Summary and Conclusion

The cultural past of Birbhum was subject to the numerous earlier studies who provided a fairly clear cultural contour for it. However, the findings from the present study could put some additions in the form of new data related mainly to the lithic artefacts belonging to the different phases as well as the findings that came out from the cultural analysis of the lithic evidences. Infact, the present survey work was conducted in the study area mainly to supplement the already existing stock of evidences recorded during the earlier explorations with some fresh inputs and thereby to expand the spatial expanse of the prehistoric horizon of the study zone. The distribution pattern of the sites were analysed primarily grouping them into four major zones based on the geomorphological similarity. The area like Bamun Ara and Bankati, located just at the outskirt of the study area and in similar geomorphological landscape are surveyed to verify and re-establish the traits or patterns of the cultural evidences found in the study area that continued outside the study area.

The cultural analysis of the lithic elements involved the typo-technological study of it; the occurrence of artefacts in cluster is separately analysed to record the distribution pattern of the artefacts in the cluster.

Thus the present work tried to provide a brief outline of the nature of the lithic industries in the region concerned.

The earlier works together with the published excavation or exploration data certainly tried to analyse the prehistoric context of Birbhum along with a typo-technological characters of the implements in succession from the Lower Palaeolithic to the Early Village Farming phase covering the intervening microlithic horizon. Dilip K. Chakrabarti, upon his extensive working on the Eastern Indian prehistoric perspective including that of the present study area, concludes about the Palaeolithic perspective of the area in the definitive terms analyzing the sequence or the context of it:

“The compact detrital lateritic matrix with small lateritic nodules is the most important part of this section because this is the horizon of the Palaeolithic occurrence in this section. First, this is never of uniform thickness. At Egara Mile this is 2-2.5 m thick but at least at two localities, Nakbindhi and Ganganir Math, this is only a little more than one metre thick. Secondly, the raw material used for
tool-making seems to occur within the matrix itself. This was made amply clear at Nakbindhi where this horizon contained a large number of medium to small pebbles and there is number of pebble tools at Nakbindhi. Fossilwood chunks and miscellaneous pebble and stone pieces have been observed in the eroded gullies and these are the raw materials which have been used for tools. There is no doubt that the Lower Palaeolithic tools occur in the lower half of the deposit. There is also no doubt that the Middle Palaeolithic tools occur in the upper half of this deposit. The Upper Palaeolithic specimen should come from the topmost segment of the deposit, although there is no in situ evidence.

The thickness of the mottled clay below this deposit is varied, going up to three metres and more in some cases. Where the section is found complete the mottled clay horizon is invariably found to be thicker than the overlying implementiferous detrital lateritic deposit. Primary laterite occurs below mottled clay and is preceded by bedrock.

The forgoing, however, does not denote that the section in the lateritic gravelly uplands is the only type of prehistoric section in West Bengal. The Tarafeni Reservoir Bridge section which we have discussed and which begins with a well-defined cemented gravel bed is a typical river-bank section of Peninsular India. This section cannot, of course be an isolated one, and further careful search along the river is this part of West Bengal will surely lead to the discovery of more river-bank sections of this type.

The prehistoric section of bedrock - mottled clay - detrital lateritic conglomerate - yellowish sand, observed by us in the entire western portion of West Bengal clearly tallies with the observations made by other workers. We have already cited the observations of D. Sen, A.K. Ghosh and Meera Chatterjee (1963) in the contexts of the areas near Bankura town and the Kumari-Kangsabati confluence. In fact, these two sections described by them precisely tally with the sections observed by us in the lateritic gravelly uplands, although the mottled clay of our sections seems to be missing in these areas. In their generalized discussion on the West Bengal Palaeolithic, Ghosh and Das (1967) repeat this section in the context of Bankura and Midnapur: ‘(1) bedrock, mainly Archaean, (2) deposits of secondary or detrital laterite and (3) alluvium’.

However, we differ from Ghosh in some matters of detail. First, Ghosh (1978:424) asserts that the flake element or Middle Palaeolithic type is found “from
the junction level of secondary laterite deposit and overlying deposit of brown soil”. According to our observations the Middle Palaeolithic type comes not from this junction level but from a lower level in the detrital lateritic matrix within the upper half of this deposit. Secondly, according to Ghosh (ibid.) the flake-blade or the Upper Palaeolithic element is absent in West Bengal. We, on the contrary, have found the evidence of an Upper Palaeolithic industry at Dabha in Purulia and also in Burdwan, Bankura and Midnapur. Although, we have not been able to detect any *in situ* occurrence, we suggest the uppermost part of the detrital lateritic matrix marks the general stratigraphic level of the Upper Palaeolithic blades that we have detected at Egara Mile and other places. (This premise has been recently verified by us at Jibdharpur).

It is very important to remember that the lateritic conglomerate bed which is distributed very widely in Singhbhum, the western districts of West Bengal and parts of northern Orissa holds the primary clue to a proper understanding of the prehistoric development in this part of India. How only a moderately thick deposit of conglomerate material can hold within it the entire Palaeolithic succession of such a large segment of eastern India is not at all clear to us. No material found in this deposit can be considered an undisturbed or primary material. Till one understands this deposit properly in its geological and environmental aspects one cannot even start looking for a primary Palaeolithic context in this region.” [1]

The microlithic industry in the perspective of Birbhum and the rest of the Bengal in general posed a much intriguing problem for the researchers to locate it in its proper context. Even the spread of it over the entire geographical space of undulated lateritic Birbhum with or without the association of pottery and with its geometrical and non-geometrical forms and variation of dimension, put forward the problem of chronology. The similar problematic issues related to the microlith using community in Bengal was dealt by Chattopadhyay in much details:

“There are some works in which a distinction has been acknowledged between early Mesolithic / “Epi Palaeolithic”/ “bladelet” culture characterized by microliths fashioned on rather broad blades and later occurrence assemblages in which narrow blades provided the blanks from the preparation of microlithic tool types. The scholarly works also argued that with the passage of time microliths became increasingly geometric in shape and relatively smaller in size, so that occurrence cluster ascribed to the late Mesolithic are often characterized by large
number of geometric microliths. However, the term ‘Mesolithic’ particularly in our context, is an arbitrary and artefactual construct as like most of the prehistoric subdivisions of archaeological record whereas, while functioning as a useful tool in some respects also imposes constraint on research, when the focus is lifted above that of technological development. This realization certainly leads to a re-definition of the term and the suggestive approach inclined towards the microliths using hunter-gatherer and their survivors.

During the period immediately preceding the introduction of food producing economy and incipient stage of agriculture into West Bengal, or the Lower Gangetic region, there existed groups of hunted-food gatherers and foragers over a variety of terrains. They were distributed specially along the upper terraces or undulating foothills a little away from the flood plains of the rivers like Damodar, Ajay, Dwarakeswar and the Kangsavati and rocks/ depressions in areas of undulating lateritic tracts but totally avoided the plains fed by the loess of the Bhagirathi. In some areas they survived alongside the earliest food producing groups. There are also some evidences to indicate that there were contacts between the two. One may cite the example for the matter of Birbhanpur along the Damodar and Kushadwip-Kumardanga cluster between the flood plains of the Damodar and the Dwarakesvar. For most of the post –glacial food gathering Mesolithic settlements having identified by occurrences of microliths, date evidence is not available. It could be possible to relate them to the climatic period of eastern India as a whole. But unfortunately, there is no evidence provided by the pollen remains, collected from the habitation debris. From Kanapahar in Purulia to Khoaier Math near Santiniketan in Birbhum, for most part, however, attempts have been made to construct a chronological framework for these occurrences, based on the morphological classification of microlithic assemblages.

Not only is it often impossible to assign a more specific date to the Mesolithic settlements that ‘post glacial’/ ‘early Holocene’, but there is little more than sporadic evidence for their environmental means of subsistence and material culture, except form the presence of microlithic industries.” [2]

As a whole the picture that came out for the prehistoric Birbhum is not very much different from the other parts of the western Bengal.

However the works carried out by Subrata Chakrabarti from the Department of Ancient Indian History Culture and Archaeology, Visva Bharati University of let
in Birbhum, is quite pertinent to quote here to compare the context of prehistoric Birbhum with that of the prehistoric horizon of greater Bengal especially in terms of the geological context:

“The main outlines of the Quaternary geology of Bengal are reasonably complete at least for understanding the physiography of various stages of the Pleistocene and the Holocene. It is possible not only to correlate contemporaneous development of the Quaternary landmass in South and North Bengal, but more importantly, it has been possible to locate old surfaces in South Bengal incorporating artefactual material of different stages of culture, notably of the Upper Pleistocene and the Early and Middle Holocene periods.

The Lower Pleistocene surface and the archaeological horizon in the Lower Lalgarh Formation even though could not as yet be fully corroborated, the recovery of in situ Acheulian artefacts, in the basal part of the Lower Lalgarh Formation in the Singhbhum area (Ghosh 1966) and also from within a boulder conglomerate bed lying below laterite in the Kuliana-Kalabaria complex (Bose, Sen and Ray 1958;Chakrabarti 2000) could suggest that the oldest surface of the Pleistocene may lie below the pebbly laterite zone or between the pebbly laterite zone and the zone of nodular laterite as the former is a primary deposit whereas the latter is a reworked and re-deposited material from the primary deposit. The Samsing-Thaljhora morphostratigraphic unit of the Himalayan Foredeep region though correlated with the Lower Lalgarh Formation, we still do not have any record of the discovery of the Palaeolithic artefacts from the Himalayan region.

The Upper Pleistocene Upper Lalgarh Formation surface is better correlated with archaeological horizons as is evidenced not only from the occurrence of Upper Acheulian artefacts in it but also from the recovery of Upper Palaeolithic artefacts from its top horizon covered by sedimentary deposits (Chakrabarti 1999). As it is a reworked and re-deposited material, it is certain that various past populations witnessed the making up of this surface as at various sites different artefactual material has been found to have got embedded in it. The exposure of this surface seen in parts of Midnapur, Burdwan, Birbhum, Bankura and Purulia makes it a phenomenon of beyond local interest. It provides us an opportunity to co-ordinate local sequences to build up a composite environmental and cultural sequence from the Upper Palaeolithic to the Mesolithic in South Bengal. The basal unit of the Matiali-Chalsa Formation as it developed over the Samsing-Thajhora surface may
correspond in age with the Upper Lalarh Formation but since there is no attestation by archaeology in the Himalayan Foredeep region uncertainty exists pertaining to the status of these surfaces as chronology marker. The Sijua and its equivalent surface in South Bengal, especially in Midnapur, Burdwan and Birbhum, incorporating at different depths transitional Upper Palaeolithic—Mesolithic tools and microlithic artefacts of two stages of Mesolithic tradition becomes archaeologically significant. It not only enhances the possibilities for establishing regional cultural characteristics of the Mesolithic in Bengal but also establishes the sequential development of cultural tradition from the Upper Palaeolithic to the Mesolithic in South Bengal. ....

The Lalarh Formations consisting of pebbles and boulders of fine-grained quartz and quartzite naturally, therefore, attracted the Palaeolithic and the Mesolithic hunter-gatherers of Bengal the most. Nevertheless the availability of stones alone could not have been the reason for selecting a place by the hunter-gatherers as a favoured home base, the other factors like water, game, vegetation and ecological background of the area concerned must have played equal, if not more, role in selecting a place for home base. However in Bengal as there is virtually nothing but stone tools to guide us, apart from a few dubious used bones, to identify home bases of the past hunter-gatherers, the location of rocks that have been actually used for tool manufacture by the Stone Age artificer obviously assumes far greater importance than any other maxim of probability. Unfortunately in Bengal Stone Age archaeology we do not as yet have precise quantified data making it known the distribution of utilisation of different types of rocks for manufacturing different types of tools but some general information available in regard to utilisation of rocks as raw material for tool-making makes it clear that quartzite and, for want of it, lava or basalt found maximum usage in producing heavy duty tools like hand-axes and cleavers whereas for fabrication of light duty tools like scrapers, borers, points etc., the raw materials like silcretes or chert, chalcedony, agate and jasper have had their maximum exploitation by the Stone Age artificer of Bengal. It is now known that apart from the streambeds where water movement caused pebbles and boulders suitable for tool manufacture to accumulate there are other localities in Bengal to which the Stone Age hunter-gatherers could always bank upon for their rock resources. The major source region, notwithstanding natural erosion of the Lalarh Formation, for the fine-grained quartz, quartzite, amphibolite and calsilicate rocks are the forest covered hills of Midnapur, Bankura and Purulia. The
basaltic trap rocks of the Rajmahal volcanic in Birbhum are good source of rocks like chert, chalcedony, flint and even quartz and in the amygdaloidal basalt of the same volcanic in Murshidabad also agate occurs.”

Besides discussing the geological framework of the prehistoric cultures in Bengal, he further proceeds towards demarcating the geographical expanse of the culture:

“It is a general conclusion from over a century of archaeological discoveries in Bengal that the Palaeolithic sites are more concentrated in Bankura and Midnapur than Purulia and Birbhum. This observation is also true from the viewpoint of distribution of Mesolithic sites in the region. Recent discoveries have however shown that it is no longer possible to hold that the other regions, notably Purulia and Birbhum, can now by no means be viewed as peripheral zones in Bengal prehistory. However, the Palaeolithic sites in the Bengal upland have been found to occur at various levels of surface elevation.

The Mesolithic horizon in Birbhum was studied by Chakrabarti in the past years extensively and a number of excavations were undertaken to comprehend the Mesolithic context. He tried to explain the Mesolithic horizon and the phases of transition related to it in the following manner:

“In Upland Bengal, it appears from the excavated data that the Mesolithic here is essentially non-geometric. However the occurrence of geometric forms from Birbhanpur (Lal 1958) and Paruldanga (Chakrabarti 1999), and also from Kattara (Biswas 1991), could not be ignored. These forms are rare, no doubt, but the rarity does not bespeak of total absence of presence. ... The Mesolithic Assemblages from Upland Bengal do show distinctive character of their own. The transitional Upper Palaeolithic — Mesolithic assemblages consist of earlier tool types showing a continuity of development from the blade-based leptolithic industries to the Mesolithic per se blade industries. In these assemblages, for example at Paruldanga, the transitional industry incorporates more parallel-sided blades struck from prepared cores whereas the Mesolithic industry contains more of lunate microliths showing a distinctive character. In Mesolithic II assemblages the lunate microliths continue but they become diminutive. The character of the assemblages also varies according to the nature of the sites. The assemblages from factory sites, major camp sites or minor camp sites and transitional sites could not
be the same and do show difference in their character and composition in Upland Bengal.

Geo-archaeological framework in terms of absolute chronology for the Mesolithic in Upland Bengal though, at the present state our knowledge, is difficult to discern, it can be argued on the basis of the stratigraphical data now available from the excavated sites, notably at Paruldanga, that Upper Palaeolithic - Mesolithic transition took place when Terminal Pleistocene ended and the Early Holocene begun. The Mesolithic per se may have its beginnings in the beginning of Early Mid-Holocene and its late phase could have begun at about 5000 years BP. The Mesolithic-Neolithic culture transition is far more uncertain as the culture status of the polished stone tools found from a large number of surface sites in Upland Bengal remains ambiguous as their chronological distribution spanned between Neolithic and Early Historical periods.”[5]

On the basis of the field reports Chakrabarti tried to summarize the prehistoric perspective in Birbhum in the general context of the Bengal which may not be unwise to quote here:

“Lower Pleistocene Lower Palaeolithic culture is conspicuous by their absence not only in Bengal but also in India. It also need to be emphasised upon that the technically advanced Lower Palaeolithic in Bengal represent not the first stage of Acheulian technology that were for the first time recognised in Africa dating back to 1.3 million / 1.4 million years ago. Even the oldest radiometrically dated Indian Achulian is just 600000 years old (Misra et al 1995). The Mid Pleistocene Riss glaciations responsible for worldwide low sea level may have opened up a vast corridor from Africa to Australia, thereby facilitating movements or migrations by the Pleistocene hunter-gatherers all over the Old World. However population movement or migration is a very serious matter, which should not be lightly assumed. Genome Archaeology has thrown an interesting light on movements or migration of mankind. Recently DNA markers of the Austro-Asiatic speaking tribal population of India (such as Munda, Lodha, Santhal) show that they are among the most ancient inhabitants of India, whose ancestors came here about 80,000 — 60,000 years ago on one of the early waves of out of Africa migration of modern humans (Prabhakaran et al 2000). Migrations however could not mean large-scale migration of the population during the Pleistocene period. The study of modern nomadic hunter-gatherers show that they migrate
individually or in a small group and perhaps this pattern of migration provides clues how in reality the Pleistocene Hunter gatherer moved about.

It is interesting that Lower Palaeolithic traditions began without handaxes and at the end of the Lower Palaeolithic tradition there were no handaxes as well. Archaeology has not as yet been able to address this interesting aspect of culture related with the handaxes and the culture minus this multipurpose efficient tool. However in Bengal the genesis of core chopper industries with representation of handaxes needs to be worked out. We however do see that by about 100000 years all over the Old World, including Africa and India, flake element became a part and percale of the stone industrial complexes. It is in this light that the presence of the flake elements in the Acheulian techno-complex and subsequent Middle Palaeolithic industries has to be explained. The follow up leptolithic industries suggests cultural survival in response to environmental changes. For long the blade based leptolithic industries have not been identified in India even though we do find references of "chert, flakes and cores" in diaries or research notes by both Robert Bruce Foote (1916) and Valentine Ball (1880). Now, however, even in Bengal we have unmistakable representation of the Upper Palaeolithic not only from surface but also in stratigraphical context.

Mesolithic sites in Upland Bengal are located not far from each other. The factual distance between the sites ranges from 88 km at the longest and 23 km at the shortest distance. For instance, the Mesolithic site at Shiralidanga in the Bengal-Bihar (now Jharkhand) boarder land is located hardly 80 km northeast from Paruldanga. From Paruldanga the distance of the Birbhanpur Mesolithic complex is only 41 km. Whereas from Birbhanpur to Manipur, the Mesolithic complex in the northeast Bankura is distant about 23 km. The Dhuliapur region in the Tarapheni basin in the northeastern fringe of Midnapur is just 88 km away from the sites that occupied the Kuasuta basin in Bankura. From the Tarapheni region of Bengal the Kalaberia-Kuliana complex of Mayurbhanj in Northern Orissa lies at a distance of only 82 km. The distribution pattern of the Mesolithic sites and complexes therefore shows that the hunting-foraging populations at various levels of their culture could have formed an intensive network of activities between them, and could migrate from one region to another, if and when, situation demanded, as the distance they would have to traverse is well within the range as the crow flies.
When, about four decades ago, the excavation at Birbhanpur was conducted, there were no other sites with clear-cut stratigraphical data for comparison within West Bengal with any other Mesolithic sites, nor did we have enough cultural data to ascertain the nature and character of the culture of the Mesolithic in Bengal. Now that we have a clear cut stratigraphical sequence at Paruldanga beginning with a blade based leptolithic (Upper Palaeolithic) industry at the base followed by a transitional Upper Palaeolithic - Mesolithic industry succeeded by the two phases of development within the Mesolithic, we have comparative stratigraphy and cultural material for regional understanding of development of culture in Upland Bengal. It is no longer necessary that long distance long time-range comparative study of culture pertaining to the genesis and/or growth, development and diffusion of Mesolithic culture in Upland Bengal. The culture in question now can be understood in the perspective of its local origin and evolution.

Furthermore, an interesting pattern can also be discerned from the distribution of sites within an area or the complex. For instance, at the Paruldanga area within a radius of 5 kilometres there are five smaller sites against a larger site. In the Tarapheni basin it has been seen that the sites are situated either on the banks of the various feeder channels of the river at the foot of the Precambrian hills or they are found on both the banks of the main river in the low-lying plain. From the distribution of the forty-nine sites in the Tararapheni basin it seems that within an area of 312 km$^2$, the large sites occur in a distinct niche whereas the smaller sites or scatters are randomly spread over the landscape. In the Birbhanpur area the spread of the microlithic artefacts is fairly extensive — about 1.6 km$^2$. Within this area there were five clusters and these might suggest some kind of activities related to either tool making or movement of the occupant in the area of their settlement. The microlithic complex here extends beyond Birbhanpur and within a radius of two to three kilometres lies the microlithic complex of Nadiha. Thus it becomes clear that the activities of the hunting-gathering or foraging population in Upland Bengal is not the study of sites in isolation but the sites or scatters occur as a part of a larger complex. It would not be too far fetched to conjecture that the larger sites were the nodal sites and centring around it to and fro movement of the hunter-gatherers and their round the year activities in the area may have been regulated.
It has also been seen from the locational point of view that in Upland Bengal the Mesolithic populations had preferred higher grounds for their settlements. The elevation of the ground selected for settlement may vary between 9 m and 90 m from the mean sea level. This tendency for having their settlements at a higher ground than the surrounding areas can even be noticed when they moved from the plateau land to the closer areas to the deltaic plain. The point of reference here is to the sites or scatters that occur at the low-lying plain in the Tarapheni basin and the sites from the northeastern Bankura. The microlithic artefacts in Upland Bengal, as can be discerned from their context of occurrence whether these are from Birbhum, Burdwan, Bankura, Midnapur, or Purulia, are found in a lateritic matrix. Even though it has been found to be the general pattern, the careful observation indicates that occurrence of microlithic artefacts in lateritic matrix vary from area to area. For example at Parulanga at the top horizon of the zone of nodular laterite in situ Upper Palaeolithic tools are found whereas the artefacts that are found over the lateritic old surface show a transitional (Upper Palaeolithic — Mesolithic) character. The Mesolithic - I tools occur here in a yellowish red silt and, above it, in the yellowish brown to reddish brown silt are found the Mesolithic II tools. The context of microlithic artefacts at Birbhanpur is silty sand mixed with lateritic pellets lying over an old surface. The microlithic artefacts from Chamargora have been found to lie in a layer of grayish brown sandy silt succeeded by a layer composed of gravel and laterite pellets. At Dhuliapur the microlith-yielding bed is colluvial gravel capped by thick reddish brown silt. These variations in nature of occurrence of the microlithic artefacts are important which no doubt is significant in our understanding that how local geomorphology could have governed composition of sites and to some extent regulated the cultural activities of the respective occupants of the sites in an area of their concern.

The Last Glacial Maximum was a period of a tremendous opportunity for the hunter-gatherers. The environment was showing signs that aridity may soon set in and the on set of aridity is an important cultural challenge for the hunter-gatherers. This, in fact, has been manifested in the development of tool inventory from flake-blade elements to various categories of blade and bladelet tools in some of the Mesolithic complexes in Upland Bengal. Now that some evidence for sea level change prior to 7000 years and 5000 BP with phases of deposition of $^14$C dated sediments are available, and certain correlation between environmental change and archaeology in Upland Bengal seem possible. Needless to mention
that this helps us to understand the appearance of the blade-based leptolithic industry and to explain the presence of transitional Upper Palaeolithic and Mesolithic industries in Upland Bengal. At the time when the sea level was fluctuating and with the expansion or contraction of coast line, the hunter-gatherers and/or the hunter foragers engaged themselves as best as they could to play their diurnal drama on the Upland Bengal stage. As the evidences suggest, the theatre was challenging but the players also responded with matching responsibility.\[6\]

Considering the above view about the prehistoric context of Birbhum and the rest of the Bengal encompassing also the greater eastern Indian perspective in some cases and also in view of the field findings from the present study along with the analysis of the finds, we may safely conclude by saying that there are ample evidences in the form of artefacts supporting the prehistoric antiquity of Birbhum; this starts with the range of tools as used by the Lower Palaeolithic hunter-gatherers, a part of which may be ascribed to Acheulian industry. The Lower Palaeolithic antiquity, on the basis of a number of finds in the earlier occasions, was also ascribed to Birbhum and the archaeological horizon for this cultural stage was also mapped with the precise stratigraphy and also with stratigraphic occurrence of the artefacts during those studies.\[7\]

The number of sites in Birbhum with the artefacts fabricated by the Middle Palaeolithic hunter gatherers certainly increased as compared to those yielding with the Lower Palaeoliths. According to the data recorded during the present survey, the shaped tools are more deftly finished and retouched as found in the Middle Palaeolithic tool groups; but the unmodified and modified flakes certainly dominated the Middle Palaeolithic assemblages in Birbhum. As the lithic finds are mostly from the surface, the attribution of the artefacts to the Middle Palaeolithic antiquity are just on the basis of the generally approved tool kit for the stage in the absence of the identification of the proper context of such implements. Being so, a number of flake blades from different sites were allotted to the Middle Palaeolithic artefact group which might also be the indicator of the existence of the Upper Palaeolithic hunter gatherers in the site. It is also accepted that no distinct line of difference for the stratigraphy or the context of occurrence of the Middle and the Upper Palaeolithic artefacts in the zone could be located during the present study and the artefacts of both the groups seem to occur mostly in a mixed up condition.
The Upper Palaeolithic horizon with finds from Paruldanga and Hatgacha were already established by the earlier study. Though from Hatgacha there is no finds during the present study, Paruldanga (designated as Paruldanga-II in the present study) yielded some exquisite blade based Upper Palaeolithic finds. The finds from the site Paruldanga-II when compared to the Upper Palaeolithic finds of Bamun Ara at Bardhaman, shows some morphological resemblance which may be taken as a sign of the extensive mobility of the hunting gathering nomadic community. The Upper Palaeolithic finds from Ilambazar along with its Middle Palaeolithic artefacts in one hand and the huge microlithic finds on the other may be an indicator of the continuity of occupation for the sites. Since the site of Ilambazar Chopahari was not reported to be studied earlier by any researcher, the finds during the present study from the site is likely to add on the fresh inputs in the corpus of Palaeolithic evidences for the region.

Along with the Palaeolithic implements, the profuse collection of microliths, from the sites like Ilambazar-Chopahari and Moledanga, occurring without any pottery evidence might primarily be taken as the leftovers of the Mesolithic hunter gatherers moving in the region. Some of the microliths from the sites are the superb specimen of tool making. The Mesolithic horizon was earlier well observed and analysed by the researchers with the determined stratigraphic occurrence of microlithic implements here. The microlithic finds under this study from a number of sites besides these two are mostly surface scatters with only very few stratigraphic finds. However, the data collected during this study may supplement the horizontal or spatial spread of microlithic sites in Birbhum. Some of the sites occurring with the microliths also yielded Middle Palaeolithic as well as Upper Palaeolithic tools; therefore it may be concluded that these sites once being occupied remained occupied in later stages also. The contrary example is also available, as in Sekhampur or the sites around Khoyrasol, wherefrom no Upper Palaeolithic or the major microlithic evidence was recovered during the present study though it yielded with Lower Palaeolithic and Middle Palaeolithic artefacts. Certainly the number of sites with the microlithic finds increased considerably in the present study area in comparison to the number of sites occurring with Palaeolithic evidences which may be treated as the indicator of the increased population in the region as well as the highly mobile nature of the microlith using hunter gatherers. In the microlithic phase in Birbhum, the huge presence of wastes with the retouched debitage in the assemblage is characteristic for the every sites,
though in some cases, as already mentioned, superbly finished pieces are available. Though blades/bladelets are available in fewer numbers, flakes dominated the microlithic assemblage; geometric pieces are also rare finds. Some of the artefacts like the flake blades or the tiny choppers occurring with the microliths in these sites is likely to represent the overlapping or transitional or the continuation of the knapping technology of different periods or stages. One interesting find is the microliths occurring with the potsherds- the black ware in Sheorakuri-I and the red ware and black and red ware in Ganpur. This may be a point of interest for further study.

Certainly the upland or *danga* with its eroded landscape as well as the denuded lateritic bed played a crucial role for both Palaeolithic and microlithic context here, as revealed even in this study. The lateritic bed and the layer of soil capping the lateritic bed is archaeologically important since they contain the implements. During the present study the lateritic layer itself is not found to come up with the implements. Rather Palaeoliths and microliths are found to be scattered on the lateritic surface itself. However, the soil capping the lateritic layer, which is a quaternary phenomenon here, is found to consist of the implements in some cases but mainly the microliths. No doubt, the capping soil is the microlith bearing layer in the region and the microliths found scattered on the lateritic surface came down to their present state by means of sheer erosion and wiping out of the top soil. The study area, especially the western and north western part of it with massive undulations and with a history of high rate of erosion, this assumption will not sound improbable. [9] But in the case of Palaeolithic artefacts, to be frank, there is no clue towards its proper context during the present study; the surface of recovery of the Palaeolithic implements, may it be the upper alluvial soil as in Malipara Karidhya or it be the lateritic surface as in Ilambazar or Moledanga or the gravel bed in Nakrakonda, in no way seems to be its proper context. During the present study, in the absence of the stratigraphic or the contextual finds for the Palaeolithic implements, the precise context for the Palaeoliths remained an undefinable one though the earlier study revealed that the Upper Lalgarh formation is the horizon for the Palaeolithic implements in the region. [10]

The presence of the polished stone implements in Birkhoom is very marginal; earlier researchers found some polished celts made of basalt from Patanda and Bhimgarh here. [11] But no such implements have been recovered from here during
the present study, though the milling stone in Patanda and the Bhimgarh celts were recorded during the present study.

Since Birbhum presents an eco-niche where the undulating tract which is a continuation of the eastern Indian plateau meets the Gangetic alluvial filled plain tract, it became the point of interest not only from the geological perspective; the occurrences of the lithic finds from the Lower Palaeolithic stage to that of the microlith using stage as revealed during the earlier studies and also in the present study on the one hand concentrating in the undulating and erosional zones in the western and north western part of the study area with local occurrence and supply of the raw material as well as the occurrence of the early village farming with black and red ware occurring settlements like Mahisdal and Chandra Hazrar Danga at Bahiri, in the alluvial zone in the eastern and the south eastern part of the region with a continuation of the microlithic tradition made it fascinating from the prehistoric archaeological point of view. The eco-niche and the archaeological horizon developed in these two different landscapes offered a scope of the comparative study of the two horizons especially the transitional aspects from one phase to other in so different landscapes yet occurring so close by regions, attracted the earlier researchers also.

Thus, the lithic finds from Birbhum expands from Lower Palaeolithic to the Early Village Farming stage with the continuation of the microliths mainly which is suggested by the analysis of lithic materials recovered during the present study corroborated by stratigraphic finds in very few cases; this same occupational sequence is however hypothesised or re-constructed also by the earlier studies conducted in the region.

However, the present study was conducted within some limitations, one of which is not to take resort of excavations or some trial trenching at least; however, the finds from the present study may be used as the key for conducting some detailed study in the region which may hopefully reveal a more widespread and more contextual cultural profile of the Stone Age people here in Birbhum.
References

Chapter VII: Summary and Conclusion.


4. Ibid

5. Ibid

6. Ibid

7. Ibid


**Selected Bibliography**

- _______, ‘Prehistoric Archaeology’, Delhi.


**Plate: III**

**III a.** Sketch Map of site: Chipkuthi-Moledanga, Bolpur.

**III b.** Sketch Map of site: Bandersole - I.
Plate: IV

IV a.
Paruldanga - I: Microlithic Cluster.

IV b.
Paruldanga - I: Microlithic Cluster.

IV c.
Paruldanga - I: Context of Artefacts.
Plate: V

V a.
Paruldanga - I:
Context of Microlith.

V b.
Paruldanga - I:
Artefact in the alluvial layer.

V c.
Paruldanga - I:
Natural section with exposure of strata.
Plate: VI

VI a.
Paruldanga - I: 
Occurrence of microliths in the section.

VI b.
Paruldanga - I: 
Occurrence of microliths in the sandy alluvial layer.

VI c.
Paruldanga - I: 
Microliths foundin the section on the laterite strata.
Plate: VII

VII a.
Paruldanga - I:
Microliths occurring in the section.

VII b.
Paruldanga - I:
Occurrence of the microliths in the section (close view).

VII c.
Paruldanga - I:
Microlith bearing horizon in the section.
Plate: VIII

VIII a.
Paruldanga - II:
Layer of occurrence for the microliths.

VIII b.
Paruldanga – II:
Location of microlith at the alluvial layer.

VIII c.
Paruldanga – II:
Microlith in the harder laterite.
Plate: IX

IX a.
Paruldanga - II: Microlithic cluster over the eroded surface.

IX b.
Paruldanga - II: Microlith over the eroded surface.

IX c.
Paruldanga - II: Upper Palaeolithic & microlithic finds.
Plate: X

X a.
Chipkuthi-Moledanga: the landscape.

X b.
Chipkuthi-Moledanga: the landscape.

X c.
Chipkuthi Moledanga: Level of erosion.
XI a.
Chipkuthi-Moledanga: Context of artefacts

XI b.
Chipkuthi-Moledanga: Artefacts over the lateritic surface.

XI c.
Chipkuthi-Moledanga: Artefacts on the denuded laterite.
Plate: XII

XII a.
Chipkuthi-Moledanga: A core tool on the surface.

XII b.
Chipkuthi-Moledanga: Context of artefacts.

XII c.
Chipkuthi-Moledanga: Microlithic Cluster.
XIII a.
Chipkuthi-Moledanga: microliths on harder laterite.

XIII b.
Banerpukur Danga:
Microlith in the sandy soil.

XIII c.
Prantik:
context of the artefact.
Plate: XIV

XIV a.
Sekhampur: Landscape.

XIV b.
Sekhampur: A chopper on the alluvial surface.

XIV c.
Sekhampur: Context of the same chopper.
Plate: XV

XV a. Sekhampur: Choppers and Chopping tools (Dorsal & Ventral)

XV b. Illambazar Chopahari: Landscape.

XV c. Illambazar Chopahari: Erosion at the site.
Plate: XVI

XVI a.
Illambazar
Chopahari:
Microliths

XVI b.
Illambazar
Chopahari:
Top Left: Pointed
tool;
Top Right: Retouched
flake;
Below: Scraper
(dorsal).

XVI c.
Illambazar
Chopahari:
Top Left: Pointed
tool;
Top Right: Retouched
flake;
Below: Scraper
(ventral).
Plate: XVII

XVIIa.
Bandersole - I:
Fine grained quartzite industry (Prepared Core)

XVII b.
Bandersole - I:
A Levalloisian Leaf Point in the Prepared Core industry.

XVII c.
Bandersole - I:
Context of the stray microliths.
Plate: XVIII

XVIII a.
Bandersole - I: Modified Flake

XVIII b.
Bandersole - I:
Left: Modified Flake;
Right: Pointed Tool.

XVIII c.
Bandersole - I:
Microliths
Left: Micro burin;
Right: Scraper.
Plate: XIX

XIX a.
Bandersole - II:
Point.

XIX b.
Bandersole - II:
Microliths..

XIX c.
Khosbaspur-
Hodla:
Landscape.
XX a.
Khosbaspur-Hadla:
a scraper on the laterite surface.

XX b.
Khosbaspur-Hadla:
Context for the same scraper.

XX c.
Khosbaspur-Hadla:
A chopper on the laterite surface.
**XXI a.**
Khosbaspur-Hadla: a Chert Core on the alluvial surface.

**XXI b.**
Khosbaspur-Hadla: a Fossilized trunk just at the outskirt of the site.

**XXI c.**
Jibdharpur: Context of the artefact.

XXII b. Khosbaspur-Hadla: Choppers. (Dorsal)

XXII b.
Khosbaspur-Hadla: Choppers. (Ventral)
XXIII a.
Sheorakuri - II:
Erosion at the site.

XXIII b.
Sheorakuri - II:
Context of artefacts at the site.

XXIII c.
Sheorakuri - II:
Artefact occurring at the alluvial layer.
**XXIV a.**
Karidhya:
A thick flake on the surface.

**XXIV b.**
Karidhya:
Atrefacts occurring on the surface.

**XXIV c.**
Karidhya:
A core in the alluvial layer.
XXV a.
Karidhya:
Microliths
near the
trench.

XXV b.
Karidhya:
Microliths
Occurring at
the trench
wall.

XXV c. Karidhya: Left: Point; Right: Retouched Flake.

XXV d. Karidhya: Scraper.
XXVI a.
Karidhya:
Microliths.

XXVI b.
Karidhya:
Microliths.

XXVI c.
Madhaipur:
Artefact at the alluvial surface.
XXVII a.
Madhaipur: Context of the microliths

XXVII b.
Madhaipur: Stray microlith on the surface.

XXVII c.
Madhaipur: Microliths on the sandy alluvial surface.
Plate: XXVIII

XXVIII a.
Madhaipur: Context of Microliths.

XXVIII b.
Madhaipur: Point & Side Scrapers (Dorsal)

XXVIII c.
Madhaipur: Point & Side Scrapers (Ventral)
Plate: XXIX

XXIX a.
Madhaipur:
Points.

XXIX b.
Madhaipur:
Left: Modified Flake
Right: Flake blade.

XXIX c.
Nagari: Left:
Modified Flake
Right: Scraper.
XXX a.
Nagari:
End scraper.

XXX b.
Barkuri-Panchra:
Context for the microliths.

XXX c.
Dubrajpur Hills:
Landscape.
XXXI a.
Dubrajpur Hills:
Microlithic cluster

XXXI b.
Dubrajpur Hills:
Microlith at the cluster.

XXXI c.
Dubrajpur Hills:
Microliths.
**Plate: XXXII**

**XXXII a.**
Mansayer-Hetampur: Microliths.

**XXXII b.**
Mansayer-Hetampur: Stray microlith at the surface.

**XXXII c.**
Mansayer-Hetampur: Stray microlith at the surface.
Plate: XXXIII

XXXIII a.
Mansayer-Hetampur: Microlith occurring at the laterite layer.

XXXIII b.
Mansayer-Hetampur: Microlith occurring at the laterite layer.

XXXIII c.
Mansayer-Hetampur: Microliths.
Plate: XXXIV

XXXIV a.
Mansayer Hetampur:
Microliths.

XXXIV b.
Mansayer Hetampur:
Scraper on Crystalyne & Milky quartz.
(Dorsal)

XXXIV c.
Mansayer Hetampur:
Scraper on Crystalyne & Milky quartz.
(Ventral)
Plate: XXXV

XXXV a.
Hetampur-Danga:
Artefacts at the alluvial surface.

XXXV b.
Hetampur-Danga:
Left: Modified Flake.
Right: Point.
(Dorsal)

XXXV c.
Hetampur-Danga:
Left: Modified Flake.
Right: Point.
(Ventral)
XXXVI a.
Giridangal Niramoy:
Artefact at the surface.

XXXVI b.
Giridangal Niramoy:
Artefact tightly attached to the surface.

XXXVI c.
Giridangal Niramoy:
Artefacts loosely scattered on the surface.
Plate: XXXVII

XXXVII a.
Giridangal
Niramoy:
Microlith on the surface.

XXXVII b.
Giridangal
Niramoy:
Microliths

XXXVII c.
Giridangal
Niramoy:
Smaller Flakes.
Plate: XXXVIII

XXXVIII a.
Jhapartala - I:
Landscape.

XXXVIII b.
Jhapartala - I:
Artefacts at the sandy alluvial surface.

XXXVIII c.
Jhapartala - I:
Artefacts at the sandy alluvial surface.
Plate: XXXIX

XXXIX a.
Jhapartala - I:
Scattered Artefact over the surface.

XXXIX b.
Jhapartala I:
Point.

XXXIX c.
Jhapartala I:
Microliths & Core.
Plate: XL

**XL a.**
Jhapartala - II: Microliths.

**XL b.**
Jhapartala - II:
Left: Point.
Right: End Flake.
(Dorsal)

**XL c.**
Jhapartala - II:
Left: Point.
Right: End Flake.
(Ventral)
**Plate: XLI**

**XLI a.**
Jhapartala - I:
Microliths.

**XLI b.**
Jhapartala - I:
Left:
Convergent Scraper;
Right: Point.

**XLI c.**
Tantipara:
Microlith Occurring at the alluvial layer.
Plate: XLII

XLII a.
Tantipara: Microliths on the Surface.

XLII b.
Tantipara: Microliths.

XLII c.
Tantipara: Microliths.
Plate: XLIII

XLIII a.
Gulolgachi: Artefacts occurring at the sticky soil surface.

XLIII b. Gulolgachi: Left: Notch; Right: Point. (Dorsal/ Ventral)

XLIII c.
Karabag/ Hirakhuni Math: Microliths.
Plate: XLIV

XLIV a.
Moynadal - II:
Landscape.

XLIV - b.
Moynadal - II:
Tool bearing horizon.

XLIV c.
Moynadal - II:
Tools at the sandy rocky surface.
XLV a. Moynadal - II: Heavy duty pointed tool(Dorsal/ Ventral)

XLV b. Moynadal - I: Core Scraper (Ventral)

XLV c. Moynadal - I: Core Scraper (Dorsal)
Plate: XLVI

XLVI a.
Khoyrasol:
Left & Middle:
Side Scraper;
Right: Borer.

XLVI b. Khoyrasol: Notch (Dorsal/ Ventral)

XLVI c.
Exposure of bed rock at the Khoyrasol area.
**XLVII a.**
Khoyrasol:
Left: Side
Scraper;
Right: Scraper
cum Borer.

**XLVII b.**
Nakrakonda:
Exposed
layers of
gravels.

**XLVII c.**
Nakrakonda:
Artefacts in
an excavated
portion.
Plate: XLVIII

XLVIII a. Nakrakonda: a smaller pick (Dorsal).

XLVIII b. Nakrakonda: a smaller pick (Ventral).

Plate: XLIX

XLIX a.
Upar Kinan - II:
Left: Point;
Right:
Modified Flake (Dorsal).

XLIX b.
Upar Kinan II:
Left: Point;
Right: Modified Flake (Ventral).

XLIX c.
Patanda:
A milling stone being used in ritual cult.
**Plate: L**

**L a.** Chandramoyee Hills: End flake/Scraper on Basaltic rock.

**L b.** Lalateswari Hill, Nalhati: Microliths.

**L c.** Lalateswari Hill, Nalhati: Microliths.
Plate: LI

LI a.
Ganpur:
Context for the scattered microliths.

LI b.
Ganpur:
The erosional bed yielding potsherds.

LI c.
Ganpur: Left:
Arrowhead on Basaltic rock;
Right: Retouched Blade on quartz.
Plate: LII

LII a.
Ganpur:
Microliths.

LII b.
Ganpur:
Potsherds.

LII c. Kalidangar Math: A side scraper on the surface.
LIII a.
Maluti Sadarghat: Chila River Valley.

LIII b.
Maluti Sadarghat:
Rocky outcrop at Chila River Valley.

LIII c.
Maluti Sadarghat: Terrace formation at the Eastern bank of Chila river.
Plate: LIV

LIV a.
Maluti Sadarghat:
Second terrace at the Eastern bank of river Chila.

LIV b.
Maluti Sadarghat:
Cementation at the Eastern bank of river Chila.

LIV c.
Maluti Sadarghat:
Immediate terrace at the Western bank of river Chila.
LV a.
Maluti Sadarghat: Tools along with pebbles in the river bed.

LV b.
Maluti Sadarghat: Tools along with pebbles in the river bed.

LV c. Maluti Sadarghat: Scrapers.
LV d. Maluti Sadarghat: Microliths.
LVI a. Maluti Sadarghat: Left: Cleaver; Right: Convergent Scraper (Dorsal/ Ventral)

LVI b. Maluti Sadarghat: Left: Biface; Right: Chopping Tool (Dorsal)

LVI c. Maluti Sadarghat: Left: Biface; Right: Chopping Tool (Ventral)
LVII a. Maluti Sadarghat: Side Scraper (Dorsal/Ventral)

LVII b.
Maluti Sadarghat:
Left: Notch;
Right: Point (Dorsal)

LVII c.
Maluti Sadarghat:
Left: Notch;
Right: Point (Ventral)
LVIII a. Maluti Sadarghat: Cleavers (Dorsal/Ventral).

LVIII b. Maluti Sadarghat: Small Scrapers (Dorsal).

LVIII c. Maluti Sadarghat: Small Scrapers (Ventral).