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Revisiting Early Medieval Upper Brahmaputra Valley of Assam: A Study through Archaeology and Palaeogeomorphology

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Abstract: *The state of Assam is situated in the extreme eastern part of India. It has a long and rich history of state formation from the 5th century CE onward. In the conventional historiography of state formation of this region, the eartern part of Assam which is also known as the Upper Brahmaputra valley, believed to witness this process only after the emergence of states like the Chutia, Kachari and the Tai-Ahom kingdom in the medieval period roughly from 13th century CE. However, a closer scrutiny of the archaeological remains in the Upper Brahmaputra valley along with the use of Paleogeomorphology and Paleo-seismic data indicates that this region experienced the extension and continuity of socio-political and economic traditions that had originated well before the establishment of the Chutia, Kachari and the Tai- Ahom kingdom during the 13th and 14th centuries. Drawing on a multidisciplinary approach and locating the distribution of archaeological ruins of sacred spaces in various part of the Upper Brahmaputra valley, the paper tries to argue that prior to the 13th century CE, contrary to the understanding of the existing historiography, this region experienced socio-political formation and introduction of wet rice cultivation. Viweing from this perspective, the paper argues that the emergence of states in the Upper Brahmaputra valley during the 13th and 14th centuries can be seen as a continuation of earlier tradition rather than a disjunction.*

Keywords: *Upper Brahmaputra Valley, Archaeological remains, Sacred space, State formation, Landed intermediaries.*

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Introduction

The state of Assam is situated in the extreme eastern part of India. Present-day Assam comprises the Brahmaputra and Barak valleys along their adjoining hill regions. The Brahmaputra valley, in particular, has long been conceptualized as comprising Lower, Central and Upper segments, each marked by distinctive cultural configurations and nuanced linguistic variations (**Fig. 1**). While, in the ancient period, processes of state formation were predominatlyconcentrated in the Lower and Central Brahmaputra valley, the medieval period witnessed a significant shift in political configurations. In this period, a number of polities emerged in the Upper Brahmaputra valley, which went on to dominate the political and socio-economic landscape of Asam until the advent of the British colonial rule in 1826 CE. In the conventional historiography of state formation of this region, the eastern part of Assam which is also known as the Upper Brahmaputra valley, believed to witness the state formation process only after the emergence of states like the Chutia, Kachari and the Tai-Ahom kingdom in the medieval period roughly from 13th century CE (Gait, 1906: 38-40; Guha, **2014 (1991):74-118;**Baruah, 1995, Barpujari (ed.), 1994 and Guha, Dec. 1983: 3-34).

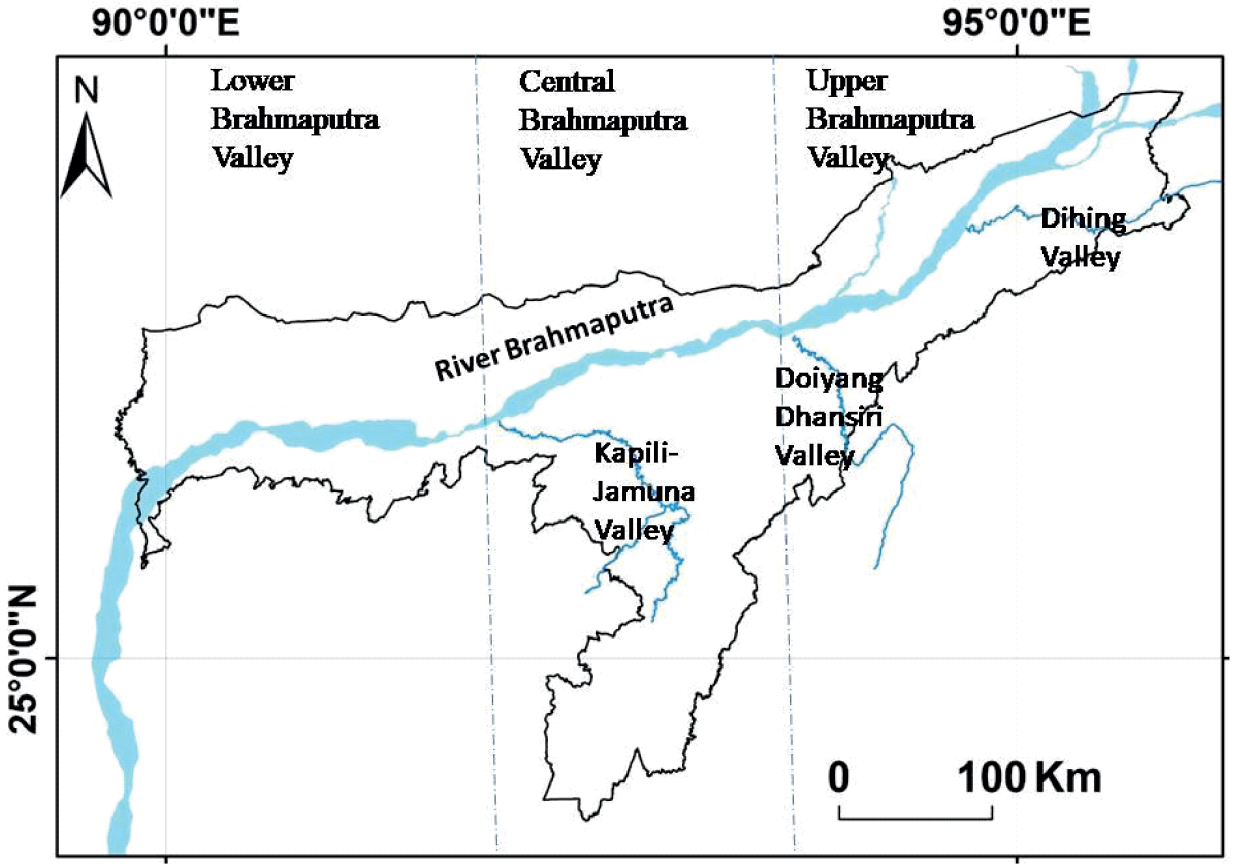


Fig. 1: Map of Brahmaputra Valley

However, a closer scrutiny of the archaeological remains in the Upper Brahmaputra valley along with the use of Paleogeomorphology and Paleo-seismic data indicates that this region experienced the extension and continuity of socio-political and economic traditions that had originated prior to the establishment of the Chutia, Kachari and the Tai-Ahom kingdom during the 13th and 14th centuries. Drawing on a multidisciplinary approach and locating the distribution of archaeological ruins of sacred spaces in various part of the Upper Brahmaputra valley, the paper tries to argue that prior to the

13th century CE, contrary to the understanding of the existing historiography, this region experienced socio-political formation and introduction of wet rice cultivation. Viweing from this perspective, the emergence of states in the Upper Brahmaputra valley during the 13thand 14th centuries can be seen as a continuation of earlier tradition rather than a disjunction.

States in Early Assam

The earliest known political entity in Assam is generally identified with the legendary kingdom of Pragjyotisha-Kamrupa, which, according to tradition, was founded by Naraka with its capital at Pragjyotisha. This kingdom is believed to have existed before the emergence of the Varman dynasty, whose founder, Pushyavarman, established the first historically documented state in Assam (Barpujari 1990: 9–24; Bhattacharjee 2004: 1). While the Naraka tradition occupies a central place in the historical imagination of early Assam, scholars such as Edward Gait and K. L. Barua have also drawn attention to an even earlier phase in the evolution of Pragjyotisha-Kamrupa. Their works suggest that the history of the region cannot be understood solely through the Naraka tradition but should also take into account the rulers and communities that preceded him (Barua 1933 [1966]; Gait 1906).

According to legendary traditions, the earliest ruler associated with Pragjyotisha was MahirangaDanaba. He was succeeded, in direct succession, by Hatak Asura, Sambar Asura, and Ratna Asura. After the rule of these legendary kings, political authority is said to have passed into the hands of Ghataka, a Kirata chief who governed the region until he was defeated and slain by Naraka, the celebrated hero whose exploits occupy a significant place in the Puranic and Tantric traditions (Barua 1933 [1966]: 18). Most scholars regard these early rulers as belonging to non-Aryan ethnic groups and interpret their traditions as preserving memories of the indigenous political and cultural landscape that existed before the rise of Naraka (Barua 1933 [1966]; Chatterji 1954; Kakati 1948; Nath 1949). Nevertheless, despite these references in literary and legendary traditions, there is no reliable historical or archaeological evidence that enables us to reconstruct the political organisation, administrative structure, or process of state formation under Mahiranga, Ghataka, or the other rulers mentioned by Edward Gait and K. L. Barua. Consequently, their reigns remain part of the legendary past rather than verifiable political history.

The earliest literary references to an identifiable political organisation in the region are associated with the rule of Naraka. Indeed, Naraka, his son Bhagadatta, and their successors are repeatedly mentioned as rulers of Pragjyotisha-Kamrupa in a wide range of ancient Sanskrit texts, including the *Ramayana*, *Mahabharata*, *Harivamsa*, *Harsacarita*, *Visnu Purana*, *Markandeya Purana*, *Bhagavata Purana*, and several other works. Among these sources, the *Kalika Purana*, which was compiled in Assam during the tenth and eleventh centuries CE, provides the most elaborate and systematic account of the Naraka tradition and his kingdom (Barpujari 1990: 81). Edward Gait proposed that the descendants of Naraka continued to rule Pragjyotisha-Kamrupa for as many as nineteen generations. Similarly, scholars such as K. L. Barua, P. C. Choudhury, Mukunda Madhava Sharma, Anandaram Barooah, and John Peter Wade have identified the capital of Pragjyotisha-Kamrupa with present-day Guwahati or its immediate surroundings (Barua 1933 [1966]: 9; Borooah 1877 [1971]: 68; Choudhury 1959: 27; Sharma 1978 [2017]: 220; Wade 1927 [1972]: 11).

Although these conclusions are primarily based on literary traditions rather than material evidence, they have significantly shaped scholarly understanding of the political geography of early Assam. Therefore, Pragjyotisha-Kamrupa under Naraka may reasonably be regarded as the earliest known state formation in the region. At the same time, it is important to recognise that this interpretation

continues to rest largely on literary testimony, since no epigraphic evidence has yet been discovered to substantiate or independently verify these literary accounts.

Unlike the largely legendary accounts associated with the earliest phase of Pragjyotisha-Kamrupa, the political history of the region from the fourth to the twelfth century CE is supported by substantial historical evidence. During this period, three major dynasties—the Varmans, the Salastambhas, and the Palas—ruled over Pragjyotisha-Kamrupa, and their political history can be reconstructed from a combination of epigraphic records and literary sources. As Nayanjot Lahiri observes, the political chronology and genealogical succession of these three dynasties can be established with a considerable degree of precision (Lahiri 1991: 62). On the basis of conventional historical evidence, it may be argued that the dynasty founded by Pushyavarman represents the first historically attested ruling house of Pragjyotisha-Kamrupa. The Varman dynasty was later succeeded, despite certain periods of political interruption and transition, by the Salastambha dynasty, which was in turn followed by the Pala dynasty. The genealogies of all three dynasties have been reconstructed by historians primarily from the information preserved in the inscriptions issued by several rulers belonging to these royal houses.

An important characteristic of these inscriptions is that almost all the ruling dynasties claimed descent from the legendary Bhauma-Naraka lineage. Among the inscriptions discovered so far, the Dubi Copper-plate inscription of Bhaskaravarman, a ruler of the Varman dynasty, is the earliest known example. It is also significant that the Naraka legend appears for the first time in three seventh-century records—the Dubi Copper-plate, the Nidhanpur Copper-plates, and the Nalanda Clay Seal of Bhaskaravarman. These epigraphic records occupy a central place in the reconstruction of the political history of Pragjyotisha-Kamrupa under the Varman rulers, as they provide valuable information regarding royal genealogy, political authority, and the ideological foundations of kingship. They remain among the most important primary sources for understanding the emergence and consolidation of the Varman kingdom.

By the time of Bhaskaravarman, Pragjyotisha-Kamrupa had undoubtedly developed into one of the most powerful states in northeastern India and had reached the greatest extent of its territorial expansion. The kingdom possessed a well-organised administrative system, supported by a council of ministers, a graded hierarchy of officials, and a large body of feudatory chiefs who functioned under the authority of the king. At the same time, it was a prosperous state with flourishing economic resources and maintained commercial as well as diplomatic relations with different parts of mainland India, Tibet, and China (Barpujari 1990: 94–121). Although the political centre of these dynasties was located mainly in the Lower Brahmaputra Valley, the present study argues that the administrative institutions, socio-political traditions, and economic practices developed under these ruling houses continued to shape the historical trajectory of the Upper Brahmaputra Valley until the fourteenth century CE. Their influence, therefore, extended well beyond the geographical limits of their principal centres of power and outlasted the decline of their direct political authority.

Early medieval socio-political tradition in the Upper Bharmaputra valley

In the conventional historiography of state formation in Assam it has often been argued that the Upper Brahmaputra valley remained isolated from that state formation process of Assam which started with the establishment of the Varman dynasty in the 5th century CE. It is also commonly postulated that states emerged in this part of Assam only after the 13th century CE with the establishment of the Chutia, Kachari and the Tai-Ahom state. Many scholars like Amalendu Guha, H. K. Barpujari, S. L. Baruah among many others subscribe to this view. Most of their writings bear the impression

that Sukapha, the Tai-Ahom prince who came to Assam with his followers in 1228 CE witnessed a political vaccum in the Upper Brahmaputra valleyand with this background of political vaccum the existing historiography locates and analyse the state formation process in the Upper Brahmaputra valley. Amalendu Guha mentions:

> However, nothing was left of the ancient state of Kamarupa at that juncture, except for what fragments remained of it in the form of petty chiefdoms. The petty chiefs were called *bhuyan* many of whom were migrant adventurers from North India. The rule by a *bhuyan* was called *bhuyun-raj* and their temporary confederacies were known as *bara-bhuyan raj*. During the 13th-16th centuries, while these continued to represent the rule over older peasant settlements in western and central Assam, there emerged alongside them also new kingdoms from several tribal bases, then undergoing a process of politico-economic transformation. These kingdoms did not represent mere dynastic changes in an ongoing political society. Rather, they were almost new state formations in a seemingly political vacuum (Guha, Dec., 1983:10).

Guha tries to show the emergence of the new kingdoms from the wombs of tribal chiefdoms. However, contradicting his own argument in the subsequent part of his paper he states that:

> The political heritage of ancient Kamarupa had not left Upper Assam totally untouched. After its eclipse, though the south-eastern part of Upper Assam had lapsed into retarded conditions, the fragmented political structures incorporating that tradition still loomed large in the form of petty chiefdoms (*bhuyan- raj*) in the vicinity. It was under such circumstances that the Ahoms started building a state system of their own in the easternmost extremity of the Brahmaputra Valley. They had therefore some building blocks even there to pick up and start with. Later, as they expanded southward and westward, they became increasingly exposed to this heritage and to the contemporary Turko-Afghan and subsequent Mughal influence (Guha, Dec., 1983: 10).

On the one hand, Guha emphasizes the 'political vaccum' confrontated by the Ahoms during the 13th century CE and on the other hand he acknowledges the political influence of ancient Kamrupa/ Assam on the Upper Brahmaputra vally during the same period. This contradiction and his inability to explore the nature of political condition of Upper Brahmaputra vally are duely highlighted by Nayanjot Lahiri (Lahiri, Jun., 1984: 60-69).In her critique to Guha's work, two inscriptions of the 13th century CE – Kanaibarasibua rock inscription and Gachtal stone inscription- are cited(Lahiri, Jun., 1984:61). Both these inscriptions refer to the successful repulsion of the Muslim invasion of Assam. In a state of 'political vaccum', as argued by Guha, during the 13th century CE, these kinds of resistence would not have been possible without a pre-existing political machinery which was strong enough to accumulate surplus production to support an army to defend its territory. Hence, the idea of political fragmentation of the early Assam ruling houses and subsequent emergence of states in the Upper Brahmaputra during the medieval period valley needs further investigation.

The fragmentation of the erstwhile ruling dynasties of early Assam after the disintegration of the Pala dynasty is supported by numerous historical sources. In fact, there are several epigraphical evidenceswhich highlight the fragmentation of centralized political authority from the 9th century CE in Assam (Lahiri, Jun., 1984: 61).From the first half of the 12th century CE, the Pala dynasty fragmentated into several parts leading to a decline of centralized authority. After the reign of Dharmapala, the available five inscriptions discovered till date, are all attributed to different rulers (Sharma (ed.), 2017 (1974): 225-272).It shows the gradual fragmentation and erosion of the centralized authority during that period. However, as rightly observed by N. Lahiri, a closer scrutiny of early medieval Assam shows that sovereignty in actual term was parcellized from 9th century CE. Buttreshingher argument, N. Lahiri cites evidence from the Tezpur rock inscription of Harjaravarman of the Salastambha dynasty where Sri Sucitta had enjoyed military and judicial powers under the overarching lordship of Sri Harjaravarman. Several other *Samantas* or feudal lords are also mentioned in the said inscription who enjoyed similar power and authority. (Lahiri, Jun., 1984: 62)Along with the transfer of military

and judicial powers, from the 9thcentury CE, evidence from land grants shows that revenue collecting rights of the king was also transferred to the donee along with land rights. As pointed out by N. Lahiri, the Nowgong plates of Banamalavarman-II listed a host of rights to be transferred to the donee along with the land rights (Lahiri, Jun., 1984: 62). Hence, all the epigraphical evidence as well as the land grants from the 9th century CE points to the existence of a soverign state where the sovereignty of the king was parcellizedto a group of intermediaries. In a way, the political structure of early medieval Assam can be seen in terms of the concept of 'parcellized sovereignty', as popularized by Burton Stein, where the authority of the soverign king was though acknowledged, but at the same time beneficiaries and intermediaries became autonomous soverign authority in their respective domains (Stein, 1995). In this manner, the core administrative and political machinery attained autonomy without completely breaking from the soverign king during early medieval Assam.

From the 9th century CE there emerged a distinct class of intermidiaries predominantly drawn from the sacerdotal section of Brahmanical Hinduism. This class played a prominent role in spreading not only Brahmanical Hinduism in the region but also helped the penetration of Sanskrit culture among the common people. Inscriptions issued during that period mention names of several districts which bore the influence of Sanskrit language. Districts like Candrapuri (Nidhanpur copper plate inscription), Varasepattana (Uttarbarbil copper plates of Balavarman-III), Trayodasgrama (Bargaon copper plate grant of Ratnapala), Kalanga (Suwalkuchi copper plate grant of Ratnapala), Pujari (Khanamukh copper plates of Dharmapala) etc., indicate the Sanskrit origin of its names (Lahiri, Jun., 1984: 62; Sharma (ed.), 2017 (1978):43, 132, 159, 175 & 228). Similarly, several villages also bore the names of Sanskrit origin which further underline the penetration of Sanskrit among the common people of Assam (Lahiri, Jun., 1984: 62). Hence, this landed class of Brahmin intermediaries had not only enjoyed privileges from the soverign state but also had considerable influence over the village population. Apart from functioning as anadministrative agent to the state, this intermediary class also exerted influence over the socio-religious aspects of the villagers. Viewed from this perspective, from the 9th century CE, the political configuration of Assam had become fairly decentralized and the administration of production vested entirely on the hands of the landed intermediaries who were mainly Brahmins. As argued by N. Lahiri, if the situation became fairly decentralized during early medieval Assam, then any dislocation of the central political authority or decline of the ruling dynasties would have marginal effect on the village economy. Hence, by the time of the establishment of the states like the Chutia, Kachari and Tai-Ahom, the villages of Assam had already an established political and administrative mechanism. Contrary to Guha's argument of 'retarded condition' (Guha, Dec., 1983:10) the newly emerged states, especially in the upper part of the Brahmaputra valley had witnessed an already existing socio-political and economic tradition. There is also epigraphical evidence, as duly pointed out by N. Lahiri, which suggests that Upper Brahmaputra valley was not different to this socio-political and economic formation.

N. Lahiri cites two earliest inscriptions- the NagajariKhanikargaon stone inscription located at Golaghat (Upper Brahmaputra valley) and the Umachal rock inscription of Guwahati (Lower Brahmaputra valley) to further strengthen her argument. Though it is not clear whether both these inscriptions were issued by the same authority, but they belonged to the same period (5th century CE) and both were inscribed in Sanskrit with Brahmi script and similar language variation (Lahiri, Jun., 1984: 64). The spread of Sanskrit to the Upper Brahmaputra valley is also illustrated by the discovery of the Deopani Visnu image inscription, the Sankara-Narayana inscription and the Harihara inscription (Sharma (ed.), 2017(1978): 306-312).Deopani, which is presently located in the Karbi Anglong district of Assam, is a very important archaeological site. In 1905, T. Bloch noticed a standing Visnu image carved in stone in this site. At the back of the Visnu image there is an inscription of four lines in

Sanskrit. Though some letters are now lost, the text was first deciphered by K. N. Dikshit which was later read by P. C. Choudhury. Both Choudhury and Dikshit assign the inscription to 8th and 9th century CE respectively (Sharma (ed.), 2017 (1978):306).Besides this, the other two inscriptions, as cited by N. Lahiri, are also discovered from the same site. All the three epigraphs were issued by the descendents of the Salastambha dynasty. These three inscriptions are important for historical investigation of the socio-economic condition of early medieval Assam, especially for the Upper Brahmaputra valley. The Visnu image inscription states that 'the godedess (Devi) who is in association with Siva (Sthanu) is worshipable for the Sudras, the twice-born classes and women' (Sharma (ed.), 2017 (1978): 309). Thus, it reflects the liberal form of Brahmanical Hinduism in the early medieval Assamese society. Similarly, the Sankara-Narayana inscription 'gives the impression that some chanting of prayers before the consecration of the idol'(Sharma (ed.), 2017 (1978):311).It reflects that the nama-kirtana popularized by the Vaishnavite saint Sankardeva in the 15th century CE that already 'became prevalent in Assam as early as in the 8th century A.D (Sharma (ed.), 2017(1974): 311).The Harihara stone image inscription also recorded 'the tradition of namakirtana, which came to assume a very significant role in the medieval period' (Sharma (ed.), 2017(1974): 312). In the Kapili-Jamuna velley also, which is in central Brahmaputra valley, we witness the similar kind of the penetration of the socio-political and economic tradition of early Assam. Ther are several archaeological sites of sacred spaces, such as, Doboka, Jogajan, Mikirati, Gachtal, Amtala, Gosaijurietc, discovered from this valley (Saikia, 2018: 23353-23359).Moreover, a number of inscriptions are also discovered from Darrang and the Mikir Hills (Lahiri, Jun., 1984: 64). All these epigraphical remains and content of the inscriptions suggest not a disjunction but a continuity of the earlier socio-religious tradition and wet land rice cultivation in the early medieval Assam and the newly emerged dynasties of the Upper Brahmaputra valley did not encounter a political vaccum.

These traditions were carried over by the landed intermediary class and due to its deep-rooted social interaction with the common people, Sanskritic tradition and agricultural techniques prevalent in early Assam continued without the existence of a centralized state apparatus. In this paper, it is argued that the continuity of this tradition can also be seen in the eastern most part of the Upper Brahmaputra valley during the early medieval period. The distribution of archaeological sites of sacred space along both the banks of the Dihing river provides insight into the existence and continuity of the earlier tradition of early Assam. We have located several archaeological ruins of sacred space such as Gelabil, Gaurisagar, Panikhati, Haldibari, Mouramora, Rukmini Garh, PodumPukhuri, Pratima Garh and Borduwaria on both the banks of the river Dihing where new states like the Chutia, Kachari and the Tai-Ahom emerged in the 13th and 14th Century CE. Drawing on a multidisciplinary approach by combining paleogeomorphology, archaeology and Paleo-Seismic data the apper tries to argue that the Upper Brahmaputra valley had already witnessed the spread of Sanskritic tradition and wet land rice cultivation prior to the establishment of these newly formed states. Archaeological remains of sacred spaces throughout this region further suggest the existence of a landed intermediary class with deep rooted social interaction and soverign power.

Literary attestations of early medieval socio-political tradition in the Upper Bharmaputra valley

Contrary to the fact that several archaeological layers of granite sculptures are discovered in the central part of Assam at the south bank of the river Brahmaputra, primarily situated in Nagaon District of Assam, which are mostly dated to the 10th–11th centuries by various authors (Deva Choudhury, 1985:179), no such archaeological remains have been found till date in the eastern part or the Upper Brahmaputra valley of Assam. Since this area consists of alluvial sediments deposited by the Brahmaputra river,

archaeological remains are scarce.As mentioned above, the conventional perspective on the history of state formation in Upper Brahmaputra valley of Assam begins with Sukapha, who entered the Dihing Valley in 1228 CE with his followers from Mong Mao. However, apart from archaeological remains, sporadic literary evidence suggests the existence of a tradition of decentralized state. Moreover, the identification of some granite-based temple ruins strengthens this idea. The paper aims to address this gap and establish the existence and continuity of the earlier socio-political and economic tradition in this region on the basis of archaeological remains of some sacred places. These archaeological remains bear a very strong resemblance to those found in central Assam, suggesting that this tradition may have been an extension of the stratified state of early Assam though in a decentralized way. This assumption is also buttressed by the existence of few historical records regarding the existence of a pre-Ahom political entity in the Dihing valley. Nei Elias, a British diplomat stationed in Mandalay, Burma, collected and translated a Shan chronicle into English in 1875 CE, with the assistance of Raj Singh, a native of the Sivasagardistrict of Assam, who worked as a *Munshi* in Mandalay (NeiElias, 1876:1). According to this chronicle, prior to the arrival of Sukapha, another Shan prince, Sam-Lum-Pha, invaded the Dihing valley and defeated its ruler (NeiElias, 1876: 9).The mention of a ruler in the Dihing valley prior to the coming of Sukapha in the 13th century CE strongly suggests the socio-political apparatus maintained by the landed intermediaries who by that time became completely autonomous with the decline of a centralized state.

Another scholar, Padmeswar Gogoi, in his work cited a medieval chronicle, which stated that the defeated king promised to pay Sam-Lum-Pha an annual tribute of 25 horses, 7 elephants, 24 'vish' (75 kg) of gold, and 200 'vish' (635 kg) of silver. According to the chronicle, the kingdom of the Dihing Valley was known as Mong Weshali Long (Gogoi, 1968: 160).However, there is no mention of a kingdom called 'Mong Weshali Long' in any subsequent documents. When Sukapha arrived, the only inhabitants along the banks of the river Dihing were tribal people (The Morans and the Borahis) without any formation of stratified state (Guha, 1967: 135-157).

According to the *Kachari Buranji*, the second Kachari king, Vikramadityapha, had conquered the Tirap region prior to the arrival of Prince Sukapha. Kachari Buranji mentions:

> His son Vikramdityaphascucceed him as king. He conquered and established Namsang-Borhat as the border (Bhuyan (Edt), 1990 (1936): 9).

In order to reach the Tirap District in present-day Arunachal Pradesh, the neighbouring state of Assam, one needs to follow the river Dihing upstream. Significantly,Namchang is strategically located at the heart of Tirap. It can be conjectured that Vikramadityapha would have had to first subjugate the plain areas of the Dihing Valley, situated in the foothills to conquer Namchang in the hills. It is noteworthy that the name Vikramadityapha is not of Kachari origin; rather, the addition of 'pha' lends it a Kachari flavor. The name Vikramadityapha appears to be an imitation of a Hindu dynasty. This raises an important question that the paper attempts to investigate: was there a Hindu kingdom in the Dihing Valley that extended its presence to Tirap as well? Yet one also needs to remember that the current inhabitants of Tirap District are the Nactes, who migrated to the area from the western slopes of the Patkai Mountains in the 16th century CE (Baruah, 2013 (1991): 42).

Archaeological evidence of socio-political tradition in the Upper Bharmaputra valley during the early medieval period

The presence of scattered ruins of temples made of granite in the alluvial valley provides the strongest support for the presence of this tradition in the Upper Brahmaputra valley prior to the 13th century. Besides the presence of written evidence in the form of ancient chronicles (Gogoi, 1968: 160), the

existence and continuity of the tradition in pre-Ahom Upper Brahmaputra valley is reinforced by the discovery of granite temple ruins in the alluvial valley. These ruins provide tangible evidence of a similarity with the Deopani site and other sites of Lower Brahmaputra valley.

Currently remnants of several ancient granite temple ruins have been reported in the alluvial plains of the Upper Brahmaputra valley which are verified during our field visit. It is also likely that more such sites exist. However, the Brahmaputra river system in Upper Assam has undergone numerous changes in its course throughout historical times. Consequently, much of the ancient temple architecture in the area has been destroyed. Nevertheless, the presence of these temple ruins in the alluvial valley suggests the existence of a political formation which canaccumulate enough wealth to construct such temples. As pointed out by John M. Lundquist, in most of the regions of ancient Asia, building/rebuilding of temples by the state was a part of state formation process (Lundquist, 1982:1).This argument of John M. Lundquist is also relevant for the Brahmaputra Valley.Thus, viewed from this perspective, temple building can be seen as a crucial step for the legitimacy of a state. However, given the context and the decline of a centralized state apparatus in Assam by the end of the 9th – 10thcentry and construction of temples without a strong state at the same time further suggest the existence of an autonomous decentralised entity headed by a landed intermediary class.It is also important to remember the fact that the alluvial valley of the Brahmaputrariver in Upper Assam is one of the most geologically unstable regions in the world (Saikia, Feb. 2020: 3-31).Frequent changes in the course of the river, earthquakes, and the absence of hard bedrock typically hinder permanent temple construction in this area. The absence of hard rock in the Upper Brahmaputra valley further makes the building of stone temples extremely challenging. Therefore, even a modest presence of rock temple architecture in this region may indicate the existence of an economically very strong political entity.

The initial evidence of a pre-Ahom tradition of socio-political and economic tradition comes from the Tirap District in present-day Arunachal Pradesh. The discovery of classical Hindu granite temple architecture in Tirap lends further credibility to the hypothesis of the existence and contunity of this tradition in the Dihing valley. In 2010 CE, a team of archaeologists from the Directorate of Research, Government of Arunachal Pradesh, discovered a large figured granite block on the banks of the 'Jo Rang Jhoin' riverlet, near Barduwaria village in Tirap (**Fig 2**). The classical Hindu architectural design, similar with the Deopani site, featuring the 'Vishwapadma' motif, suggests that this tradition extended as far as the Tirap District (Tada, Dutta &Deori, 2012: 184).



Fig. 2: 'Vishwapadma' motifof Tirap(Courtesy: Nocte Digest)

The second evidence of the remains of an ancient brick temple is discovered at Dibrugarh. The archaeological remains of this temple were first discovered in 2018 CE. The area where the temple was located is now popularly known as *'Mouramora Than'* which is situated on the banks of a paleo-channel of the Dihing River, approximately 21 kilometers southwest of Dibrugarh City, near Khamtighat. The site reveals three distinct archaeological layers. The first layer features finely cut granite sculptures (Fig.3), the second layer comprises crude sandstone sculptures (Fig. 4), and the third layer consists of brick architecture (Fig. 5).

By employingOptically Stimulated Luminescence (OSL) dating techniques the ageof the temple especially the brick structure, is conclusively dated back to the 14th centuryCE (Saikia, at el 2024:6271).However, some reworked old bricks of 11th century were also incorporated into the temple's construction. Dr. Manoranjan Dutta attributed the granite sculptures to the 10th-11th century (Dutta, 2012: 151-154)whereas Dr. NavajitDeori dated them to the 8th-9th century (Deori, 2023:58). These sculptures, exhibiting Gupta and post-Gupta influences, are currently preserved in a nearby shed.



Fig. 3: First Layer of MouramoraThan (10th-11th Century)



Fig. 4: 2nd Layer of MouramoraThan (Not dated yet)



Fig. 5: 3rd Layer of MouramoraThan (14th Century)

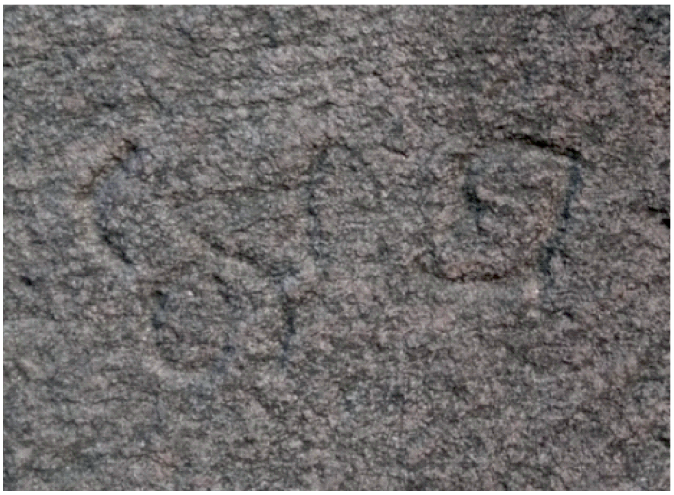


Fig. 6: Mouramora rock inscription

Interestingly, a rock inscription is also discovered in the site (**Fig. 6**). Though the full text of the inscription is in a very bad state, yet one word has been deciphered as 'nopora' by Bhaskar Bardoloi. Notably, 'nopora' is the Prakrit term for 'nupur', meaning ‘anklet’ or 'bracelet’(Bordoloi, 2020: 321). It is important to underline the point that the existence of granite structure dating back to the 11th Century CE and the similarity that it exhibits with other early medieval archaeological sites of central Asam and Deopani strongly points to the ability of a class of landed intermediary to embark on massive construction work without the existence of a centralized state apparatus.

The *Mouramora Than* temple was constructed partly from granite and partly from hard sandstone. Significantly, a small fragment of hard sandstone from the temple is recovered, allowing for the preparation of a slide. Geological examination of the slide in the laboratory of Jagannath Barooah University confirmed that the sandstone is of the Barail Formation. However, the granite poses a more significant problem.Its origin remains uncertain as granite is not indigenous to the alluvial valley of Upper Brahmaputra valley. The lack of broken granite pieces hindered further examination in this matter. Nevertheless, given the absence of granite in the surrounding area, it can be inferred that the temple's builders possessed significant financial or technological resources, enabling them to transport granite blocks from a distant location.

Additionally, there are some other rock sculptures within the Dihing-Brahmaputra valley, specifically in the Khowang area are also found. Khowang is situated 26 kilometers south of Dibrugarh

city and merely 5 kilometers from the present Burhi-Dihing River. These sculptures are located in Khowang Tea Estate, Khowang (Fig 7).



Fig. 7: Meditating Vishnu and 'Chimera' of Khowang (Photo: Nabin Burhagohain)

Experts have identified one of the sculptures of this site as a 'meditating Vishnu' (Dhyani Vishnu) and the other as a 'Chimera'. The remaining sculptures are yet to be identified. Although the granite and sandstone sculptures themselves remain undated, another breastfeeding female idol discovered in the Khowang area, now preserved in the Jorhat District Museum, has been dated to the 11thcenturyCE. (Dutta, 2012, p.153)

It is well established that Sivasagar, a nearby place to these two prominent sites in Mouramora Than and Khowang, and its surrounding areas served as the primary hub of the Ahom Kingdom during its heyday. The region is also home to numerous brick temples and architectural structures built by the Ahom kings. Notably, excavations beneath at least two of these temples in Sivasagar have uncovered ruined stone temple structures (Fig. 8). This discovery was made during the renovation of the Gauri Sagar Siva Temple and the Barpatra Temple in Kalugaon. According to the preliminary findings, the temple's plinth structures date back to the 11thcentury CE.

Another example of the similar ruins of sacred space is the 'idol of Kalia Gosai' housed at Narasimha Satra in Majuli in Upper Assam. This idol is a granite representation of Lord Vishnu. According to local people, originally, the idol was situated on the banks of Panikhaiti Bill, a lake in the area. In 1905 CE, the idol was relocated to Narasimha Satra before the site was eroded by the Brahmaputra river (Interview with Dilip Phukan, local learned resident, 2025). The existence of this granite idol serves as evidence of a temple near Panikhaiti Lake in Majuli.

Furthermore, remnants of another granite temple have been discovered in the Gelabill area of Dergaon in upper Assam (Fig. 9). The figured granite blocks that comprise this structure are remarkably large, sparking curiosity about the logistics of transporting these massive blocks from their quarry site to the temple location. The sheer scale of these blocks raises questions about the engineering and technological capabilities of the people that constructed this temple, as well as the organizational and labor resources required to accomplish such a feat.



Fig. 8: Figured Rock bricks found underneath of Gaurisagar Siva Temple (Photo: Nabin Burhagohain)



Fig. 9: Gelabil-Dergaon Ruins

Significantly, none of the archaeological sites mentioned so far have granite deposits in their immediate vicinity. This suggests that the people responsible for creating these sacred sites possessed considerable technological and financial resources, enabling them to transport granite blocks over substantial distances to construct these sites.

By plotting the remaining ancient temple architecture found in the valley, using precise longitude and latitude coordinates onto the map, we can reconstruct a picture of the existence and continuity of the socio-religious and economic tradition in the Upper Brahmaputra valley. However, before exploring the existence of this tradition, it is essential to understand the historical course of the river system in Upper Brahmaputra valley over the past thousand years. The Brahmaputra river system in this part has undergone significant changes over time. Its current configuration emerged only around 1750 CE (**Fig. 10**). To accurately locate ancient sacred sites in the alluvial valley of Upper Brahmaputra valley, first we must first have to erase the present-day map of the Brahmaputra river system from our mind and reconstruct its historical layout.

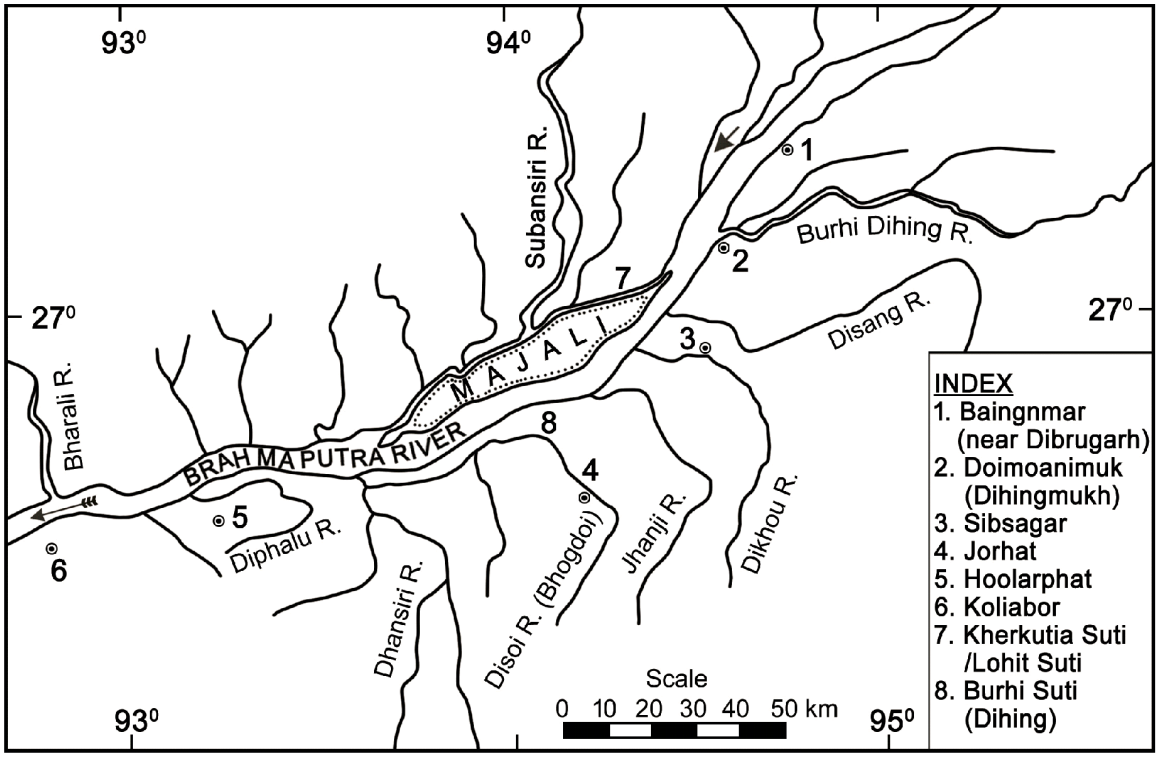


Fig. 10: Present Dihing-Brahmaputra River System

A reconstructed map of the pre-1750 CE Dihing-Brahmaputra river system has been already established (Sarma and Phukan, 2004:1–19) and is presented here (**Fig. 11**).

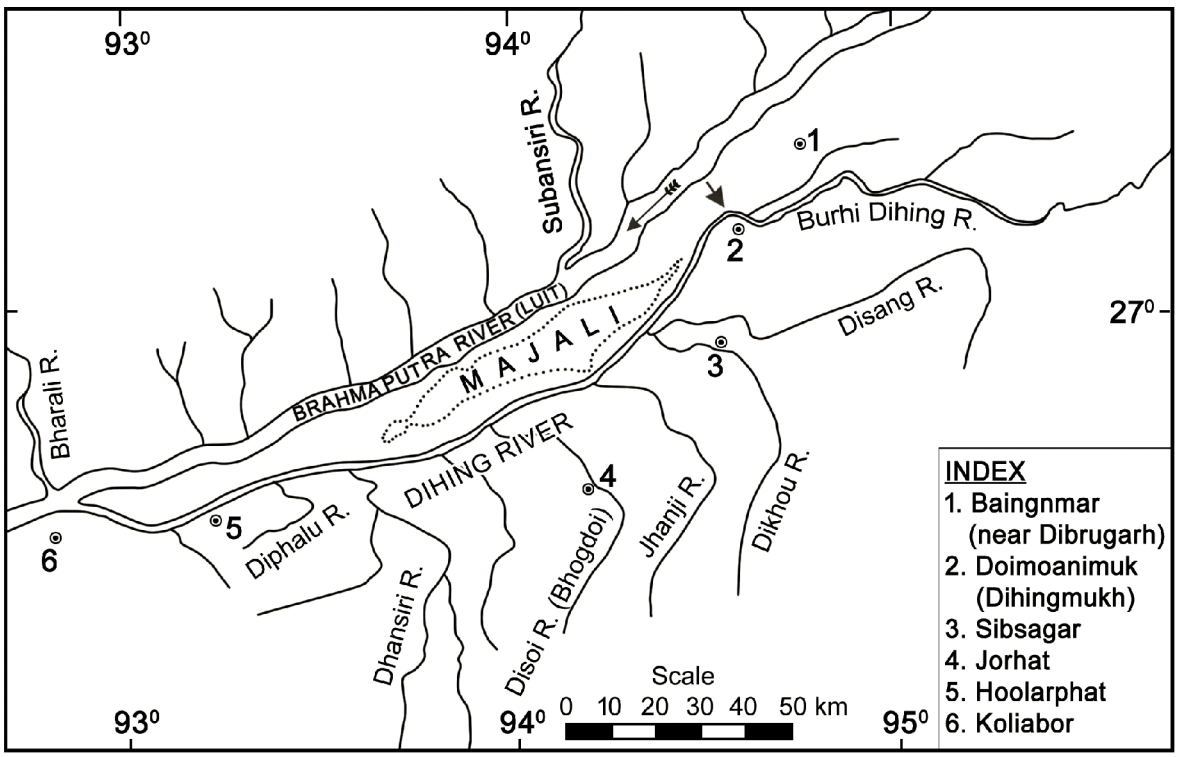


Fig. 11: Dihing Brahmaputra river System before 1750 CE (After Phukan and Sharma, 2004)

The study conducted by Dr. J N Sharma and M K Phukan reveal that the Dihing river flowed parallel to the Brahmaputra river until at least 1750 CE, converging with it near Lakhou, Bokakhat (Sarma and Phukan, 2004: 1–19). However, a devastating flood in 1750 CE caused the narrow landmass between the two rivers to erode, resulting in the Brahmaputra river altering its course to follow the path of the Dihing river. This transformation led to the formation of Majuli Island and reshaped the geographical landscape of southern Assam into its present configuration. Lieutenant R Wilcox documented this account of the Brahmaputra's course change in his report in 1825 CE, as recounted to him by Bagadamara Phukan, an officer of the Ahom king (Wilcox, 1825: 456).

The latitude and longitude of all the archaeological ruins of sacred sites have been plotted on a map of old Assam, revealing that they are situated on both sides of the ancient Dihing river, at a distance from the floodplain. The distribution of these archaeological ruins of sacred sites along both banks of the old Dihing river provides insight into the existence and contituity of that tradition (**Fig. 12**).

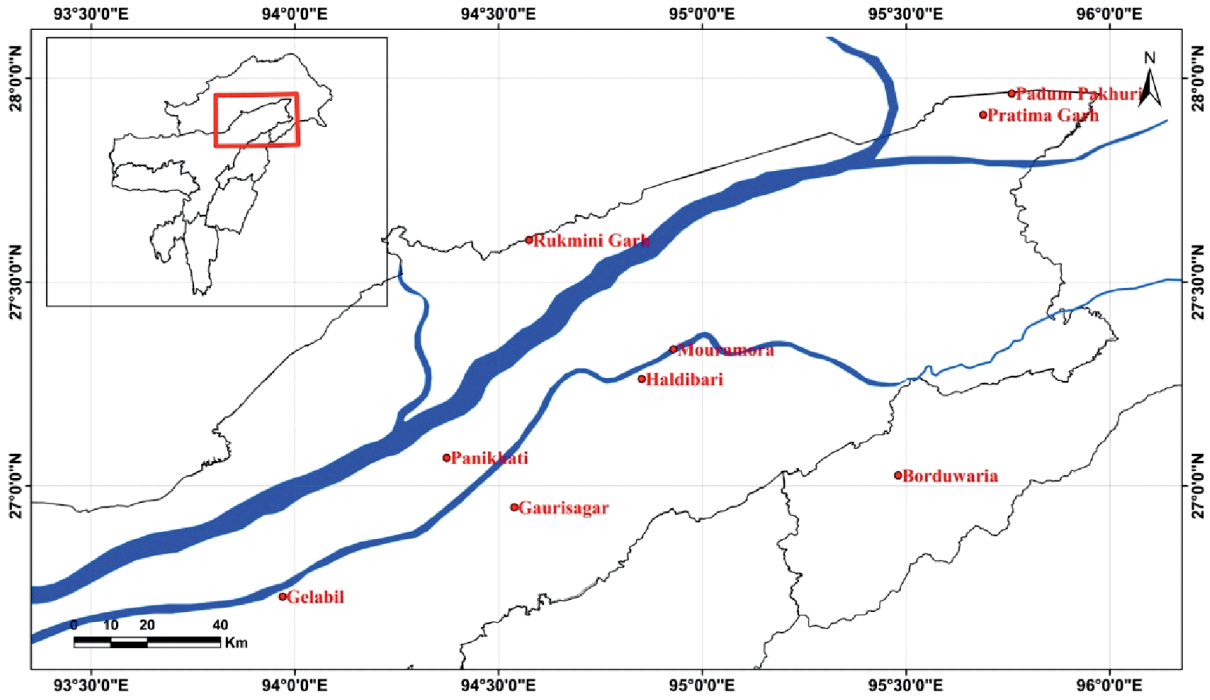


Fig. 12: Map with sacred archaeological space

Based on the available data and the presence of sacred spaces throughout the Upper Brahmaputra valley it can be argued that without the presence of a centralized state, there was enough resource in the hands of the autononmoussoverign landed class to continue the construction of temples and carry forward the earlier tradition of socio-political and economic administration. Certain observations made by Romeash Buragohain are important to mention here to buttress this point. He states:

> 'The disappearance of the kingdom of Kamrupa leading to lack of patronization of the Brahmanas especially by strong and famous rulers, forced them to move towards eastern Assam. This might have been the cause of the Hindu elements in the Chutia kingdom which otherwise was a tribal state. The existence of the Deori Chutiyas, even now, explains this' (Buragohain, 1988: 66).

Romesh Buragohain, while acknowledging the legacy and heritage of ancient kingdom of Kamrupa on the Ahom administration, further states that:

> '……in administrative sphere too, the legacy is discernable. K. L. Barua is of the opinion that the origins of atleast two officers of the Ahom government……. the tribal-Aryan cultural synthesis during the Ahom rule owes much to the legacy and heritage of the ancient kingdom of Kamrupa' (Buragohain, 1988:67).

Wet rice cultivation in the Upper Brahmaputra valley in the early medieval period

In the historiography of medieval Assam, the practice of wet rice (*Sali*) cultivation in the Upper Brahmaputra valley is often ascribed to as the legacy of the Ahom state. By placing wet rice cultivation at the centre of historical investigationsinto the formation of the Ahom state, a tendency has emerged to attribute the knowledge of wet rice solely to the Ahom state. Historians such as Amalendu Guha have also acknowledged that the Ahoms introduced wet rice cultivation to the Upper Brahmaputra valley. He states:

> 'It appears from the scant information contained in the Assamese chronicles, that the bulk of the tribal population of Upper Assam……. still carrying on cultivation of dry crops…from the very time of their entry into the Assam plains, the Ahoms carried on their *Sali* or wet rice cultivation. It is to them that Upper Assam owes much of their settled cultivation' (Guha, 1966: 221).

Similar understanding on the introduction of wet rice cultivation has been shown by Romesh Buragohain. He mentions that 'the Ahoms imparted' the knowledge of wet rice cultivation to the people of the Upper Brahmaputra valley (Buragohain, 1988: 77).

Considering the significant historiographical attention on the contribution of the Ahoms for the spread and popularization of wet rice cultivation it is pertinent to infer certain examples from the inscriptions which show that long before the coming of the Ahoms, wet rice cultivation was practiced inthe Lower Brahmaputra valley. Emphasising on the practice of wet rice cultivation, Guha mentions about the construction of embankments for water control by the Ahom state (Guha, Dec., 1983: 25).

However, given the nature of the topography and climate of Assam, construction of embankment was never limited to the Ahom period nor it was solely their contribution. In the pre-Ahom period also, embankments were constructed with active state patronage. For example, there is an explicit reference in the Ulubari plate of 9th century CE to the construction of an embankment by Balavarman-III. The Ulubari inscription while demarcating the boundary of the donated land mentions that in the eastern side there is 'a rampart constructed by the king'(Sharma (ed.), 2017(1978): 316). Hence, construction of embankments and the practice of wet rice cultivation can be viewed as interconnected and continuous process. This continuity is underscored by the fact that land was assessed according to its paddy yield throughout the period. (Lahiri, Jun., 1984: 65).

Geomorphological evidence also suggests that wet rice cultivation was practiced in the Dihing Valley at least a thousand years ago. On the southern bank of the ancient course of the Dihing river, near present-day Jorhat, an old underground palaeo-river system has been discovered. OSL dating confirms that the age of the palaeo-river sand is approximately 1000 years old. Interestingly, this palaeo-river sand contains phytoliths of wet rice (**Fig.13**), providing tangible evidence of its cultivation in the region (Saikia and Amin, 2016:556-559). By using a very simple scientific technique phytoliths from sand deposit can be separated. Plants absorb silicon dioxide from solution water through their roots. This dissolved silicon dioxide is then precipitated within the plant tissue. During this process, the minerals form impressions of the surrounding plant tissue. After the plant's death, the phytoliths remain intact within the sediment. By analyzing the texture of the impressions on the phytoliths, one can identify the specific plant species from which they originated. By using this scientific technique, the history of the practice of wet rice cultivation in the Upper Brahmaputra valley can easily be traced back to the 10th century CE.

The microfossil evidence extracted from the ancient river sand of Assam confirms the presence of domesticated wet rice. The argument relies on a dual-framework: taxonomic diagnostics studied combined with morphological indicators established by global phytolith research.

Taxonomic Grouping and Provenance

The fundamental layer of evidence is the taxonomic verification of the genus *Oryza* within the samples. The diagnostic image logs display distinct "Bulky fan-shaped bulliform phytoliths" (Fig.13) and "Fan-shaped bulliform phytoliths with rounded edges"(Fig 14). The analysis result explicitly maps these "Fan shaped" variants to the genus *Oryza* ("Fan shaped | Pleioblastus /oryza"). The final synthesis directly establishes the taxonomic presence of both bamboo and rice (*Oryza*) inside the riverine sediment matrix.

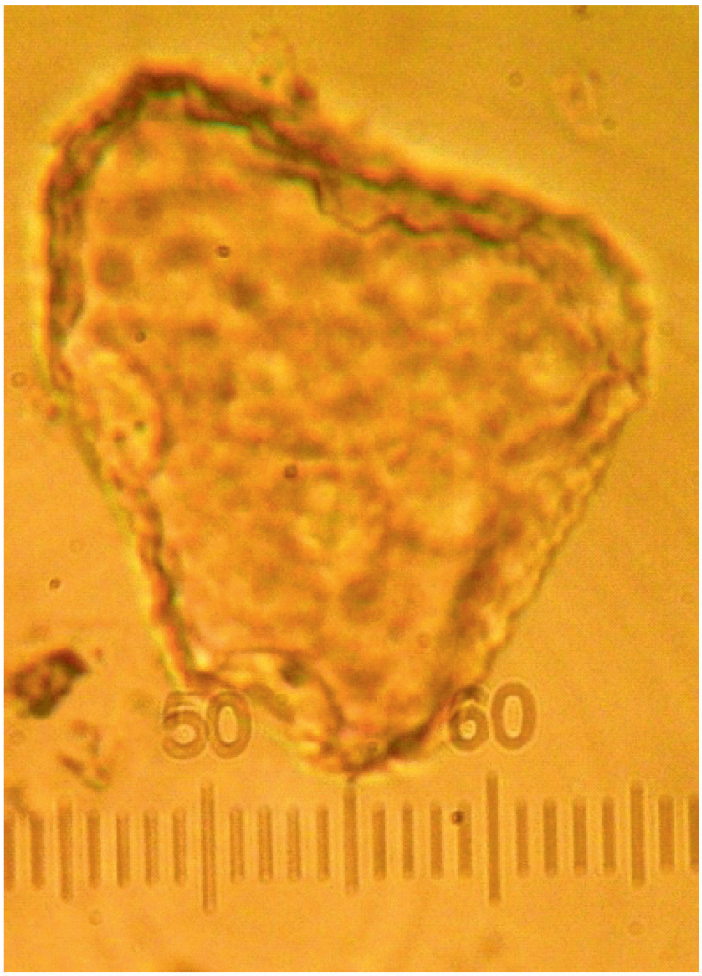


Fig. 13

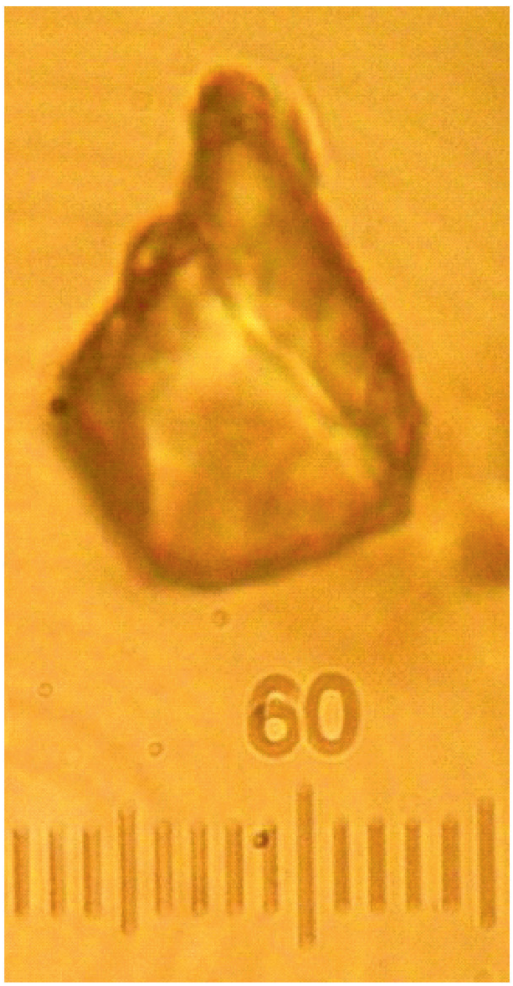


Fig. 14

The Morphological Markers of Domestication

To distinguish wild *Oryza* species from fully domesticated Asian rice (*Oryza sativa*), archaeobotanists track specific structural shifts in leaf bulliform cells. During the human selection process, these cells undergo significant geometric transitions. The samples shown here showcase a recurring presence of "bulky" bulliform structures [Fig.13, Fig. 15] and variants exhibiting specifically "rounded edges" (Fig.14). [(Huan et al., 2015; Wang et al., 2019).]

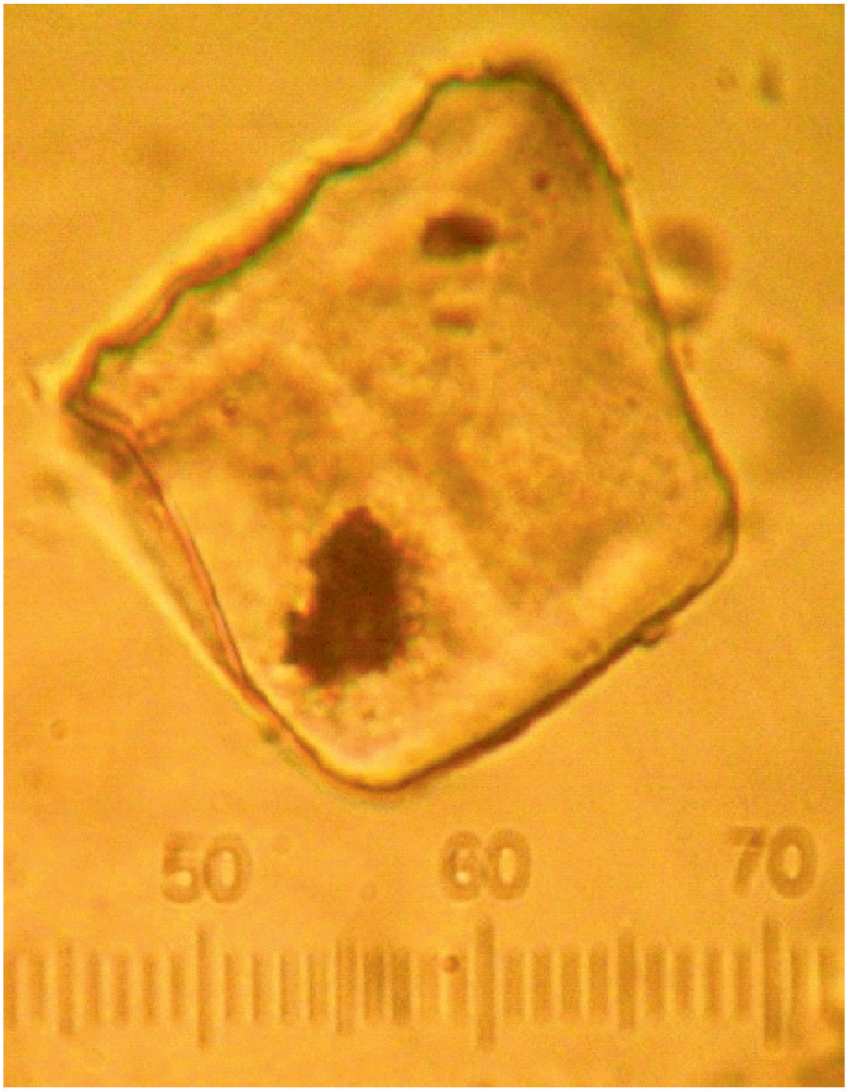


Fig. 15

In modern phytolith metrics, simple size measurements can sometimes overlap between wild and domesticated populations due to environmental fluctuations (Wang et al., 2019). Consequently, the standard for verifying domestication relies heavily on surface decorations. Rice bulliforms possess unique "fish-scale" decorative lines on their lateral sides (Huan et al., 2015). Statistically, populations where bulliforms exhibit≥ 9 fish-scale decorations serve as a definitive baseline for a domesticated assemblage rather than a wild one (Huan et al., 2015). The mature, well-developed, "bulky" morphology documented in sand in laboratory aligns directly with these domesticated-type bulliform phytolith (DTBP) profiles.

Environmental Validation of a "Wet" Ecosystem

The designation of the crop as wet rice (paddy-cultivated or water-managed) requires ecological verification that the plants grew in standing or highly saturated water. The microscopy logs show diatoms found directly alongside the phytoliths and within the silicamatrix (Fig. 16 and Fig. 17). This co-occurrence of diatoms is an indicator of distinct "cycles of wet-dry-wet phases within the region". (Qiu et al., 2014; Shoda et al., 2021)

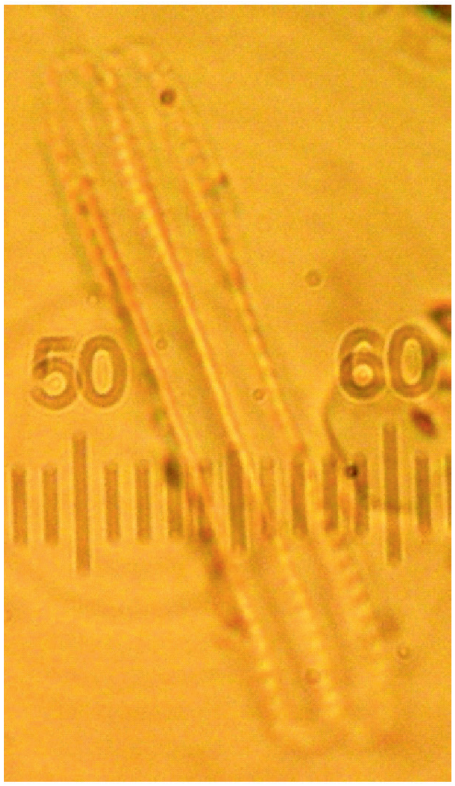


Fig. 16

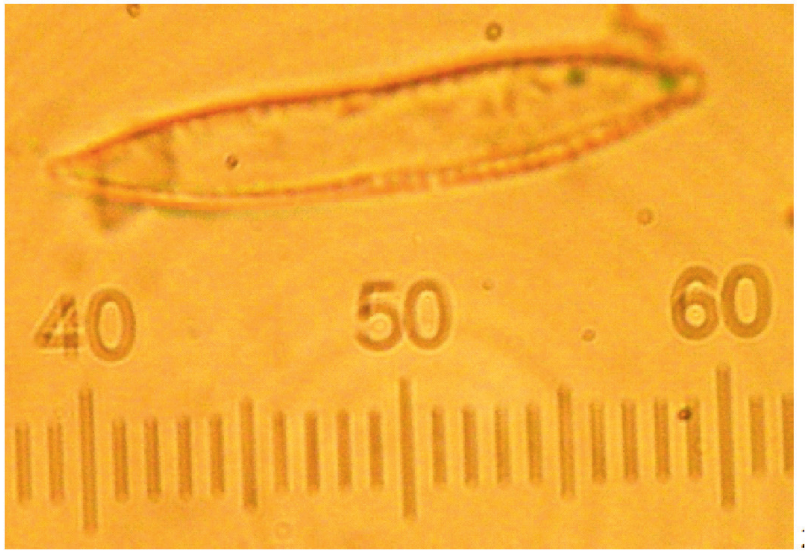


Fig. 17

The physical encapsulation of aquatic diatoms within the exact same sediment layers—and occasionally embedded directly in the grass silica matrices—serves as the primary indicator for distinguishing wet-field rice agriculture from dry upland farming. This ecological coupling proves the existence of a sustained, high-moisture wetland or flooded riverine environment during the growth cycle of the grasses (Qiu et al. (2014).

However, by the end of the 12th century CE the widespread practice of wet rice cultivation along the Dihing river valley may have faced serious challenges due to certain natural calamaties. During the 11th to 12th centuries this region faced three massive earthquakes with magnitudes ranging from 10 to 11 on the Richter scale. Due to these massive earthquakes the entire course of the Dihing river underwent changes leading to the destruction of earlier alluvial plains where wet rice cultivation was practised. A study on the Dihing valley earthquake was published, may offer some clues in this regard (Bhadran et al, 2024:1-13). The results of OSL dating of preserved 'sand dykes' along the Dihing river bank, which were formed by seismic liquefaction, were presented in the said paper. The findings of the study revealed that the region experienced three massive earthquakes, with magnitudes ranging from 10 to 11 on the Richter scale, during the 11th and 12th centuries CE (**Table. 1**).

Table 1: Intensity and time of the Dihing earthquake

Time	*Era (in CE)*	*Intensity*
888± 63	1135	**10-11**
934 ± 63	**1089**	10-11
989±83	1034	10-11

Following this dislocation of wet rice cultivation in the Dihing river valley, the inhabitants with advanced cultural backgrounds were displaced. However, the local tribal populations continued to

struggle against the harsh environment, relying on shifting cultivation, or 'jhum' farming, for their livelihood. The tradition of jhum cultivation persisted among the Moran people of the valley until the early 20th century CE (Baruah, 2017: 61). In the Moran language, this practice was referred to as 'HeramaniHedang'. Notably, this word 'HeramaniHedang' is frequently mentioned in traditional Moran Bihu songs. Observing this phenomenon, Dr. Amalendu Guha noted that it was the Ahoms who introduced the practice of wet rice cultivation in Upper Assam(Guha, 1967:135-157).

However, contrary to the widely held view that knowledge of wet rice cultivation- particularly the cultivation of the *Sali* variety- was introduced to the Lower Brahmaputra valley by Indo-Aryans and to the Upper Brahmaputra valley by the Tai-Ahoms,some scholars have advanced alternative interpretations. For instance, Uttam Bathari, drawing on a philological analysis of agricultural vocabulary in Assam, demonastrates that several commonly used terms- such as *haal* (plough), *juwal* (tip of plough), and *sali* (a variety of rice)-all are of Tibeto-Burmese origin.In Dimasa language '*ha'* means soil and '*la*' means soft. Hence, the meaning of *haal* (plough) in Dimasa is soft soil.Bathari also gives examples of several other terms used for wet rice cultivation which are of Dimasa origin (Bathari, 2019: 37). It is important to mention here that the Dimasas are from the Tibeto-Burmese stock. Till date these terms are commonly used for wet rice cultivation in Assam. Thus, the whole history of wet rice cultivation in Assam can be seen from a different perspective on the basis of such philological study. However, it suffices to say thatif we view the practice of wet rice cultivation as a continuous process in the Brahmaputra valley from the ancient times, it will help us to understand the historical process through which numerous stone temples were builtin the central and Upper Brahmaputra valley during the early medieval period. The practice of wet rice cultivation had already reached the Upper Brahmaputra valley before the coming of the Ahoms and it enabled the landed intermediary class to accumulate enough surplus production and capitalto invest in the construction of stone temples. By the standard of that period public construction of sacred space was regarded as a marker of sovereignty and authority. Even after the decline of the centralized states of early Assam, the benefeciaries of those states continued to carry forward the socio-religious and economic traditions in the entire Brahmaputra valley.

Conclusion

Thus, a multidisciplinary study that combines paleo-geomorphology, archaeological remains of ancient sacred spaces, and paleo-seismic data, leads one to revisit the history of the Upper Brahmaputra valley and see it as a continuous history of legitimization of state through temple construction and practice of wet rice cultivation rather than a disjunture. However, it will be premature, without any available records of royal land grants and literary reference, to postulate that the mere construction of temples and practice of wet rice cultivation can be seen as a presence of a centralized state in the Upper Brahmaputra valley during the early medieval period. Therefore, it can be argued at best that after thefragmentation of the centralized states of early Assam, the landed intermediary class extended its sway over the Upper Brahmaputra valley and continued the tradtion which was in vogue in the Lower Brahmaputra valley from 5th century CE.

References

Borooah, A. 1877 [1971]. *Ancient geography of India*. Guwahati: Publication Board Assam.

Barpujari, H.K. (ed.) 1990, *The comprehensive history of Assam*, vol. 1, Publication Board Assam, Guwahati.

Barpujari, H.K. (ed.) 1994, *The comprehensive history of Assam*, vol. 2, Publication Board Assam, Guwahati.

Barpujari, H.K. (ed.) 1994, *The comprehensive history of Assam*, vol. 3, Publication Board Assam, Guwahati.

Barua, K.L. 1933, *Early history of Kamarupa*, Shillong. Reprint 1966, Guwahati.

Barua, S.N. 2013 [1991], *Tribes of Indo-Burma border*, Margherita Ethnological Museum, Assam.

Baruah, B.B. 2017, *Moran buranjisar*, 2nd edn, Jatiyo Prakashan Sangha, Tinsukia.

Baruah, S.L. 1995, *A comprehensive history of Assam*, Munshiram Manoharlal Publishers, New Delhi.

Bathari, U. 2019. Prak-uponivesikAsamatsalikhetiarurajyagathanprokriya (Wet rice cultivation and state formation processes in pre-colonial Assam). *Aalap*, 5: 23–46.

Bhadran, A., Duarah, B.P., Girishbai, D., Raza, M.A., Mero, A., Lahon, S., Achu, A.L. & Gopinath, G. 2024, 'Soft sediment deformation structures from the Brahmaputra Basin: A window to the Eastern Himalayan paleoseismicity and tectonics', *Journal of Asian Earth Sciences*, vol. 259, article 105894. https://doi.org/10.1016/j.jseaes.2023.105894

Bhattacharjee, J.B. 2004, *Bauma-Naraka legend and state formation in Pragjyotisha-Kamrupa*, Shillong.

Bhuyan, S.K. 1990 [1936], *Kachari buranji (Chronicles of the Kacharis)*, Department of Historical and Antiquarian Studies, Government of Assam, Guwahati.

Bordoloi, B. 2020, *Asomiyalipirkromobikash (Evolution of Assamese script)*, Asam Sahitya Sabha, Jorhat.

Buragohain, R. 1988, *Ahom state formation in Assam: An enquiry into the factors of polity formation in medieval North East India*, PhD thesis, North-Eastern Hill University, Shillong.

Chatterji, S.K. 1954, *Kirata-Jana-Kriti*, Calcutta.

Choudhury, P.C. 1959, *The history of the civilisation of the people of Assam to the twelfth century AD*, Gauhati.

Deori, N. 2023, *Nirmitaoitijyaarubhabishyat (Constructed heritage and future)*, J.S. Publications, Guwahati.

Deva Choudhury, N. 1985, *Historical archaeology of central Assam*, B.R. Publishing Corporation, New Delhi.

Dutta, M. 2012, *Asomarbhaskarjyaritihas (History of sculptures of Assam)*, Swapna Publishers, Guwahati.

Elias, N. 1876, *Introductory sketch of the history of the Shans in Upper Burma and Western Yunnan*, Foreign Department Press, Calcutta.

Gait, E. 1906, *A history of Assam*, Thacker, Spink and Company, London.

Gogoi, P. 1968, *The Tai and the Tai kingdoms: With a fuller treatment of the Tai-Ahom kingdom in the Brahmaputra Valley*, Gauhati University, Guwahati.

Guha, A. 1966, 'Land rights and social classes in medieval Assam', *The Indian Economic and Social History Review*, vol. 3, no. 3, pp. 217–239.

Guha, A. 1967, 'Ahom migration: Its impact on rice economy of medieval Assam', *Artha Vijnana*, vol. 9, no. 2, pp. 135–157.

Guha, A. 1983, 'The Ahom political system: An enquiry into the state formation process in medieval Assam (1228–1714)', *Social Scientist*, vol. 11, no. 12, pp. 3–34.

Guha, A. 2014 [1991], *Medieval and early colonial Assam: Society, polity, economy*, Anwesha, Guwahati.

Huan, X., Lu, H., Wang, C., Tang, X., Zuo, X., Ge, Y. & He, K. 2015, 'Bulliform phytolith research in wild and domesticated rice paddy soil in South China', *PLOS ONE*, vol. 10, no. 10, article e0141255. https://doi.org/10.1371/journal.pone.0141255

Lahiri, N. 1984, 'The pre-Ahom roots of medieval Assam', *Social Scientist*, vol. 12, no. 6, pp. 60–69.

Lahiri, N. 1991, *Pre-Ahom Assam*, Munshiram Manoharlal Publishers, New Delhi.

Lundquist, J.M. 1994, 'The legitimizing role of the temple in the origin of the state', in D.W. Parry (ed.), *Temples of the ancient world: Ritual and symbolism*, Deseret Book, Salt Lake City, pp. 179–235.

Nath, R.M. 1949, *The background of Assamese culture*, Shillong.

Qiu, Z., Jiang, H., Ding, J., Hu, Y. & Shang, X. 2014, 'Pollen and phytolith evidence for rice cultivation and vegetation change during the Mid-Late Holocene at the Jiangli site, Suzhou, East China', *PLOS ONE*, vol. 9, no. 1, article e86816. https://doi.org/10.1371/journal.pone.0086816

Saikia, A. 2020, 'Earthquakes and the environmental transformation of a floodplain landscape: The Brahmaputra Valley and the earthquakes of 1897 and 1950', *Environment and History*, vol. 26, no. 1, pp. 3–31.

Saikia, M. 2018, 'History and archaeology of the Kapili-Jamuna Valley of Assam', *International Journal of Recent Scientific Research*, vol. 9, no. 1(G), pp. 23353–23359.

Saikia, R.R. & Amin, N. 2016, 'A study of river channel modifications of Jorhat district of Assam', *Indian Journal of History of Science*, vol. 51, no. 3, pp. 556–559.

Saikia, R.R., Taye, C.D., Amin, N., Konwar, S., Panzeri, L. & Galli, A. 2024, 'Chronological and archaeometric evaluation of bricks from archaeological sites of Upper Assam, Northeast India: Estimation of the firing temperature and civilization history', *Applied Sciences*, vol. 14, article 6271. https://doi.org/10.3390/app14146271

Sarma, J.N. &Phukan, M.K. 2004, 'Origin and some geomorphological changes of Majuli Island of the Brahmaputra River in Assam, India', *Geomorphology*, vol. 60, nos. 1–2, pp. 1–19.

Sharma, M.M. (ed.) 2017 [1978], *Inscriptions of ancient Assam*, Gauhati University Press, Guwahati.

Shoda, S., Nasu, H., Yamazaki, K., Murakami, N., Na, G.J., Ahn, S.M. &Yoneda, M. 2021, 'Dry or wet? Evaluating the initial rice cultivation environment on the Korean Peninsula', *Agronomy*, vol. 11, no. 5, article 929. https://doi.org/10.3390/agronomy11050929

Stein, B. 1995, *Peasant state and society in medieval South India*, Oxford University Press, New Delhi.

Tada, T., Dutta, J.C. &Deori, N. 2012, *Archaeological heritage of Arunachal Pradesh*, Department of Cultural Affairs, Directorate of Research, Government of Arunachal Pradesh, Itanagar.

Wade, J.P. 1927 [1972]. *An account of Assam*. Edited by B. Sharma. Guwahati: Asam Jyoti.

Wang, C., Lu, H., Zhang, J., Mao, L. & Ge, Y. 2019, 'Bulliform phytolith size of rice and its correlation with hydrothermal environment: A preliminary morphological study on species in southern China', *Frontiers in Plant Science*, vol. 10, article 1037. https://doi.org/10.3389/fpls.2019.01037

Wilcox, R. 1832, 'Memoir of a survey of Asam and the neighbouring countries executed in 1825–1828', *Asiatic Researches*, vol. 17, Bengal Military Orphan Press, Calcutta.

Interview

Phukan, D. 2025, interview, Majuli, 2 January.