Microlithic Sites of Mandla (Madhya Pradesh: India) and the Problem of Schematic Generalisation in Prehistoric Archaeology

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Abstract

Microlithic sites that were recently discovered in Mandla can contribute to our knowledge regarding the function and continuity of stone tool technology. The question of whether the Mandla example is an isolated case or is an indication of prevalent complex cultural adaptation and regional transformation can still be debated. The latter assumption would challenge the conventional practice of archaeological generalisation. In view of the differential and composite cultural adaptation, it is argued that the practice of chronology construction on typo-technological ground could be a tricky business. In this article, a critical attention is invited on the archaeological practice of generalisation of cultural chronology and the reliability and limitations of typo-technological method – a method still overwhelmingly followed in India with large majority prehistoric archaeological sites found without any contextual/ stratigraphic and/or radiometric dating clues.

Introduction

Mesolithic culture (the cultural period of the Stone Age between the Palaeolithic and Neolithic periods marked by the appearance of microlithic tools) existed in India at least 10,000 years before present (De Terra and Chardin 1936; De Terra and Paterson 1939; Misra 1965, 1985, 1989, 2002,

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2004; Rajaguru *et al.* 1980). Recent evidence, however, suggest that the microlithic tradition in the Indian sub-continent could be of a much earlier date at 35,000 years before present (Clarkson *et al.* 2009), continuing up to the early Iron Age time (Misra 1989) or even extend to the historical time (Cammiade 1924; Fairservis 1971; Gordon 1936; Krishnaswami 1947, 1953; Todd 1950). In 2001-2002, over a dozen of open air prehistoric sites containing microliths were discovered in Mandla (Madhya Pradesh: India) by the author. And for the first time the continuity of the microlithic tradition, at least as a technology, until the early 20th century has been proved (Roy 2003, 2008, 2009, 2011). Typologically, Mandla microliths are of non-geometric types (except crescent no other geometric type is found) and in the absence of pottery it represents a pre-Neolithic stage of microlithic culture. Although several sites are found to be of microliths only, some sites contain microliths associated with large Palaeolithic tool types.

In many places throughout the world contemporary tribes in isolated pockets were found to use stone tool technology until modern times (Blundell 2006; Conte and Romero 2008; Deraniyagala 1988, 1992; Seitsonen 2004; Sillitoe and Hardy 2003). And it is now well understood that technology or culture change was not uniform across time and space. Recent advances in anthropological archaeological research have been critical on classic archaeological practices of broad-based generalisations and phase-based chronology over local site-based chronology as determinant of social and environmental processes (e.g. Bird and Frankel 1991; Dolitsky 1985; Lourandos 1993; Plog and Hantman 1990). In Indian context, it has been argued that it would be unscientific to draw a uniform pattern of development for the different regional clusters of archaeological sites. And that the Indian archaeologists often mistakenly try to draw evolutionary trajectory from chopper-chopping culture, as if it started in India all over again several thousand years after the same had happened in Europe and also as if it had passed through the same stages of Stone Age chronology as recorded elsewhere in the world (Bhattacharya 2004).

In the absence of rapid globalisation means, the co-existence of cultures of different levels of development, as found in contemporary India and elsewhere, perhaps had been much more widespread in prehistoric time, particularly towards the later part of the period. This inevitably would pose challenges to the practice of generalising evolutionary chronology. Any given local situation could be far more

complex than what could be generally seen. Contemporary ethnological condition in Mandla substantiates a picture of composite (i.e. a common cultural/ethnic group using diverse technology/economic pursuits exploring diverse ecological resources across local topographic and/or seasonal variations) as well as differential techno-economic adaptations at different micro-regional contexts (i.e. either different sections/sub-groups of a common cultural/ethnic group or completely separate groups using completely separate sets of technology/economic pursuits as part of their adaptation to the specific local ecological setting in which they are found). In this article, a critical attention has been drawn to the archaeological practice of generalisation of cultural chronology and also to the reliability and limitation of typo-technological method.

Mandla

Mandla ($22^0$12' to $23^0$22' N, $79^0$57' to $81^0$45' E) is one of the districts (local administrative division) constituting the Central Indian State of Madhya Pradesh. The district remained devoid of road communication until early 19th century (Rudman 1912). At present, forest comprises more than half of the area, distributed across four forest-ranges viz. Banjar (South), Jagmondal (East), Motinala (further East of Jagmondal) and Mandla (North). Tropical moist deciduous forest with two sub-types viz. eastern Sal or Sakhu (*Shorea robusta*) and the western mixed with Teak (*Tectona grandis*) divides the district into two major forest types. The river Narmada flows down from the northeast corner, winding around the Mandla town, and then flows towards Jabalpur on the North West. One of its major tributaries, Banjar, cuts its course through the adjoining district Balaghat on the south, and joins Narmada near the town of Mandla.

The soil of lateritic sandy loam type variably mixed up with small pebbles (*kankars*), locally called *barrah*, residual on plateaus/tablelands and on gentle hill slops of foothills is suitable for minor-millet [*kodo* and *kutki* (*Paspalum scrobiculatum*)] and maize cultivation. The rugged plateaus of the northern and eastern Mandla are mainly of this type; with sufficient rainfall, *barrah* is quite productive for these crops. Rice and wheat are grown on the alluvial black cotton soil. Although found in all directions of the low lying pockets of the Narmada and its tributaries, the black cotton soil constitutes the large tracts of flat land on the south and southwest of Mandla town. This southern paddy and wheat growing areas are called *havelli*. A good number of huge village settlements are found in this pocket. In early 20th century some 200 closely clustered villages were

found there (Rudman 1912). On the immediate north of Mandla town there is a sizeable stretch of black soil. Another pocket of black soil of considerable size is found around Narayanganj Community Development block headquarters on the northwest of Mandla.

Gonds who speak a Dravidian language and the Baigas who speak Austro-Asiatic Kolarian are the two aboriginal tribes inhabiting the district. Now both of them have forgotten their original mother tongue and instead speak some local versions of Hindi (national language of India). The Gonds, who are numerically a large tribal group in India, occupy the entire central and eastern Madhya Pradesh, parts of Maharastra, Andhra Pradesh, Bihar, Chattrisgarh, Jharkhand and parts of West Bengal. They constitute nearly half of the total population of Mandla and are widely distributed in the district. Mandla has a long history of Rajput-Gond (Hinduised Gonds) rules. The present day territory of the Mandla district historically was a backward hinterland of Garha-Mandla kingdom at Garha (the present day district of Jabalpur). The capital of the Garha-Mandla kingdom was shifted from Garha (at Jabalpur) to Ramnagar-Mandla (at Mandla) in 1670c during the rule of Hirde Shah (Rudman 1912). Compared to the Gonds, the Baigas always remained a small group and techno-economically more primitive concentrated on the fringe areas of the eastern Madhya Pradesh and Chhattisgarh. At present, the Baigas constitute about five per cent of the district's population.

Until the 20th Century, the Baigas had been solely dependent on swidden cultivation, locally called *bewar*, supplemented by hunting, fishing and collecting forest products. The Gonds on the other hand have taken to ploughing quite way back in early 18th century or even before. Nicknamed *kishan*, meaning "the cultivators", the Gonds traditionally practised a primitive form of plough cultivation called *dhya*. Unlike the more primitive *bewar* cultivation, the Gonds cut wood and shrubs from the nearby forest; bring them to dry on the plot and later burned them. Then they ploughed the ashes into the soil. The *dhya* method, arguably an intermediate between ploughing and *bewar,* could be an improved version of *bewar* cultivation in which ploughing was introduced. In 1869, about half of the Gonds practised plough cultivation, one-fourth *dhya* and one-fourth a combination of the two (McEldowney 1980). The district of Mandla is also inhabited by several Hindu farming castes (e.g. Lodhis and Kurmis), who have come from other districts of Madhya Pradesh and adjoining states. In the 17th century, Hirde Shah invited various Hindu castes into the district to take up agricultural activity (Rudman 1912).

Sites

Delineating the boundary of a prehistoric site may not be an easy job particularly when archaeological remains are found to be distributed in several clusters at different proximities. Foley (1981:163) has argued that the "archaeological record…should be viewed not as a system of structured sites, but as a pattern of continuous artefact distribution and density." Precise geographical location of a tool assemblage is, however, an unfailing requirement to begin with any archaeological investigation. A total of 17 sites have been discovered in Mandla (Roy 2003, 2008, 2009) (Figures 1 and 2; Table 1). In this context, the term 'site' has been used for the location of archaeological remains found within a village jurisdiction either as scattered distribution or as a single or more than one cluster. A problem encountered in this practice is that in some cases adjacent sites have been recorded as separate sites, for being located in separate village areas. For example, the microlithic sites of Babaiha and Gadhar are separated by the Mandla-Jabolpur road that passes bisecting them.

Discussion on archaeological sites without reference to functional ecology would be same as discussing bare bone without flesh. Parkington (1980:73) introduced the concept of "place" as "the set of opportunities

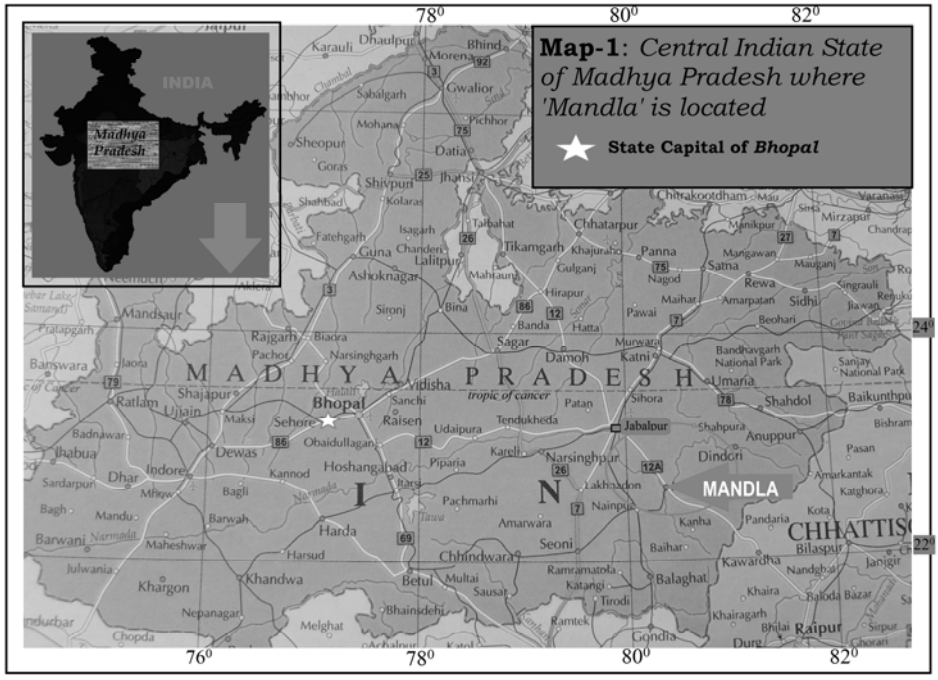

Figure 1. Central Indian State of Madhya Pradesh where "Mandla" is located.

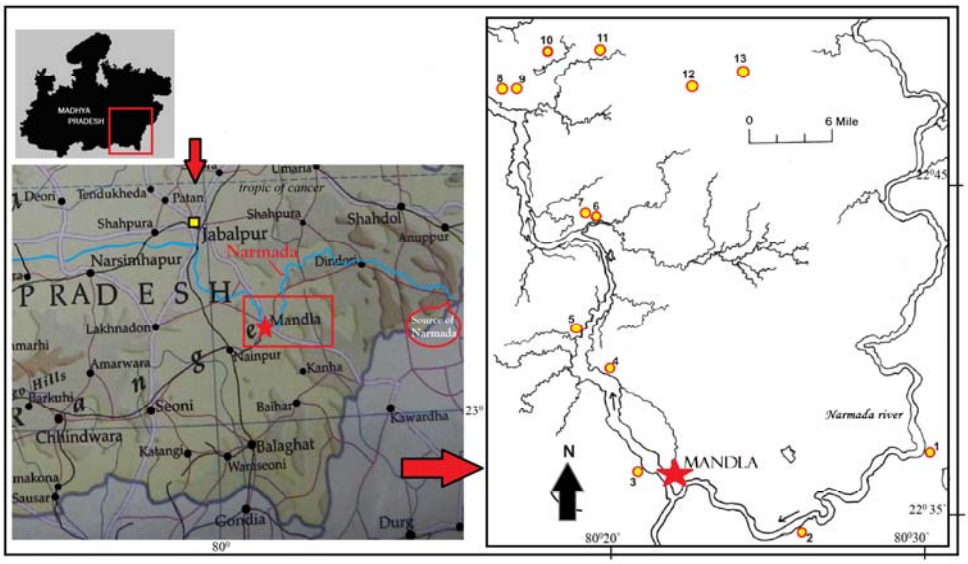

Figure 2. Prehistoric sites in Mandla (see Table 1 for prehistoric sites 1 to 13).

Table 1. Mandla Prehistoric Sites (see Figure 2 for physical location of sites).

1	Ramnagar [80⁰ (30' 48.86") E and 22⁰ (36' 28.46") N]
2	Ghughra [80⁰ (26' 28.50" to 43.31") E and 22⁰ (34' 09.62" to 14.39") N]
3	Manadei [80⁰ (19' 19.29" to 54.61") E and 22⁰ (39' 12.02" to 44.67") N]
4	Gonjhi Ryt. [80⁰ (21' 25.62") E and 22⁰ (36' 45.89") N]
5	Bhaisadah [80⁰ (18' 48.82" to 53.58") E and 22⁰ (40' 26.81" to 45.51") N]
6	Babaiha (Rat) [80⁰ (19' 11.94" to 31.50") E and 22⁰ (44' 13.19" to 13.21") N]
7	Gadhar [80⁰ (19' 07.44" to 19' 12.40") E and 22⁰ (44' 19.74" to 20.77") N]
8	Kunmha [80⁰ (17' 08.70") E and 22⁰ (47' 53.48") N]
9	Chiri [80⁰ (16' 35.11" to 44.77") E and 22⁰ (48' 13.29" to 22.71") N]
10	Partala [80⁰ (17' 41.54" to 19' 07.94") E and 22⁰ (49' 22.54" to 49' 28.50") N]
11	Amdara [80⁰ (19' 24.19") E and 22⁰ (49' 37.37") N]
12	Salhepani (Dobhi) [80⁰ (22' 54.43") E and 22⁰ (48' 24.02") N]
13	Tarbani Dobhi [80⁰ (24' 18.19" to 18.21") E and 22⁰ (48' 48.01' to 51.07") N]
14	Kachnari [80⁰ (49' 47.99") E and 22⁰ (46' 49") N]
15	Kui Mal [80⁰ (20' 40.34") E and 22⁰ (48' 40.42") N]
16	Gullu-Khoh [80⁰ (36' 43.66") E and 22⁰ (38' 22.15") N]
17	Dongar Mandla [80⁰ (36' 35" to 37') E and 22⁰ (38' to 38' 20") N]

offered by the location of an assemblage and thus the likelihood of particular activities taking place there" to archaeological site, in which the "site" is "a geographical locus" which may remain unchanged whereas its "place" might have been. On the basis of geographical proximity (suggesting sites to be closely interacting) and strategic ecological location (suggesting similar resource utilising pattern) we can regroup Mandla sites into a few clusters (Table 2).

Table 2. Primary prehistoric sites in Mandla by ecological setting.

	Ecological setting	**Sites**	**Distance from the river**
I	Forested sites very close to Narmada	(i) Babaiha, Gadhar, Bhaisadah, Gonjhi Ryt. (Mandla), and Manadei (ii) Chiri and Kumha	(i) Less than 1 km (ii) 1 to 2 km
II	Sites very close Narmada and surrounded by expanded flat alluvium, the most fertile cultivated lands	(i) Ghugra	(i) Less than 1 km
III	Sites in the interiors of forest not close to Narmada/ any tributary	(i) Partala and Amdra (ii) Kui, Salhepani (Dobhi), and TarbaniDobhi (iii) Dongar-Mandla, Gullu-khoh, and Kachnari	(i) 5 to 10 km (ii) More than 10 km (iii) More than 20 km

Gadar, Babaiha, Bhaisadah and Gonjhi Ryt. (Mandla) could be treated as one group being adjacent and also being located in the same ecology, very close to river as well as forest. Kumha, Chiri and Manadei could be included in this group, but they are too far away to be treated as closely interacting sites. Similarly, Kui, Tarbani Dobhi and Salhepani (Dobhi) being adjacent and located in similar forested ecology form another group. Partala and Amdra, ecologically come close to the Dobhi group, but they are at midpoint between Chiri and Kumha on one side and the Dobhi group on the other. Of the remaining sites, Ghugra right at the south bank of the Narmada, a small patch of *barrah*, surrounded by

vast plain areas of black soil and being far from any forest is a unique one. Kachnari on the open *barrah* plateau at far end on the northeastern border of the district and Gullu-Kho on the edge of forest are the other sites. The Ramnagar site, however, is a river shore deposition. Ecological settings of some of the sites or group of sites are shown in Figures 3 to 6.

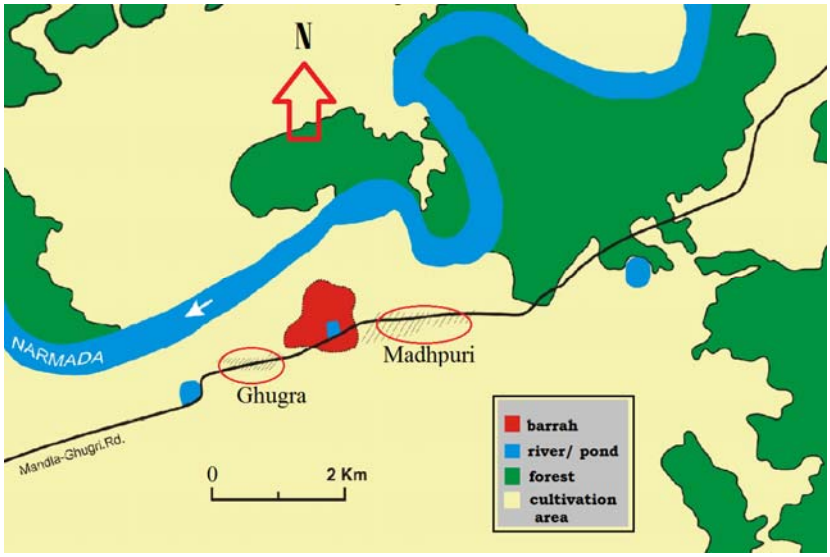

Figure 3: Ghugra prehistoric site. Microliths found scattered in a small pocket of red lateritic barrah land surrounded by fertile agricultural lands. The present day forests are found on the east and northeast directions at a distance more than 2 kilometres.

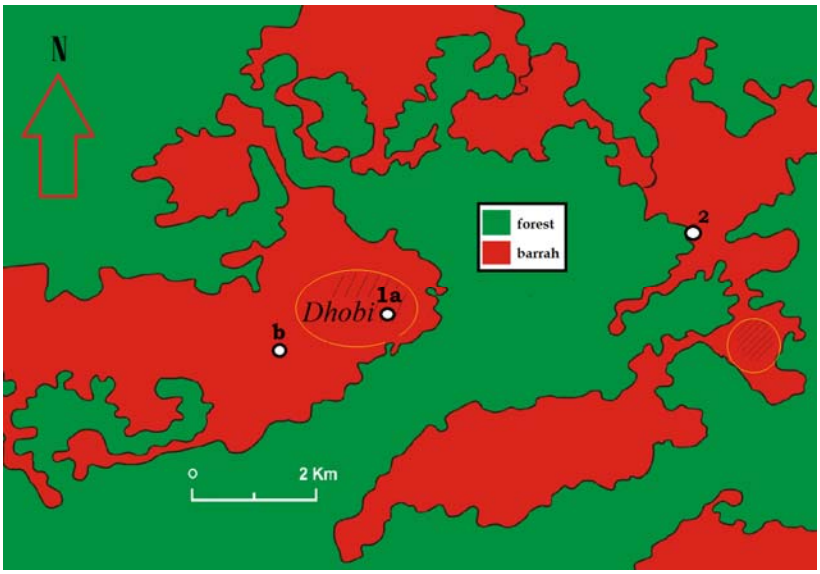

Figure 4: Dhobi (Tarbani & Shalepani) prehistoric sites found in clusters (1 & 2) in red lateritic barrah land exposed in between thick forests.

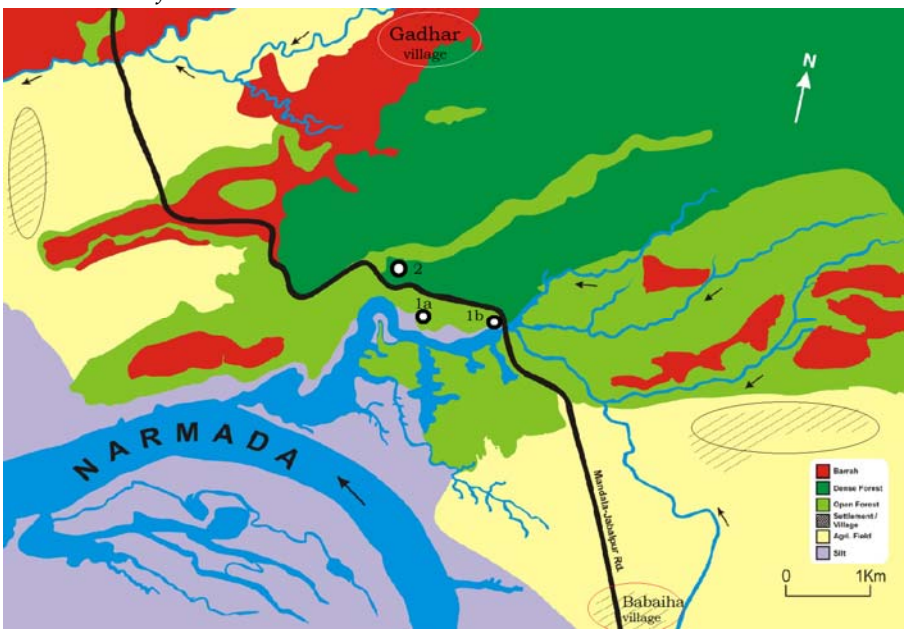

Figure 5: Prehistoric sites of Babaiha (1a & 1b) and Gadhar (2). The sites are equally accessible to both forest and river ecology.

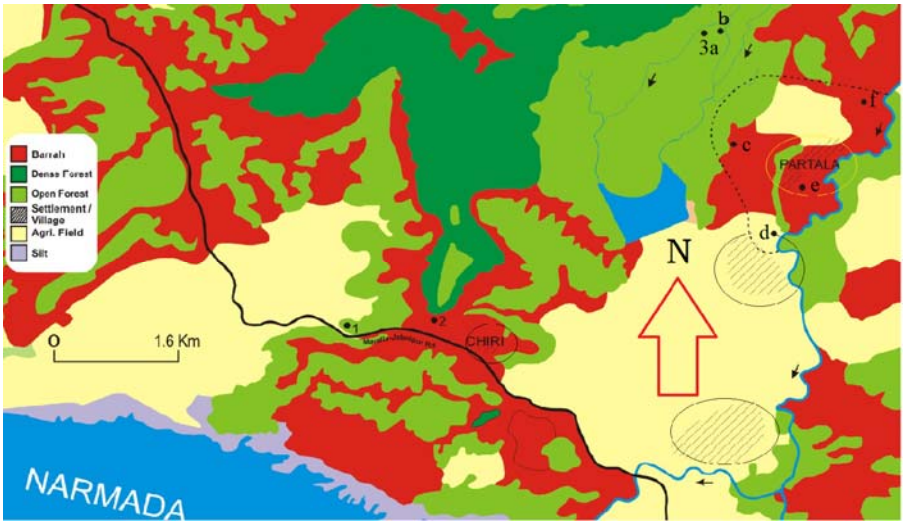

Figure 6: Prehistoric sites of Kumha (1), Chiri(2) and Partala (3a to 3f). The Chiri and Kumha sites are close to both forest and river ecology, while the Partala site is in the interiors of forest.

Open air archaeological site may not always be a primary site, but could be a secondary one that has recently got exposed through sheet wash process. Mandla surface findings of microlithic assemblages are, however, primary activity areas, ever exposed, lay scattered on the residual lateritic soil of barely a few inch depth overlaying solid bedrock, except in case of Salhepani (Dobhi) where microliths were partly found on

an exposed rock bench. The vast tracts of fertile black soil as well as the dense forests of the district are virtually devoid of microlithic remains. Elsewhere in Narmada basin, microliths have been found in alluvial black cotton soil of the Post-Pleistocene aggradations (De Terra and De Chardin 1936; Krishnaswami 1947). Such stratigraphic findings from Mandla are yet to be discovered and the same could be of immense importance in establishing the upper limit of the tradition.

Microlithic remains are found in *barrah* land usually on the edge of forest (i.e. foot hills) than being right at the middle (i.e. up hills). Their virtual absence in heavily cultivated flat lands is conspicuous. In this context the following possible hypothetical situations could be assumed: First, settlement of hunting-gathering community was suitable in forested *barrah* on the foot hills for both subsistence and habitation compared to open ground. The flat alluvium virtually remained vacant until the cultivating communities colonised it at a later historical time. The second possibility could be that once the microliths using hunter-gatherers lived in the entire region extending from flat plains to forested *barrah.* And eventually a section of them adopted cultivation and settled down on alluvium. The conservative section who continued hunting-gatherings remained in forests and pushed further and further with successive expansion of the farming population either by internal reproduction or by migration. Or a more advanced group of farmers successively forced the local hunter-gatherers to retire further and further into the inaccessible forests.

The first possibility, as mentioned above does not quite comply with the distribution of sites. Microlithic site in Ghugra found right in the middle of vast flat agricultural fields clearly defies the same. The second possibility instead fits well with the distribution of sites. Assuming that agricultural expansion occupied the fertile lands where subsequent civilisations grew, any previous archaeological deposits over there had been destroyed by the onslaught of successive developments. On the other hand in forests where Paleolithic and Mesolithic cultures flourished successfully, but no subsequent civilisation emerged, the archaeological remains survived more or less undisturbed. In Mandla, in several places, as one move from intensively cultivated area to the area only recently brought under cultivation and further up to less cultivated *barrah*, one would come across more and more stone tools. In Partala, microliths are found in concentrated clusters in *barrah* lands. The same is often found on the edge of a cultivated area, but almost scarce right at the middle of it.

Some of the Mandla sites contained hundred percent microliths, usually of non-geometric type (except crescent no other geometric type has been found), while in other sites microliths found associated with large tools in different proportion. The large tools found are usually of the Middle Palaeolithic types, such as blades and flakes (Figure 7). Few of the large tools are in the category of Chopper-Chopping. Sites like Babaiha, Bhainsadah and Chiri contained pure microliths and yielded no large tools (Figure 8). Partala, Gullu-Kho and Manadei have yielded tools of

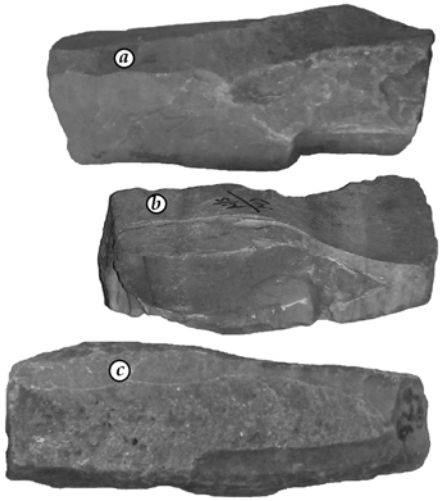

Figure 7. Blade/Blade-core from Manadei [*Measurements: (a)12.5x6.8x4 cm (b) 9.5x4.8x4.2 cm (c)13x5.8x4.2 cm*]

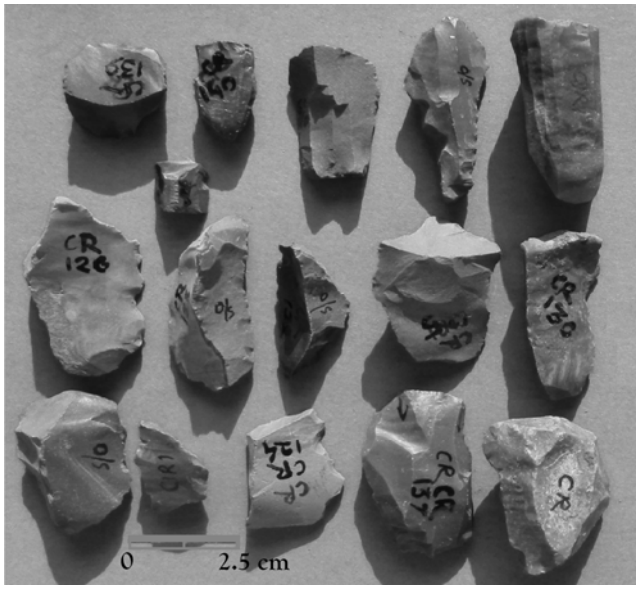

Figure 8. Microliths from Chiri (*Scale in centimetres*)

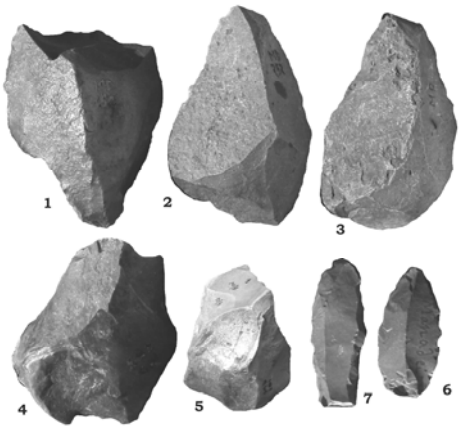

Figure 9a. Mixed tools from Manadei. *1.Point-cum-chopper (9.4x7x4.3 cm) 2.Point (10.5x7x4.6 cm) 3.Point (10x6x3.2 cm) 4.Chopper-cum-scraper (8.3x6.8x2.5 cm) 5.Point/discarded core (5x4.8x3.9 cm) 6. Scraper in microliths (5x2.3x0.4 cm) 7.Scraper in microliths (5.7x2.3x0.7 cm)*

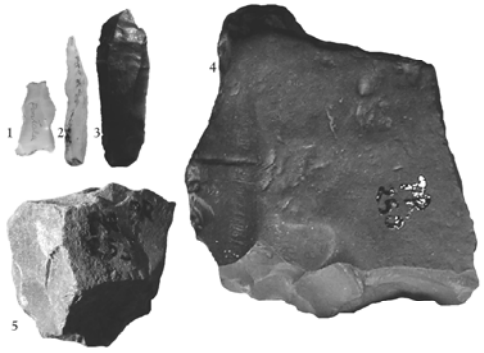

Figure 9b. Mixed tools from Partala. *1. Flake (3.5x2x0.8 cm) 2.Flake (4.8x1.2x0.8 cm) 3.Flake (5.7x2.2x0.5 cm) 4.Large tool/Chopper type (10.5x9.4x2 cm) 5.Core (6.5x5x5.5 cm)*

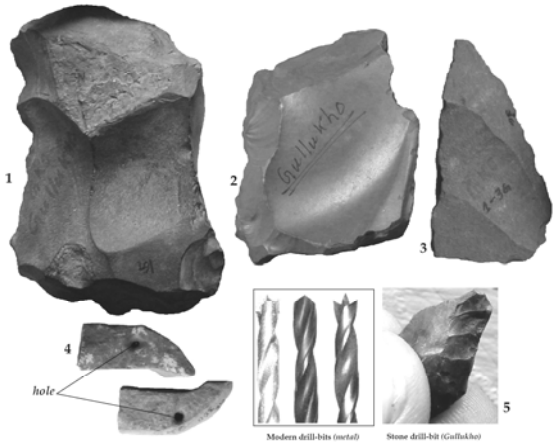

Figure 9c. Mixed tools from Gullukho. *1.Cleave type (13.8x10.5x5 cm) 2.A heavy scraper (12x9.3x4 cm) 3.Flake (10x6x2.5 cm) 4.A polished and perforated stone object (6.5x2.7x1 cm) 5.Stone drill-bit (microlith) from Gullukho prehistoric site side-by-side modern metallic drill-bit shown for comparison*

mixed types (Figures 9a-9c). In Manadei, large core tools and typologically Middle Paleolithic flakes and blades literally outnumbered the microlithic remains. And many of the large tools recovered from Manadei are thickly patinated leaving the working edge beyond recognition, which denote their greater antiquity in comparison to the relatively fresh microliths found in the same site under similar exposed condition. Many large tools, however, are found equally fresh. A broad

grouping of the Mandla sites on the basis of tool assemblages is presented in Table 3.

Table 3. Mandla Prehistoric Sites by Tool Assemblages

	Sites	Tool Assemblages
I	Manadei , Partala, and Gullu-Khoh	Large tools and microliths
II	Ramnagar	Predominantly large tools
III	Amdara, Babaiha (Rat), Bhaisadah, Chiri, Dongar Mandla, Gadhar, Ghughra, Gonjhi Ryt., Kachnari, Kui Mal, Kunmha, Salhepani(Dobhi), and Tarbani Dobhi	Predominantly microliths, large tools almost rare

From Archaeological to Ethnological Present

Landscape and ecology and ecological resources of any region not really affected either by recent human activities or by any major tectonic upheaval expectedly would not much change over in just a few hundred years. The archaeological sites in Mandla, having continued until recently, give us an opportunity to understand the adaptation of Stone Age culture/technology in ecological perspective. Given the fact that Mandla ecology did not change much from the time of foragers armed with microliths roamed free, the Stone Age culture of the region and its resource utilisation pattern could be reconstructed drawing parallels from contemporary situations. In prehistoric archaeological research, open air site receives less attention over the well preserved stratified one. But, in understanding Stone Age culture in living ecological perspective [i.e. Perkington's (1980) concept of "place"] such sites may have greater potentials, as we will see in the Mandla case.

Prehistoric Cultural Continuity

In Mandla, mixed association of "large tools and microliths" as well as homogeneous "microliths only" have been discovered, but there were no homogeneous large tools as yet. Microlithic assemblage often contains large tools of earlier phase (Mishra *et al*. 2002; Mohanty 1988; Ota 1986 cited in Misra 2001). In fact, the assignment of Mesolithic sites to a specific assemblage is given on the basis of microliths, which constitute only a small percentage of the total tool types (see Perdaen *et al.* 2008). However, in case of open air sites in Mandla, the possibility of mixing up of large tools from earlier culture with microliths of later period cannot be

ruled out.

Archaeological evidence for continuous occupation of a site over a long period could be convincing in case of *in situ* stratigraphic deposits. But, in open air sites such evidence are either absolutely lacking or are not credibly worthy. In the absence of stratified data, separating the two components as to have been deposited at different times is not possible, as was reported from Orissa (Mishra *et al.* 2002). But, in Mandla, it is significant that the evidence is convincing about the occupancy of Stone Age men of different cultural phases and time. Some of the tools discarded by earlier people were clearly reused by later groups. Fresh flaking marks are evident on some of the highly patinated large tools of the earlier phase. In some cases, up to three, even four, successive flaking is clearly evident. There were convincing evidence for using early large tools as raw material in microliths production at a much later date (Roy 2009, 2011).

Continuity in Ethnological Present

Primitive traits are still surviving among Mandla aboriginals, particularly among the Baigas. Two different types of Baiga arrows are known, "those for ordinary uses being tipped with a plain iron head, and feathered from the wing of the peafowl, while those intended for poisoning and deadly work have a loose head, round which the poison is wrapped, and which remains in the wound…"(Elwin 1939: 84). The latter type assumed to be structurally similar to a stoned-tipped arrow. Verrier Elwin had mentioned Baiga use of *Aconitum forex*, one of the deadliest of vegetative poisons, which could make even a simple pointed stick an effective projectile. In India the primitive technique of fire making continued among many isolated tribes (e.g. Kadar) until the early 20th century (Sankara Menon 1931). The Baigas in Mandla are still using it. Elwin (1939:43) described the Baiga method of fire making by 'strike-a-lights' set consisting of steel, quartz, and a lump of simul cotton as tinder as well as the more primitive methods of fire making by rubbing (i.e. by fire-saw and fire-drill). The stone type used such as chert and quartz locally called *chai-pathar*, remained the same that was used in microlithic industry. A poor Baiga even today not only find a firebox costly but also the old method to be convenient to light fire under all-weather condition.

Gonds, the only other aboriginal tribe in the district, are more advanced compared to the Baigas and are more widely distributed. They are found throughout Central India and adjoining places (Figures 10 and

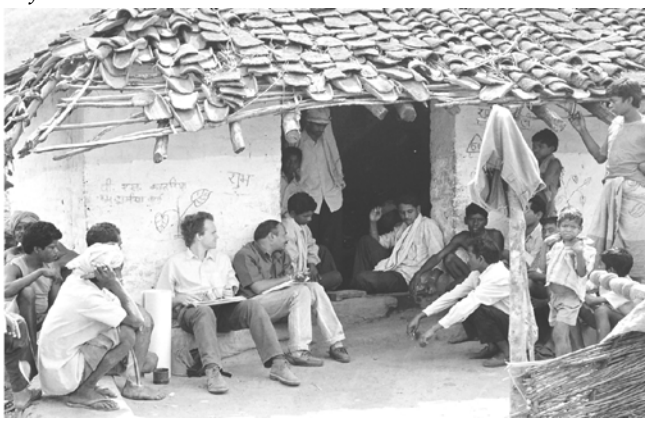

Figure 10. Overseas Development Institute (UK) team for MP Livelihood Options Project interviewing some of the Gond and Baiga men in a Mandla village, 2001

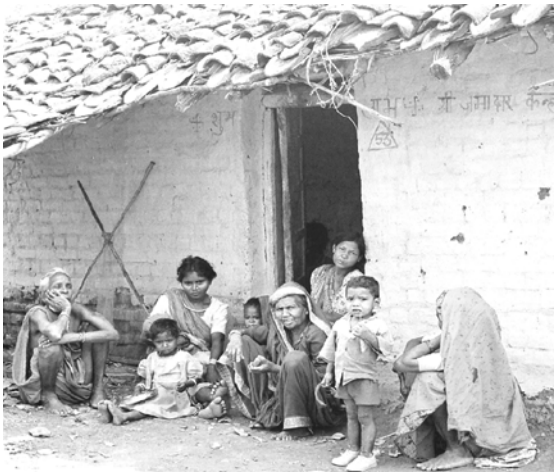

Figure 11. Baiga women

11). Linguistic and cultural evidence suggest Gonds possibly entered Central India from south relatively recently (Russel and Hira Lal 1916). The Dravidian migration had entered India along with Neolithic farming (Cordaux *et al*. 2003; Gadgil *et al*. 1997; Watkins *et al.* 1999). Any hypothesis suggesting Dravidian speaking Gonds to be the early microliths producers could be ruled out, except a rare possibility that the Gonds were originally not a pre-Dravidian population but only adopted the Dravidian language. On the other hand the Austro-Asiatic speakers constitute the earliest substratum of peopling India (Cordaux *et al*. 2003; Edwin *et al*. 2002; Elwin 1939; Gadgil *et al*. 1997; Hutton 1931; Kumar and Reddy 2003; Majumder 2001; Venkatachar 1931). The Baigas of this linguistic group naturally constitute an ancient people. Due to similarities of the Baiga tongue with that of the Chattrishgarhia type and the hilly Mandla and Maikhal range of Balaghat being the most inhospitable tract, Russel and Hira Lal (1916 cited in Elwin 1939) assumed that it would be

rather unrealistic to think that the Baigas had settled this tract first and then migrated to Chattrishgarh fertile plain. Nevertheless, in view of the numerous sites of microlithic remains, the region was possibly colonised at a much earlier date. And the Baigas being the oldest population perhaps were the earliest occupants.

Contemporary Subsistence Pattern

The contemporary Mandla exhibits an interesting example of co-existence of different levels of economic adaptations regarding the cultivation of principal crops in its diverse micro-ecological settings. And if we go by a generalised chronology of the introduction of different crop cultivations in the district, the following broad trends are evident. The principal crop traditionally grown in the region is *kodo* (millets). This is still the most widely cultivated and also the principal food in tribal Mandla. Some poor quality paddy species perhaps were introduced in ancient times. The history of real paddy cultivation, however, is a recent one, possibly in 16th / 17th century (see Rudman 1912). Perhaps not quite old as paddy, some ancient varieties of wheat were also cultivated in some pockets. Maize was possibly introduced in early British India. Of late, in the 1960s high yielding paddy and in the 1980s high yielding wheat varieties have been introduced.

The overall cropping history as mentioned above, however, has no conformity across all villages. Maize is comparatively a recent introduction, but yet most widely distributed. On the other hand the old varieties of paddy and wheat find entry much earlier, but remained confined only in a few suitable pockets.

On the South of the Mandla city where land is flat, the villages are quite advanced with 1960s green revolution where the people produce surpluse food grains of paddy and wheat. Kodo and maize cultivation become a thing of the past in these villages. In villages in the north, where the land is rugged poor *barrah* type, the advanced paddy and wheat cultivations have yet to start. These northern villages are continuing with traditional *kodo* cultivation along with maize, barring occasional paddy grown here and there by the stream-sides. The food grains produced in these villages are barely enough for subsistence. As reported by the local people, until the 1950s when the forest was open without any regulatory measures, the people in forest villages were free with hunting and gathering to supplement their millet and maize based subsistence. Today only some minor non-timber forest products, for which there is no

administrative prohibition, are harnessed.

There is a spectrum of different local economic adaptations and history of progress involving the different ethnic groups (e.g. Baigas, Gonds, Hindu castes, etc.) and villages in the district. The broad scenario is that the Baigas usually occupy the forest villages at the one end and the caste Hindu population the fertile agricultural lands on the other. The Gonds, historically the early cultivators in the region, now occupy an intermediate position between them.

Prehistoric Differential and Composite Adaptation

Classic archaeological descriptions of Neolithic transition in a series of predictable steps have recently been debated. Mesolithic foraging and Neolithic farming are no longer considered as two discrete cultures (Robb and Miracle 2007). In prehistoric past, by all probabilities, both ecological and cultural diversity might have been more diverse. Under such a condition differential adaptation by using different tool assemblage such as 'only microliths', 'only large tools', 'different combinations of large tools and microliths' perhaps was a reality. There could be either different cultural groups adapting to different ecological niches or a common cultural group diversifying adaptation with seasonal change.

The advent of Holocene brought drastic changes on the availability of large animals, whose scarcity was further confounded by sudden increase in hunter-gathers population (see Misra 2001), while at the same time the climate change resulted increase in fishes and avian species (see Haberle and David 2004; Patton 1993; Peters and Driesch 1993; Rick and Glassow 1999). Fishing and fowling-based Mesolithic economy in terminal Pleistocene or at the beginning of the current geological epoch, Holocene, is already a well recognised fact (see Cooper 1997; Martz 2003; Sahu *et al.* 2008).

Microliths certainly were efficient and gainful for more mobile Mesolithic hunter-gathers, especially in harnessing small size terrestrial, aquatic and avian species. In Mandla, microlithic sites (e.g. Babaiha, Bhaisadah) found very close to Narmada River are quite huge in size in terms of the extent of land area. Compared to them, sites in the interiors of forest [e.g. Partala, Tarbani Dobhi, Salhepani (Dobhi)] are smaller. It is interesting to note that in Manadei, the relatively older large tools were found close to the forest, while relatively new microliths at the other end

of the same site were close to the river. Some sites (e.g. Gullu-Kho) have yielded mixed type of tools that were equally new suggesting that they were contemporary and as such suggest for a composite subsistence pattern. The strategic location of large site at close proximity to the Narmada River perhaps indicates successful dependency on water ecology. And elsewhere, microliths perhaps were employed in fowling and in hunting of small games. Instead of two discrete economy/ culture based on fishing and fowling, seasonal movement of microliths-using hunter-gatherers alternately exploring river and forest based ecology also could be a possibility. The microliths-using Mandla folk might have had occupied a few large sites by the river side during certain periods of time, while in other times they scattered in several smaller units in the interiors of forest. Economic diversity in contemporary Mandla substantiates diverse economic adaptation in the past (Table 4).

Table 4. Composite Economic Adaptations (Prehistoric and Modern Comparison)

Ecology	**Technology/ tool assemblage (prehistoric)**	**Economy**	
		Prehistoric	**Modern/ Contemporary**
Major river side areas	Usually Micro-liths	Predominant fishing + fowling + gatherings	Growing of rice and wheat only
Major river side areas	-do-	Predominant fishing + wild cereal use/practice of limited growing of cereals	Predominant rice + occasional millet and maize
Major river side areas	Stone Sickle, Grinding Stone, etc. + Microliths	Predominant fishing and fowling but with substantial growing of cereals	Predominant growing millets and maize + occasional rice and wheat
Hilly for-ested areas	Predominant Large Tools + Microliths	Predominant hunting of large and small game animals + gatherings	Predominant growing millets and maize + occasional paddy
Hilly for-ested areas	Predominant Microliths + Large Tools	Predominant fowling and hunting of small game animals + occa-sional large game hunt-ing + gatherings	Growing millets and maize only

Neolithic Absence

Neolithic sites have been discovered in Vindhyan plateau south of the Gangetic plain (Sharma *et al.* 1980), but conspicuously there is total absence of them on the other side right up to the Satpura range. No Neolithic site, as such, is discovered from this belt, barring a few stray cases of stone Celts found in isolation in Jabalpur (Le Mesurier 1861) and in Bundelkhand (Theobold 1861). The possibility for destruction of Neolithic remains by subsequent cultural development cannot be completely ruled out. However, so far no trace of any Neolithic evidence is found in Mandla. And in view of the fact that traces of microliths are occasionally found even in heavily disturbed cultivated area but nothing such of Neolithic, Neolithic nonexistence is fairly conclusive.

There could be several possible explanations for the absence of Neolithic development in this region. Mostly being scarce in soil quality, rugged, thickly forested and having erratic rain fall, the region perhaps was not suitable for the early Neolithic farming. But, the region was appropriate for Mesolithic hunting-gatherings, and, therefore, the well settled hunter-gatherers never got impressed by crop growing.

Early Neolithic cultivation indeed was not much advantageous over hunting-gatherings, at least under all ecological conditions. Specific local cultural (i.e. adaptation and values), environmental (i.e. forest, flora-fauna, soil type, hydrology) and demographic (i.e. population pressure) factors might have played roles in early Neolithic spread (see Cohen 1977 cited in Dhavalikar 1988; Patterson *et al*. 2010; Smith 1972; Zvelebil 1986). Rigidity of hunting-gathering community adopting farming has been well argued in terms of a number of models of hunter-gatherers: Sahlin's 'original affluent society', Woodburn's 'immediate-return economic system', Bird-David's 'giving environment', Marxist's 'foraging mode of production', and of late Barnard's 'foraging mode of thought' (Barnard 2007).

Use of political motivation/ force to enforce hunting-gathering or marginal farming communities into agriculture may not be altogether an absurd idea. Verrier Elwin in his book "The Baiga" made the detailed documentation on the efforts and difficulties that the British Administration once adopted and encountered to bring the axe cultivating Baigas into more advantageous ploughing. Food production as a way of life is not a magnet that automatically attracts hunter-gatherers to participate in it actively (Dhavalikar 1988). It has been argued

that if primitive forest dwelling hunter-gatherers linked themselves with settled agricultural people by supplying labour, or if they have developed a symbiotic relationship between them, then the hunter-gatherer economy never developed or evolved into agricultural state (Bhattacharya 2000, 2004). The absence of Neolithic site in Central Indian Vindhiyan and Satpura Ranges could, therefore, be explained in terms of local ecology, social history and cultural adaptation.

Problem with Chronological Trajectory

A large majority of the prehistoric archaeological sites in India are either open air or exposed sites without any viable contextual or/and radiometric dating clues. Interpretations of open air prehistoric materials are, therefore, heavily relied on typo-technological analysis and matching them with datable archaeological findings from elsewhere. Some typical examples are as follows:

(i) Acheulian sequence discovered in Africa could not be distinguished in India in terms of stratigraphy. However, purely on matrix analysis the Acheulian sub-sections have been reconstructed, as if in India this tradition had evolved following the same sequence as found in Africa (Joshi and Marathe 1976, 1977, 1985; Marathe 1980).

(ii) Stone Age artefacts typologically belonging to different phase right from Lower Palaeolithic to Upper Palaeolithic periods have been discovered from Gunjung district of Andhra Pradesh (Raju 1983, 1988). Despite of their being found in the same geographical region under similar exposed condition and being equally new, chronology right from Lower Palaeolithic to Upper Palaeolithic Age spanning over a period of hundred thousand years has been assigned to the deposits that have been differentiated purely on the basis of typology of tool assemblage.

(iii) Microlithic cultural remains of Baster region has been assigned to be Early Mesolithic on the basis of typology of tool assemblages such as non-geometric microliths and absence of pottery (see Cooper 1997).

(iv) In Garo Hills, Meghalaya, despite that large tool specimens found in association of Neolithic Celts without any reference to stratigraphy, efforts have been made to separate Palaeolithic assignments purely on typo-technological basis (see Sharma 1972, Sharma 1986 cited in Medhi 1990), although some scholars criticised them to be Neolithic stone debitage instead (Ghosh 1977 cited in Medhi 1990).

Historical continuation of microlithic tradition in Mandla without passing through the subsequent stages of cultural development and similar findings from elsewhere suggest that the practice of labelling archaeological findings simply on typo-technological ground and the attempt to fit them to any fixed trajectory could be a misleading practice. Such a practice certainly could ignore the more complex local history of culture change. Diffusion of culture from its place of origin to the farthest place was not same in different prehistoric ages. With the progressive improvements in communication down the history the diffusion process certainly has ever become quicker. Broad temporal and spatial variation in prehistoric cultural chronology at any given point of time is fairly evident. Quite independent to this broad trend, differential ecological adaptation determines more complex local cultural variation even within a narrow geographical space (Figure 12).

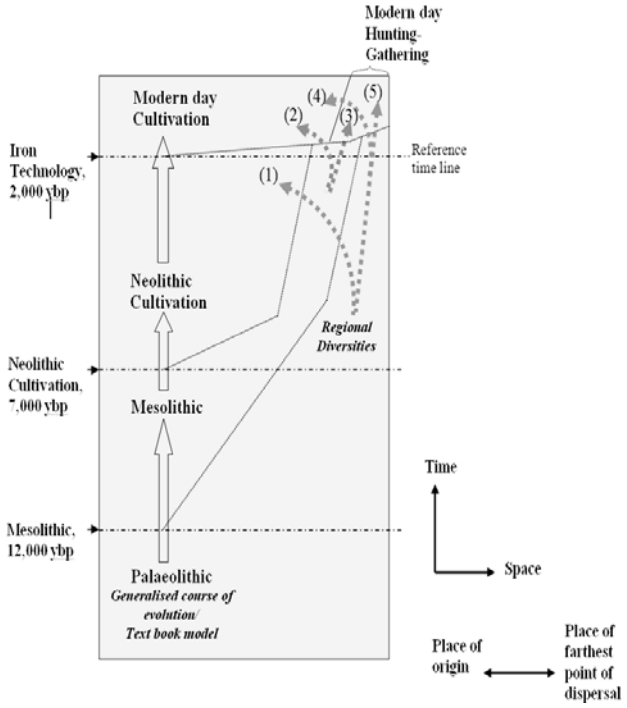

Figure 12. *Spatial & Temporal Dimensions of Cultural Evolution (Schematic)*
(1) Palaeolithic transformed into Neolithic, (2) Mesolithic transformed into modern cultivation, (3) Mesolithic hunting-gathering continued as modern day hunting-gathering, (4) Palaeolithic transformed into modern cultivation, (5) Palaeolithic hunting-gathering continued as modern day hunting-gathering
Note: Stone Age cultures perhaps did not spread uniformly across the space, and that the rate of diffusion of technology or material culture was slower at the beginning, which turned fast to very fast as we move upward from pre-history to history and to modern time.

Stone Age technology/culture of different levels might have coexisted under different ecological conditions. Plausibly there could be specific pockets rich with large game animals for early Palaeolithic hunting-gathering subsistence to continue, while elsewhere Mesolithic hunting-gathering emerged more successful. There is no logical justification that in all places Palaeolithic would gradually transform into Mesolithic. The Mesolithic hunting-gathering emerged in response to specific ecological change perhaps was not equally efficient in all conditions. Similarly, in some other pockets Mesolithic never evolved, but the Palaeolithic continued as a well set economy. In such places, either the Palaeolithic gradually transformed/evolved into Neolithic or into some other later stage of development.

Instead of punctuated ending of technology/tradition gradual replacement by newer one is more a possibility. Tools and technology of earlier stage are often found to continue in the next stage of development or even beyond. However, more complex adaptation of combination of technology/ tradition of two or more different levels could make the archaeological practice of generalisation a further complicated business. Mere presence of a combination of Neolithic and Mesolithic tools in any industry may not always be a transitional phase between the Mesolithic and Neolithic. Under specific local ecological condition a combination of technologies could instead be a successful adaptation. It is now well understood that early farming alone was insufficient to procure total subsistence requiring people other secondary economic pursuits (such as hunting-gatherings). Continuation of Palaeolithic/ Mesolithic hunting technology along with Neolithic axe cultivation for a considerable long period of time as successful adaptation could be possible in some local ecological conditions. Therefore, 'what is transitional' must be established with sufficient evidence in each local context. The proto-Neolithic industry of a region, particularly if not found in well stratified context, was a short transitional phase between the Mesolithic and Neolithic or it was just a mixed technological adaptation under its specific local environmental condition that survived for considerable long period of time could always be an issue of debate in archaeological interpretation.

In aboriginal India, the way of life and the economic pattern of both the older and younger Stone Ages had been continuing until recently (Furer-Haimendorf 1948). Even in 21st century India, functional coexistence of prehistoric (e.g. bullock-cart) and modern technology (e.g. computer) is a common occurrence. Differential regional basis of

evolution of microlithic cultures in India is evident. Based on geo-ecological situation, the Indian microlithic sites have been categorised into some distinct functional clusters; and according to Bhattacharya (2004) culture change in all these different ecological zones did not follow any single pattern that could be explained through the conventional scheme of culture change. Gordon (1950) generalised Indian Mesolithic developments in accordance to specific local situations and suggested four broad trends:

(i) In areas microliths, having been the type-tool of the Mesolithic, continued with the introduction of pottery and agriculture into the Neolithic;

(ii) In areas where ground and polished stone axes were absent, microliths remained the type-tool along with bone implements and the earliest traces of copper;

(iii) In areas which were affected by the culture of early city-dwellers, microliths lose their diversity of form and were superseded by the ribbon-flake utility blade (found on all Harappa Culture sites), and finally

(iv) In more remote jungle areas the true microliths continued to be used down into early historic times.

Julian Steward's (1902-1972) multilinear evolution that suggests separate schemes of evolution under different broad ecological conditions of the world has been criticised for being essentially not much different than the Maorganian unilineal scheme, but has opened a new tradition of evolution thinking in ecological perspective. Since then the construction of regional scheme of evolution under specific geo-ecological, socio-political and historical conditions gained prevalence. What in the early 1950's D. H. Gordon (1950) and more recently D. K. Bhattacharya (2004) suggested for Indian Mesolithic, in a sense, is the ecological perspective of evolution. The details of any local cultural chronology, however, could be far more complex given the complex regional ecological setting. In the context of Mandla, differential and composite economic adaptations are quite evident in contemporary ethnographic existence. Whereas the complexity of prehistoric cultural adaptation *per se* chronology of the region could be assumed from the following postulations:

a. Microlithic technology or tradition continued until modern time (Roy 2008, 2009).

b. Large tool using culture had been there before the microliths using

culture was introduced. Heavily patinated large tools and comparatively fresh microliths are clear proof of this.

c. Successive occupation of a site is evident. However, much of the large tool cultural remains perhaps got lost as subsequent microliths using people reused them beyond recognition (see Roy 2011).

d. Introduction of microliths did not completely replace the tradition of large tools. Equally fresh large tools and microliths in some sites do substantiate this postulation. Large tools continued to be in use in different combination with microliths perhaps as an adaptation under specific ecological condition.

Conclusion

In Mandla, the microlithic tradition probably had continued from Mesolithic period to modern time without passing through intermediate stages (e.g. Neolithic) of development. The evidence of using modern material like the electric porcelain in microlith manufacturing in Mandla is a rare finding documenting historical or/and contemporary uses of Stone Age technology.

Continuation of archaic tradition, even technology, down to modern time invites several questions. The important one to be asked is whether such examples are exceptional cases having no general implication in our understandings of human culture change; or that such were widespread until recently that have got lost with the spread of civilisation, phenomenally rapidly towards the end, and thus having greater implication. The modern means of communication has rendered the fastest ever globalisation and homogenisation processes. Cultural diversity certainly was much greater in the past than today, at least from the Mesolithic/Neolithic times onward. Historical continuance of prehistoric technology or tradition in remote geographical places hitherto received little attention. Assuming greater cultural diversity existence as one move backward into prehistory, such now surviving cultural forms in remote pockets apparently have much greater significance in our understanding of human cultural adaptation and progress.

The traditional practice of tagging archaeological site by assigning relative date on typo-technological ground and the practice of generalising cultural sequence in archaeology found to be problematic, particularly in view of the "differential progress" and the "differential and composite cultural adaptations". The broad regional variation in

prehistoric cultural chronology is well understood. Neolithic in Africa, Asia and Europe are never seen to be contemporary. However, the complex regional variation, particularly owing to specific local ecological adaptation, could render any practice of generalisation a complicated business. Social and environmental processes determining the complexity of local chronology have been recognised in recent Anthropological Archaeological research (see Bird and Frankel 1991; Dolitsky 1985; Lourandos 1993; Plog and Hantman 1990) and is being reiterated once again. Contemporary Mandla is quite suggestive that switching over from one technology level to another was not uniform even within a narrow spatial confine.

Reconstruction of phase-based cultural chronology also could be a difficult task when the archaeological remains are found only in fraction, not quite representing the whole problem. It is quite obvious that any cross section of the present day Mandla situation in regard to the history of crop cultivation would be utterly non-representative to the larger situation of the region. The practice of archaeological chronology construction (i.e. schematic generalisation) cannot ignore this problem.

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