Chapter 2

Prehistoric Cultural Affinities Between Southeast Asia, East Asia and Northeast India: An Exploration

Manjil Hazarika

Introduction

Northeast India geographically connects South Asia, East Asia and Southeast Asia as it lies in the junction of these three important broad regions of Asia. Considering this unique geographical location, it is not surprising to note that this region must have played an important role as a cultural bridge between the three above-mentioned broad areas of Asian landmass. This region has unique geographical settings of both plain and hilly areas, covering the rivers valleys and plains of the mighty Brahmaputra and Barak rivers and their several tributaries, and is also surrounded by the eastern Himalayan mountain ranges and several other hills. Northeast India is also known as the wettest place in the world, with Mouchinram in Meghalaya State receiving the highest rainfall in a year. Moreover, this region is bestowed with the southwest monsoon, characterized by wet summer and dry winter periods (T.C. Sharma 1986: 1).

Northeast India (22° and 29° 18' North latitude; 89° 40' and 97° 22' East longitude) includes the popularly known "Seven Sister" states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and the recently included state of Sikkim. It is surrounded by the five present-day international boundaries of Nepal, Bhutan, China, Myanmar, and Bangladesh (Fig. 2.1). This region can be considered as a melting pot of various ethnic cultures of different backgrounds, shaping the cultural heritage of the present inhabitants. The assimilation of cultures in the form of both material and non-material culture can be seen in every aspect of society and life in this region. Early movements of people through this region might have contributed tremendously for this assimilation. Medhi (2003: 322) refers to this region as the "Great Indian Corridor", for the prehistoric and proto-historic movements of people from and to its neighbouring regions. The movement of the people took place not only in the historical period but into the present as well. The advent of the Tai-Ahoms, a Tai group from Mong Mao, Yunnan of China, to this part with the leadership of Siu-ka-pha in AD 1228 led to the establishment of the great Tai-Ahom kingdom that existed for almost six hundred years under the leadership of several of his successors.

In this paper, we shall first briefly discuss the nature of prehistoric research in Northeast India. Then keeping in mind the limited and scanty archaeological record, we shall explore different aspects of prehistoric cultures of this part of India separately to evaluate the cultural affinities with their East and Southeast Asian counterparts. Lack of absolute dates in this region is one of the major problems for building up concrete conclusions. Lastly, we will attempt to bring out the importance of prehistoric research in Northeast India in the light of recent research.

Prehistoric Research in Northeast India

Beginning with the pioneering work of Sir John Lubbock (1867), who reported for the first time the evidence of prehistoric archaeological record from Northeast India in *Athenaeum* of London in 1867, several British administrators have contributed to a great extent towards research in archaeology in the pre-independence era. The first discovery of prehistoric material in this region was made just after four years of those well-known first discoveries of prehistoric tools by Robert Bruce Foote in 1863 in Pallavaram,

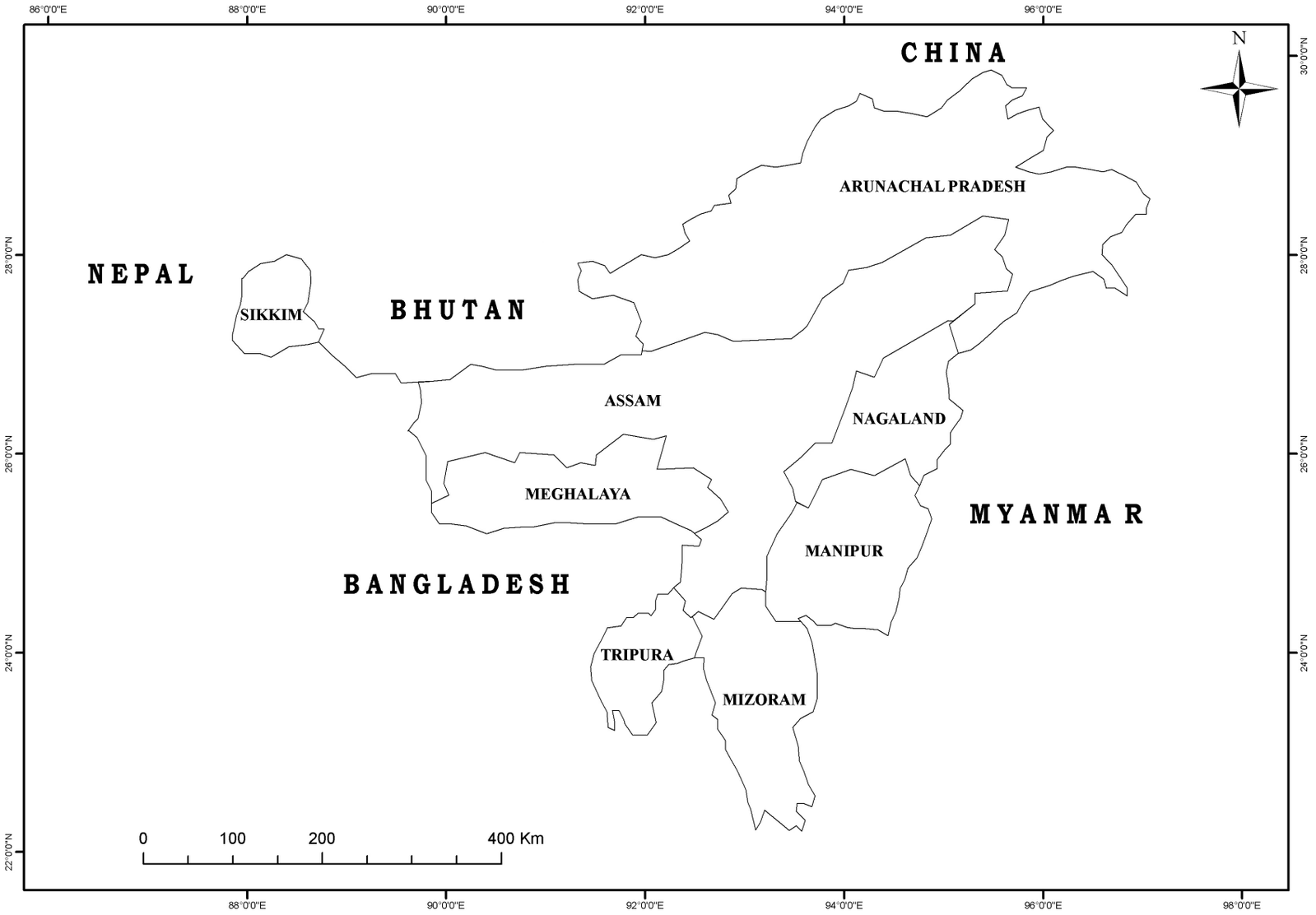

Figure 2.1: Map of Northeast India (prepared and modified by the author). From *Census of India 2001: Administrative Atlas of India*.

Madras, and Boucher de Perthes in 1863 in France. This part of India still suffers from insufficient data for reconstructing its past cultures though it has a long history of more than 140 years of archaeological research. A detailed review (H.C. Sharma 2003) of the research into the prehistoric archaeology of this region shows that the research is confined to basically surface sites and rarely excavated sites of the Neolithic cultural period. This is true even for historical sites. In this regard, mention can be made of the statement by J.P. Mills in the 1930s that "the spade, the chief tool of archaeologists had hardly been used in research in Assam" (Mills 1933: 6), which is very much valid in the present context too. The surface finds and excavated material failed to provide detailed understanding of subsistence and settlement pattern of the early farming communities. Despite the great archaeological potentialities, this region could draw only marginal attention in the academic arena due to several drawbacks and certain physical problems (Hazarika 2008a: 3). Furthermore, due to very limited research undertaken in the field of archaeology in this part, this region can be still considered as *terra incognita*.

Because of the wide diversity of plants useful to man and favourable climatic conditions, this region has been regarded by geographers and botanists to be very important and an ideal place for early plant domestication and food production (Vavilov 1949; Sauer 1952; Harris 1973). As a result of the interests shown by international scholars gathered in the Indo-Pacific Prehistoric Congress held in Pune on 20–23 December 1978, the following resolutions were adopted regarding the importance of the prehistory of Northeast India:

I. A potential area for the domestication of a number of important plants and
II. A physical and cultural bridge between the body of India and Southeast Asia.

Northeast India: Corridor or Barrier for Early Human Dispersals?

The long-term history of anthropological and archaeological research has proved an African origin of human beings, which has pushed back our perception of human evolution millions of years earlier than previously thought. In the last few years, there has been an increase in research on the early human dispersals from Africa into various parts of Eurasia and the academic discussions among the Lower Palaeolithic archaeologists are centred on the debate about the timing and geographic expansion of the earliest "Out of Africa" hominid migrations. In recent years, the "Out of Africa" model has been playing a vital role in the Old World Palaeolithic scenario, which implies that *Homo erectus* ventured outside the African continent at 1.8 million years or slightly before. The ongoing discussions regarding this new academic trend (Rolland 1998; Carbonell *et al*. 1999; Roe 2000; Bar-Yosef and Belfer-Cohen 2001; Dennell 2003; Gaillard 2006) have developed from the issue concerning "short and long chronologies" (Roebroeks 1994) on the earliest human occupation in Europe, which was initiated during a workshop held on 19–20 November 1993 at the Centre Européen de Recherches Préhistoriques at Tautavel, France. Since then, much of the research addresses the crucial questions about the earliest hominids and their adaptive and dispersal strategies in Eurasia. However, Dennell and Roebroeks (2005) have suggested that the "lack of evidence" leaves room for alternative models, including Australopithecine migrations to Asia, the evolution of *Homo ergaster* within Asia, and dispersals back into Africa.

Evidences of early human occupation in the Indian Subcontinent in the form of their material culture have been recorded since the first discovery of Lower Palaeolithic artefacts at Pallavaram near Madras, South India, by R.B. Foote (1916). Research and investigation in this fertile region reveal an abundance of early human settlements in a vast area covering almost all areas of South Asia. Contradicting the great scattering of early human behaviour, the evidence of early hominid fossil is very scant. So far, the calvarium found at Hathnora at Narmada valley, Central India, by Sonakia (1984) is the one and only undisputed piece of evidence of human fossil remains, and has been identified as an archaic *Homo sapiens* (Kennedy *et al*. 1991). Mishra (1992) brought out the implications of Th/U dates for the Acheulian sites of the Indian subcontinent and showed that all the sites dated are beyond 350,000 years, which is the limit of Th/U method. Moreover, the site of Bori with an early Acheulian assemblage has been dated by $^{39}Ar/^{40}Ar$ method to 0.67±0.03 Ma (Mishra *et al*. 1995). ESR dating at the early Acheulian site of Isampur indicates an early date of more than 1.2 Ma (Paddayya *et al*. 2002). The Acheulian sites of Nevasa, Bori

and Morgaon (Sangode *et al*. 2007) were dated with palaeomagnetism, which suggests a pre-Brunhes age (> 0.78 Ma). Mishra (2006/07: 72) also suggests possibilities of early hominid dispersals from Africa prior to the emergence of stone tool making and development of the Acheulian within the Indian subcontinent. In a very recent paper, Pappu, Gunnell, Akhilesh, Braucher, Taieb, Demory and Thouveny (Pappu *et al*. 2011) have reported a minimum burial age of 1.51±0.07 Ma for the Acheulian site of Attirampakkam located in the Kortallayar river basin of South India by using a relatively new technique of cosmic–ray exposure dating in which the time elapsed since the burial of quartzite artifacts is estimated. This new date obtained at the site has considerably changed the perception of the antiquity of Acheulian culture in India. This early Pleistocene age compares fairly well with the chronology of the Acheulian in other parts of the Old World. It shows that the human colonization in India encompasses a span of at least one and half million years.

One of the most potential areas for investigating the early occupation in South Asia is Riwat in the Siwaliks of northern Pakistan, where the investigators (Dennell *et al*. 1988) have claimed to find lower Palaeolithic artefacts dated to around 1.9 Ma or even earlier by palaeomagnetism and fission-track dating.

Lower Palaeolithic Acheulian artefacts have not yet been recorded from Northeast India (Petraglia 1998, 2006; Mishra 2006/7; Chauhan 2009, 2010). Due to a lack of evidence of early human presence in Northeast India prior to Late Pleistocene (Ramesh 1989) this area has not gained any attention in the theoretical discussions pertaining to the early hominid dispersals and has been regarded as a barrier for the dispersals from Africa to island Southeast Asia and East Asia via the Indian subcontinent (Dennell 2009). The archaeological and paleoanthropological records have shown that East Asia and island Southeast Asia were inhabited between 1.6 and 1.8 Ma. Schepartz, Miller-Antonio and Bakken (Schepartz *et al*. 2000) argue that the south-western Chinese provinces and neighbouring upland areas in Burma, Thailand, Laos and Vietnam were a gateway for the dispersal of populations into East Asia and island Southeast Asia. Moreover, they suggest that the ability of early hominids to exploit upland environments was important for their expansion into Southeast and East Asia where they encountered subtropical forested slopes, a montane plateaux and cooler northern zones. Corvinus (2006) has recorded Acheulian artefacts in similar upland ecological settings in Nepal. If the lower reaches of the Ganges-Brahmaputra River were difficult to cross (Dennell 2009: 464), then the uplands along the Himalayan foothills of Northeast India might have served as a pathway for the human movement. Several early Palaeolithic sites with artefacts and hominid remains in Bose localities (Hou *et al*. 2000) and Panxian Dadong (Huang *et al*. 1995) authenticates early human presences during the middle Pleistocene at a very close geographical distance to Northeast India and again in Nepal (Corvinus 2006) on the other side to the west at a similar proximity. Circumstantial evidence suggests that this region has acted as a possible mid-way from Africa to Southeast Asia through South Asia for the eastward dispersal of early hominids (Hazarika 2012).

Nearly four decades of intermittent prehistoric investigations (initiated in mid-1970s) in the Garo Hills of Meghalaya revealed the existence of several assemblages with Palaeolithic elements. The artefacts which have been identified (or rather, claimed) to be of Lower, Middle and Upper Palaeolithic traditions of European nomenclature were collected from secondary depositional contexts and have been placed to different cultural stages on the basis of typological ground. Some of the industries have been compared and correlated to Indian as well as Southeast Asian tradition. As these artefacts are mostly surface collections and the chronology is not yet well understood, the issue of the presence of Palaeolithic artefacts remains as a "dilemma" in the prehistory of Northeast India (Hazarika 2012).

Fossil Wood Assemblages

Ramesh (1989) brought to light some artefacts made on silicified fossil wood from a number of sites like Teliamura, the Sonai Bazar area, Mohanpur, the Sonaram area, etc. in West Tripura. The assemblage is comprised of pecked and ground axes, adzes, grinding stones, points, etc. The use of silicified fossil wood as a raw material for making artefacts was recorded by Goswami and Sharma (1963) in Daojali Hading of North Cachar Hills, and recently there have been many sites yielding fossil wood artefacts in Lalmai Hills and the Chaklapunji area of Bangladesh (Roy and Ahsan 2007). The Anyathian and Neolithic tools from the Irrawaddy Valley of Burma show a close resemblance to the materials of Lalmai Hills and Chaklapunji

of Bangladesh. Fossil wood was extensively used in Burma (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 Nakhon Ratchasima province of north-eastern Thailand has also yielded similar fossil wood assemblage resembling the Anyathian of Burma (cited in Reynolds 1990). Fossil wood occurs in these regions plentifully, and prehistoric man used this local siliceous raw material for making implements in a large area covering Burma, southern areas of Northeast India and Bangladesh. It is interesting to study and compare the typo-technology of these artefacts to understand the environmental adaptation in the late Pleistocene and early Holocene period.

Hoabinhian Cultural Material

Another interesting feature of the Holocene period in Northeast India is the occurrence of Hoabinhian artefacts, which may imply connections with the Southeast Asian late Pleistocene and Holocene cultures. The excavator (Singh 1993) at the site of Nongpok Keithelmanbi of Manipur observed a Hoabinhian stratum below the cord-impressed ware layer. Some artefacts similar to Hoabinhian artefacts have also been found in the Garo Hills of Meghalaya (IAR 1965–66: 6). The Hoabinhian techno-complex (Bellwood 1978; Yi *et al*. 2008) is defined purely on the basis of tool categories comprising pebble tools, utilised flakes, a small proportion of edge-ground tools and bone tools, and in the later period, pottery and fully ground axes and adzes. The Hoabinhian sites are spread over a broad region that includes southern China, North Vietnam, Malaysia, Thailand, Laos, Cambodia, Sumatra, Taiwan and Northeast India (T.C. Sharma 1988). The TL chronology for the Hoabinhian bearing layers in Nepal is older than the ^{14}C minimum age of *c*. 7,000 years BP. The Hoabinhian of the Arjun site of Nepal is proposed as late glacial (Zoller 2000). The recent time bracket of the Hoabinhian in Vietnam is between 18,000 and 7,000 years BP (Chinh *et al*. 1988), 19,500 and 8,400 years BP or even as early as 29,140 BP (Yi *et al*. 2008).

Shouldered Celts and Cord-Impressed Pottery

The systematic study done by Dani (1960) on some of the prehistoric stray-finds suggests that the Neolithic stone artefacts have morphological similarities to those of Southeast Asia, particularly in Upper Burma, Yunnan in Southeast China, Malaysia, Thailand, Laos, and Cambodia. Scholars like Krishnaswami (1960: 59) believe that the Neolithic stone tool tradition, especially the shouldered and tanged celts found in entire Northeast India, derived inspiration from East and Southeast Asia. The occurrence of a high percentage of shouldered celts in the Garo Hills of Meghalaya links this region with Southeast Asia. Again, this type of celt is also present in Bengal, Bihar and Orissa of eastern India. Goswami and Sharma (1963) excavated the Neolithic site at Daojali Hading in the North Cachar Hills, Assam, revealing the stratigraphical position of the culture for the first time. The excavations carried out by Rao (1973) further confirm the Neolithic presence in this region; he reported several ground and polished stone tools and cord-impressed pottery from Sarutaru and Marakdola near Guwahati, Assam. S. Sharma (2007: 77) studied the stone artefacts consisting of ground and polished flat celts, the tanged or shouldered celts, the short axes and the chipped celts of the prehistoric sites of Ganol-Rongram valley of Meghalaya. She observed distinct similarities in typology of these artefacts with the lithic assemblages from certain sites of Western Thailand like Ban Kao, Sai Yok and Don Noi.

In a recent study, Heng (2008) discussed the close relationships of the Neolithic site of Samrong Sen with other sites of Southeast Asia and many islands in the Pacific Ocean. Stone tools from Samrong Sen, particularly adzes having quadrangular sections, are comparable to those found in Indo-China, southern Thailand, Burma and as far as India, Malaysia, Indonesia, the Philippines, Melanesia, Micronesia, and Polynesia (detailed reference in Heng 2008). The shouldered celts presented in the study resemble those found in Northeast India.

Various excavated sites, like Daojali Hading (T.C. Sharma 1967), Sarutaru (Rao 1973), Parsi-Parlo (Ashraf 1990), the Garo Hills (IAR 1966–67: 5, IAR 1967–68: 8), Manipur (Singh 1993), and many surface sites have yielded numerous potsherds, mainly consisting of cord-impressed and other hand-made wares. They share similarities with pottery from the sites of East Asia and Southeast Asia and include

simple forms of cord-marked, combed, fingertip-impressed or incised vessels, often on tripods and pedestals. The overall homogeneity of the archaeological record makes it easy to visualize a common ancestral culture, located quite close in time, from which all the descendent cultures of the Yellow River basin originated (Bellwood 2005: 121). This kind of pottery is found in many eastern and central Indian Neolithic sites (G.R. Sharma *et al*. 1980; Pal 1987, 1990), like Koldihawa and Mahagara, and even in Nepal (Corvinus 1996). At the site of Nongpok Keithelmanbi of Manipur, containing Neolithic tools and cord-impressed pottery, a charcoal sample (BS-523) from the cord-impressed ware stratum has been dated to 4460±120 years BP. The cord-mark in ribbed or criss-crossed impressions and the general decoration patterns like checkers, parallel lines, circles and square or diagonals can be compared with the Lungshanoid ware decoration pattern of South China (Singh 1993). Excavations at the Neolithic factory site of Pynthorlangtein (Taher and Rao 2005) in Jaintia Hills, Meghalaya, have yielded typical Neolithic chipped and partly ground axes and adzes, handmade pottery with cord-impressed decoration in the form of either parallel or criss-cross lines.The pottery is coarse in texture, ill fired and gritty dull red in nature. Most of the vessels found at the early Neolithic sites of China bear linear incisions or cord-impressed surfaces (Zhang and Hung 2008). Kharakwal, Yano, Yasuda, Shinde and Osada (Kharakwal *et al*. 2004) discuss the possibility of cultural interaction among the early rice growing cultures based on the cord-impressed pottery found in most of the early Neolithic sites in Asia. The cord-impressed pottery has great antiquity in East Asia (Yasuda 2002) and possibly entered eastern India through contact with Northeast India.

Rice Agriculture

Northeast India, located in the transitional zone between the Indian, Indo-Burman-Malaysian and Indo-Chinese regions (Yumnam 2008), is a sub-tropical zone with a wide variety of plants and offers an excellent scope for scientific investigations for understanding the origin and domestication of many important plants. The essential requirements for early agriculture — such as the availability of perennial water, uplands for growing tubers, roots, etc. and lowlands for cereal crops, e.g. rice, seasonality of rainfall and climate, and fertile lands — in Northeast India provide clues for the emerging hypothesis that this region has acted a crucial role in the early domestication of plants.

The origin and domestication of rice is a much debated issue among present day palaeo-botanists and archaeologists. Various kinds of research have been undertaken on the basis of genetic, archaeological, and linguistic evidences to understand the history and origin of the cultivated rice, *Oryza sativa*, but the picture remains unclear. Sung-Mo (1993) reviewed the botanical, genetic and archaeological evidence on the origin and differentiation of domesticated rice *Oryza sativa* and proposed the hilly zones of mainland Southeast Asia, including Assam and Yunnan, as the place of the origin for the domestication and differentiation of rice. The rich genetic diversity observed in the rice species and occurrences of wild, intermediate and domesticated variety of rice in Northeast India is very significant for the evolution of rice, though no Neolithic site has yielded any direct evidence of rice remains.

Londo, Chiang, Hung, Chiang and Barbara (Londo *et al*. 2006) embarked on an elaborate study on the DNA sequence variation of three distinct gene regions in a phylogeographic approach to investigate the domestication of cultivated rice. Results indicate that India and Indochina may represent the ancestral centre of diversity for the wild rice *Oryza rufipogon*. Phylogeographic analysis suggests that cultivated rice, *Oryza sativa*, was domesticated from its wild progenitor, *Oryza rufipogon*, at least twice in at least two different geographic regions in eastern Asia and that the products of these two independent domestication events are the two major rice varieties, *Oryza sativa indica* and *Oryza sativa japonica*. Based on this geographical analysis, *Oryza sativa indica* was domesticated within a region south of the Himalaya mountain range, most likely eastern India, Myanmar, and Thailand, while *Oryza sativa japonica* was domesticated from wild rice in southern China.

Compared to the vast antiquity of the Neolithic period, very little is known about the early farming and animal domestication process in Northeast India. T.C. Sharma (1991) has pointed out that scholars all over the world are of the opinion that archaeology in Northeast India is very important for world archaeology, because this region is supposed to have played a great role in the domestication of a number of food plants essential for man, including rice. Archaeologists dealing with global archaeological

problems are very much interested in the archaeological potentialities of Northeast India, as evident from the writings of Glover (1985: 271) who writes that "India is the centre of greatest diversity of domesticated rice with over 20,000 (over of 50,000) identified species and Northeast India is the most favourable single area of the origin of domesticated rice".

Rice, a major staple food of world's population, is grown in various ecological settings in Northeast India. It is cultivated mostly in the lowland riverine flood plains and hilly areas. There are various species of wild rice in Northeast India, such as *Oryza rufipogon*, *Oryza officinnalis*, *Oryza perennis*, *Oryza meyeriana*, *Oryza granulata*, *Oryza nivara* (Bakalial 2004), which are found in different ecological habitats like swamps, marshes, open ditches, rivers, swampy grassland, and rice fields. It is estimated that at least 10,000 indigenous rice cultivars are found in this region (Hore 2005). Intermediate forms such as Tulsibaon, Bogibaon and Kekuabaon were also observed in case of deep-water and waterlogged rice ecosystem. Three different processes of rice cultivation with different timings have been recorded in the lowland areas of the Brahmaputra valley over different seasons of the same year, which further shows a very strategic year-round cultivation process in the flood zone (Hazarika 2006a, b).

Considering the importance of various wild, domestic and even intermediate varieties of rice in Northeast India, I argue that this region played a major role in the developments of the early agricultural communities. I have also recorded several plants and animals which were likely domesticated in this part of the Indian subcontinent (Hazarika 2008b). These include plants such as rice, citrus, banana, mango, yams taro, etc. and several animals such as cattle species, elephants, pigs, silkworms, etc. Early domestication of rice might have occurred in this area and this region might have been a very important area for the emergence and development of early farming communities based on rice agriculture, as a similar kind of cultural development based on rice agriculture during the Neolithic period is recorded in South Asia, East Asia and Southeast Asia.

Use of Perishable Material

Plentiful availability of the wild varieties of edible plants might have been helpful and could have served as a food resource for developing the adaptive strategies of early humans. Ethnographically, a large variety of wild plants and animal food resources, with nutritious and medicinal values, are gathered and hunted by the small groups of tribal people in different landscapes in Northeast India. Several edible shoots, roots, tubers, leaves, flowers, fruits, and seeds present in the forests and jungles are consumed raw or in cooked form.

The use of bamboo as a tool for many activities like hunting, fishing, and cutting may indicate the broader issue of bamboo tools in prehistoric time. Possible utilisation of bamboo as a raw material for manufacture and use in various activities during the prehistoric period is not supported by archaeological evidence. Due to its perishable nature, it is very difficult to recover or document bamboo artefacts in the archaeological context. There are examples of research on the possible utilisation of bamboo based on experimental microscopic studies of the cut-marks made by bamboo knives. These kinds of experiments reveal that there are morphological differences in the characteristic features of the cut marks made by stone and bamboo knives (West and Louys 2007: 517). Experimental studies by Bar-Yosef, Eren, Yuan, Cohen and Li (Bar-Yosef *et al*. 2012) suggests that it is certainly possible to procure and manipulate bamboo in a variety of ways with replicated stone tools. There is evidence of the use of bamboo in the archaeological cultures of the Holocene period in Papua New Guinea (Spennemann 1990). Analyzing cut marks which are better preserved may reveal interesting results about early bamboo technology. As most of the local inhabitants in Northeast India still use bamboo in various activities like cutting, digging, etc. there is ample scope for further research to understand such interesting evidences of the use of bamboo in prehistoric period.

Concluding Remarks

Prehistoric archaeology in Northeast India still suffers from insufficient data for reconstructing the cultural developments of early humans. The occurrences of shouldered celts along with cord-impressed pottery in this region suggest cultural affinities with South China and Southeast Asia. The Hoabinhian artefacts discovered in several sites of Northeast India have their antiquity in Southeast Asian countries, spreading

from there to larger areas. The use of fossil wood as a raw material for making artefacts is one of the basic characteristics of the Anyathian culture of Burma and similar artefacts have been found in several sites of Assam, Tripura, and Bangladesh. The archaeological material of the excavated sites of the Padah Lin caves of Burma and some surface finds indicate similarities in the technology and cultural patterns with the neighbouring areas of Northeast India, Thailand, Cambodia, peninsular Malaysia, Vietnam and South China (Glover 2001: 123) during the late Pleistocene and mid-Holocene period.

Establishing a chronological resolution for the early prehistoric cultures is essential and remains a basic question for Prehistoric archaeology of the Indian Subcontinent and Northeast India. This is similar to the problem that archaeologists working on Burma face due to the nature of the archaeological record and the poorly understood chronology (Aung-Thwin 2001). India has gained little attention on the discussions of hominid colonisation in the old world in the literature of archaeology due to a lack of human fossils and well-established and undisputable evidence prior to 1.5 Ma. It is expected that by undertaking serious archaeological explorations and excavations in Northeast India, many unanswered questions regarding various global dispersal events and Neolithic rice agriculture will be solved.

References

Ashraf, A.A. (1990), *Prehistoric Arunachal: a study on prehistory and ethnoarchaeology of Kamla Valley*. Itanagar: Directorate of Research, Government of Arunachal Pradesh.

Aung-Thwin, M.A. (2001), "Origins and development of the field of prehistory in Burma", *Asian Perspectives* 40, 1: 6–34.

Bakalial, D. (2004), "Banaria Dhan", *Prantik* 23, 11: 22–3.

Bar-Yosef, O. and A. Belfer-Cohen (2001), "From Africa to Eurasia: early dispersals", *Quaternary International* 75: 19–28.

Bar-Yosef, O., Metin I. Eren, Jiarong Yuan, David J. Cohen, and Yiyuan Li (2012), "Were bamboo tools made in prehistoric Southeast Asia? An experimental view from South China", *Quaternary International* 269: 9–21.

Bellwood, P. (1978). *Man's conquest in the Pacific: the prehistory of Southeast Asia and Oceania*. Auckland: William Collins Publishers Ltd.

_____ (2005), *First farmers: the origins of agricultural societies*. Oxford: Blackwell Publishing.

Carbonell, E., M. Mosquera, X.P. Rodríguez, R. Sala, and J.V.D. Made (1999), "Out of Africa: the dispersal of the earliest technical systems reconsidered", *Journal of Anthropological Archaeology* 18: 119–36.

Chauhan, P.R. (2009), "The Lower Paleolithic of the Indian Subcontinent", *Evolutionary Anthropology* 18: 62–78.

_____ (2010), "The Indian Subcontinent" and "Out of Africa I", in *Out of Africa I: The First Hominin Colonization of Eurasia*, ed. J.G. Fleagle, J.J. Shea, F.E. Grine, A.L. Baden and R.E. Leakey. New York: Springer Science+Business Media B.V., pp. 145–64.

Chinh, H.X., H.X. Chinh, P.D. Thong, N.V. Viet, J. Gorsdorf, J. Hermann, and G. Kohl (1988), *New researches into prehistory of Vietnam*. Hanoi: Archaeological Institute of the Social Sciences, Commission of the Socialist Republic of Viet Nam; Berlin: Central Institute for Ancient History and Archaeology of the Academy of Sciences of the GDR.

Corvinus, G. (1996), "The prehistory of Nepal after 10 years of research", *Bulletin of the Indo-Pacific Prehistory Association* 14: 43–55.

_____ (2006), "Acheulian handaxes from the Upper Siwalik in Nepal", in *Axe Age: Acheulian tool making from quarry to discard*, ed. N. Goren-Ibnar and G. Sharon. London: Equinox, pp. 415–28.

Dani, A.H. (1960), *Prehistory and protohistory of eastern India*. Calcutta: L. Mukhopadhyay.

De Terra, H. and H.L. Movius (1943), "Research on early man in Burma", *Transactions of American Philosophical Society* 32: 271–393.

Dennell, R. (2003), "Dispersal and colonization, long and short chronologies: how continuous is the early Pleistocene record for hominids outside East Africa?", *Journal of Human Evolution* 45: 421–40.

_____ (2009), *The Palaeolithic settlements of Asia*. Cambridge: Cambridge University Press.

Dennell, R.W., H. Rendell and E. Hailwood (1988), "Early tool making in Asia: two million year old artefacts in Pakistan", *Antiquity* 62: 98–106.

Dennell, R. and W. Roebroeks (2005), "An Asian perspective on early human dispersal from Africa", *Nature* 438: 1099–104.

Foote, R.B. (1916), *The Foote Collection of Indian prehistoric and protohistoric antiquities: notes on their ages and distribution*. Madras: Government Museum.

Gaillard, C. (2006), "Les premiers peuplements d'Asie du Sud: vestiges culturels", *C.R. Palevol* 5: 359–69.

Glover, Ian C. (1985), "Some problems relating to the domestication of rice in Asia", in *Recent advances in Indo-Pacific prehistory*, ed. V.N. Misra and P. Bellwood, New Delhi: Oxford-IBH, pp. 265–74.

_____ (2001), "Commentary: the past, present, and future of prehistoric archaeology in Burma", *Asian Perspectives* 40, 1: 119–26.

Goswami, M.C. and T.C. Sharma (1963), "A brief report on the investigation into prehistoric archaeology in the N.C. Hills", *Journal of the Gauhati University* 13, 2: 63–6.

Harris, D. (1973), "The prehistory of tropical agriculture: an ethno ecological model", in *The explanation of culture change: models in prehistory*, ed. C. Renfrew. London: Duckworth, pp. 397–417.

Hazarika, M. (2006a), "Understanding the process of plants and animal domestication in Northeast India: a hypothetical approach", *Asian Agri-History* 10: 203–12.

_____ (2006b), "Neolithic culture of Northeast India: a recent perspective on the origins of pottery and agriculture", *Ancient Asia* 1: 25–43.

_____ (2008a), "Archaeological research in Northeast India: a critical review", *Journal of Historical Research* 16: 1–14.

_____ (2008b), "Northeast India: a potential zone for early domestication of plants and animals", paper presented at the 6th World Archaeological Congress, Dublin, 29 June–4 July 2008.

_____ (2012), "Lithic industries with Palaeolithic elements in Northeast India", *Quaternary International* 269: 48–58.

Heng, S. (2008), "A study of polished stone tools from Samrong Sen, Cambodia: the French museum collections", *Annali dell'Università degli Studi di Ferrara, Museologia Scientifica e Naturalistica*, Special Volume: 87–90.

Hore, D.K. (2005), "Rice diversity collection, conservation and management in north-eastern India", *Genetic Resources and Crop Evolution* 52: 1129–40.

Hou, Y., R. Potts, B. Yuan, Z. Guo, A. Deino, W. Wang, J. Clark, G. Xie, and W. Huang (2000), "Mid-Pleistocene Acheulean-like stone technology of the Bose Basin, South China", *Science* 287, 5458: 1622–6.

Huang W., X. Si, Y. Hou, S. Miller-Antonio, and L.A. Schepartz (1995), "Excavations at Panxian Dadong, Guizhou Province, southern China", *Current Anthropology* 36, 5: 844–6.

IAR 1965–66: "Indian archaeology: a review (1965–6)", *Annual Bulletin of Archaeological Survey of India*: 6.

IAR 1966–67: "Indian archaeology: a review (1966–7)", *Annual Bulletin of Archaeological Survey of India*: 5.

IAR 1967–68: "Indian archaeology: a review (1967–8)", *Annual Bulletin of Archaeological Survey of India*: 8.

Kennedy K.A.R., A. Sonakia, J. Chiment, and K.K. Verma (1991), "Is the Narmada hominid an Indian *Homo erectus*?", *American Journal of Physical Anthropology* 86: 475–96.

Kharakwal, J.S., A. Yano, Y. Yasuda, V.S. Shinde, and T. Osada (2004), "Cord impressed ware and rice cultivation in South Asia, China and Japan: possibilities of inter-links", *Quaternary International* 123–5: 105–15.

Krishnaswami, V.D. (1960), "The Neolithic patterns of India", *Ancient India* 16: 25–64.

Londo, J.P., Y. Chiang, K. Hung, T Chiang, and A. Barbara (2006), "Phylogeography of Asian wild rice *Oryza rufipogon* reveals multiple independent domestications of cultivated rice, *Oryza sativa*", *Proceedings of the National Academy of Science* 103, 25: 9578–83.

Lubbock, J. (1867), "The Stone Age stone tools in Upper Assam", *Athenaeum* 22 (June): 822.

Medhi, D.K. (2003), "Potters and pottery of the Assam region", in *Earthenware of Southeast Asia*, ed. J. Miksic. Singapore: NUS Press, pp. 322–35.

Mills, J.P. (1933), "Assam as a field of research", *Journal of Assam Research Society* 1, 1: 3–6.

Mishra, S. (1992), "The Age of the Acheulian in India", *Current Anthropology* 33: 118–24.

_____ (2006/7), "The Indian Lower Palaeolithic", *Bulletin of the Deccan College Post-graduate and Research Institute* 66–7: 47–94.

Mishra, S., T.R. Venkatesan, S.N. Rajaguru, and B.L.K. Somayajulu (1995), "Earliest Acheulian industry from peninsular India", *Current Anthropology* 36: 847–51.

Paddayya, K., B.A.B. Blackwell, R. Jhaldiyal, M.D. Petraglia, S. Fevrier, D.A. Chaderton II, J.I.B. Blickstein, and A.R. Skinner (2002), "Recent findings on the Acheulian of the Hunsgi and Baichbal valleys, Karnataka, with special reference to the Isampur excavation and its dating", *Current Science* 83, 5: 641–7.

Pal, J.N. (1987), "Neolithic cord-impressed ware of the Vindhyas", *Man and Environment* 11: 61–5.

_____ (1990), "The early farming culture of northern India", *Bulletin of Deccan College Post-graduate and Research Institute* 49: 297–304.

Pappu, S., Y. Gunnell, K. Akhilesh, R. Braucher, M. Taieb, F. Demory, and N. Thouveny (2011), "Early Pleistocene presence of Acheulian Hominins in South India", *Science* 331: 1596–600.

Petraglia, M.D. (1998), "The Lower Palaeolithic of India and its bearings on the Asian record", in *Early Human Behaviour in Global Context*, ed. M.D. Petraglia and R. Korisettar. London: Routledge, pp. 343–90.

_____ (2006), "The Indian Acheulean in global perspective", in *Axe Age: Acheulian toolmaking from quarry to discard*, ed. N. Goren-Inbar and G. Sharon. London: Equinox Publishing, pp. 389–414.

Ramesh, N.R. (1989), "A study on geomorphology, quaternary geology and associated cultural remains of West Tripura district", Unpublished PhD Thesis, Guwahati: Gauhati University.

Rao, S.N. (1973), "The Neolithic Culture of Sarutaru, Assam", *Bulletin of the Department of Anthropology*, Dibrugarh University 2: 1–9.

Reynolds, T.E.G. (1990), "Problems in the Stone Age of Thailand", *Journal of the Siam Society* 48: 109–14.

Roe, D.A. (2000), "Early human migrations: using all the evidence", in *Early humans at the gates of Europe*, ed. D. Lordkipanidze, O. Bar-Yosef, and M. Otte. Liège: ERAUL 92, pp. 87–92.

Roebroeks, W. (1994), "Updating the earliest occupation of Europe", *Current Anthropology* 35, 3: 301–5.

Rolland, N. (1998), "The Lower Palaeolithic settlement of Eurasia, with specific reference to Europe", in *Early human behaviour in global context: the rise and diversity of the Lower Palaeolithic record*, ed. M.D. Petraglia and R. Korisettar. London: Routledge, pp. 187–220.

Roy, J.S. and S.M.K. Ahsan (2007), "Raw material and technology of Stone Age artefacts from Lalmai Hills and Chaklapunji Area", *Pratnatattva* 13: 49–56.

Sangode, S.J., S. Mishra, S. Naik, and S. Deo (2007), "Magnetostratigraphy of the Quaternary sediments associated with some Toba Tephra and Acheulian artefacts bearing localities in western and Central India", *Gondwana Geological Magazine* Special Volume 10: 111–21.

Sauer, C.O. (1952), *Agriculture origins and dispersals*. New York: American Geographical Society.

Schepartz, L.A., S. Miller-Antonio, and D.A. Bakken (2000), "Upland resources and the early Palaeolithic occupation of southern China, Vietnam, Laos, Thailand and Burma", *World Archaeology* 32, 1: 1–13.

Sharma, G.R., V.D. Misra, D. Mandal, B.B. Misra, and J.N. Pal (1980), *Beginnings of agriculture*. Allahabad: Abhinav Prakashan.

Sharma, H.C. (2003), "Prehistoric archaeology of the Northeast", in *The Anthropology of Northeast India*, ed. T.B. Subba and G.C. Ghosh. New Delhi: Orient Longman.

Sharma, S. (2007), *Celts, flakes and bifaces: the Garo Hills story*. Oxford: Archaeopress (BAR International Series; South Asian Archaeology Series No. 7).

Sharma, T.C. (1967), "A Note of the Neolithic pottery of Assam", *Man* 2, 1: 126–8.

_____ (1986), "Recent advances in prehistory and archaeology of Northeast India", *Journal of the Assam Research Society* 28: 1–28.

_____ (1988), "Discovery of Hoabinhian cultural relics in Northeast India", in *Adaptation and other essays: proceedings of the Archaeological Conference*, ed. N.C. Ghosh and S. Chakrabarty. Shantiniketan: Research Publications, Vishwa Bharati, pp. 136–9.

_____ (1991), "Prehistoric situation in Northeast India", in *Archaeology of Northeastern India*, ed. J.P. Singh and G. Sengupta. New Delhi: Vikas Publishing House, pp. 41–56.

Singh, O.K. (1993), "Stone Age culture of Manipur", Unpublished PhD thesis, University of Manipur.

Sonakia, A. (1984), "The skull cap of early man and associated mammalian fauna from the Narmada valley alluvium, M.P. India", *Geological Survey of India records* 113: 159–72.

Spennemann, D.H.R. (1990), "Don't forget the bamboo: on recognising and interpreting butchery marks in tropical faunal assemblages: some comments asking for caution", in *Problem solving in taphonomy: archaeological and palaeontological studies from Europe, Africa and Oceania*, ed. S. Solomon, I. Davidson, and D. Watson. Queensland: Anthropology Museum, University of Queensland, St. Lucia, pp. 108–34.

Sung-Mo, A.H.N. (1993), "Origin and differentiation of domesticated rice in Asia", Unpublished PhD thesis, Institute of Archaeology, London.

Taher, N. and L.S. Rao (2005), "A Neolithic factory site at Pynthorlangtein", in *Proceedings of the Sixteenth International Conferences of the European Association of South Asian Archaeologists, Paris, 2–6 July 2001, vol. I: Prehistory*, ed. C. Jarrige and V. Lefevre. Paris: Éditions Recherche sur les Civilisations, pp. 311–5.

Vavilov, N.I. (1949), "The Origin, variation, immunity and breeding of cultivated plants", *Chronica Botanica* 13: 1–364.

West, J.A. and J. Louys (2007), "Differentiating bamboo from stone tool cutmarks in the zooarchaeological record, with a discussion on the use of bamboo knives", *Journal of Archaeological Science* 34: 512–8.

Yasuda, Y. (2002), "Origins of pottery and agriculture in East Asia", in *The origins of pottery and agriculture*, ed. Y. Yasuda. Japan: International Research Center for Japanese Studies, pp. 119–42.

Yi, S., J.J. Lee, S. Kim, Y. Yoo, and D. Kim (2008), "New data on the Hoabinhian: investigations at Hang Cho cave, northern Vietnam", *Bulletin of the Indo-Pacific Prehistory Association* 28: 73–9.

Yumnam, J.Y. (2008), "Rich biodiversity of Northeast India needs conservation", *Current Science* 95, 3: 297.

Zhang, C. and H.C. Hung (2008), "The Neolithic of southern China: origin, development and dispersal", *Asian Perspectives* 47, 2: 299–329.

Zoller, L. (2000), "Chronology of Upper Pleistocene 'red silts' in the Siwalik System and constrains for the timing of the Upper Paleolithic in Nepal", *Catena* 41: 229–35.