Late Prehistoric and Early Historic Archaeology in Thailand: Recent Evidence from the Central Highland

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Abstract

This paper presents results of recent archaeological research in the eastern margin of central Thailand, where the majority of the area comprises of highland and terraces and little archaeological research has been previously done. Temporal focus of the paper is on the time period ranging approximately from 1000 B.C. to A.D. 1200, covering the Late Neolithic, Bronze Age, Iron Age and the Proto-historic period namely Dvaravati Period. This paper principally discusses the cultural evolution of ancient communities in the area in the context of settlement pattern, craft production, trade network, and subsistence strategy.

Introduction

The eastern margin of central Thailand, where the majority of the area comprises of highland and terraces, is relatively little known archaeologically due partly to the lack of intensive and extensive research. By and large, previous research in the area basically involves limited survey and test excavation with no consequent detailed analysis and studies (see Ho 1992). This paper is an attempt to pursue what had been done archaeologically in the area. Main focus of this paper is on a multi-phase site of Sab Champa.

Archaeological Fieldwork at Sab Champa

Sab Champa is situated at the eastern margin of central Thailand, and is about 15 kilometers east of the Pa Sak River. The site is bounded by a moat, which sits between two high walls with a stream flowing across the southern part in east-west direction. Sab Champa is located on a high limestone terrace at about 180 m above present mean sea level. There are three brick and stone structures located approximately in the middle of the ancient town. Recent immigrants have utilized this area for agricultural purposes, such as the farming of corn, chili, sugar cane, and cassava. Parts of the site were disturbed by these activities for many years until the Royal Forest Department took over the management of the area in 1992, and teak trees were planted over the walled portions of the site.

In October of 2001, I with a number of graduate students from the Department of Archaeology, Silpakorn University, reexamined the site in light of Maleipan (1979)'s and Bhumadhon (1986)'s previous works. We conducted an archaeological investigation as part of our archaeological field school. In 2002, I returned to Sab Champa to continue this research.

A transect method of survey was employed and the preliminary survey provided some hints on the distribution pattern of archaeological materials across the site. Artifactual remains, including potsherds, grinding stones, and clay anvils, were found on the surface. Following the surface survey, auger coring was utilized to survey below the surface in some parts of the site where high concentrations of artifacts were noted. Data gathered from surface survey and auger coring was used as a guideline for selecting locations for limited test excavations. In 2001, three 2X2 m test units (identified as SCP-1, SCP-2 and SCP-3, the initials "SCP" refer to Sab Champa) were excavated (see Lertrit, Jumprom, and Klinpoklab 2001 for more details). SCP-1 was opened at the northern margin of the site, whereas SCP-2 and SCP-3 units were opened on the northeast part of the site. All the units were selected for excavation in order to examine the intrasite land use and settlement pattern, site chronology, and other human activities.

In 2002, three additional test units were opened; one unit (SCP-4) was excavated in the moat in the north; the other two units (SCP-2 extension, SCP-5) were carried out in the northeastern part of Sab Champa. The SCP-4 unit was selected for excavation because it was expected to provide data about moat construction and use. SCP-5, like SCP-2 and SCP-3, was excavated in order to discern distribution pattern of activity area, domestic area, as well as the overall chronological sequence of the site. The northern portion of the site became the major focus of this research, primarily because such area had not been excavated before, and the central part of the site was previously excavated by Maleipan and had been heavily damaged by looting in recent years. The southern part was not targeted for field investigations in 2001-2002 due to the low accessibility and low visibility. However, future research will be directed toward this area.

Results and Discussion

This paper will not attempt to provide a full range of descriptive data from the investigations. It focuses instead on the preliminary results of recent analyses of some types of archaeological materials and evidence, with special reference to chronology and cultural sequence, settlement pattern, diet and consumption pattern, and long-distance trade/exchange.

Chronology and Occupational Sequence

Previous interpretations about the cultural sequence of Sab Champa were based on artifact correlation and art historical comparison. These relative dating methods suggest that Sab Champa is a multi-phase site dating from the LateNeolithic period to the early historic period known as the Dvaravati period. However, refined chronology and absolute dates have not been obtained.

Recent results of field investigations support the broad range of chronological history mentioned above. Stratigrahic and archaeological data demonstrate that the site was probably first occupied during the late Neolithic period or early Bronze Age. Supporting data for this interpretation were derived from the basal layer of SCP-2 (100-120 cm below surface) where two human skeletal remains and associated grave goods were recovered. The grave goods consisted of two bronze socketed axes, a bronze figurine, whole earthenware pottery vessels, potsherds that can be reconstructed into whole vessels, and animal bones. By stylistic and formal comparison of the ceramic vessels, it is evident that ceramic components from the earliest period of Sab Champa are similar to those excavated from the "Early Metal Age" sites in the Lower Pa Sak River Valley such as Kok Charoen, Nong Daeng, and Sab Takien (Ho 1984; Tankittikorn 1991). The bronze socketed axes from Sab Champa also exhibit great similarity in form and size to the ones found at Nong Daeng. Archaeologist Surapol Natapintu (personal communication, 2002), who excavated Bronze Age sites in the Khao Wong Phrachan Valley near Lopburi, examined the artifacts and concluded the they are identical to the axes discovered at Nil Kham Haeng which date to about 1100-700 B.C. (see also Pigott, Weiss, and Natapintu 1997). Other artifacts such as polished stone adzes made of local material and spindle whorls were excavated from the basal habitation layer of SCP-3 as well. It was unfortunate that basal layers of most of the test units were not rich in organic materials for radiometric dating even though conditions for preservation were excellent (soil pH value ranges between 8-8.5, which indicates alkaline, not acid soils). A few charcoal samples from the basal layers of SCP-3 were dated using conventional radiocarbon techniques at the laboratory of the Office of Atomic Energy for Peace (OAEP) in Bangkok. The dating samples produced surprisingly recent dates (1750 ± 240 B.P. and 1070 ± B.P.). It is difficult to know why the dates are so recent, but contamination by chemical substance derived from decayed limestone gravels that were prevalent in the basal layers is one

possibility or it may be that the samples were not collected from a securely deposited position. Based on the stratigraphic and archaeological evidence, it seems reasonable to conclude that the earliest occupation or settlement at Sab Champa began some time during the Bronze Age (600 - 100 B.C.), if not earlier.

The later occupation at Sab Champa is interpreted on the basis of cultural materials and radiometric analyses. Stratigraphic data from SCP-2, SCP-3 and SCP- 5 showed continuity of occupation from the Bronze Age deposits to the upper occupational layers, which is determined as the Iron Age. The Iron Age occupation is characterized by the presence of new ceramic types and other artifacts including iron tools, glass beads, fragments of stone and shell bracelets. Focusing exclusively on the ceramic vessels, there are several aspects that lead to the conclusion that Sab Champa ceramic vessels belong to Iron Age ceramic tradition, which is shared by other Iron Age sites in central and northeastern Thailand. First and foremost, it is obvious that the ceramic assemblages show, qualitatively and quantitatively, greater variation in form size, surface treatment and perhaps production skill than the vessels of Bronze Age ceramic assemblage. The Iron Age ceramic forms from Sab Champa include those of large pots, small pots, cups and jars. More forms have been found at other Iron Age sites situated near Sab Champa, such as Chaibadan, Puek Ree (Lertrit 2002), and Pongmanao (Natapintu 2002). Overall, the Iron Age vessel size is larger than the Bronze Age ceramics. Apart from cord-marking and keeling, burnishing or polishing is a surface treatment technique commonly found on the Iron Age ceramics in the Pa Sak River Valley and the Khorat Plateau (e.g., Higham and Thosarat 1998: 148-150; Lertrit 2002, 2003b; Welch 1989:20). One other astonishing characteristic of pottery from Sab Champa's Iron Age occupational layers is that some vessels are thin-walled relative to their gross body size. A jar with carination, for example, has thin middle body wall and it gradually thickens toward the upper and lower body wall. This is a special characteristic rarely observed in

ceramics of previous and later periods. Producing relatively large vessels with thin walls requires special skill, technique, and proper design. Radiometric analysis (AMS technique at Seoul National University, Korea, Sample # 3, SNU02-695) of a charcoal sample derived from the Iron Age occupational layer of SCP-5 has produced a date of 1510±40 B.P. or A.D. 570 (calibrated age), which stands in the terminal Iron Age or near the end of the late prehistoric period of Southeast Asia. This date fits nicely with the beginning of the next occupational sequence--the proto-historic period or Dvaravati period.

The last and longest occupational period, the Dvaravati period, was determined by the appearance of presumably classic Dvaravati artifacts including spouted pots (only spouts were recovered, not whole vessels), potsherds with stamped designs, pottery rondles (perhaps used as game-pieces), and grinding stones (see Indrawooth 1985 for more details of Dvaravati ceramics). The date of Dvaravati cultural occupation is firmly established when it is considered in concert with some more material remains reported previously by Maleipan (1979) and Bhumadhon (1986), including stone Dharmacakras (Wheels of The Law), a stone inscription, Buddha images, as well as monumental architecture such as earthwork and moat and brick structures. It has been proposed on the basis of artifact cross-dating and comparison of inscriptions that the Dvaravati occupation lasted from the sixth to the eighth centuries A.D. (Bhumadhon 1986; Maleipan 1979). To validate this interpretation, five charcoal samples from this cultural occupation were submitted for radiocarbon dating at OAEP laboratory, and unfortunately only one sample (LAB CODE = OAEP 1965) had a sufficient amount of charcoal for dating. Nevertheless, it produced a satisfactory date of 1100±190 B.P. The date and material culture are contemporaneous with other Dvaravati sites in central Thailand and early historic sites in Southeast Asia (e.g., Bronson and Dale 1972; Glover and Yamagata 1995; Indrawooth 1999; Srisuchat 1998; Stark 2000; Stark et al., 1999; Wilaikaew 1991).

Settlement Pattern and Subsistence Strategy

Archaeological evidence recovered from Sab Champa suggests an intriguing settlement pattern strategy. Stratigraphic and archaeological data clearly show that the settlement of Sab Champa was permanent and uninterrupted for at least three successive periods and for several generations. It has the longest occupation of any site in the eastern highland yet identified. However, Sab Champa may be considered as an unlikely location for a long-lived large settlement for a variety of reasons. First, Sab Champa is located in the highland area where soil is not appropriate for wet-rice agriculture and most of the land is hilly (Arayarangsarit and Khaosut 1989; Tanduan 1976). Second, Sab Champa was not easily accessible and in fact was completely inaccessible by direct river communication or transportation. Probably the easiest way to reach the site from the outside world was to take the Pa Sak River route and traverse another ca. 15-20 km on land up to the east from the river. Why then did people select the area for settlement? Several reasons are proposed.

1. Sab Champa is located near extensive natural resources, especially various kinds of stone available for craft production. The locally available, easily accessible stone resources (within less than 20 km radius) include limestone, marble, rhyolitic tuff, and emetic tuff, sandstone, and basalt (Sektheera 1989). Excavations have yielded artifacts and by-products made of these stones, including fragments of bracelets, stone adzes, ear-rings, grinding stones, stone flakes, resharpening or whetstones, and stone disks. Particularly interesting is the white marble, which was largely and intensively exploited for ornament production (mainly bracelets) during the Bronze and Iron Age occupations. It appears likely that the availability of raw materials for craft production, particularly various kinds of stone, was the prime factor attracting people into the area. Craft production was probably the key economic activity during the early settlement. Similar settlement patterns were reported from other sites in the same geographical setting of eastern margin of central Thailand (e.g., Kok Charoen [Watson 1979], Sab Lamyai

[Fine Arts Department 1988:40-42], Sab Takien [Ho 1984:92-104], Pongmanao [Natapintu 2002], and Nong Daen [Tankittikorn 1991]) and sites in the Upper Lopburi-Lower Nakhon Sawan region (Ho 1992:40-41; Onsuwan 2002)

2. Although Sab Champa is located in the highland where rivers, lakes, or other natural sources of water for consumption do not exist, this does not mean that the past inhabitants suffered from a shortage of water. There must be a number of perennial sources of water, especially natural springs and seepages. The small stream that passes through the southern portion of the site has its origin from seepages located 2 km southeast of the site. Even today, seepages remain the main water supply for people in the area. (Note that the word "Sab" in local language means "seepage" and there are many present villages in the region whose names begin with "Sab").

3. With regard to soil, the parent material of the soil in the area is limestone and marl. Soils are red and very sticky when wet and are thus classified as part of the Lopburi Soil Series called "rendzinas" which are not appropriate for wet rice cultivation and are mostly found in dry area with low rainfall (Romsonthi 1979; Ruangpanich 1982). However, this kind of soil is favorable for dry farming. As seen today, people in the area heavily rely on corn, chili, sugar cane, and peanut farming. They grow these field crops for exchange with rice and other items. It is likely that past inhabitants of Sab Champa practiced dry farming to supplement their diets (see e.g., Mudar 1995). The on-going palynological study may confirm (or contradict) this speculation.

4. Although Sab Champa was situated in uneasily accessible geographic location, it was, however, a good strategic location for defensive purposes. Political and social tension between communities might have occurred and led to the construction of the deep moat and high, massive, steep earthwork (ca. 15-20 m high and 8-10 m wide). While the moat and earthwork might have been used for water storage, they must have been built for a defensive purpose as well. A test excavation (SCP-4 Test Unit) in

the moat revealed no artifacts but some concentrations of charcoal probably eroded from the sloping wall or from recent burning activities by local people. Pollen samples were collected to examine if there were some aquatic plant remains that grew in the water in case the moat was used for long-term water storage.

5. Considered in a wider perspective, Sab Champa was situated not only in a good location for procurement of locally available resources and for defensive tactics, but also in a location that could have served as a trade and exchange center (during earlier occupations) and a religious center (during Dvaravati occupation). As will be discussed later, Sab Champa was not an isolated community.

The five reasons mentioned above help explain why Sab Champa was selected and occupied for a long period of time, though they still need additional verification. The settlement history of Sab Champa can probably be summarized in the following way: In the early period, presumably the Bronze Age, people settled in the area as a small group with a self-reliant economy (community-based stone and shell craft production), while maintaining an exchange or trade relationship with neighboring communities. Social organization might have been similar to other Bronze Age communities in central and northeastern parts of Thailand that were interpreted as heterarchical societies (Onsuwan 2002; O'Reilly 2001, 2002; White 1995; White and Pigott 1996). Extant data show that the Bronze Age occupation and burial space were concentrated in the eastern half of the site. Two Bronze Age extended supine burials (identified as adult males) that were excavated at SCP-2 provided a clue about status difference among individuals. While one individual, labeled as Burial # 1, was interred with a wealth of grave goods including a variety of large and small complete and broken vessels (N=10), bronze axe, bronze figurine, and animal bones, another individual buried next to the former had only two small simple hand-formed vessels and a bronze socketed axe as grave offerings. This suggests wealth difference among the two. However, more data are needed before definitive conclusions can be reached. Later on,

the Iron Age saw greater intensification of craft production, exchange network, and increased habitation. More shell and stone waste and fragments of ornaments were uncovered in these strata. A specialized activity area, probably workshop, for craft production was reported about 2 km southwest of the site where a large number of white marble disks and fragments of bracelets/rings/bangles had been collected by local school teachers. The domestic area seems to have expanded to cover the western half of the site. Iron Age burials have not yet been found at Sab Champa thus far. During the Dvaravati Period, there must have been an increase in population, as evidenced by increased construction, including large walls and a wide moat that would have required hundreds or even thousands of laborers to achieve these tasks. Data from pedestrian surveys and the SCP-1 test unit suggest that the domestic area during this period approached the inner wall and the site was spatially in full use. The middle portion of the site might have been reserved for religious activities and the site was more integrated, probably combining some small communities scattered in the vicinity into a larger complex. Social organization was also probably more centralized.

Diet and Consumption Pattern

Recent excavations yielded artifacts believed to have been used as food preparation utensils, such as grinding stones and ceramic vessels. In addition, a substantial amount of faunal remains were encountered during test excavations and micro botanical samples were also collected. These materials are currently under analysis. Preliminary interpretations of diet and consumption patterns are made here on the basis of general observations of the artifact assemblages.

It appears that the early occupant's staple diets were probably derived from hunting. Their major sources of protein were large terrestrial animals including wild boar, a wide variety of deer, bovine, and perhaps tiger and elephant. Shell and fish remains were rarely found, and among the aquatic animals found turtles appeared more frequently in the excavation units. Land snails were abundant

throughout the occupational sequence, but it is still uncertain if they were caught for food since no signs of preparation (e.g., cut-marks, burning, or discoloration due to heat) were observed. A large earthenware pot with cord-marked decoration was found *in situ* in the Iron Age layer of SCP-5 unit containing some unidentified small animal bones. Its interior and exterior surfaces exhibit carbon residue, suggesting repeated or frequent use for cooking. Wild plant consumption is difficult to interpret due to the lack of clear evidence. Rice consumption remains a possibility, but there was no direct or indirect evidence to show that recovered pottery vessels were tempered with sand, rather than rice chaff. Comparable faunal assemblages were excavated from sites in the lowland area along the Pa Sak River (Kijngam 1997).

A pilot study of staple isotopes of the late Bronze Age human bones (n=2; a limb bone and a rib from the same individual) from Sab Champa indicates that the individual had a diet of terrestrial herbivores with very little fish or shellfish. Results of this isotopic analysis are compatible with faunal remains discovered at the site.

It is likely that patterns of food consumption shifted quite rapidly with the advent of Dvaravati culture, from a primary dependency on animals to a major reliance on plants. Faunal remains decrease dramatically during this time, and grinding stones of various sizes were much more frequently present. The faunal assemblages comprised mainly of small to medium animals including dog, rabbit, monkey, chicken, and bird. Fish bones appeared in higher frequency, but still comprised a small fraction of the total faunal assemblages. There is no doubt that people consumed rice during this time as rice chaff was commonly found as temper in bricks, while a relatively large number of grinding stones suggest that people ate foods derived from tubers and cereal crops.

Trade, Exchange and Beyond

Throughout the settlement history of Sab Champa it is clear that people inhabiting this site were engaged in intra and inter-regional exchanges. Craft production during the early occupation was

carried out for exchange purposes, not for household use. Imported or exchanged items include copper ingots (indicated by the discovery of fragments of clay moulds and crucibles that suggest that metal production had taken place at the site), marine shells (e.g., cowrie shells), pottery vessels, and beads. Intra-regional exchange is inferred from the discovery of pottery vessels produced at such lowland sites as Nong Daeng, Chaibadan, Puek Ree, and perhaps Kok Charoen. It should be noted that no pottery producing tools and related objects such as anvils, workshops, or a large firing area were found. Copper ingots are believed to have been brought from the Lopburi' Khao Wong Prachan area, about 70 km west of Sab Champa, where large-scale copper production took place (Natapintu 1988; Pigott, Weiss, and Natapintu 1997). Inter-regional contacts were made through trade with regions as far away as the Khorat Plateau in the Northeast and the coastal area in the eastern region. Supporting evidence from the Khorat Plateau includes Phimai Black sherds and the streak burnishing surface treatment technique. Furthermore, two dimple-based bowls (the first dimple-based vessels found thus far in central Thailand) excavated from the Iron Age deposits of SCP-5 suggest cultural contact with people in the Northeast as this base form was widely found on prehistoric pottery from the Northeast (e.g., sites in the Sakon Nakhon Basin, Upper Mun River Basin, and Lower Mun River Basin) (Sukanya Baonoed; Ratchanie Thosarat; Judy Voelker; Joyce White, personal communication). Marine shells were probably brought from coastal areas for ornament production.

During the Dvaravati Period exchange was even more intensive. Some pottery types (e.g., spouted pots, and pots with flowers/animal stamped designs) are probably non-locally produced items, even though pottery production took place on the site, as we found a number of clay anvils (both on surface and from test units) and a possible firing area at SCP-5. Large grinding stones and the Wheel of the Law made of andesite and green sandstones were probably imported from western regions such as a Dvaravati stone workshop at Ban Nong Chik in Phetchaburi Province was recently identified (Krachaechan 2001).

Conclusions and Future Research

As presented above, the archaeological evidence demonstrates that Sab Champa is an important site for the understanding of archaeology in Thailand and in greater Southeast Asia. It adds several dimensions to current archaeological research questions. For example, it stands as a good case-study for prehistoric highland settlement. It can be used for the study of development of early complex society in Southeast Asia because it is a stratified site containing deep successive occupation layers from prehistoric times to the early historic period. It exemplifies an adaptation to a situation when environmental circumscription persisted. It provides additional evidence for inter-and intra-regional exchanges during the later prehistoric and early historic periods in Thailand.

As noted earlier, interpretations were made on preliminary results of investigations. Additional analyses of artifacts including glass beads, ceramic vessels and potsherds are needed before definitive conclusions can be drawn regarding Sab Champa. Furthermore, it is hoped that the future analysis of micorbotanical remains, faunal remains, and additional dating samples will provide a better understanding of the above-mentioned topics and more.

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