well as the pastoral economy in the hills, short duration occupation of large rock-shelters also continued in the later phase. Microliths also remained the basic technological trait till the end. During the entire time-span geometric microliths along with the other unspecified forms survived as the main techno-cultural trait, which except for some frequency fluctuations remained more or less unaltered. Other culture traits such as heavy-duty tools may or may not be found. But, a limited number of pots is invariably associated with these finds. It may be mentioned that both hand-made and wheel-made pots have been retrieved from the habitations. The former appears to be the local production, while the later were imported articles. The well fired and wheel turned

pottery mirrors the techno-cultural levels identified as the Neolithic, Chalcolithic and Iron Ages of the neighbourhood. In the process of borrowing of such articles as copper and iron implements, glass bangles and beads etc., were also obtained by the rock-shelter dwellers of the Vindhya-Kaimur region. It may, therefore, be held that there was a close interaction in terms of exchange of goods between the authors of the Microlithic culture and the other contemporary communities of the Ganga plains. It is important to note, that in spite of the awareness of technological progress of the neighbourhood the Microlith-using communities of the hills preferred to cling to the old ways of living. The borrowed articles remained 'unformalized' and non-adaptive to their almost static culture nucleus, which was resistant towards change.

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