

Neolithic Culture of Northeast India: A Recent Perspective on the Origins of Pottery and Agriculture

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Abstract

Northeast India is a lesser-known area for archaeological research; however, it will be discussed here in order to show the importance and potential for Neolithic research. Being a contact zone of South Asia, Southeast Asia, and East Asian countries, the region has a great diversity of cultural material dating from prehistoric times. Comparatively well-documented Neolithic cultural material is still described in a classificatory manner, which makes it further impossible to explain the basic terminological issue of Neolithic culture, which was the new way of life in the Prehistoric scenario. A fresh approach with archaeological, linguistic and ethnographic evidence is adapted and applied in order to understand the relevance of Northeast India, commonly known as the "Seven Sisters", to early origins of pottery and agriculture in South Asia, Southeast Asia, and East Asia. The archaeological comparison is based on three issues: viz. cord-impressed pottery, shouldered celt, and rice agriculture, which aim to synthesize evidence from different neighbouring areas to understand what they have in common and to provide clues for further research.

Introduction

Northeast India is one of the most diverse areas of Asia in terms of illustrating the relationship between man and environment through out the ages. Even though the region is rich for research in various fields of empirical science, it has been unable to gain importance among the scientists till date. The strategic location of this region at the junction of South Asia, East Asia and Southeast Asian countries and its natural and cultural interconnectivity may explain the cultural diversity of the population inhabiting the area. Apart from the strategic location, its unique climactic conditions with regions having maximum rainfall or being the wettest place in the world, with the associated flora and fauna influences the life and culture of the people of Northeast India. Geographically, Northeast India is destined to play a crucial role in shaping the Indian nation especially the eastern part of the country (Chatterji, 1970: 7-8). Due to prehistoric and proto-historic movements of people into this

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region from mainland India, South China and Southeast Asia, Medhi (2003), referred to this territory as the Great Indian Corridor. The region lies between 22° and 29° 18' North Latitude and 89° 40' and 97° 22' East Longitude. The present state of Assam is confined to the valleys of the Brahmaputra and the Barak rivers though the former state of Assam included the present states of Arunachal Pradesh, Nagaland, Manipur, Meghalaya, Mizoram, Tripura, and Assam. Currently, the names "Northeast India" and the "Assam region" are commonly used to refer to this region.

Because of wide diversity of plants useful to man and favourable climatic conditions, this region is regarded by geographers and botanists as an ideal place for early plant domestication and food production (Vavilov, 1949; Sauer, 1952; Harris, 1973). As a result of the interest shown by international scholars gathered in the Indo-Pacific Prehistoric Congress held in Pune on 20-23rd December 1978, a resolution was adopted regarding the importance of the prehistory of Northeast India and demarcated the region as.

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

The general body of Indo-Pacific Prehistoric Association recommends the desirability of an intense archaeological research programme in Northeast India to realise its potential. Paddayya aptly highlights the archaeological potentiality of this region in his discussion on the status of archaeological research in India (Paddayya, 2002-2003: 291-309), "Northeast India, which has in recent years yielded pre-Neolithic cultural assemblages, offer excellent scope for investigating diversity in human adaptations. Forming as it does a halfway house between the Indian mainland and Southeast Asia, this area probably enabled early societies to develop individual identities of their own" (Paddayya, 2003-2004: 296).

Various Problems Regarding the Neolithic Culture of Northeast India

Prehistoric studies were of major interest in the pre-independent era; however no explicit cultural structure was visualized and archaeologists ignored the northeast region. Lord Cunningham, the founder of Indian archaeology, carried out his survey which covered almost the entire length of India but did not attempt to set foot on the formidable forest-clad hilly terrain of Northeast India (Sharma, 2003: 11-29). Because it has been ignored by archaeologists, anthropologists, historians, and the common people, the local population is ignorant about their inherent past and the Neolithic culture of Assam has been identified with few tools and pottery collected from different parts of the region. Though some very small-scale excavations were carried out, we have scant evidence about the so-called Neolithic Revolution of this region. While defining the role of Assam as a field for archaeological research, J.P. Mills (1933: 3-6) states that the spade, the chief tool of archaeologists, has hardly been used for research in Assam. Sharma (1991) strongly commented that in terms of size, Northeast India is much bigger than a country in Europe, like "The Great Britain". However, archaeological evidence from this enormous, and one of the most strategic regions of India, is still so meager that any attempt to trace the course of human history, especially of the vast unrecorded past, becomes a difficult undertaking.

Regarding the problem of archaeological exploration, H.C. Sharma (1972: 54) states that it is a difficult task in Northeast India as it falls under the Tropical Rain Forest Zone. Dr. Bloch (1906-07: 17-28) remarks that owing to unfavourable conditions in Assam, such as its torrents of rain and exuberance of wild vegetation, it is almost impossible to penetrate the Jungles of Assam and explore.

The role of Pleistocene stratigraphy within the recent geological record is the main strategy for determining the chronology of prehistoric culture of a region (Sharma 1972: 77) but till now this region has no such site from which one can determine the Pleistocene stratigraphy, thus, there is no dependable chronology of Neolithic culture and other prehistoric cultures of Northeast India.

T.C. Sharma (1991: 41-58) has pointed out that scholars all over the world are of the opinion that the archaeology of Northeast India is very important for world archaeology, because of the fact that this region is known to have played a great role in the domestication of a number of food producing plants essential for man, including rice. Archaeologists dealing with global archaeological problems are very interested in the archaeological potential of Northeast India, as is evident in the writings of Ian C. Glover (1985: 266), "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."

Indian Archaeobotanists (Kajale, 1974) believe that rice is one of India's oldest crops and grains of both wild and cultivated species occurring in stratified context help in marking out the stages of evolution from wild to domesticated forms. Most significantly, there are at least four species of wild rice (Bakalial 2004) in the Assam region which are *Oryza rufipogon*, *Oryza officinalis*, *Oryza perennis*, and *Oryza meyeriana*, but the people of Assam do not recognize these species as wild rice. Farmers and villagers usually mistake them for common grass and generally ignore these wild species of rice. Botanists base their evidence of the origin of rice largely on the habitats of the wild species as it is presumed that the cultivated species have developed from certain types of wild rice (Grist 1975).

Though till date we do not have rice remains from a stratified archaeological context of Northeast India, we cannot ignore the possibility of early cultivation of rice which must have played important role in the evolution of wild rice to domesticated rice. The Neolithic stage of human history was the new way of life for our ancestors that is characterized by the domestication of animal and plants. We relay only stone tools and a few pieces of pottery found in the Assam region for the Neolithic stage, but in doing so we are ignoring the main aspect of the Neolithic Revolution. Though we have the potential to make Assam the nuclear area for rice cultivation, so far nobody has attempted to investigate the evolution of rice cultivation. Till date, scholars have not tried either to understand the potential of modern species of wild and domesticated rice or to trace their origin to the Neolithic beginnings in Northeast India. In this regard, Dhavalikar (1973: 137) states that "Archaeologically, Assam is still *terra incognita*". He further points out that the post independent era witnessed remarkable archaeological activities in different parts of the country, but Assam has not yet received the attention it merits.

Besides wild rice, there are various other flora and fauna which have both wild and domesticated species in the Assam region. The magnificent wild buffalo, which is getting rarer in the rest of India is found here. Other species include wild elephant, pig, dog, mithuns, yak, sheep and goat and birds like wild chicken, duck and pigeon etc., which also have their domestic counterparts in this great region (State Gazetteers 1967). One can easily find wild species of banana and yams in the hilly area of Assam. However we have no idea about the process of domestication of these species. Moreover, we do not even know whether or not they are indigenous. In his paper, 'Mango through Millennia', Nene (2001: 39-67) has shown the origin of mangos in Northeast India and Northern Myanmar and their spread into mainland India, and other parts of the world. Wild mango is found in the Chittagong Hills of Bangladesh and Assam.

Till now, we do not have any archaeological map showing the geographical distribution of the various excavated and explored, and stray-find sites of Northeast India. Thus, T.C. Sharma (1966: 98) commented, the Stone Age map of India usually leaves Assam as a blank area, save for a few vaguely plotted black dots strewn haphazardly in order to show the distribution of the polished stone axes. The lack of proper maps with distributional patterns of the sites raises the difficulties for identifying the settlement pattern of the area. The Garo Hills where some other stone tools were also found is one of the areas with the most potential for Neolithic culture. The prehistoric tools have been studied by various scholars such as M.C. Goswami and A.C. Bhagabati (1959a, 1959b); H.C. Sharma (1972), D.K. Medhi (1980), M. Sonowal (1987), and S. Sharma (2001). H.C. Sharma (1972) has divided the prehistoric cultures into Palaeolithic, Mesolithic, and Neolithic culture. In 1969, Sankalia (1974) visited Garo Hills and observed that the Palaeolithic elements might be present in the area. Alok Ghosh (1978: 6-25) has strongly contradicted the occurrence of Paleolithic artifacts in Garo Hills and he referred to the tools as "Neolithic debitage". Thus, stone tools of this region are also a debatable topic amongst scholars. After realizing the problems of archaeological research in Northeast India, Sundara (1985: 39-57) writes, "In view of the many practical difficulties confronting archaeologists in Assam, a national study team of scientists and archaeologists should be sent for carrying out systematic survey and large scale excavations". Without the proper systematic and scientific study of this region, it will not be convenient to make any concrete inferences.

Archaeological research is generally based on the material remains of past human society. The material remains or the archaeological records are carefully examined and studied to obtain a possible scenario of the past ways of life of human beings. If the archaeological record is insufficient for the reconstruction of the past human society, other sources such as ecological, geographical, and ethnographical sources become very helpful for archaeological interpretation. Northeast Indian archaeology suffers the same problem of insufficient data because of which this region is often referred as *terra incognita* in the archaeological arena. To understand the Neolithic situation of this region, various sources other than archaeological are taken in to account. Till sufficient material remains for the reconstruction of the Neolithic life style in this particular area are recorded, we have to limit our assumptions using only the possible clues and connections which essentially deal with the comparison of Northeast India with surrounding regions. Here, we shall attempt to

highlight the possible clues regarding the Neolithic culture of Northeast India, specially the origins of pottery and agriculture.

Archaeological Data

The three characteristic features of the Neolithic culture in Northeast India viz. celt making traditions, Cord-impressed pottery, and rice agriculture, are more or less similar to the Neolithic cultures of East Asia and Southeast Asia. A.H. Dani (1960) has demonstrated the similarity of stone tools from the various regions of Northeast India with various parts of Southeast Asia and East Asia.

Zone of NE India	Related Zones in Southeast and East Asia
Cachar Hills Zone	Upper Burma, communication through Manipur
Sadiya Frontier Zone	Yunan of Southeast China
Naga Hills Zone	Burma, Malaya, Siam, Laos, Yunan and Cambodia
Khasi Hills Zone	Cachar Hills
Garo Hills zone	Cachar Hills
Brahmaputra Valley Zone	Shantung province, Hong Kong, Naga Hills, Cachar Hills and Garo Hills

Table: 1. Northeast India and its relation with East and Southeast Asian countries, (Dani, 1960)

The Neolithic culture of Northeastern India is distinguished by the predominance of shouldered celts and the characteristic Cord-impressed pottery. Within the sub-continent, The Neolithic culture of Northeastern India has no strict parallels within the Indian sub-continent though the shouldered tool type has a sporadic distribution in the adjacent states of Eastern India. However, as far as the Neolithic period is concerned, there appears to be no doubt about the relationship between Northeastern India and the countries of Southeast Asia.

Name of the site	Ceramic types	References
Daojali Hading of Assam	Cord-impressed pottery; Incised pottery; Stamped pottery; Plain Fine Red ware	Sharma, 1967
Kamla valley of Arunachal Pradesh	Plain coarse ware; Cord-impressed Coarse Red ware; Stamped Coarse Brown/Red ware; Stamped (square grid) Buff ware Grooved; Coarse/Fine Buff ware; Plain Brown ware	Ashraf, 1990
Phunan Hills of Manipur	Plain wares; Stamped wares; Incised wares; Cord- impressed wares; wares with circular spots and Appliqué wares.	Singh, 1993

Table: 2. Ceramic types of three important sites of Northeast India

The other excavated sites like Daojali Hading (Shrama, 1967), Sarutaru (Rao, 1973), Parsi-Parlo (Ashraf, 1990), sites in Garo Hills (IAR, 1966-67, 67-68), and Manipur (Singh, 1993), have yielded numerous potsherds, basically the Cord-impressed and other hand made

wares. The fast moving wheel was unknown to the Khasi (what about the other groups mentioned above?). The pottery technique exhibits the survival of one of the oldest traditions of hand-modelling without decoration (isn't cord impression and groove marks decoration?) or painting. Are you talking of the Neolithic times or today?

The earliest evidence of pottery in China and Japan dates back to 21,000-18,000 cal. Yrs. B.P. The early evidence of rice cultivation comes from the recent discoveries at sites like Yuchanyan (Yasuda 2002:119), Hunan Province and Xianrendong (Yasuda2002:138) and Diaotonghuan (Yasuda 2002:119), and Jiangxi Province which date the origins of rice agriculture to more than 10,000 years ago. Thus the origins of pottery and agriculture can not be presumed as being simultaneous. The origin of pottery is much older than the origin of agriculture in East and Southeast Asia. The pottery of the cultures of East Asia and Southeast Asia is remarkably alike, and includes simple forms of cord-impressed, combed, fingertip-impressed or incised vessels, often on tripods and pedestals. The overall homogeneity of it 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). Almost similar physio-graphic settings, in Northeast India, leads one to think about the potential for cultural affinities with Southeast and East Asian countries. The occurrence of potsherds and stone tools related to the cultivation system in the same stratigraphic horizon at various sites like Daojali Hading, Sarutaru, Garo Hills, indicates similarity in chronology for origin and evolution of pottery and agriculture during the Neolithic period. It is most likely that due to its proximity to China and the Southeast Asian countries, Northeast India was under the strong influence of these cultures during this period.

Name of the site or area	Date of the pottery / site	Reference
Yuchanyan site of China	14,810 ± 230 ¹⁴ C Yrs. B.P.	Yasuda, 2002:119
Miaoyan site of China	15,660 ± 260 ¹⁴ C Yrs. B.P.	Yasuda, 2002:119
Linzhou Dalongtan Liyuzui site of China	21,025 ± 450 ¹⁴ C Yrs. B.P.	Yasuda, 2002:121
Bashidang site of China	7540 ± 80 ¹⁴ C Yrs. B.P.	Yasuda, 2002:138
Pentoushan site of China	9785 ± 180 ¹⁴ C Yrs. B.P.	Yasuda, 2002:138
Xianrendong site of China	19780 ± 360 ¹⁴ C Yrs. B.P.	Yasuda, 2002:138
Hemudu site of China	6310 ± 100 ¹⁴ C Yrs. B.P.	Yasuda, 2002:138
Shimomouchi site of Japan	16,250 ± 180 ¹⁴ C Yrs. B.P.	Yasuda, 2002:123
Houtouliang site of China	13080 ± 120 ¹⁴ C Yrs. B.P.	Yasuda, 2002:124
Nongpok Keithelmanbi of Manipur, India	4460 ± 120 Yrs. B.P.	Singh, 1983
Koldihawa of Vindhyas, India	6570±210 B.C.	Pal, 1987: 61-65
Mahagara of India	5540 ± 240 B.C.	Sharma, <i>et al.</i> 1980
Khas-Kalyanput of Tripura, India	3450 ± 150 ¹⁴ C Yrs. B.P.	Sharma, 2004
Phung Ngugen site of Vietnam	3000 to 1500 B.C.	Sharma, 2004
Laang Spean of Cambodia	5000 B.C.	Gorman, 1971
Goa Cha of Malaysia	3020 B.C.	Sharma, 2004
Khok Phanom Di of Cambodia	7000 B.C.	Sharma, 2004
Spirit cave of Thailand	6600 B.C.	Gorman, 1970
Non Nok Tha of Thailand	4000 B.C.	Bayord, 1970
Kak Paam Dih of Thailand	4800 B.C. to 1500 B.C.	Sharma, 2004
Sai Yok of Thailand	4000 B.C. to 2000 B.C.	Sharma, 2004

Table 3: Date of the earliest pottery in various regions

In the Eastern and Central Indian Neolithic scenario, domesticated rice and handmade pottery occurred at Koldihawa and Mahagara within the Neolithic levels (Agrawal, 2002: 80-88). The radio carbon dates from Koldihawa give a bracket of ca. 9000-8000 yrs. BP. A C¹⁴ date for the pre-Neolithic Mahagarha is 8080 \pm 115 BC (Sharma *et al.* 1980; Pal 1990). The occurrence of rice/paddy field diatoms in the Lahuradewa lacustrine sediments thus indicate that rice cultivation must have been actively followed in this region since 7,000 yrs BP (Prasad, *et al.* 2004). Presence of charcoal throughout the succession is indicative of slash and burn cultivation in the area since the last 10,000 years. There is direct evidence of human activity at the habitational site of Lahuradewa for the last 7,000 years. Evidence of Phytolith and *Cerelia* pollens in lake sediments also indicate rice cultivation and agricultural activity in Lahuradewa in the form of the slash and burn cultivation beginning in the early Holocene, with well developed agricultural practices prevalent around 7,000 yrs BP. It may be pointed out that studies in Sanai Tal deposits (Rai Bareli district) give evidence of slash and burn cultivation and *Cerelia* pollens since about 15,000 yrs BP (Sharma *et al.* 2004). The indication of the shifting cultivation in this area is important for the Neolithic of Northeast India as it is believed to have almost the same primitive agricultural system during the Neolithic period.

There seems to be no agreement amongst experts as to whether rice was first a dry land crop, which was then adapted to wet conditions or vice-versa. This same problem remains in order to identify the earliest cultivation of rice in Northeast India. Most of the Neolithic sites of this region are located near the hilly areas, which are generally away from the big rivers like Brahmaputra and its tributaries; this may indirectly indicate that during the Neolithic time, rice was a dry land crop. However, it does not necessarily imply that the Neolithic people of Northeast India did not occupy the river valleys. Due to unsystematic research strategy and various natural disturbances like flood activity, we have no significant archaeological data from these river basins till date. Peter Bellwood (2005: 119), discusses the uncertainty concerning the issues of variation within *Oryza sativa*. He made the significant observations about the domestication of *japonica* and *indica* species of rice and identified different areas somewhere to the South of North-eastern India or perhaps Thailand; or was *japonica* rice domesticated along the Huai and *indica* along the Yangtze? Many possibilities suggest that domesticated Asian rice has more than one homeland. He specifically mentions that the probable domestication of native *indica* rice may have taken place in Northeast India.

Synthesis of the Archaeological and Linguistic Data

Within China and Southeast Asia there are three language families that appear to represent the primary dispersion of agricultural populations through the landscapes that were previously occupied mostly by hunting and gathering groups. These are the Sino Tibetan, Austro-Asiatic and Austronesian families (Bellwood, 2005: 223). Within the population of northeast India today, two of the above mentioned language families can be identified viz. Austro-Asiatic and Tibeto-Burman. Only the Khasi and Jaintia groups belong to the Austro-Asiatic whereas the Tibeto-Burman family is more widespread representing a

larger population including the Bodo, Naga, Kuki, Tripuri, Rabha, Mech, Garo, Lalung, Dimasa, Deuri-Chutia, Maran, Hajong, Sonowal, Nishi, Apatani, Adi, and Mishing etc. The Austro-Asiatic speaking population however is believed to be the original/earliest inhabitants of the region of northeast India (Roy, 1991: 76).

Tibeto-Burman Language Migrations and Neolithic Culture of Northeast India

The present day population of Northeast India, which is predominantly the Tibeto-Burman linguistic group, is presumed to have migrated from their original homeland in Southern China. A number of studies have been carried out in order to understand the Neolithic origin of Northeast India, along with the early dispersal and spread of this language family. The new language family tree, which is based on recent advances in Tibeto-Burman historical comparison, is given below:

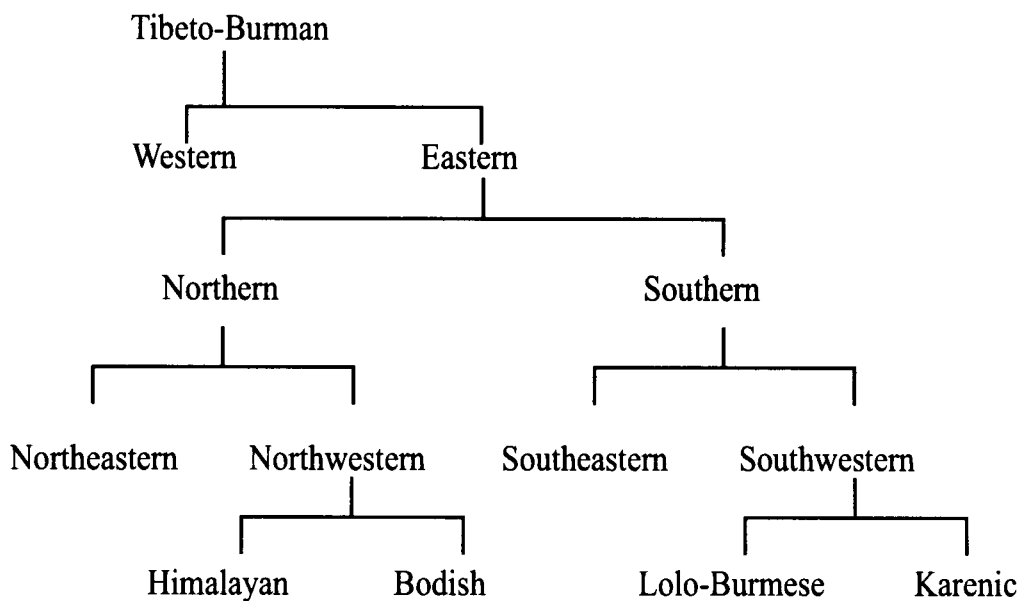


Figure 1: The Tibeto-Burman language family, (Driem 1998: 69)

The current hypothesis regards the first split in the family as being between the western Tibeto-Burman languages of Northeast India and eastern Tibeto-Burman which is the main trunk of the family. Van Driem (1998: 67-102) put forth the idea of migration of the Tibeto-Burman language, and he tried to correlate his hypothesis with archaeological data. Driem assumed the proto homeland of Tibeto-Burman language family in Szechwan Yunnan, which is the present geographical centre of these languages. The first migration/split within the language family out of this area (Szechwan Yunnan) was the migration of the Western Tibeto-Burman to the fluvial plains of the lower Brahmaputra and the surrounding hill tracks. Neolithic implements found in this area represent artifacts of the Eastern Indian Neolithic, for which neither calibrated nor stratigraphic dates are available (Driem, 1998: 69). Since calibrated dates are not available in Northeast India, we shall still try to make inferences based on the archaeological material. The two characteristic tool types associated with the Neolithic viz. the shouldered celt and the ground faceted axe in addition to the Cord-

impressed pottery which has been widely distributed; leads us to assume that the Eastern Indian Neolithic was connected to western Tibeto-Burman migration. Evidently, the Neolithic era of East Asia and Southeast Asia has been the handiwork of the Tibeto-Burman population, which started a southerly migration from its original homeland in Szechwan and Yunnan as early as 7000 B.C. The degenerating nature of the tools and the pottery types in the southerly route also corroborates the view of this migration. So, in all probability we can expect a later date to the Eastern Indian Neolithic than the East Asian Neolithic.

Peter Bellwood (2005) made two inferences on the basis of comparative linguistic and archaeological data. Linguistically, a series of language families founded with agriculture and domestic animal vocabularies evolved in Central and Southern China, with extensions into the northern fringes of Southeast Asia and Taiwan. Three of these language families, Austro-Asiatic, Sino-Tibetan, and Austronesian previously underwent major expansions. Linguistic dating estimates for the foundation of the proto languages of these languages indicate ages generally between 7000 and 4000 years ago, post hunter-gatherer and pre-iron, in cultural items. Archaeologically, rice and millet cultivation in Central China precede any evidence for agriculture in Southeast Asia by about 3000 years. After 3000 B.C. there was a spread of Neolithic culture throughout the mainland and islands of Southeast Asia. So, the origin of rice cultivation in East Asia is older than the Southeast Asian rice cultivation. The influence of East Asia on Southeast Asia in terms of rice cultivation ultimately leads us to believe that the rice cultivation of Northeast India has more of a connection with the East Asian Neolithic culture than the Southeast Asian Neolithic culture. Mainland Southeast Asia consists of upland terrain separated by a number of very long river valleys, mostly rising in the eastern fringes of the Himalayas and generally following north south directions. These rivers include the Irrawaddy, the Salween, the Chao Phraya, the Mekong and the Red (Hong) and must have served as major conduits of human migration in the past. Thus, it is not surprising that the Neolithic archaeology of this region shows a much stronger connection with China than it does with India (Bellwood 2005: 131). Again, nowhere in Southeast Asia is there currently any firm evidence for the presence of any form of food production before 3500 B.C. (Bellwood, 2005: 130). Rather, there is a greater likelihood that the influence of the origins of rice in Northeast India was more from East Asia than Southeast Asia.

The Austro-Asiatic language families are the most widespread and also the most geographically fragmented language family in mainland Southeast Asia and Eastern India. They include approximately 150 languages in two major subgroups: Mon Khmer of Southeast Asia and Munda of Eastern India. The Mon Khmer subgroup is the largest and contains Mon, Khmer, and Vietnamese, as well as Khasi in Assam, the Aslian languages of Peninsular Malaysian and Nikobarese. Today, the very disjointed distribution of the Austro-Asiatic family, suggests that it represents the oldest major language recognizable in Southeast Asia, one overlain by many expansive languages of later civilizations such as Burmese and Karen (both Tibeto-Burman), Thai, Malay, Khmer, and Vietnamese (the last two being Austro-Asiatic) (Bellwood 2005: 223). The Austro-Asiatic languages include Mon and Khmer, Vietnamese, and the Aslian languages of Central Peninsular Malaysia, Nicobares, and many other linguistic pockets scattered over Northern mainland Southeast Asia and Northeastern India. The initial spread of the Austro-Asiatic languages can be

related to the settlement of mainland Southeast Asia by rice growing populations from Southern China, probably during the third millennium B.C. Bellwood (Paddayya and Bellwood 2002: 328), believes that the two main language families of Neolithic Southeast Asia were probably Austronesian and Austro-Asiatic. The time period for migrations of the Austro-Asiatic speakers to Northeast India has not been dated until now, but it is assumed to be earlier than the Tibeto-Burman speakers. Scholars like Robert Von Hein-Geldern (1945: 138), formulated an elaborate migration theory that associated certain styles of stone implements with prehistoric population movements. He identified Eastern Indian Neolithic and the *Schulterbeilkulturin*, in particular, with the ancient Austro-Asiatic forebears of the Munda, whereby he presumed that the Austro-Asiatic spreads into India from Southeast Asia. But, Van Driem (1998: 71) argues that the relationship of Eastern India to Southeast Asia is neither as obvious nor as straightforward as it was thought to be when it was first proposed that heterogeneous prehistoric cultures of this region reflected the distribution and spread of ancient Austro-Asiatic languages.

If we compare the Austro-Asiatic language to the Neolithic culture of Southeast Asia, then it is quite probable that the migration to Northeast India occurred much before 3000 B.C. Archaeological records shows more connections between Northeast Indian Neolithic to Chinese Neolithic than the Southeast Asia (Driem 1998: 67-102). The Eastern Indian Neolithic wedges and tanged axes have clear parallels in upper Burma, Yunnan and Szechwan. The study of George Van Driem on the linguistic and archaeological correlation is quite probable to the problematic scenario of the origins of Neolithic cultures in Northeast India. The Western Tibeto-Burman pioneers who introduced the technologies of the Eastern Indian Neolithic and themselves to the Austro-Asiatic populations of Northeast India, were probably the first systematic early farming communities of Northeast India. The present ethnographic analogy of the cultivation system of the Austro-Asiatic implies that they are mainly shifting cultivators. The lowland wet cultivation of rice is less common amongst them. Again, the Tibeto-Burman groups have both the system of agriculture, in the low land wet cultivation, as well as shifting cultivation. This implies that the Tibeto-Burman groups probably introduced the low land rice cultivation in Northeast India that originated in East Asia.

Ethnographic data and correlation with the past

The present day populations of Northeast India have great diversity in terms of lifestyle, cultural activity, and physiological features; which implies the acculturation, assimilation and diffusion of various cultures and groups of people. Northeast India has the evidence of intermixing of the cultural elements due to the migrations of different peoples with different cultures in different times. So, the possibilities for diversity of material, as well as non-material culture, can be visualized in the present time, and, needless to say, also in the Neolithic times. Slash and burn, or shifting cultivation, is a way of life in hilly areas. It is the most widespread type of cropping and is directly supported by the forest ecosystem. Basically, the shifting cultivation system is a reflection of the relationship between man and

environment in the tropical mountain region. It has been in use for centuries and still remains a major land-use practice, providing the basis for subsistence farming, maintenance of cultural values and social stability for the people living in low population densities of Northeast India (Aier and Changkija, 2003: 367). The majority of the tribal populations of Northeast India even today practice simple shifting cultivation. The list of the communities is given below.

State	Districts	Ethnic groups
Arunachal Pradesh	10	Aka, Miji, Bangro, Bangni / Dafla, Adi, Miniyong, Padam, Miri, Mishimi, Tangsa, Singpho, Wancho, Nokte etc.
Assam	3	Garos, Naga, Khasi, Mizo, Mikir, Meri Dagla etc.
Manipur	5	Kuki, Tangkhul, Hmar, Mao, Maring, Kahui, Kacha Naga etc.
Meghalaya	5	Khasi, Garo, Jaintia, Nagaland Sema, Ao, Lotha, Konyak, Rengma, Tangkhul, Naga etc.
Mizoram	3	Mizo, Kuki, Hmar, Lakher etc.
Nagaland	7	Information is not available
Tripura	3	Tripuri, Jamatia, Kuki, Garo, Reang, Naotia, Lushai, Halam, Mag, Chakma

Table 4: Tribes involved in the shifting cultivation in Northeast India
Source: Satapathy and Sarma 2002: 124

The present day shifting cultivation in Northeast India, (Roy, 1981; Medhi, 1983; Sharma, 1990), often related to the Neolithic agricultural system, may be as an adaptation strategy of the Neolithic people of this area. As we know, Northeast India has a hilly terrain which provides limited areas for wet-land valley-cultivation of rice. The possible flood activities of the major rivers ultimately may have led the Neolithic population to adapt a new strategy for the cultivation of rice in the hilly tracts. Simultaneously, the domestication process of other edible plants such as tubers, roots and fruits may occur, and likewise, the primitive shifting cultivation may be adopted as a regular practice among the Neolithic population.

Roy (1981: 193-221) did an elaborate study on the types of artifact from both prehistoric and modern day slash and burn cultivation. He studied the agricultural implements from the Neolithic sites of the Garo hills, and the tools of ethnographic contexts. According to Roy, the tools from the Neolithic sites and the ethnographic situation at Garo Hills reveals homogeneity in function. Looking at the tools, it can be presumed that they were used for primitive type of agricultural practice resembling the present day shifting cultivation among the tribal populations. This kind of agriculture is insufficient for subsistence as we have noticed among the shifting cultivators. So, the exploitation of the locally available flora and fauna might be very important for purpose of consumption. The collection of various wild plants and both small and big game hunting and fishing (which is very common among the shifting cultivators), might have been the subsidiary subsistence activities of the Neolithic inhabitants of Northeast India. The future research in this aspect of shifting cultivation will be very useful for understanding the relationship between man and environment during the Neolithic period in this region.

Presently, we see a variety of processes of rice cultivation in Northeast India. These are: lowland valley cultivation, shifting cultivation in the hilly areas, and terrace cultivation that is practiced by different groups of people with suitable ecological conditions, with differences from region to region. The wild variety of rice, *Oryza rufipogon* (*Udi dal*), is considered to be the wild progenitor of most of the domesticated varieties of rice. Interestingly, types of wild rice such as *O. rufipogon* and *O. officinalis* grow in the field spontaneously without any human processing in the domesticated paddy field. The domesticated variety must have evolved from wild rice through the continuous process of cultivation. Due to the constant care by the cultivators, the “wild” characteristics of rice are lost over the course of time.

In order to investigate the various aspects of wetland rice cultivation, a small-scale field survey was carried out (Hazarika in press) in the Khotiakholi village of Bokakhat subdivision of the Golaghat district of Assam. Villagers cultivate different varieties of rice in this area. Almost every household cultivates at least 10–15 varieties of rice that are not necessarily similar in each household. There are two main types: (a) *Bhator dhan* which is for preparing lunch and dinner and is mostly used as meal, and (b) *Jalpan dhan*, which is for breakfast and light food, and for preparing varieties of *pitha* (cake). The villagers mainly depend on the rice cultivation, which consists of three different processes viz.: *Sali kheti*, *Ahu kheti* and *Bao kheti*. *Sali kheti* is most commonly practiced and it is a process of transplanting the young paddy seedlings. The two above-mentioned types of rice viz.: *Bhator Dhan* and *Jalpan Dhan*, are cultivated by this process. The rice varieties cultivated by this process are considered to derive from the wild rice *Oryza officinalis* (Bakalial, 2004). This *Oryza officinalis* is very common in the swampy areas of the village. Due to constant cultivation as a result of the domestication, these species' may have undergone morphological and qualitative changes. These occur due to the direct influence of human strategies to ensure constant care of the rice. *Bao kheti* is a process where the seeds are sown only once and no transplantation of seedlings is necessary. The seeds are sown in a ploughed field with standing water and the crop is harvested almost at the same time with the *Sali kheti* around the month of *Aghon / Puh* (November / December). *Ahu kheti*, involves a very short time span—a maximum of four months between sowing and harvesting. In the month of *Fagun* and *Sot* (February / March), the sowing of *Ahu* seeds is done in the ploughed field. No transplantation of the seedlings is needed but weeding of the field is done by a tool called the *Bindha*. Weeding is vital due to the constant reappearance of wild grass like plants in the field. The crop is harvested around the month of *Ahar* (June / July), and the fields are available for the forthcoming *Sali kheti*. Some of the important varieties of *Ahu Dhan* are *Ikora guni*, *Ronga Daria*, *Sarai Tuni*, *Dungura Kola*, *Lota Guni*, *Boga Ahu*, *Isojoy*, *Kavay Guni* etc. Though the yield of *Ahu* and *Bao kheti* is smaller compared to the *Sali kheti*, these practices of rice cultivation are essential in this area. Wild rice like, *Oryza rufipogon* (*udi dal*), cannot be used for consumption purposes because the seeds fall down before they ripen and hence the villagers use it as fodder for the cattle and buffalo. For our purpose of archaeological correlation, studying the various processes are important to understand probable early human manipulation of rice cultivation. With only primitive technological advancements, the way people tried to cultivate rice in the remote past can be

compared/linked with the present day strategies of rice cultivation which are adapted to suit the climatic conditions like heavy flood activity. The three systems practiced in this area with the various steps and times are given below:

Processes	Time of ploughing	Time of Sowing	Time of Transplanting	Time of Weeding	Time of Harvesting
Sali kheti	March / April	May / June	July / August	Not necessary	November/December
Ahu kheti	January/February	January/February	Not necessary	April	May/June
Bao kheti	February/March	March / April	Not necessary	Not necessary	November/December

Table 5: Table showing three distinct methods of rice cultivation.

The *Ahu* and *Bao* process do not require much care as compared to the *Sali kheti*. Transplantation is not necessary in these two processes. It can be presumed that these methods are a continuation of primitive cultivation techniques, which neither requires an advanced technology or time for labouring in the fields. *Bao dhan* (rice) has the capacity to grow in deep water and thus it is very adaptable to flooding activities and flood plains. Various types of *Bao Dhan* are found in this area: namely *Amona Bao*, *Negheri Bao*, *Kholihoi Bao*, *Doghong Bao*, *Son Bao*, *Adolia Bao*, and *Nal Bao*. Some of the wild varieties of *Bao Dhan*, namely *Kukurmua*, *Udi Bao* etc., grow naturally along with domesticated rice.

The *Bihu* festival celebrated in Assam is mainly connected with the various stages of rice cultivation. Three *Bihus*, namely *Bohag Bihu*, *Kati Bihu* and *Magh Bihu*, are related to the three distinct stages of rice cultivation: sowing, protecting the growing seeds and weeding and harvesting, respectively. The connection of the *Bihu* festivals with the paddy cultivation may lead us to postulate an early date for this festival, which may have originate with early paddy cultivation.

The scant evidence of ceramics during the Neolithic culture of Northeast India can be explained by using ethnographic parallels. These simple communities use various bottle gourds and bamboo tubes as vessels/containers for storage purposes. Easily available raw materials like bamboo can be used for various purposes such as for making containers to store grains and vegetables. The production of pottery may have been small because the Neolithic people used other materials. Cord-impressed hand made pottery traditions is seen among the present day potter communities of Northeast India. It is a living tradition among the Oinam, a Mao Naga tribe in the Senapati district of Manipur. They are still in a very primitive technological stage and make pottery using a very crude technique of moulding and hand-beating methods (Singh, 1998-99: 60-64). The Cord-marked pottery from the archaeological sites of Manipur can not be compared with those of the modern day pottery, except in certain aspects of manufacturing technology. The Nagas make handmade pottery without the use of wheel. Pots are produced by a few villages notably Viswema and Khuzama of Angami tribe; Thenyezuma, Runguzuoma and Kholazumi of Chakhesang tribe; Tseminyu village of Rengma tribe; Peron and Puihua villages of Zeliang; Changki, Japo and Longsem dang villages of Ao tribe; Tokikehimi and a few other villages of Sema tribe; Wokha and several other villages of Lotha tribe; Kongsang, Yali and Nakshao villages of Chang tribe; Wakching, Shiyong, Leangha, Chui, Choshachinguyu, Longkai, Sheanga and

Tangjen of Konyak tribe; Nguro and Lungmutra of Sangtam tribe; Noklu, and Sao villages of Khemungam tribe, and a considerable number of villages in Phom area (Alemchiba 1967). Until recently, the wheel thrown pottery was unknown to the Khasi people of Meghalaya. Pottery today is used for various purposes such as storing, cooking and making rice beer by modern communities. The study of this handmade simple pottery among these communities can reveal behavioural aspects of the Neolithic culture.

Site Preservation

The occurrence of the Neolithic tools on the surface of the present shifting cultivation fields in the regions of Northeast India, especially in the Garo hills (IAR 1979-80), indicates the site formation process and the possible use of the associated tools. Generally, as the term indicates shifting cultivation refers to a constant shifting of the fields every couple of years. The tools are left in the fields after being used during the cultivation process and the fields then undergo several natural and cultural disturbances. Historical as well as situational records have revealed that the surface of the excavated site of Parsi-Parlo in Arunachal Pradesh has suffered slash and burn cultivation at least twice since its ancient use. The predominant use of the Neolithic axes in the primitive agricultural system of Northeast India can be presumed as the site of Rangru Abri (IAR 1966-67) in Garo hills yielded over 300 stone tools and a large number of potsherds during a partial search of the cliff and the slopes. The artifacts collected at the sites consisted of Neolithic stone axes and adzes, grinding stones and pottery, all found on the surface of hill tops which were cleared for shifting cultivation. These were apparently exposed due to erosion of the soil. Thus, the formation process of the Neolithic site of Northeast India have undergone different kinds of disturbance activities, particularly, the cultural disturbance process.

Presumably, the rice cultivated at the early Neolithic sites in the middle Yangtze was grown in wet swampy fields, close to lakes and river banks (Bellwood, 2005: 122) and hence if we believe in the agricultural expansions along with language dispersal, it is quite likely that the people who migrated to Northeast India also established their agricultural activity in the wet swampy fields near the river banks. As we know, today rice cultivation is mainly done in these kinds of areas in the Brahmaputra and Barak valley and its tributaries, which are very fertile and suitable for agriculture. Though we do not have much evidence for the Neolithic activity from the low land fields of river banks, it is not impossible that these areas were inhabited by the Neolithic communities.

Subsistence Strategies

The discovery of artefacts related to the subsistence activities at the site of Daojali Hading (IAR 1962-63; Sharma 1966: 99), is very important. The artifacts include twenty two grinding stones, four querns, and six mullers with the Neolithic celts made of the locally available raw material which definitely indicates food processing techniques. These objects were probably used for grinding food grains during the Neolithic period as similar equipments are still used by the people of Northeast India. Though excavation has not

revealed any organic remains of plants, we cannot ignore the fact that the early inhabitants of this site were involved in some kind of cultivation, most likely rice. Looking at the landscape around the periphery of the site and taking into account various other physiographic features, it can easily be surmised that the inhabitants were practicing the primitive form of agriculture i.e. shifting cultivation. The present Karbi population in the area still practices shifting cultivation. Stone axe or the shouldered celts found at the site in the Neolithic strata resemble the present day iron axes being used by the Karbis of the area. Such continuation is also observed in other important sites of the region, such as the Garo Hills, and Sarutaru, which lead us to the conclusion that the Neolithic people of the region were practicing a kind of primitive agriculture not necessarily identical to the present day shifting cultivation. Looking at the material similarities in a behavioural perspective, we can definitely state that the present day tribal population of the region inherited aspects of the early farming communities. Therefore, a corroboration of the archaeological data with the ethnographic analogy can give us solid base for the understanding of the various adaptation strategies and man-land relationships. We have yet to discover the evidence of rice agriculture in the lowland area hence we cannot make any strong inference about the low land valley cultivation. On the basis of circumstantial evidence such as migration, linguistic features, and archaeological evidence of stone tools and pottery, we can presume that early agriculture in the low-land areas were also present in Northeast India.

Concluding Remarks

Due to the strategic geographical location of Northeast India which connects the East and the South Asian regions, cultural affinities can be observed in the material cultural objects since prehistoric times. These cultural affinities during the Neolithic period in Northeast India are basically based on the celt making tradition, Cord-impressed pottery, and rice cultivation. These are the characteristic features of the Neolithic culture which connects Northeast India with Chinese Neolithic and Southeast Asian Neolithic cultures. Also, we find some similarities of these features with the Neolithic cultures of Eastern and Central India to some extent. The strong influence of the Neolithic culture of China and Southeast Asia is one of the prominent factors in the origin and development of the Neolithic culture of Northeast India, especially for the origin of pottery and agriculture. Though we are in want of absolute dates for the origin of pottery and agriculture in this region, we can presume that the cultural elements possibly entered Northeast India from the Neolithic cultures of China and Southeast Asia. This presumption is based on three aspects; the migration of people, linguistic relationships, and archaeological affinity. The time period of the migration of the Tibeto-Burman and Austro-Asiatic language families of Northeast India is not known, but on the basis of the archaeological affinity, it can be correlated to the expansion of the culture and migration of the people of China and Southeast Asia during the Neolithic period.

The Cord-impressed pottery predominantly found in Northeast India has the earliest antiquity in East Asia and Southeast Asia. So, it is quite likely that the pottery tradition comes from these areas in the form of acculturation, assimilation or diffusion. Without the presence of absolute dates on the pottery of Northeast India, it will merely be a conjecture to provide a

date of origin. However, we can definitely cite the influence of the Neolithic cultures of East Asia and Southeast Asia as to the origin of pottery in Northeast India. The shouldered celts of all varieties, miniature quadrangular celts, and perforated celts of Northeast India again relate its antiquity with the East Asian and Southeast Asian countries. The lesser known Neolithic culture of Northeast India was probably influenced by prominent Neolithic cultures of surrounding regions.

Rice cultivation is one of the main characteristic features of East Asian and Southeast Asian Neolithic cultures. The most recent theories on the origins of rice cultivation based on archaeological data, indicate that it originated in East Asia particularly in the Yangtze basin of China around 10,000 years B.P. In the Ganga valley of India, the earliest date for rice cultivation has been cited at around 8,000 years B.P. Hence if we presume that origin of rice cultivation in Ganga valley was due to the cultural influence of Yangtze basin, we can predict a date for the origin of rice in Northeast India as it lies between China and the Ganga valley. Another possibility is the indigenous origin of rice cultivation in the Ganga valley which is a zone of greater Eastern India including Northeast India. We can not ignore the possibility that rice cultivation may have originated in this particular region only because of the lack of evidence of rice in northeast India, as most parts of the river valleys have thick alluvium deposits which thereby prevent archaeological exploration at great depths.

The Neolithic sites discovered so far are mainly located near areas of high elevation where shifting cultivation is practiced even today by present day inhabitants and it is likely that the Neolithic people preferred to locate their settlements near land that was away from the natural flood calamity of the big riveres like the Brahmaputra and its tributaries and where agriculture was possible. The distribution pattern of the sites show a preference for the hilly areas of Meghalaya, Karbi Anglong, Arunachal Pradesh, Manipur, and Nagaland especially in the Garo Hills, Khasi Hills, and Naga Hills .

The linguistic similarity between northeast India and East Asia and Southeast Asia reveals an interesting possibility as to the migration of the Austro-Asiatic and Tibeto-Burman language families into Northeast India during the Neolithic time. This indicates strong connections between East Asian and Southeast Asian Neolithic cultures with their counterparts in Northeast India. The expansion and multiplication of the rice farming communities of these nearby east Asian regions ultimately introduced rice cultivation into Northeast India. Though, we have no adequate data for the correlation of rice agriculture with the two early inhabitant linguistic groups: viz. Austro-Asiatic and Tibeto-Burman, still, on the basis of circumstantial evidence, it can be inferred that these two groups of people might be responsible for the introduction of rice in Northeast India. On the basis of the vast amount of Tibeto-Burman language groups presently inhabiting Northeast India, that outnumber the Austro-Asiatic group; it is more probable to correlate the former with the early farming communities of the region. Thus, extensive scientific multi-disciplinary surveys are needed in order to put forth concrete evidences regarding the Neolithic culture of this region. The cultural process should be highlighted in relation to the environment and the ecological background, to which the Neolithic people have adapted their life style.

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References

- Agrawal, D.P. 2002. The Earliest Agriculture and Pottery in South Asia, In *The Origins of Pottery and Agriculture* (Y. Yasuda Ed.), Japan: International Research Center for Japanese Studies.
- Aier, A. and S. Changkija. 2003. Indigenous Knowledge and Management of Natural Resources, In *Anthropology of Northeast India* (T.B. Subba and G.C. Ghosh Eds.), New Delhi: Orient Longman.
- Ashraf, A.A. 1990. *Prehistoric Arunachal: A study on Prehistory and Ethnoarchaeology of Kamla Valley*. Itanagar: Directorate of Research, Government of Arunachal Pradesh.
- Assam State Gazetteers: Sibsagar District*, Shillong: Government of Assam, 1967.
- Bakalial, D. 2004. Banaria Dhan (In Assamese), *Prantik*.
- Bayard, D. 1970. Excavation at Non Nok Tha, Northeast Thailand, *Asian Perspective* XIII.
- Bellwood, P. 2005. *First Farmers: The Origins of Agricultural Societies*. UK: Blackwell Publishing.
- Bloch, T. 1906-07. Conservation in Assam, *Annual report of A.S.I.* 17-28.
- Chatterjii, S.K. 1970. *The Place of Assam in the History and Civilization of India*. Guwahati: Gauhati University.
- Dani, A.H. 1960. *Prehistory and Protohistory of Eastern India*. Calcutta: Firma L. Mukhopadhyay.
- Dhavlikar, M.K. 1973. Archaeology of Gauhati, *Bulletin of the Deccan College Post-Graduate and Research Institute* 31-32: 137-49.
- Driem, G.V. 1998. Neolithic Correlates of Ancient Tibeto-Burman Migrations, In *Archaeology and Language II: Archaeological Data and Linguistics Hypotheses* (Roger Blench and Mathew Spriggs Eds.), London and New York: Routledge.
- Ghosh, A.K. 1978. What Happens When Cultural and Biological Adaptability of Man Fails etc., In *Cultural and Biological Adaptability of Man with Special Reference of Northeast India*. Dibrugarh: Dibrugarh University.
- Glover, Ian C. 1985. Some Problem Relating to the Domestication of Rice in Asia, In *Recent Advances in Indo-Pacific Prehistory* (Misra, V.N. and P. Bellwood Eds.), 265-74. New Delhi.
- Gorman, C. 1970. Excavations at Spirit Cave, North Thailand: Some Interim Interpretations, *Asian Perspectives* 13: 79-108.
- Goswami, M.C. and A.C. Bhagabati. 1959 a. A Preliminary Report on a Collection Neolithic Tool Types from Western India, *Man in India* 39 (4).
- Goswami, M.C. and A.C. Bhagabati. 1959 b. A Typological Study of Shouldered Celts from Rengchangre (Garo Hills), *Journal of the Gauhati University* 10(2): 17-24.

- Grist, D.H. 1975. *Rice*. London and New York: Longman.
- Harris, D. 1973. The Prehistory of Tropical Agriculture: An Ethno Ecological Model, In *The Explanation of Culture Change: Models in Prehistory* 397-417.
- Hazarika, M. 2006. Understanding the Process of Plants and Animal Domestication in Northeast India: A Hypothetical Approach, *Asian Agri-History* 10(3).
- Heine -Geldron. R. von. 1945. Prehistoric Research in Netherlands Indies, In *Science and Scientists in the Netherlands Indies* (P. Honig and F. Verdoorn Eds.), New York.
- IAR: *Indian Archaeology: A Review 1962-63*. Annual Bulletin of Archaeological Survey of India, New Delhi.
- IAR: *Indian Archaeology: A Review 1966-67*. Annual Bulletin of Archaeological Survey of India, New Delhi.
- IAR: *Indian Archaeology: A Review 1967-68*. Annual Bulletin of Archaeological Survey of India, New Delhi.
- IAR: *Indian Archaeology: A Review 1979-80*. Annual Bulletin of Archaeological Survey of India, New Delhi.
- Kajale, M.D. 1974. Ancient Grains from India, *Bulletin of the Deccan College Post-Graduate and Research Institute* XXXIV (1-4): 55-74.
- Medhi, D.K. 1980. *Quaternary History of the Garo Hills, Meghalaya*. Unpublished Ph.D. Dissertation. Pune: University of Pune.
- Medhi, D.K. 2003. Potters and Pottery of the Assam Region, In *Earthenware of Southeast Asia* (John Miksic Ed.), Singapore: University press.
- Medhi, D.K. 1983. The Garo and Their Material Culture: A study Based on Ethnoarchaeological Approach, *Man and Environment* 7: 70-77.
- Mills, J.P. 1933. Assam as a Field of Research, *Journal of Assam research society* 1(1): 3-6.
- Nene, Y.L. 2001. Mango through Millennia, *Asian Agri-History* 5 (1): 39-67.
- Paddayya, K and P. Bellwood. 2002. South and Southeast Asia, In *Archaeology: The Widening Debate* (Barry Cunliffe, Wendy Davies and Colin Renfrew Eds.), Oxford University Press.
- Paddayya, K. 2002-2003. The Expanding Horizons of Indian Archaeology, *Bulletin of Deccan College Post-Graduate and Research Institute* 62-63: 291-309.
- Pal, J.N. 1987. Neolithic Cord-impressed Ware of the Vindhyas, *Man and Environment* XI: 61-65.
- Pal, J.N. 1990. The Early Farming Culture of Northern India, *Bulletin of Deccan College Post-graduate and Research Institute* 49: 297-304.
- Prasad, V., M. Sharma, A. Saxena, I.B. Singh. 2004. *Fossil Diatom Assemblages from Lahuradewa Lacustrine Sediments as Clues for Human Activity*, (Abstract) Paper Presented in the Joint Annual Conferences of IAS, ISPQS and IHCS and National Seminar on the Archaeology of the Ganga Plain, 28-31 December, 2004.
- Rao, S.N. 1973. The Neolithic Culture of Sarutaru, Assam, *Bulletin of the Department of Anthropology* 2: 1-9, Dibrugarh :Dibrugarh university.
- Rao, S.N. 1977. Excavation at Sarutaru: A Neolithic Site in Assam, *Man and Environment* 1: 39-42. ISPQS.
- Roy, N.N. 1991. The Tribes of Northeast India- A Living Museum of Man, *Bulletin of Assam State Museum* XII. 73-81.
- Roy, S.K. 1981. Aspect of Neolithic Agriculture and Shifting Cultivation, Garo Hills, Meghalaya, *Asian Perspective* 14(2): 193-219.
- Sankalia, H.D. 1974. *Prehistory and Protohistory of India and Pakistan*. Pune: Deccan College.
- Satapathy, K.K. and B.K. Sarma. 2002. Shifting Cultivation in India: An Overview, *Asian Agri-History* 6(2):121-139.
- Sauer, C.O. 1952. *Agriculture Origins and Dispersals*. New York: American Geographical Society.
- Sharma, D.P. 2004. Prehistoric Cultures of Northeast India and Southeast Asia: A Comparative Study, In *Indian Prehistory and Protohistory: Recent Studies* (Proceeding of R.B. Foote Memorial National Seminar (1995) Directorate of Archaeology and Museum. Andhra Pradesh.
- 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. 1972. *Prehistoric Archaeology: Stone Age Cultures of Garo Hills, Meghalaya*, Unpublished Ph.D. Thesis, Guwahati: Gauhati University.

- Sharma, H.C. 2003. Prehistoric Archaeology of the Northeast, In *The Anthropology of Northeast India* (T.B. Subba and G.C. Ghosh Eds.), New Delhi: Orient Longman.
- Sharma, M., V. Prasad, A. Saxena, I.B. Singh. 2004. *Microscopic Charcoal in Lacustrine Sediments of Lahuradewa, as Evidence of Human Activity*, (Abstract) Paper Presented in the Joint Annual Conferences of IAS, ISPQS and IHCS and National Seminar on the Archaeology of the Ganga Plain, 28-31 December, 2004.
- Sharma, S. 2001. *Cultural Affinities Between Southeast Asia and Northeast India During Prehistoric Times with Special Reference to Ganol and Rongram Valleys in Meghalaya*, Unpublished Ph.D. Thesis, Pune: Deccan College.
- Sharma, T.C. 1966. *Prehistoric Archaeology of Assam - A Study of the Neolithic Culture*, Unpublished Ph.D. Thesis, London: University of London.
- Sharma, T.C. 1990. The Prehistoric Background of Shifting Cultivation, In *Shifting Cultivation in Northeast India* (D.N. Majumdar Ed.), Guwahati: Osmos Publications.
- Sharma, T.C. 1991. Prehistoric Situation in Northeast India, In *Archaeology of Northeastern India* (Singh, J.P. and G. Sengupta Eds.), New Delhi: Vikas Publishing House.
- Sharma, T.C. 1967. A Note of the Neolithic Pottery of Assam, *Man* 2(1): 126-128.
- Singh, O.K. 1983. *Archaeology in Manipur; Naba Chik: A Stone Age Site in the Manipur Valley*. Imphal: State Archaeology, Government of Manipur.
- Singh, O.K. 1993. *Stone Age Culture of Manipur*, Unpublished Ph.D. Thesis, University of Manipur.
- Sonowal, M. 1987. A Brief Survey of Investigation into the Prehistoric Archaeology of Northeast India, *Journal of the Assam Research Society*.
- Sundara, A. 1985. Cultural Ecology of the Neolithic in India, In *Recent Advances in Indian Archaeology* (S.B. Deo and K. Paddayya Eds.), Pune: Deccan College Post-Graduate and Research Institute.
- Vavilov, N.I. 1949. The Origin, Variation, Immunity and Breeding of Cultivated Plants, *Chronica Botanica* 13.
- Yasuda, Y. 2002. Origins of Pottery and Agriculture in East Asia, In *The Origins of Pottery and Agriculture* (Y. Yasuda Ed.), Japan: International Research Center for Japanese Studies.