

# SETTLEMENT PATTERNS ON THE RED RIVER PLAIN FROM THE LATE PREHISTORIC PERIOD TO THE 10TH CENTURY AD

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## ABSTRACT

*The Red River Plain of northern Vietnam is one of the most densely populated and intensively cultivated regions in Mainland Southeast Asia. In 1931, the plain supported a population of about 6.5 million people, at a density averaging 430 persons per km<sup>2</sup> (Gourou 1936). Past settlement patterns on the plains have been greatly influenced by the geomorphological features of the Red River region. The purpose of this paper is to describe the unique geomorphology of this region, and to discuss its influence on settlement patterns from the late Neolithic through to the 10th century AD.*

The Red River Plain of northern Vietnam covers a total area of 15,000 km<sup>2</sup>. Its boundary is defined by the edge of the alluvium, which is carried downstream from Yunnan annually. Apart from the coast strip, the alluvial plains are almost completely surrounded by mountains.

Several detailed descriptions of the geomorphology of the Red River Plain have been published. Pierre Gourou (1936) described the region in considerable detail and pointed out the influence of tides and rainfall on the coastal features of the delta. Takaya (1975) later divided the delta into six principal areas, listed in Table 1. Sakurai (1980:620) then refined the terminology, and the most recent classification is that by Haruyama (1994) (see Fig. 1).

Not only does the Red River Plain have the densest population, but it also has the longest period of occupation for any of the lowland plains of Mainland Southeast Asia. Yet, there been few systematic studies of the history of human occupation on the Red River Plain, and its relationship to the natural environment, from the prehistoric to the historic period. This is the first attempt to identify changes in settlement patterning in several divisions of the region in terms of a unique adaptation to the lowlands of Vietnam.

The annual flooding the Red River alluvial plain has long affected settlement patterns. For this reason, water control has long been of concern to agricultural groups. A complex net-like series of dykes has been constructed all over the lowlands to protect the agricultural land from floodwaters and to allow dry season irrigation. However, archaeological and historical studies (Sakurai 1980;

Nishimura and Nishino 2002) have established that the massive levees visible today flanking the main river courses, built to control floodwaters, were not constructed until after the 10th century AD. When wet rice agriculture was introduced to the Red River delta during the Neolithic, the settlements and agricultural plots would have been easily affected by seasonal inundation.

As the fertile lowlands extended seawards with alluviation and became more important for riziculture, shifts in the locations of settlements also occurred. Previously unused land on the fringe areas of the Red River plain became incorporated into the irrigated systems of the lowlands (Gourou 1936). In general, a pattern of population movement from highlands to lowlands, and seawards with delta building, has characterized the overall occupation history of this region.

There is sufficient evidence to show that the geography of the riverine plain and the locations of prehistoric settlements would have been deeply influenced by postglacial and Holocene changes in sea level. Recent geomorphological research on the sand dunes of Nam Dinh by Haruyama (Haruyama 1999; Haruyama et al. 2000a, b), and additional research by Doan and Boyd (2000, 2002), Nguyen and Le (2000) and Hori et al. (2003), confirms that the maximum marine transgression of the Holocene took place between 5000 and 7000 BC (see also Nguyen Viet, this issue). The geomorphological classifications of both Takaya and Haruyama also indicate that the sand ridges of Thai Binh and Nam Dinh were formed during the Holocene transgression period, within the past 5000 years.

Vietnamese geological studies clearly show that the coastline was inundated during the Holocene transgression and was located near Hanoi, as is apparent from the absence of Neolithic sites across most of the region shown in Fig. 3 (Ngo 2000). Yet there have not been many detailed studies into absolute dates and coastline locations. Recent archaeological research at Chau Can (Nguyen Viet 2001), 30 km south of Hanoi, has demonstrated that the surroundings were still dominated by brackish water after the peak of the mid-Holocene transgression, at around 4500 BP. Pollen from recent excavations at Dai Trach, 20 km from Hanoi (see Fig. 2), shows also a presence of brackish water plants that grow in saline waters in the cultural layers. This site is dated to about 3000 BP (Pham and Nishimura 2004).

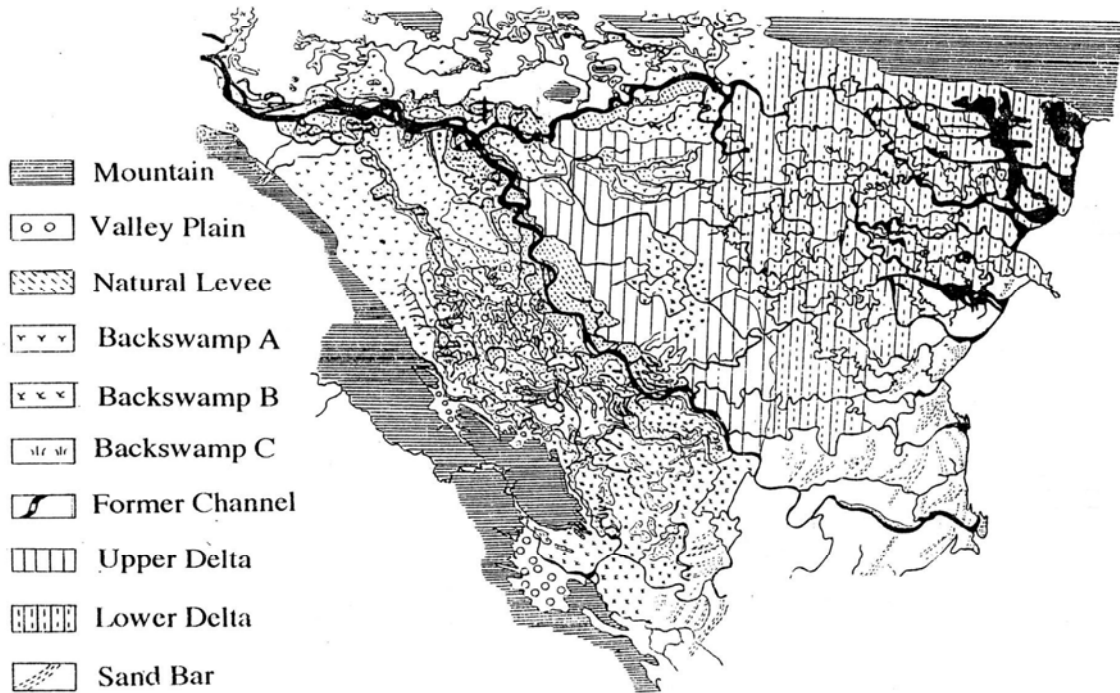
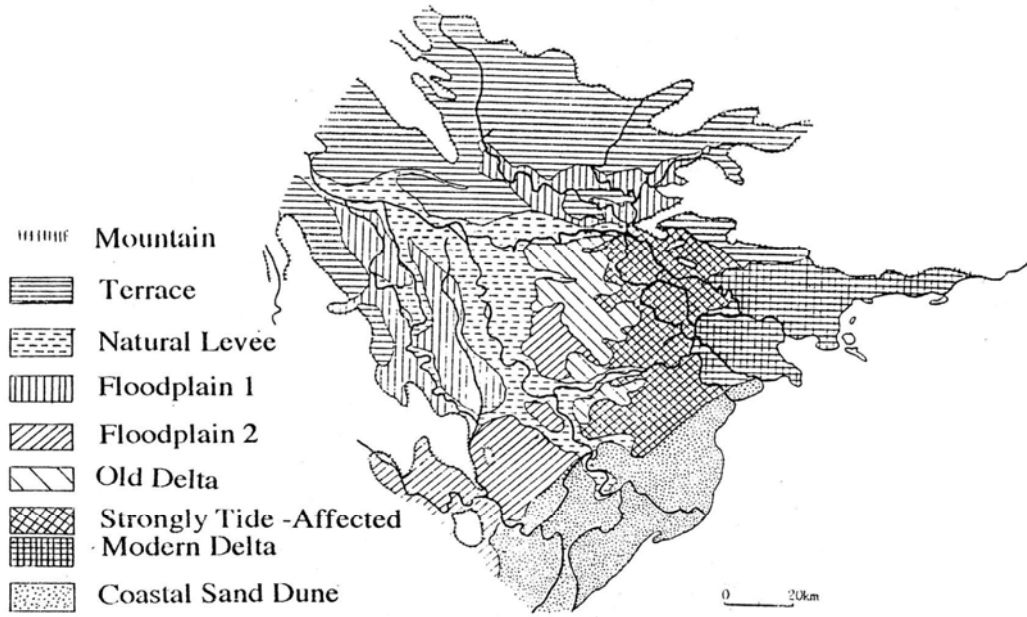


Figure 1. Top: geomorphological divisions of the Red River plain according to Takaya (Sakurai 1980). Bottom: geomorphological divisions of the Red River plain according to Haruyama (1994)

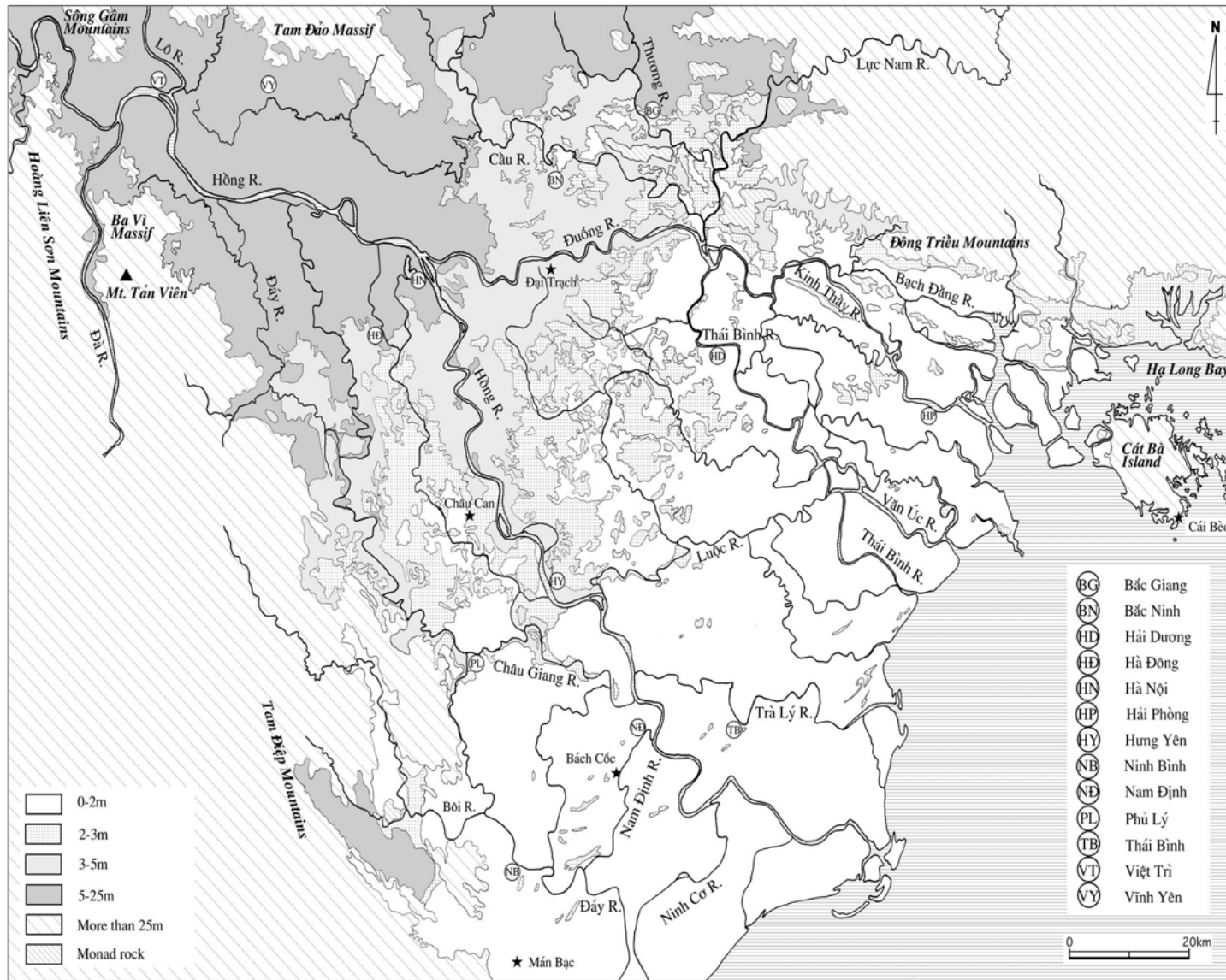


Figure 2. The Red (Hong) riverine plain. Starred sites have provided data on Holocene sea-level change (Nishimura and Nishino 2003).

Table 1. Principal areas in the Red River delta.

Takaya 1975	Takaya 1980 (Sakurai 1980)	Haruyama 1994
North Flood Plain	Natural Levee	Natural Levee
West Flood Plain	Flood Plain	Back Swamp
Upper Delta	Old Delta	Upper Delta
Lower Delta	Tide affected areas of modern delta	Lower Delta
Coastal complex	Coastal sand dunes	Coastal dunes
Terraces	Terraces	Terraces

#### CHRONOLOGY OF THE RED RIVER PLAIN (NISHIMURA 2003a, b)

The pre-Neolithic assemblages of the region are defined by the late Hoabinhian and Bacsonian flaked pebble tool industries with edge-ground axes. At Cai Beo on Cat Ba Island, these aceramic industries were succeeded by early Neolithic assemblages, both beneath a culturally sterile layer deposited by the mid-Holocene marine transgression (Luu and Trinh 1983).

One of the principal differences between the prehistoric chronology of northern Vietnam and other parts of Southeast Asia is the presence of an early Neolithic, dated in Vietnam to c.7000 to 5000 BP (Bui 1994). An early Neolithic period has also been identified in South China, for instance in Zengpiyan and Dayan Caves near Guilin in Guangxi. In Vietnam, Early Neolithic assemblages have been excavated from the sites of Da But, Quynh Van and Cai Beo. The assemblages from these sites contain flaked tools of Hoabinhian affinity, partly polished stone tools, and a simple type of coarse, thick pottery (see Nguyen Viet, this issue). Several shell middens belonging to the Da But culture in Thanh Hoa Province have also produced firm evidence for marine transgression during the mid-Holocene. However, for a long period such early Neolithic assemblages were only recognized outside the core regions of the Red River plain. Recently, Da But assemblages have been discovered in Ninh Binh Province, on the edge of the limestone uplands (Trinh and Ha 2003; Trinh 2003). Until more detailed research is undertaken we will not know how these Neolithic assemblages relate to later assemblages, and whether they were ancestral to them or replaced by them.

The chronology of the late Neolithic period in Vietnam also remains controversial. Several assemblages, such as Hoa Loc, Ma Dong, Man Bac and the Ha Long cultures, contain pottery different to that in the Phung Nguyen sites. Some archaeologists regard all these Neolithic cultures as contemporary with Phung Nguyen. But there is another problem here in that some Vietnamese archaeologists regard Phung Nguyen as a Bronze Age culture, based on a very few uncertain finds of tiny fragments of bronze. In my view, however, the absence of casting moulds and complete bronze artefacts in Phung Nguyen sites indicates that the Phung Nguyen is actually the final phase of the Neolithic in northern Vietnam. For these reasons, I define Phung Nguyen sites as final Neolithic, succeeding earlier variants such as Ma Dong, Hoa Loc, Man Bac and Ha Long (Nishimura

2003a, b). At these late Neolithic sites we find a wider range of pottery types than in the preceding early Neolithic, as well as rectangular and shouldered adzes and axes. Radiocarbon dates for Ma Dong, Trang Kenh and Phung Nguyen (Pham and Nguyen 2001) place these sites between 4500 and 3000 BP.

One of the biggest contributions of Vietnamese archaeologists since independence has been the establishment of a chronological framework from the late Neolithic, through the Metal Ages, to the early historical period. Extensive excavations and research have confirmed several stages of development in the Red River plain, commencing from Phung Nguyen and continuing through Dong Dau, Go Mun and Dong Son. Bronze casting is identifiable in the Dong Dau and succeeding phases, along with greater variation in tools. Iron artefacts first appear during the Dong Son phase. Accordingly, I would place the Dong Dau and Go Mun phases into the Early Metal Age and the Dong Son phase into the Late Metal Age. The beginning of the Dong Son can be traced through artifact comparisons and radiocarbon dates. Among the bronze artefacts of the Dong Son are those from Viet Khe and Lang Ca that have clear affinities with South China. These are dated to around the 3rd century BC. While the radiocarbon dates from Viet Khe and Chau Can could indicate a Dong Son commencement around 550 BC, the artifact-based regional chronology puts the boundary between the Go Mun and Dong Son phases around the 3rd or 4th centuries BC (Nishimura 2003a, b).

The termination of Dong Son is another controversial issue in Vietnamese archaeology. It is generally accepted that the Dong Son assemblages were replaced by Han assemblages after the Han invasion. Since data from the Han tombs in Guangzhou (CPAM 1991) have been published, Han style burials have become more easily recognizable and dateable. In the Early Historical period (post Dong Son), burials and artefacts changed drastically and citadels and large burial groups appeared, as a result of centralization and the introduction of Chinese political divisions.

However, as Imamura (1993) and Yoshikai (1997) have observed, Dong Son artifacts, including drums, continued to be used and adopted into Han-style surroundings. The Official History of the Han Dynasty, the Han Shu, commences the Han domination of Vietnam in 110 BC. But Dong Son assemblages continue after this period. Han style wooden compartment burials first appear in the latter part of the 1st Century AD, and are replaced in turn by brick tombs around AD 100. On this

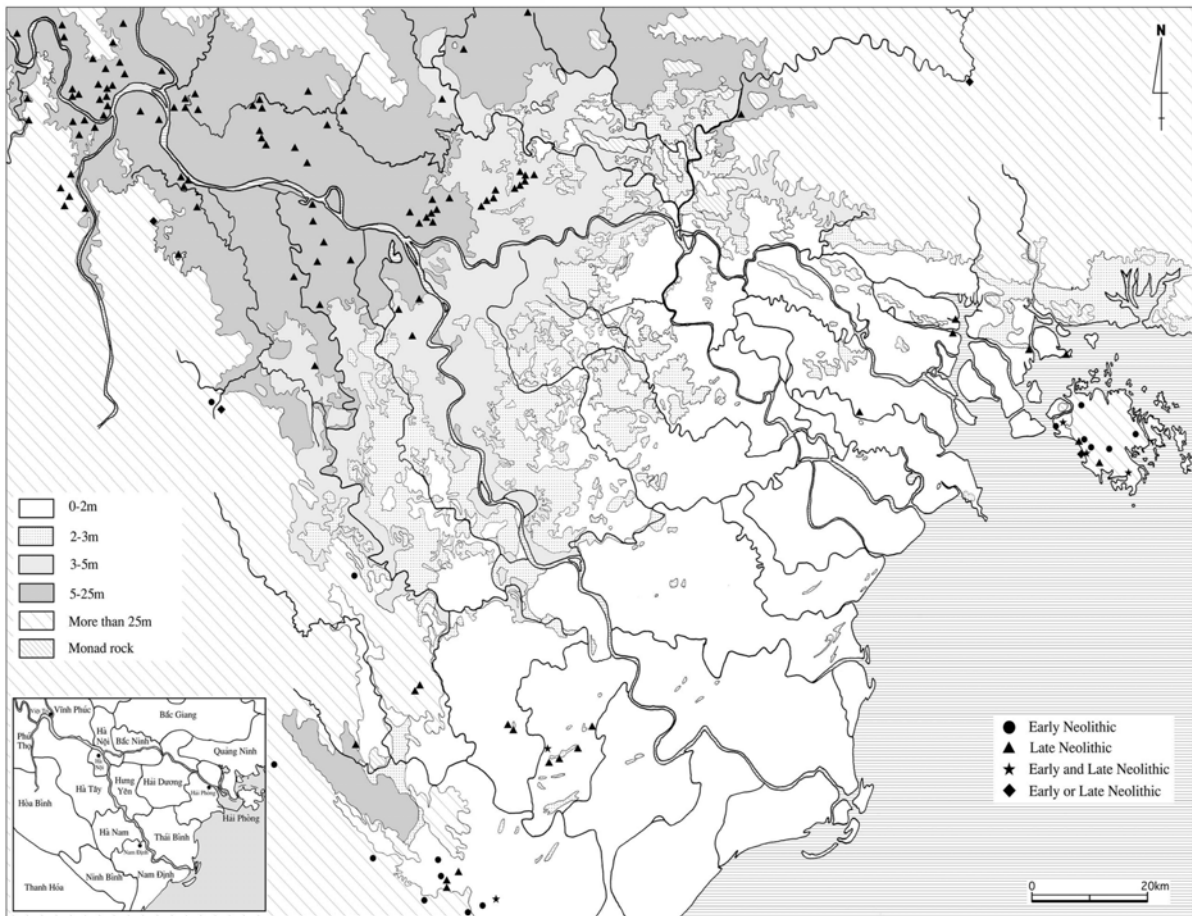


Figure 3. The distribution of Neolithic sites on the Red River Plains and adjacent areas

basis, I suggest that the Dong Son assemblages terminate during the 1st Century AD.

In the Early Historical Age between the 1st and 10th centuries AD, most archaeological materials in Vietnam come from burial sites, apart from a few citadels and kiln sites. Brick tombs of the domed chamber type continue in the archaeological record for a long time, in both China and Vietnam, terminating in the Tang Dynasty. On this basis, I consider the period from the appearance of wooden compartment burials until the end of the period of brick domed burial chambers as the Early Historical Age (1st to 9th centuries). This period can be further subdivided into an earlier period from the 1st to the 3rd centuries, corresponding with the Eastern Han Dynasty (25 BC- AD 220) and the Three Kingdoms (AD 220-265). The later period, from the 4th to the 9th centuries, correspond with the Six Dynasties and the Sui (AD 581-618) and Tang (AD 618-907) dynasties. Archaeological excavations of the Lung Khe Citadel (Nishimura 2001a, b) and other brick tombs have produced ceramic assemblages from this period.

#### SETTLEMENT PATTERNS OF THE EARLY AND LATE NEOLITHIC

Figures 3, 4 and 5 show settlement patterns in the Red River delta from the Neolithic through to the 10th century

AD. The data are based on archaeological excavations and surface finds (Nishimura and Nishino 2003). Figure 3 shows the distribution of archaeological sites in the upper reaches of the plain during the late Neolithic. The map also shows early Neolithic sites near Hai Phong, on Cat Ba Island, and southwest of Nam Dinh on the other side of the delta. The absence of sites in the area between Ha Noi and Nam Dinh-Hai Phong probably reflects the presence of marine or brackish water across most of the area occupied by the modern lower plain. Several of the sites near Nam Dinh are located along sandy ridges that would have formed with the regression of sea level after the mid-Holocene high, and that would have allowed exploitation of marine or brackish water resources.

The late Neolithic site distribution covers a broader area of the upper plain, with successive habitation layers in sites such as Dong Dau and Thanh Den. The occurrence of group burials and rice remains indicate a greater reliance on sedentism and agriculture than previously.

#### EARLY METAL AGE (DONG DAU AND GO MUN)

When data from the Early Metal Age are compared to data from the Neolithic period, several observations can be made. Site numbers increase and the areas of settlement change (Figure 4). Several sites appear along

the southern reaches of the Duong River, as settlement expanded from the fringes of the plain down on to the lower alluvial lands that were becoming available. But sites of this phase do not occur in the coastal regions adjacent to Nam Dinh, Thai Binh or Hai Phong. There are reduced numbers of sites in the area west of Hanoi. These changes in settlement pattern took place during the transition from the Neolithic to the Metal Age. The riverine plain increased greatly in extent during this period owing to marine regression.

It is thus possible that changes in material culture, such as that from stone to metal, were linked to changes in settlement patterns as well as in trade networks. Many lithic workshops have been found in late Neolithic sites such as Trang Kenh (Hai Phong), Bai Tu (Bac Ninh), and several sites in the west such as Viet Tri (Phu Tho). These sites have also produced stone adzes and ornaments (Nguyen 1996), and were located beyond the edge of the riverine plain for access to stone resources. The replacement of stone by bronze during the Dong Dau and Go Mun periods might have caused a decline in these settlement areas, since copper mining would only have been possible in the mountainous ranges of Bac Giang about 100 km northwest of Hanoi, in the area around Lao Cao, in the upper reaches of the Hong River, and in the

Da River valley in northwest Vietnam (see Ha and Nguyen 1985; United Nations 1990). Lead mining sites are also located a long way from the Red River plain, in the mountainous regions of several of the northern provinces (Thai Nguyen, Bac Can and Tuyen Quang).

The exchange networks of Metal Age groups would therefore have differed markedly from those of Stone Age groups. This would have resulted in a shift in settlement patterns, particularly away from the coastal regions. Similar movements have been observed in the distributions of sites in the riverine plains that surround Ho Chi Minh City (Nishimura 2002) during the transition from the Neolithic to the Bronze Age.

LATE METAL AGE (DONG SON)

Most sites belonging to the Late Metal (Dong Son) phase are located in areas that are now about 2 m above sea level. In terms of Haruyama's geomorphological divisions they are located on terraces, natural levees, and in the upper delta. Several sites occur in lower topography near Nam Dinh and Hai Phong (Figure 4). The expansion of Dong Son settlement is observable in the lower area south of Ha Noi and around Hai Duong and Hai Phong. Until quite recently, only winter or spring rice could be planted in these regions because of inundation during the summer.

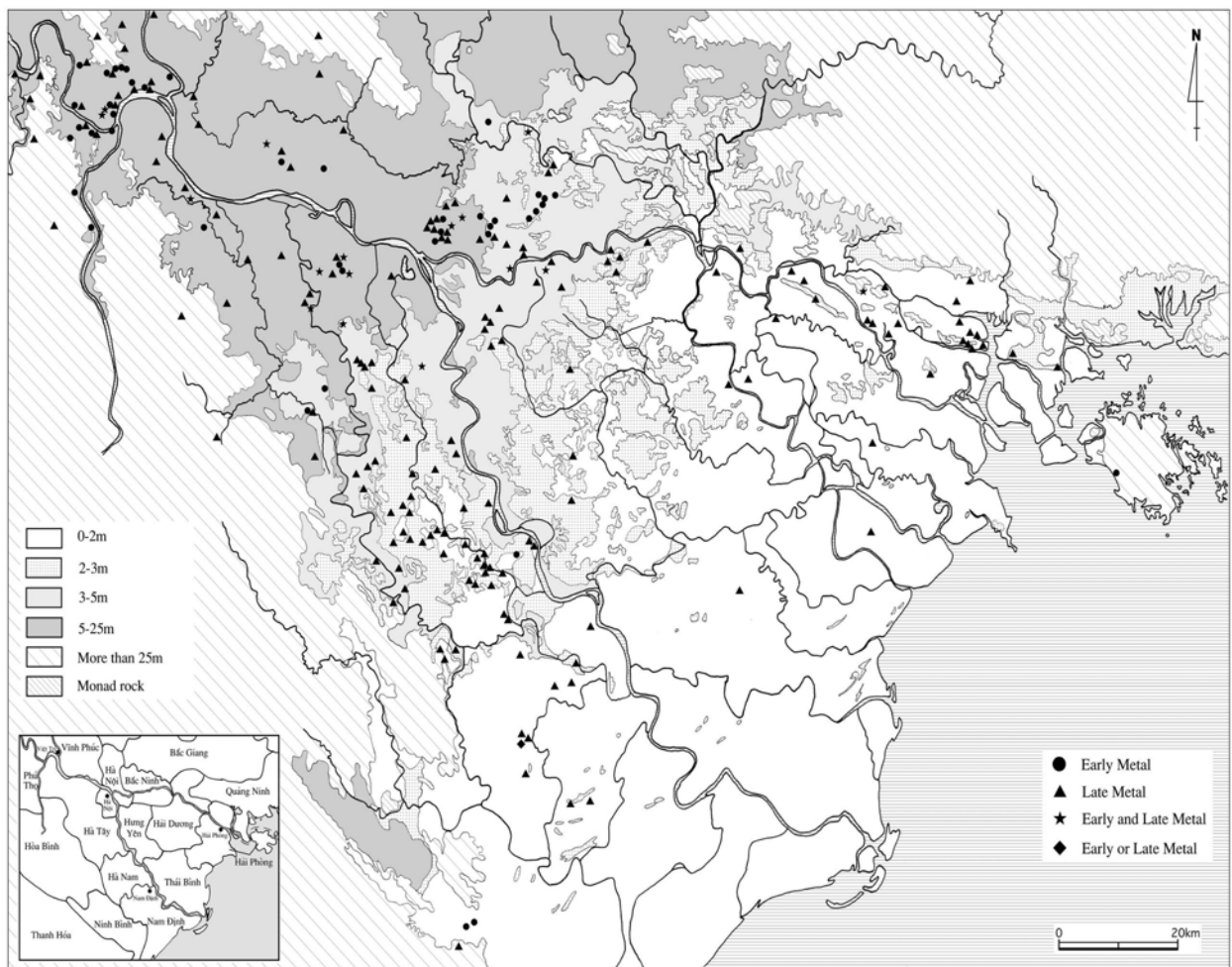


Figure 4. The distribution of Metal Age sites on the Red River Plains and adjacent areas

Because historical documents of the early 1st millennium AD record two rice crops per year from this plain (not necessarily from the same field), Sakurai (1987) proposed that varieties of summer-autumn and winter-spring rice were adapted for this watery environment during the Dong Son phase. These would have provided a boost for the expansion of settlement into the lowlands.

**EARLY HISTORICAL (1ST TO 10TH CENTURIES AD)**

Figure 5 shows that brick tombs from the Early Historical period are distributed throughout the Red River Plain, except in the area near the mouth of the river. When this is compared with Figure 4, we can conclude that the remains of brick tombs occur in the lower delta (the lower reaches of the Luoc River) and on coastal sandy bars such as those near Thai Binh, where Dong Son sites rarely occur. Around Nam Dinh City, where Dong Son sites and early historical sites occur, the latter are located on the natural levees and sandbars.

Fewer brick tombs have been found at sites belonging to the later period (4th – 9th centuries), and these occur in a reduced area. To explain this expansion and reduction in the distribution of brick tombs, we need to look at maritime conditions and historical events of this period.

Foreign missions and maritime trade increased during the 1st century AD. Historical and archaeological sources confirm that the Giao Chi Chinese administrative division of the Red River plain was one of the most important commercial centres at this time (Goto 1975; Taylor 1983).

During the Han Dynasty, the maritime route that linked South China with Southeast Asia was coastal. The Han Shu mentions the importance of the ports of Xu-men on the Liu-chou peninsula and Hop-fu on the coast of Guangxi. Large numbers of brick tombs have been found in both regions, as well as in other coastal regions from Guangzhou to Thanh Hoa (Janse 1947). This archaeological evidence shows that northern Vietnam was characterized by inter-regional trade during the early 1st millennium AD, not only with the northern Chinese regions but with other coastal regions in Southeast Asia (Nishimura 2001a, b). This period of prosperous exchange is linked to the development of coastal navigation, which also linked riverine sites with sites in Giao Chi prefecture in the Red River delta. These developments are reflected in the increased numbers of brick tombs in the Red River delta. A similar phenomenon can be observed with the Oc Eo culture in the Mekong Delta (Malleret 1959-1963), where large numbers of new sites of this phase have been identified in the newly-forming lowlands.

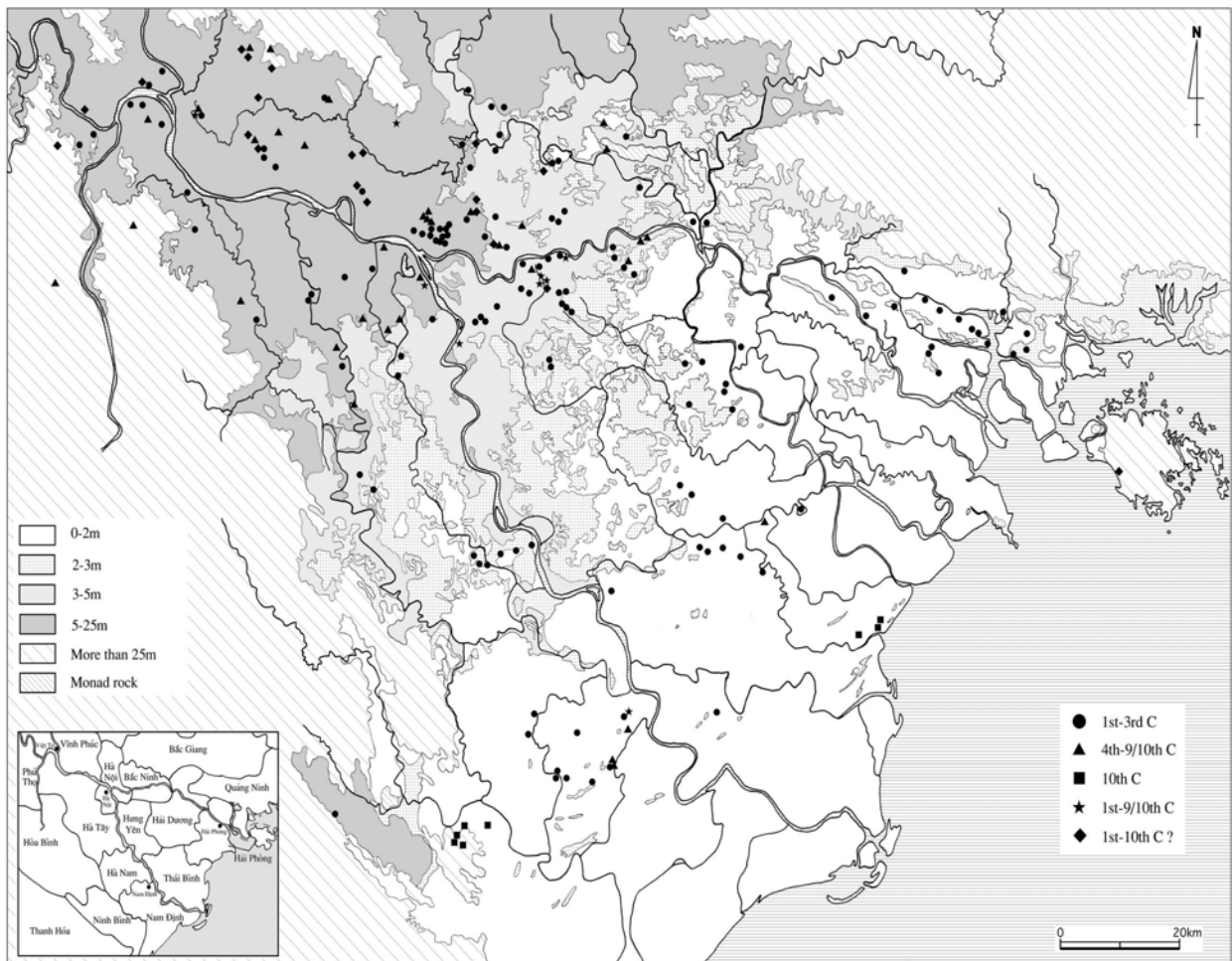


Figure 5. The distribution of early historical sites on the Red River Plain and adjacent areas.

After the Three Kingdoms period, the main Chinese Southern Sea trading route changed away from the coastal route from the Liu-chou Peninsula via Giao Chi, to direct routes along the coast of central and southern Vietnam. The western route around Hainan was probably replaced by a route from Guangzhou, to the east of Hainan, directly to central and southern Vietnam. At this time, the ports of Xu-men on Hainan Island, Hop-fu, and Giao Chi on the coast lost their importance. There can be little doubt that the changes in maritime routes were due to developments in maritime technology during the same period and the appearance of large ships (Yang 1985; Wang 1958). We know from historical sources that larger ships were used to send envoys to Taiwan at this time. Large ships from Funan also carried Chinese diplomats and commercial envoys (Wang 1958).

The later struggles between Lin-Yi and China appear to focus on Nhat Nam (Jih-nan) prefecture, and the northern part of Vietnam no longer seemed to have the same economic significance for maritime trade. For instance, the famous Chinese monk, Fa-hsien, visited Sumatra and returned directly by ship to Guangzhou. This confirms the introduction of new maritime routes between the 3rd and 5th centuries AD. The reduction in numbers of brick tombs in the Red River delta can be viewed as a direct result of these changed maritime routes. During this period, Chinese commercial interest in northern Vietnam declined, resulting in tension between local Chinese officials and indigenous groups, who frequently disobeyed Chinese officials after the 4th Century. The growing numbers of local elites no longer required brick tombs of Chinese style.

#### ACKNOWLEDGEMENT

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