INTER-DISCIPLINARY PERSPECTIVES ON INDIAN PALEOANTHROPOLOGY AND PREHISTORY

Guest Editors
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Lithic industries with Palaeolithic elements in Northeast India

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ABSTRACT

Northeast India is one of the poorly documented areas archaeologically and hardly is considered in the discussions on Indian prehistory. To date, no site has pushed back the antiquity of human presence in this region prior to Late Pleistocene. However, circumstantial evidence indicates its significance for early hominin dispersals during Early/Middle Pleistocene from Africa to Island Southeast Asia. The Late Pleistocene/Early Holocene shows an increase in the archaeological record of the Hoabinhian and Anyathian culture, which further demonstrates close affinities with the Southeast Asian record. This paper summarises the lithic industries of the Late Pleistocene/Early Holocene in this region in connection with the adjoining areas of Nepal, Bangladesh and Myanmar.

1. Introduction

The presence of Palaeolithic cultural material in Northeast India is a debated issue in Indian Prehistory. On the basis of tool typology, several assemblages have been placed within the context of ‘Palaeolithic’ in this region. One of the main problems with these Palaeolithic materials is that they occur in relatively younger deposits and in most cases in association with axes/adzes of Neolithic origin and pottery. The Garo Hills, Meghalaya, has yielded the largest number of stone tools with Palaeolithic characteristics (Medhi, 1988), but without a well-understood chrono-stratigraphic context. Several early workers (Sharma, 1972; Sankalia, 1974) have analysed and divided these materials on the basis of typology into chronological sequences of Lower, Middle and Upper Palaeolithic periods. However, Ghosh (1978) has contradicted these views and suggested that these materials are not Palaeolithic, but just ‘Neolithic debitage’.

This area is often referred to as inaccessible during the Pleistocene due to dense forests, hilly terrain, heavy rainfall and harsh climatic conditions, and so was interpreted as unfavourable for humans (Ghosh, 1978; Misra, 2001). However, this region is considered one of the principal geographic corridors for faunal migrations between the Indian subcontinent and the rest of Asia (Hooijer, 1949; Tougaard, 2001; Chauhan, 2008; Nanda, 2008). Due to the lack of evidence for early humans in Northeast India (henceforth NEI) prior to the Late Pleistocene (Ramesh, 1989), this area has not figured in the theoretical discussions pertaining to early hominin dispersals. This region has been regarded as a geographical barrier for early dispersals of hominids from Africa, to Island Southeast Asia and East Asia via the Indian subcontinent (Dennell, 2009) in the Early/Middle Pleistocene, and even was considered a partial barrier (Field and Lahr, 2006; Field et al., 2007) to eastward migration during Marine Isotope Stage (MIS) 4 (71–59 ka). On the contrary, most scholars (Rightmire, 2001; Mithen and Reed, 2002) depict a tentative route of the eastward movements of hominins from Africa to Island Southeast Asia through the Northeast Indian corridor. However, the importance of this region in this regard has never been discussed in detail.

The objective of the present paper is to review the evidence for Palaeolithic remains of NEI in relation to the adjoining areas of the Eastern Himalayas, especially Nepal, South China, Myanmar and Bangladesh. Bhutan has not yet yielded any convincing Palaeolithic site. Considering the archaeological record, cultural affinities/connections with its surrounding areas will be examined in a geographical perspective, bearing in mind that this region connects a huge landmass of Asia, lying at the junction of South Asia, Southeast Asia and East Asia (Fig. 1). Presently, the term NEI (roughly encompassing the areas between 22°-30°N and 89°-97°E) is used to indicate the region covering the states of Assam, Arunachal Pradesh, Nagaland, Manipur, Meghalaya, Mizoram, Sikkim, and Tripura. The Brahmaputra valley is surrounded by several ranges such as the eastern Himalayas on the north and east, the Patkai and Naga hills on the northeast, and Mikir hills and Shillong plateau on the south. The Barak river valley forms the southern part of this region.

2. Early hominin dispersals through NEI?

One of the major focuses of attention among palaeo-Anthropologists and Prehistoric Archaeologists is the establishment of the
earliest human occupation in different areas. Moreover, emphasis is given towards understanding the early human dispersal in the Old World from Africa, the cradle of humankind. This issue emerged as 'out of Africa' model, implying early Homo species stepping foot outside Africa and dispersing to different parts of the Old World. The formulation of this popularly known model is based on the recent evidence of early human presence in the form of hominin remains themselves or traces of their cultural activities from different sites. Recent data with numerical dates authenticates a human presence in the Early Pleistocene time outside Africa at Atapuerca (Carbonell et al., 2005) in Spain, Pirro Nord in Italy (Arzarello et al., 2007), Dmanisi in Georgia (Lordkipanidze et al., 2007), Ubeidiya (Tchernov, 1995) in Israel, Riwat, Pabbi Hills (Dennell et al., 1988) in Pakistan, Isampur (Paddayya et al., 2002) and Attirampakkam (Pappu et al., 2011) in India, Java (Sémah et al., 2000; Simanjuntak et al., 2010) in Indonesia, and Longuppo Cave (Wanpo et al., 1995) and in other sites of China (See Weiwen and Pu, 2007). Lower Palaeolithic Acheulian artefacts are not yet recorded from NEI (Petraglia, 1998, 2006; Mishra, 2006/2007; Chauhan, 2009, 2010a). Routes, dispersal patterns and colonisation of different regions of the Old World by early hominins with different cultural traditions, in relation to the climatic and ecological factors responsible, are thoroughly discussed in recent publications (see Fleagle et al., 2010; Norton and Braun, 2010, 2011, in press). To date, few attempts have been made to establish the earliest human occupation in NEI. Recently on the basis of circumstantial evidence, Hazarika (2008, 2011, in press) argues, this region, as it connects the Indian Subcontinent with the East and Southeast Asian landmass, may have acted as a possible mid-point from Africa to Southeast Asia through South Asia for the eastward dispersal of early hominids.

Many early Palaeolithic sites, occasionally associated with skeletal remains, are found in neighbouring areas of Nepal (Corvinus, 2006), South China (Gao et al., 1997; Hou et al., 2000; Weiwen and Pu, 2007), Northern Thailand (Reynolds, 1990), Myanmar (Moviis, 1944; Ba Maw, 1995; Ba Maw et al., 1998) dated to Early/Middle Pleistocene. Mishra et al. (2010) suggests close connections between India and Java in the Lower and Middle Pleistocene on the basis of Palaeolithic technology of Large Flake Acheulian and supported by paleontological material. If NEI acted as a corridor for these dispersals and early hominid movements, there are ample possibilities for many unexplored sites dated to the Early/Middle Pleistocene. However, as Dennell (2009) suggested, if the lower reaches of the Ganges-Brahmaputra River were difficult to cross, then the uplands along the Himalayan foothills might have served as a route for human movement. After reviewing the biogeography of Middle Pleistocene hominins in mainland Southeast Asia, Marwick (2009) proposed the possibility of a coastal and waterways route, although not supported with archaeological data to date, for the initial migration of hominins into Southeast Asia from West Asia along the coast of South Asia and Myanmar. This also supports the importance of NEI in early human movements. Chauhan (2010b) considers two routes of entry into the Indian Subcontinent and subsequent population movements from India; Afghanistan and Pakistan to the northwest and Myanmar in the northeast. He also predicts NEI as a greater potential area for Early Pleistocene sites, reflecting a major human and faunal corridor between India and Southeast Asia, as recently put forward by Mishra et al. (2010).

3. The Garo Hills ‘dilemma’

Nearly four decades (initiated in mid-1970s) of intermittent prehistoric investigations in Garo Hills, Meghalaya have revealed the existence of several assemblages with Palaeolithic elements. The archaeological record and the views expressed and conclusions drawn by earlier workers are discussed sequentially. The details of the archaeological record are based entirely on the descriptions of the original investigators; hence this description is dependent on their interpretations and the terminologies adopted by them. Subsequently, discussion will focus on evaluation of the nature and contexts of the artefacts which are identified (or claimed) to be of Lower, Middle and Upper Palaeolithic traditions, following European nomenclature. Most of these artefacts were collected from secondary depositional contexts and were placed in different cultural stages on typological grounds. Some of the industries were compared and correlated with the Indian as well as southeast Asian
Lithic industries from the Garo Hills

Sharma (1974) in his field explorations in the Rongram and Simsang river valleys of the Garo Hills located several Stone Age sites at Rongram Alagiri, Chitra Abri, Selbalgiri, Michimagiri, Watri Abri, Waramgiri, Chibragiri and Romblogiri in an undulating area of 500–800 m asl. A trial trench at the site of Selbalgiri, located on a terrace of the Rongram River, was undertaken. Typologically, the artefacts found in the trench are categorized into four distinct industries: (i) a blade and blade industry, (ii) a microlithic industry, (iii) a chipped stone axe industry, and (iv) a ground and polished stone industry associated with a crude handmade pottery. Furthermore, he observed some roughly flaked discarded tools and stone axes “showing Lower Palaeolithic tool tradition”. The site of Waramgiri has well exposed dolerite dykes which were utilised as raw material for making artefacts from the “Lower Palaeolithic” to the end of the Neolithic. The artefacts occur in the eroded surface and in mint condition in a yellowish silt layer. A few handaxes, scrapers and points showing “Mousterian” characteristics were excavated from the silt layer. Ground and polished stone and pottery were not found at Waramgiri. Flake and blade industries are found at both Michimagiri and Watri Abri. The frequency of blades is greater at Watri Abri.

Sharma (1974) noted that:

1. Both pebble tool and chopper elements in association with the handaxe facies of crudely flaked “Acheulian” and late Acheulian types are present in this industry.

2. Elements of “Levalloisian-Mousterian” tradition are present in the flake tools. The tools include usual types of scrapers and points, and tanged points of “Aterian” type, and “Mousterian” types of flakes with thick blunt backs.

3. The Blade industry also shows good development.

4. Lesser development of the microliths is attributed to the unsuitability of dolerite as raw material for the preparation of microliths.

5. Another significant observation is the presence of Hobainian cultural elements, a stone axe industry dominantly found in Southeast Asia, based on the production of unifacially flaked axes from flintish oval pebbles.

Sharma (1975) studied the archaeological remains of Meghalaya and discusses the Neolithic and Palaeolithic periods. He divides the entire prehistoric period into four series:

Series I: includes artefact types such as handaxes, cleavers, choppers, chopping tools, discoids, and pointed tools found at the prehistoric sites of Garo Hills. These artefacts are found associated with cemented coarse gravel in in-situ position or resting directly over sandstone and shale at Rongram, Romblogiri, and Chibragiri.

Series II: This series is characterised by the flake tools, and the majority of these flakes show prepared multifaceted striking platform with a prominent bulb of percussion. Regular tool types are scrapers, points and borers.

Series III: Blades and blade tools such as scrapers, points, blades and burins are the main components of this series. These artefacts come from erosional surface of the river terraces, and hence the stratigraphic position is not understood.

Series IV: This is represented by microliths such as points, scrapers, borers, blades, bladelets and arrowheads made on fine grained dolerite.

According to Sharma (1975), the Stone Age artefacts bear similarities with the Early, Middle and Late Stone Age complexes of India. Moreover, the handaxe tradition of Garo Hills has a close parallel with the Padjitanian of Java. He argues for developmental stages within the artefacts from Early Palaeolithic to Neolithic stages.

Surface collections as well as the artefacts recovered during the excavation at the site of Michimagiri (25°33'N, 90°17'E) (Sharma and Roy, 1985) during March 1976, show homogeneity in nature indicating the same industrial tradition. The raw material is fine grained blackish dolerite which is heavily weathered with a reddish brown patina. Besides the prepared core technique as a dominant technique, a hinged fracture technique was also used for preparation of the artefacts. Typologically, the artefacts reveal at least three industrial traditions: Levallois flake tradition as the dominant one, blade production, and Acheulian tradition. The artefacts include side-scrapers, end-scrapers, borers, and utilised Levallois flakes, points, blades, micro- lunates and leaf shaped points. The excavators concluded with an argument that, in the absence of a similar assemblage in Southeast Asia and as the Garo Hills, the material does not differ significantly from those found in mainland Indian sites, and an Indian origin of the Michimagiri artefacts can be postulated.

Sharma and Roy (1985) discovered Stone Age artefacts in-situ at two sites (NBG-A and NBG-B) at Nagawalibhia at the confluence of the Simsang and Rongu rivers during 1977 and 1978. The site of NBG-A has yielded choppers, chopping tools and flakes of dolerite in a cemented gravel deposit. The site of NBG-B produced scrapers, points, flakes and cores of chert, without pebble tools, and except for the chert artefacts, other materials are found in stratified context. Some of their significant observations are:

(i) The handaxe-cleaver tradition is not present at the site of Nagawalibhia, from which it differs with other sites of the Central Garo Hills.

(ii) The possibilities of typological and technological similarities between Nagawalibhia pebble tools and those of Soanian of Northwestern India cannot be denied.

Sharma (1986) proposed the Nagawalibhia (NBG-A) pebble choppers to be identical with Soanian of Northwestern India. Some flake tools made on chert at NBG-B show characteristics of the Late Soan and Middle Palaeolithic flake tool industry.

Typo-technological study of stone tool industries by Sonowal (1987) established the presence of a blade flake tool tradition in the Garo Hills. The site of Michimagiri (III) (Sharma, 1985; Sonowal and Sharma, 1986) at 25°30’ 25°45’ N; 90°15’ 90°30’ E at an elevation of ~ 800 m has yielded a “huge quantity of finished tool, waste flakes and cores indicating characters of an extensive factory site.” A small trench at the site reveals one cultural layer of 1 m thickness. The artefacts are mainly made on flakes and blades representing Mousterian, Levalloisian and blade techniques. Acheulian types of tools are smaller in size. Cleavers are made on flakes. They divided the industry into (a) flake industry and (b) blade industry comparable to the Middle and Upper Palaeolithic industries of India.

Sonowal and Sharma (1988) presented the discovery of blunted back flake knives of the Central Garo Hills collected from eleven sites of Rongram and Ganol river valleys at different elevations ranging from 500 to 800 m. The sites are Michimagiri III,
Singh (1972, 1983) in his excavation at the limestone cave site of Khangkhui near Ukhri, Manipur, recorded interesting stone and bone tool assemblages. The cave contained handaxes and cleavers in its lower level and scrapers, points, borers, blades, burins, and bone points in the upper level. The bone industry comprises points, scrapers, chisels, perforated and blunted back knives. Badam of Deccan College, Pune, identified the faunal assemblage as belonging to Cervus, Sus, Bovidae and wild fowl, and not older than Late Pleistocene in age, comparable to the faunal remains of Kur nool cave of South India (Singh, 1991).

Other palaeontological materials found in NEI are of *Elephas maximus* and *Elephas hysudricus* (Badam, 1979) without much chronological data. Choppers were also recorded at other localities such as in layer VI at Napachik and Machi in Tengnoual District of Manipur. Singh and Ranjit Singh (1990) reported their findings of a few artefacts comprising of handaxes, worked flake pebble with round edge, flaked pebble, blade, flake, pebble striker, split pebble, waste flakes etc. at the site of Singtom (24°17′N, 93°54′E) in the Chandeli district of Manipur.

Similarly, Bipardi kar (1972) of the Archaeological Survey of India with a multidisciplinary team explored the Dhabahbhum area of the Lohit district of Arunachal Pradesh and reported evidence of Palaeolithic (?) material. However, the artefacts are unconvincing and doubtful (Chakrabarti, 1998). Ashraf (1990) also finds some Palaeolithic stone tools consisting of choppers, cleavers and hand axes from Kamla and Dikrong valley of the Papumpare district of Arunachal Pradesh. These claims failed so far in establishing an undisputed chronology for the prehistoric cultures prior to the Neolithic. These are the reasons why the evidence of Palaeolithic material are always neglected and generally not considered in the discussions on Indian Palaeolithic (Misra, 2001). Recently, Medhi et al. (2006) has claimed some Palaeolithic artefacts from Mizoram.

6. Stratigraphic contexts

Most of the chrono-stratigraphy, provided by the earlier scholars (Sharma, 1972, 1979; Sonowal, 1987; Mahanta, 1995) are based on artefact typology and technology and hardly interpreted on the basis of numerical dates, whereas the context of the sites is mostly neglected. Most of the artefacts occur on erosional surfaces. Chronologies have been proposed on the basis of typological comparison with the sites of India and Southeast Asia. However, these studies failed so far to establish a well stratified chronological sequence, corroborated with numerical dates and associated archaeological data. So, the story of cultural evolution from Lower, Middle to Upper Palaeolithic is not substantiated. Study by Medhi (1980) on the Quaternary history of the Garo Hills shows that the surfaces are definitely not older than the Pliocene. He proposed a relative chronology of the various geomorphic events in Garo Hills. His observation on the geomorphology of the area does not support a high antiquity for stone artefacts. These artefacts are found in the youngest terrace (Terrain III) and on the weathered rock surface, both geo-chronologically dated to the Late Quaternary (Medhi, 1980, 1988). Considered to be Lower and Middle Palaeolithic (based on typo-technology), these artefacts do not show any stratigraphical differences with microlithic/Upper Palaeolithic, Hoabinhian and Neolithic bearing horizons. The handaxes, scrapers, flake tools etc. can be of any period and are found even in later periods. The artefacts identified as cleavers may be handadzes (Medhi, 1988). The large cutting tools lack any significance in chronological sequences. Selbargli II yielded a clear microlithic horizon below the Neolithic level, although without a stratigraphical break. Microliths are also found at the Neolithic level (Sharma, 1986). Sections at Rongram (Sharma, 2002b) show that pebble choppers and short axes lay in the strong brown coloured alluvium of 31 cm below the dark yellowish brown alluvium at 33 cm containing Neolithic ground tools. Artefacts of flake and blade tradition are well known in Late Pleistocene contexts of Southeast Asia. However, considering the erosional situation of the geological strata where the artefacts of different phases (at least typologically) occur as mixed assemblages, as palimpsests, time-transgressive, should be scrutinised more carefully and if necessary, should be re-excavated, to build up the actual story of the age of the industries indicating ‘archaic’ elements.

Late Quaternary sediments are recorded in different localities of NEI (Ramesh and Rajagopalan, 1999) and are dated to 38,020 ± 2230 B.P. at Tipang (Southeast Assam), 32,540 ± 130 B.P. at Singra (Lakhimpur, Assam), 40,000 B.P. at North Cachar hills (Assam), 40,000 B.P. at Ziro valley (Arunachal Pradesh) and 35,690 ± 3050 B.P. at Khowai and Hoara valley (Tripura). Interestingly, the stone artifacts from different sites, such as Misimagiri III, Didami III, Mechingrenchap containing Middle and Upper Palaeolithic artefacts. Some small axes with lanceolate-tips and butts, similar to Southeast Asian artefacts were also collected (IAR, 1995–96). Mahanta (1995) analysed the stone artefacts from Selbargli, West Garo Hills and identified evolutionary stages belonging to Palaeolithic, Mesolithic and Neolithic cultures.

In 1969, Sankalia (1974) visited the Garo Hills and observed that the Palaeolithic elements might be present in the area. Medhi (1980) interprets the Garo Hills situation on the basis of his field work in the context of palaeoecology of the area. The artefacts which are not typical Neolithics have been grouped by him under ‘pre-Neolithic’ with a clarification that the term is provisional and may be accepted for the time being as equivalent to ‘Palaeolithic’ elsewhere in India”. Further, he prefers to assign “the pebble choppers and microliths (?) found at Nangalbibra of Garo Hills to Neolithic origin”. Medhi (1990) in surveying the state of research in prehistory mentions his study undertaken during 1982 and 1984 in the Garo Hills and states that the tools are not found in a stratified context and the ground and chipped tools are found together. Further, he comments on the ‘Neolithic deblage’ problem initiated by Ghosh (1978) that the chipped stone tools are not simply deblage, but purposely knapped artefacts. Recent observations on the stratigraphy of the sites occurring in the Garol and Rongram valleys of the Garo Hills makes it clear that the flake-blade assemblage, the bifaces and the pebble tools are of Pleistocene period, whereas the celts occurring in the yellowish brown alluvium are Holocene (Sharma, 2002a).
artefacts (of late Middle Palaeolithic/Upper Palaeolithic) of Tripura occur in Late Pleistocene deposits (Ramesh, 1989). Similarly, stratigraphically, the flake-blade assemblage, bifaces and the pebble tools are placed in the Pleistocene (Sharma, 2002a). The faunal assemblage at Khangkhui cave occurring with stone artefacts indicates Late Pleistocene (Singh, 1991). Archaeological record prior to Terminal Pleistocene/Early Holocene is very scanty in mainland Southeast Asia (Schelepert et al., 2000), which is also valid in case of NEI.

7. Fossil wood assemblages of Myanmar, Tripura and Bangladesh

Movius (1944, 1948) on the basis of his work in the Irrawaddy valley of southern Myanmar, suggested that a technological line, commonly known as the ‘Movius Line’, separates the unifacial ‘chopper-chopping tool’ tradition of Eastern Asia from the bifacial ‘handaxe’ tradition of Western Asia, Africa and Europe. The Acheulian-like industries do not occur east or north of ‘Movius Line’ which arcs from the India-Bangladesh border to Northern England. In an Indian context, the Movius line separates the Sub-Himalayan regions where ‘chopper-chopping’ assemblages occur from the Acheulian assemblage region of Peninsular India. However, on the basis of the distribution of Acheulian artefacts in the sub-Himalayan region and relatively late age of the Soanian industries, Gaillard and Mishra (2001) and Mishra et al. (2010) questioned the validity of the arguments made by Movius who considered the Soanian as contemporary to the Acheulian. Mishra (2010) in a recent paper suggests revision of the original formulation of the ‘Movius line’ at least in relation to the Indian sub-continent. Convincingly, the Late Pleistocene of the Indian sub-continent shows two separate technological traditions, Soanian in the Sub-Himalayan region with close resemblance to other contemporary Palaeolithic industries in Southeast Asia, and on the other hand, microlithic blade industries in other parts of India dated to more than 40 ka, hence contemporary to the Soanian. Mishra (2010) proposed that the ‘Movius Line does track an important ecological and cultural boundary as originally envisioned, but in Late Pleistocene time rather than Middle and Lower Pleistocene time and probably with modern humans on both sides of the line’. The archaeology of Late Pleistocene NEI can be evaluated in connection to the newly interpreted time framework of the ‘Movius line’ by Mishra (2010).

Movius (1944, 1948) suggested a Palaeolithic tool culture based on large core tools made on fossil wood and named the assemblage as Anyathian, meaning ‘man of upper Myanmar’. However, the exact chronology of Anyathian culture is not well determined. Fossil wood is siliceous in nature and has good flaking quality and occurs in abundance in the region covering Bangladesh, southern NEI, Myanmar, and Arunachal Pradesh (Mehrotra et al., 1999). These fine quality rocks were exploited as a raw material for making artefacts in this region. The Quaternary deposits of Tripura are known to have yielded stone tools comprising scrapers, points, chopping tools, hammer stones, blades, and fluted cores (Poddar and Ramesh, 1983). These artefacts made of silicified fossil wood are found at Teliamura, Sonai Bazar area, Mohanpur, Sonaram areas in West Tripura. A chronological scheme for prehistoric cultures of Tripura was proposed on the basis of available stratigraphic data and typo-technological evidence, corroborated by radiocarbon dates as:

- Holocene-Evolved Tripurian = Upper Palaeolithic-Early Neolithic 3450 ± 110 B.P.
- Late Pleistocene- Late Tripurian = Late Middle Palaeolithic 35690 ± 3050 B.P.

Artefacts made of fossil wood were also reported from the site of Igara Mile in Birbhum and in cemented gravel deposits of the Tarafeni River section in Midnapur in West Bengal (Chakrabarti, 1992), Rangamati of Chittagong and Chhagalnaiya (Chakrabarti, 1988, 1992). Explorations carried out by Chakrabarti (1992) in the Mainamati-Lalmai Hills during 1989 revealed several localities yielding Palaeolithic artefacts. This upland area has an average of 12 m height and a maximum of 30–50 m. The artefacts were found in close proximity to the distribution of raw material, fossil wood. The artefacts comprised retouched core, scrapers, fragments of handaxes, points, burins, blades, cleavers, split pebbles, etc., indicating a mixed industry comprising both Acheulian(?) and Upper Palaeolithic elements. Chakrabarti (2006) revised his earlier classification of the ‘cleavers’ and the ‘retouched cores’ as handadzes. Singh Roy and Ahsan (2002) have discovered several artefacts in the bordering areas of Hobigunj sector of Sylhet and Tripura. Singh Roy and Ahsan (2007) further report several fossil wood artefacts in Lalmai hills and Chaklapunj area. The Anyathian and Neolithic tools from the Irrawaddy valley of Myanmar indicate close resemblances to the materials of Lalmai hills and Chaklapunj of Bangladesh. Fossil wood was extensively used in Myanmar (de Terra and Movius, 1943) as a raw material for making artefacts from the Early Anyathian to the Neolithic culture (Aung-Thwin, 2001). The site of Sung Noen in Nakorn Ratchasima province of northeastern Thailand has also yielded similar fossil wood assemblages resembling the Anyathian of Myanmar (cited in Reynolds, 1990). Chakrabarti (2006) opines that the artefacts in all the localities found in the Lalmai Hills of Bangladesh and Tripura Hills are identical with the Late Anyathian 2 industry of Mandalay region of Northern Myanmar. The abundance of blades, backed knives, burins in the assemblage indicates an Upper Palaeolithic phenomenon over a geographically extended area from Bangladesh, NEI and Myanmar.

8. The Hoabinhian connection

Hoabinhian is a cultural techno-complex of Southeast Asia, both mainland and island. The term is used to refer to the lithic assemblages from the Terminal Pleistocene and Early Holocene of Southeast Asia characterised by unifacial, centripetal and circumferential cobble reduction and resulting flakes and debitage (see Marwick, 2008). However, the term Hoabinhian has been under debate (Shoocongdej, 2000). The Hoabinhian techno-complex (Bellwood, 1978) is defined purely on the basis of tool categories comprising pebble tools, utilised flakes, and a small proportion of edge-ground tools and bone tools, and in the later period pottery and fully ground axes and adzes also occur. The Hoabinhian sites are spread over a broad region from Southern China, North Vietnam, Malaya, Thailand, Laos, Cambodia, Sumatra, and Taiwan. The importance of Hoabinhian in the Indian context (Gaillard and Dambricourt-Malassé, 2008; Gaillard et al., 2011) is not well understood yet.

In the Garo Hills, a group of artefacts was found made ‘either wholly by flaking or by flaking all over and grinding at the cutting edge’ (IAR, 1965–66; Sharma, 1972, 1988). Excavations during 1977-78 at the Rongram terrace site with an altitude of about 490 m yielded Hoabinhian artefacts to a depth of 75 cm, below 10 cm of a Neolithic layer at the top and without any stratigraphic gap (Sharma, 1986). The Hoabinhian artefacts are made on flattish oval river pebbles by flaking the pebble either partly or wholly, showing patches of unworked pebbly surface. On the basis of the stratigraphic position and typology of the stone artefacts, Sharma (1988) assigned these cultural materials to Late Pleistocene and Early Holocene. Typo-technologically, these chipped pebble tools can be compared with the Hoabinhian culture of Southeast Asia. Short
axes, the most frequently occurring pebble tool in the Garo Hills, are classical Hoabinhian artefacts (Sharma, 2002a, 2007). Sharma (2002b) observed that the short axes of Rongram match typically with the materials from Xam Trai cave of Vietnam and fall within the third division of classification of Hoabinhian artefacts by Bellwood. The sites yielding Hoabinhian artefacts and found associated with ground stone axes and/or grindstones are chronologically younger than the sites yielding only Hoabinhian artefacts in Southeast Asia (Bowdler, 2008). Hoabinhian artefacts are initially associated with hunter-gatherers, but some of these early humans continued making these artefacts after they have adopted agricultural practices (Bowdler, 2008). So, can the Hoabinhian artefacts found associated (actually without proper chronological differences) with ground stone tools of Neolithic origin in the Garo Hills be considered as an indication of its contemporaneous situation with the Neolithic or only as a contextual problem of mixed assemblage occurring as palimpsest? The effects of human agency, such as continuous practise of shifting cultivation by the local inhabitants, in disturbing the topography and stratigraphy cannot be ruled out. Moreover, weathering of raw material as well as location of sites in river sections and eroded hill slopes (see Table 1) also limit understanding in this regard. At this stage, considering the problems of chronology of Neolithic culture of this region (Hazarika, 2006a, 2006b), it will be indeed risky to make any concrete inferences about the relationship of the Hoabinhian artefacts with the Neolithic. Recently, Ashraf (2010), taking a fresh approach, attempted to explain the adaptive patterns and subsistence variables among the bands, particularly the Hoabinhians as an outcome of interactions of behavioral traits relating to technology, economy, etc. in Meghalaya rather than population expansion or sudden exposure to a new technology.

Association of pottery with large size cleaver-like flakes and Hoabinhian artefacts in northwestern sub-Himalaya (SonI and SonI, 2010), similar to the Garo Hills situation, points towards a slightly later date for the Hoabinhian there than in Southeast Asia. Does it signify a dispersal route of the Hoabinhian traits from Southeast Asia to the north-western sub-Himalayan region through Northeast Indian uplands?

Singh (1993) at the site of Nongpok Keithelmanbi of Manipur, close to Myanmar observed a Hoabinhian stratum below the Cord- impressed ware layer. The Tharon cave of Manipur yielded one flake tool and five pebble tools of Hoabinhian character (Singh, 1991). Some of the early assemblages found at the Padah-lin cave of Myanmar can also be related to the Hoabinhian (Myint Aung, 2000). The lithic industries of Late Pleistocene to Early Holocene occurring in the western sector of the Siwalik Range the southern fringes of the Himalaya compare well with the industries occurring further east in Nepal and northern Southeast Asia related to the Hoabinhian industries (Gaillard et al., 2011). Several sites of northwestern sub-Himalayan region dated to terminal Pleistocene to mid-Holocene epochs have yielded large size “cleaver-like flakes” and Hoabinhian artefacts (SonI and SonI, 2010). Moreover, Corvinus (1994, 2007) recorded cobble tool assemblages occurring in the Late Pleistocene deposits from Nepal in the central sub-Himalayan region. Her work at the site of Patu in eastern Nepal shows that the Patu ‘Mesolithic’ assemblage is comparable to the Hoabinhian. The TL chronology for the Hoabinhian bearing layers in Nepal is older than the 14C minimum age of ca. 7000 years. The Hoabinhian of the Arjun site of Nepal is proposed as Late Glacial (Zoller, 2000). Hoabinhian in Vietnam and other parts of Southeast Asia was placed within the time bracket between 18,000 and 7000 BP (Chinh et al., 1988). Recent investigations at the cave site of Hang Cho in Vietnam revealed a new timeframe ranging between ca. 19,500 and 8400 BP, indicating that Hoabinhian in northern Vietnam was already in existence about 20,000 years ago (Yi et al., 2008). The new dates have considerably changed the earlier views of ‘post-Pleistocene’ chronology of the Hoabinhian culture (Mathews, 1968). This Hoabinhian situation suggests a technological link and migrations or connections between Southeast Asia and eastern Himalayan foothills during Terminal Pleistocene and Early Holocene (Corvinus, 1987, 2007) which is also supported by recent genetic data.

9. Recent genetic data

Prehistoric migrations across the Himalayas have been a matter of discussion among genetic scientists (Su et al., 2000; Gayden et al., 2007) and linguists (van Driem, 2002, 2005, 2008), besides archaeologists. In recent years, an increasing number of publications devoted to molecular genetics have substantially discussed the peopling and migrations in the Himalayas, which have great archaeological significance. Nevertheless, more archaeological data is needed, with concrete chronology, to corroborate these genetic hypotheses. Genetic scientists, on the basic of genome sequencing of mitochondrial DNA (mtDNA) build demographic histories, population movements and coalescent time of different groups of a particular geographical region. This section considers some of these recent studies which support population dispersal and multidirectional movements of cultural traits through the northeast Indian corridor in the Himalayas and its adjoining regions.

As against the hypothesis that the Himalayas acted as a barrier for human movements in the past (Cordaux et al., 2004), recent studies show that it acted as a pivotal passageway allowing multiple population interactions in different times (Fornarino et al., 2009). Analysis of Y-chromosome variations among the Tharus, one of the oldest and the largest indigenous people of Terai region of Nepal, and the Indians shows three principal components, i.e., East Asian, West Eurasian and Indian, indicating gene pool retaining traces of ancient complex interactions within a large area (Fornarino et al., 2009). NEI served as a major passage into India (Basu et al., 2003; Sahoo et al., 2006; Kumar et al., 2006, and; Reddy et al., 2007). Keeping aside for a moment the controversies of original homeland of the Austro-Asiatic linguistic family, the oldest linguistic group of India (Kumar and Reddy, 2003), there seems to have agreement among the scholars regarding the genetic links between the linguistic sub-families of the Indian subcontinent and their Southeast Asian counterparts. The Austro-Asiatic Khasi tribes of NEI represent a genetic continuity between the populations of South and Southeast Asia (Reddy et al., 2007). The analysis of Y-chromosome variation data of 1222 individuals from 25 different Indian Austro-Asiatic populations, along with 214 relevant populations from Asia and Oceania suggest that the haplogroup O-M95 originated in the Indian Austro-Asiatic populations ~65,000 BP, and their ancestors carried it further to Southeast Asia via the Northeast Indian corridor (Kumar et al., 2007). However, a very recent analysis (Chauhey et al., 2011) of genetic data from uniparentally and biparentally inherited loci provides estimation of gene flow across geographic and linguistic borders and suggests that the present day Austro-Asiatic speakers in India are derived from the dispersal from Southeast Asia, followed by extensive sex-specific admixture with local Indian populations. Whichever may be the original homeland of the Austro-Asiatic linguistic family, NEI, nonetheless, played a crucial role for the dispersal(s) from India to Southeast Asia or vice-versa.

Research on a diverse subset of 641 complete mtDNA genomes belonging to macrohaplogroup M sampled from 26 select tribal populations of India suggests modern human presence in NEI during Palaeolithic time. Moreover, strong genetic continuity between Indian and East/Southeast Asian population has also been found. The haplogroups D4b2b, D4j, D5a2, C4a, C7, M9a, M10a, M11a, M12 and G2a1a in NEI resulted due to population migrations from southern China and admixture rather than replacement.
## Table 1
List of important sites bearing artefacts with elements of Palaeolithic culture.

<table>
<thead>
<tr>
<th>Site</th>
<th>Geological Position</th>
<th>Artefacts</th>
<th>Reference</th>
<th>Comments/Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rongdu, Garo hills</td>
<td>Artefacts collected from river terraces (610 m. AMSL)</td>
<td>Chopping tool made of sandstone, heavily patinated and rolled.</td>
<td>IAR, 1966–67</td>
<td>Earliest discovered artefact resembling Palaeolithic chopper</td>
</tr>
<tr>
<td>Selbalgiri 2 (Surface collection), Garo hills</td>
<td>Artefacts recovered from eroded gravelly surface</td>
<td>Handaxes, picks, discs, scrapers, borers, blades, microliths etc.</td>
<td>IAR, 1967–68</td>
<td>Existence of handaxes, blade/bladelets, microliths</td>
</tr>
<tr>
<td>Selbalgiri 2 (Excavation), Garo hills</td>
<td>Layer 1: Redish earth mixed with small quantity of quartz gravel, Layer 2: Redish brown earth with large quantity of quartz gravel, Layer 3: Yellowish earth with less gravel</td>
<td>Layer 1: Ground and Chipped axes, scrapers, potsherds, Layer 2: core, hammers, flakes, pottery, Layer 3: Microliths with pottery</td>
<td>IAR, 1967–68</td>
<td>Microliths occur in lower levels with pottery</td>
</tr>
<tr>
<td>Thebronggiri, Garo hills</td>
<td>–</td>
<td>Crudely flaked axes, knife-blades, microliths, arrowheads, points, cores, hammers etc.</td>
<td>IAR, 1968–69</td>
<td>Not well understood stratigraphy</td>
</tr>
<tr>
<td>Selbalgiri Locality 3 (Mokhol Chiring), Garo hills</td>
<td>–</td>
<td>Early and Late Stone Age (?)</td>
<td>IAR, 1969–70</td>
<td>Interpretation on the basis of typological analysis</td>
</tr>
<tr>
<td>Michimagiri, Garo hills</td>
<td>Eroded surface of slope of hillock</td>
<td>Early, Middle and Late Stone Age (?)</td>
<td>IAR, 1969–70</td>
<td>Heavily eroded and rolled artefacts</td>
</tr>
<tr>
<td>Michimagiri Locality 1 (Watri Abri), Garo hills</td>
<td>Hillock</td>
<td>Early, Middle and Late Stone Age (?), Large roughly flaked heavy tools, small tools of flakes etc., microliths, neolithic tools and pottery</td>
<td>IAR, 1969–70</td>
<td>Typological analysis without stratigraphic differences</td>
</tr>
<tr>
<td>Michimagiri (Excavation), Garo hills</td>
<td>Eroded surface, 76 cm thick deposits of single layer of reddish silt with artefacts</td>
<td>Flakes, cores, blades, scrapers, points, burins etc. made of dolerite, heavily patinated</td>
<td>IAR, 1975–76</td>
<td>Single layer of artefacts with Upper Palaeolithic elements</td>
</tr>
<tr>
<td>Michimagiri III factory site, Garo hills</td>
<td>Heavily eroded hill slope</td>
<td>Blades and burins of Upper Palaeolithic period</td>
<td>IAR, 1978–79, for details see Sonowal and Sharma, 1986</td>
<td>Typical flame and blade industry and indication of complete assemblage</td>
</tr>
<tr>
<td>Rambhagiri, Garo hills</td>
<td>River banks</td>
<td>Palaeolithic and Neolithic tools</td>
<td>IAR, 1970–71</td>
<td>Surface collection</td>
</tr>
<tr>
<td>Chibragiri, Garo hills</td>
<td>Hill ridges</td>
<td>Handaxes, cleavers, choppers and chopping tool</td>
<td>IAR, 1971–72</td>
<td>Badly weathered section containing artefacts</td>
</tr>
<tr>
<td>Siju area, Garo hills</td>
<td>Badly eroded coarse gravel</td>
<td>Large quantities of cores, flakes and unfinished tools, indication of factory site, surface collection</td>
<td>IAR, 1976–77</td>
<td>Sporadic finds</td>
</tr>
<tr>
<td>Ganol Abri</td>
<td>Top Terrace</td>
<td>Choppers, cleavers, handaxes, flake cores, prepared Levalloisian core, blade cores etc.</td>
<td>IAR, 1981–82</td>
<td>Large quantities of cores, flakes and unfinished tools, indication of factory site, surface collection</td>
</tr>
<tr>
<td>Mukas Abri</td>
<td>Terrace</td>
<td>Choppers, handaxes, cleavers, scrapers, points, blade flakes, and cores</td>
<td>IAR, 1981–82</td>
<td>Surface collection</td>
</tr>
<tr>
<td>Nangalbobra A, Garo hills</td>
<td>Well cemented gravel deposits of pebbles and boulders of dolerite</td>
<td>Choppers, chopping tools, and flakes</td>
<td>Sharma and Roy, 1985</td>
<td>Artefact shows chopper-chopping core tool elements</td>
</tr>
<tr>
<td>Nangalbobra B, Garo hills</td>
<td>Surface of river banks</td>
<td>Scrapers of various types, points, arrowheads, flakes and cores</td>
<td>Sharma and Roy, 1985</td>
<td>Upper Palaeolithic/microlithic elements</td>
</tr>
<tr>
<td>Waramgiri, Garo hills</td>
<td>Erosional surface of a terrace of fluvial stream</td>
<td>Handaxes, points, scrapers of Mousterian character, small flake tools, blades, microliths etc.</td>
<td>Sharma, 1974</td>
<td>Site seems to be a factory site and without elements of Neolithic stone artefacts and pottery</td>
</tr>
<tr>
<td>Rongram Terrace site (Excavation), Garo hills</td>
<td>Silt layer overlying on a highly cemented gravel</td>
<td>Edge ground types of artefacts in the upper levels within a depth of 7 cm and Chipped pebble axes of Hoabinhian tradition up to 60 cm of single implementerous silt layer. In addition, a large pounding stone in a subsequent excavation</td>
<td>IAR, 1974–75</td>
<td>Excavation shows stratigraphical differences of artefacts between the upper and lower level</td>
</tr>
<tr>
<td>Didami, Garo hills</td>
<td>Bank of streams</td>
<td>Bifacially flaked artefacts, blade flakes and probably utilised flakes</td>
<td>Sharma, 2007</td>
<td>Elements of Palaeolithic culture</td>
</tr>
<tr>
<td>Daphabum area, Arunachal Pradesh</td>
<td>High terraces</td>
<td>Choppers, proto-handaxes, cleavers, scrapers, flakes and cores etc.</td>
<td>IAR, 1969–70</td>
<td>Elements of heavily weathered and rolled artefacts</td>
</tr>
<tr>
<td>Kamla and Dikrong valley, Arunachal Pradesh</td>
<td>–</td>
<td>Palaeolithic stone tools consisting chopper, cleavers and handaxes</td>
<td>Ashraf, 1990</td>
<td>Sporadic finds</td>
</tr>
<tr>
<td>Khangkhu, Manipur</td>
<td>Rock shelter</td>
<td>Handaxes and cleavers at the lower deposit, points, borers, scrapers, blade, burins, cores and few bone points from the upper deposit</td>
<td>IAR, 1968–69</td>
<td>Excavation shows stratigraphical differences of artefacts between the upper and lower level</td>
</tr>
<tr>
<td>Somghu, Manipur</td>
<td>Cave site</td>
<td>Scrapers, borer-cum-hollow scraper, knives, flake blades, flakes, cores etc.</td>
<td>IAR, 1982–83, 83–84</td>
<td>Artefacts occur in the disturbed cave floor</td>
</tr>
<tr>
<td>Singtom, Manipur</td>
<td>–</td>
<td>Handaxes, worked flake pebble with round edge, flake pebble, blade, flake, pebble striker, split pebble, waste flake etc.</td>
<td>Singh and Ranjit Singh, 1990</td>
<td>Typical elements of Palaeolithic culture</td>
</tr>
<tr>
<td>Teliamura, Sonai Bazar area, Mohanpur, Sonaram, West Tripura</td>
<td>Late Quaternary deposits</td>
<td>Stone tools comprising scrapers, points, chopping tools, hammer stones, blades, and cores from which blade scars, or flutes</td>
<td>Poddar and Ramesh 1983; Ramesh, 1989</td>
<td>Silicified fossil wood industry similar to Lalmai-Mainamati industry of Bangladesh and Late Anyathian of Myanmar</td>
</tr>
</tbody>
</table>
with local initial settlers during the Last Glacial Maximum (Chandrasekar et al., 2009). The Last Glacial Maximum has been placed within 265.0 to 19 ka BP (Clark et al., 2009).

In a very recent study to understand the original homeland of aboriginal Andamanese, Wang et al. (2011) reported the results of the analysis of the haplogroups M31 (from which Andaman-specific lineage M31a1 branched off) and M32 among 846 mtDNA sampled across Myanmar. The time estimation results indicate that modern humans from NEI settled in the Andaman archipelago via the landbridge connecting the archipelago with Myanmar around the Last Glacial Maximum. This leaves ample scope for examining the archaeological signature of this dispersal. The mtDNA from two northeast Indian Rajbanshi individuals share three specific mutations with the M31a lineage observed in the Great Andamanese (Palanichamy et al., 2006).

Reconstruction of dispersal events correlating genetic and archaeological record indicates a complex population history in Asia. The expansion of Hoabinhian from South China/Vietnam into the Malay Peninsula has been correlated with the arrival of the R9b and N9a mtDNA haplogroups (Hill et al., 2006). There is a close relationship between the geographic extent of post-Last Glacial Maximum blade industries and the haplogroup E lineages in Southeast Asia (Soares et al., 2008). A study on a similar line has also been conducted in Japan (Tanaka et al., 2004). Analysis of 837 M9a 'b mtDNAs from over 28,000 subjects residing across East Eurasia suggests that southern China and/or Southeast Asia served as the source of some post-Last Glacial Maximum dispersal(s). These include population dispersal(s) to western China and to NEI and to the south Himalayan region in association with the spread of the Mesolithic culture originating in South China and northern Vietnam (Peng et al., 2011). Such dispersal(s) seem to have a correlation with the occurrences of Hoabinhian artefacts across NEI, Nepal and western Himalaya in late Pleistocene contexts.

The complex population dynamics in the past seems to be controversial, and the models are subjected to change with new discoveries and studies. However, NEI acted as a corridor for several multidirectional dispersal events in the late Pleistocene/early Holocene, particularly the dispersal of Hoabinhian traits from Southeast Asia to the north-western sub-Himalayan region through the Northeast Indian corridor. These events, reflected in archaeological record and molecular genetic evidence, have contributed in a large scale to establishing the mosaic nature of present day Northeast Indian population representing diverse linguistic, genetic and cultural affinities. Examining the archaeological record of this region will definitely shed more light on human movements from Africa to Australia, as the NEI is strategically situated on the proposed corridor for Out of Africa II migration of anatomically modern Homo sapiens during the late Pleistocene.

10. Discussions and the emerging pattern

Several early Palaeolithic sites with artefacts and hominin remains in Borneo localized (Hou et al., 2000), Panxian Dandon (Huang et al., 1995) in South China, Irrawaddy basin of Myanmar (Movius, 1944, 1948) and in Nepal (Corvinus, 2006) authenticate early human presence during Middle Pleistocene at close proximity to NEI. The archaeological and paleoanthropological records have shown that East Asia and Island Southeast Asia was inhabited between 1.6 and 1.8 Ma. Schepartz et al. (2000) argue that the south-western Chinese provinces and neighbouring upland areas in Myanmar, Thailand, Laos and Vietnam were a gateway for the dispersal of populations into East Asia and Island Southeast Asia. They moreover suggest that the ability of hominids to exploit upland environments was important for their expansion into Southeast and East Asia where they encountered subtropical forested slopes, montane plateaux and cooler northern zones. Corvinus (2006) has also recorded Acheulean artefacts in similar upland ecological settings in Nepal. Most of the lithic industries of Late Pleistocene/Early Holocene age in NEI occur in upland areas, especially in hilly contexts. For example, Rongram IB at 484 m, Gawak Abri at 550 m, Didami at 916 m, Khangkhui cave at 1767 m, and most of the sites of the Rongram valley of the Garo Hills are located in an undulating area having altitudes varying between 457 m and 761 m (Sharma, 1974). Occupation in rock shelters and caves by the Hoabinhian people is well known in Thailand, Myanmar, and Vietnam. The characteristic Hoabinhian site is a small rock shelter with access to both uplands and the resources of tributaries stream valleys (Higham, 1989). Hence, there is ample scope to search for more Hoabinhian sites in similar contexts in the geographical settings of NEI.

The region of NEI, Central and Western Himalaya, and Bangladesh might have been an ideal/suitable place for early populations who relied heavily on bamboo and wood as raw material for making artefacts. Considering the archaeological record (Solheim, 1970; Ronquillo, 1981; Pope, 1989) it can be postulated that the early populations, i.e. the authors of the Hoabinhian techno-complex, might have exploited perishable materials such as wood and bamboo, found extensively in all these areas for making artefacts. Possibly the Hoabinhian stone artefacts were used for manufacturing tools made of wood and bamboo (Anderson, 1988; Bannanurag, 1988). Some typical flakes with a concave edge occurring frequently in the Garo Hills assemblage might have been used in smoothening wood and bamboo, as is also supported by ethnographic parallels (Sharma, 2007). Advances in archaeological science may help in distinguishing the use of bamboo in the near future. Experimental microscopic study on the cut-marks by bamboo knives on the possible utilisation of bamboo reveals morphological differences in the characteristic features of the cut marks made by stone and bamboo knives (West and Louys, 2007). There is evidence on the use of bamboo in the Holocene archaeological sites in Papua New Guinea (Spennemann, 1990).

Paddayya (2002–2003) suggests that this region offers an excellent scope for investing diversity in human adaptations, as the geographical location of this area probably enabled early societies to develop individual identities of their own. These identities must have been developed on the basis of local environmental and ecological conditions. The ethnographic situation here signifies a subsistence economy based on hunting small and big games, fishing in the rivers, streams, swamps etc., collecting wild plant food available widely in the area. The Hoabinhian sites of Southeast Asia, as recorded in the Spirit Cave I (Gorman, 1971) reflect the nature of subsistence based on hunting-gathering and fishing. Another important factor related to the settlement pattern of the Hoabinhian sites is that they occur mostly near water sources. Availability of perennial water resources across NEI both in uplands and lowlands would have served as suitable habitat for early humans of the Late Pleistocene and Early Holocene. Analysis of the Late Pleistocene morpho-sedimentary records indicate terminations of last glaciations, lesser vegetation, episodic rainfall, increased meltwater and increase of the SW Indian monsoon (Sirivastava et al., 2009) which shows a suitable ecology for Late Pleistocene humans.

11. Concluding remarks

The recent discoveries and research on paleoanthropology and Pleistocene archaeology at the peripheries of NEI in South Asia, Southeast Asia and East Asia, makes it clear that the region of NEI, Bangladesh and Myanmar holds great possibilities of Late Pliocene/Early Pleistocene sites, as Homo erectus of Java might have migrated from South Asia (Mishra et al., 2010). Dennell and Roebroeks (2005) have suggested the “lack of evidence” in Asia leaves room for
alternative models for early human dispersals, including Australo-
pithecine migrations to Asia, the evolution of Homo ergaster within Asia, and dispersals back into Africa. Mishra (2006/2007) also
suggests possibilities of early hominin dispersals from Africa prior to
the emergence of stone tool making and development of the
Acheulian within the Indian subcontinent. In this regard, it will be
more important to locate the geological deposits of that time period
and search for early human presence, which has not been
attempted to date in NEI. Although handaxes have been reported at
numerous sites of the Garo Hills and at Singtom, Manipur, they are
not found in Lower/Middle Pleistocene deposits. The “cleavers”
identified by the early workers in the Garo Hills are not identical to
the ‘Lower Palaearctic Cleavers’ of Peninsular India, but to bifa-
cially flaked large cutting tools such as handaxes (Medhi, 1988;
Chakrabarti, 2006). These are found extensively in many Late
Pleistocene/Late Holocene sites of Southeast Asia.

One of the possible routes of the dispersals from South Asia to
Southeast Asia would have been via the corridor covering Bangladesh, 
Southern parts of NEI and Myanmar. If the lower reaches of the
Ganges– Brahmaputra River were difficult to cross as Dennell (2009)
suggests (without having any strong evidence for such inaccessi-
bility), then the uplands along the Himalayan foothills of NEI might
have served for human movements. The Himalayan foothills may
have been a crucial ecological zone for human movements. The
Brahmaputra River traverses a total distance of 2880 km, originating in
the Chema Yundung glacier of Tibet, flowing through Assam and
Bangladesh along a valley comprising of its own recent alluvium
resulted from deposition of sediments (Sarma, 2005). The subrecent
alluvium deposits of the Brahmaputra valley may not give fruitful
results. Vigorous sedimentation might have covered earlier deposits
bearing artefacts, if there were any.

There are no strong grounds to deny the presence of Palaearctic
tradition in the Late Pleistocene in this region. These Palaearctic
industries are contemporaneous to Microlithic/Upper Palaearctic
traditions of the rest of India and Hoabinhian type industries of
Southeast Asia of Late Pleistocene/Early Holocene. Recent genetic
data and discoveries of identical Late Pleistocene/Early Holocene
artefacts across NEI, Nepal, and Myanmar make visualising
common cultural traditions clear, based on exploitation of similar
environmental settings and to postulate several dispersal events.
Archaeology of this period in this region shows more connections
with Southeast Asia than with the rest of the Indian subcontinent.

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