

Fifty Years of Archaeological Research at Dong Mae Nang Muang, an Ancient Gateway to the Upper Chao Phraya Basin

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Dong Mae Nang Muang, in Banpotpisai district, Nakorn Sawan province is the present-day name for the site of Thanya Pura, one of the northernmost settlements of Dvaravati culture (6th–11th centuries CE) in central Thailand. Research conducted to date extends from the first surveys and excavations by the Fine Arts Department in 1956 and 1967 to recent projects of master's degree students of the Faculty of Archaeology, Silpakorn University and the Fine Arts Department, Lopburi, 2008–2009. The material culture and archaeological record of the site, its period of occupation, state of preservation of extant monuments and new evidence of inhumation practices are discussed. The evidence shows that Dong Mae Nang Muang was an important political, economic, religious and artistic centre in the Upper Chao Phraya Basin.

Located in the upper reaches of the Chao Phraya Basin, the ancient site of Dong Mae Nang Muang marks one of the northernmost settlements of Dvaravati culture in central Thailand (figure 1). Strategically placed on tributaries of major river systems, the settlement flourished for a period of approximately 400 years between the 8th and 12th centuries CE. Despite being located over 300 kilometres north of the modern-day coastline, Dong Mae Nang Muang was not an isolated site on the periphery, but participated in and contributed to the vibrant cultural, religious, artistic and economic exchanges that took place within the Dvaravati culture of central Thailand.

The present article discusses the research conducted to date at the site of Dong Mae Nang Muang, from the first surveys and excavations of the Fine Arts Department in 1956 and 1967 to the recent research projects of master's degree students at the Faculty of Archaeology, Silpakorn University and the Fine Arts Department, Lopburi in 2008 and 2009.¹ The discussion begins to clarify our understanding of the site, its characteristics, material, artistic and religious culture and relationship with surrounding Dvaravati settlements in the Upper Chao Phraya Basin and central Thailand as a whole. The discussion first

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¹ Co-author Pongkasetkan's master's degree thesis for Silpakorn University, which is entitled "Cultural development of the ancient town of Dong Mae Nang Muang, Banpotpisai district, Nakornsawan province" (forthcoming in 2010), is based in part on the recent excavation work.

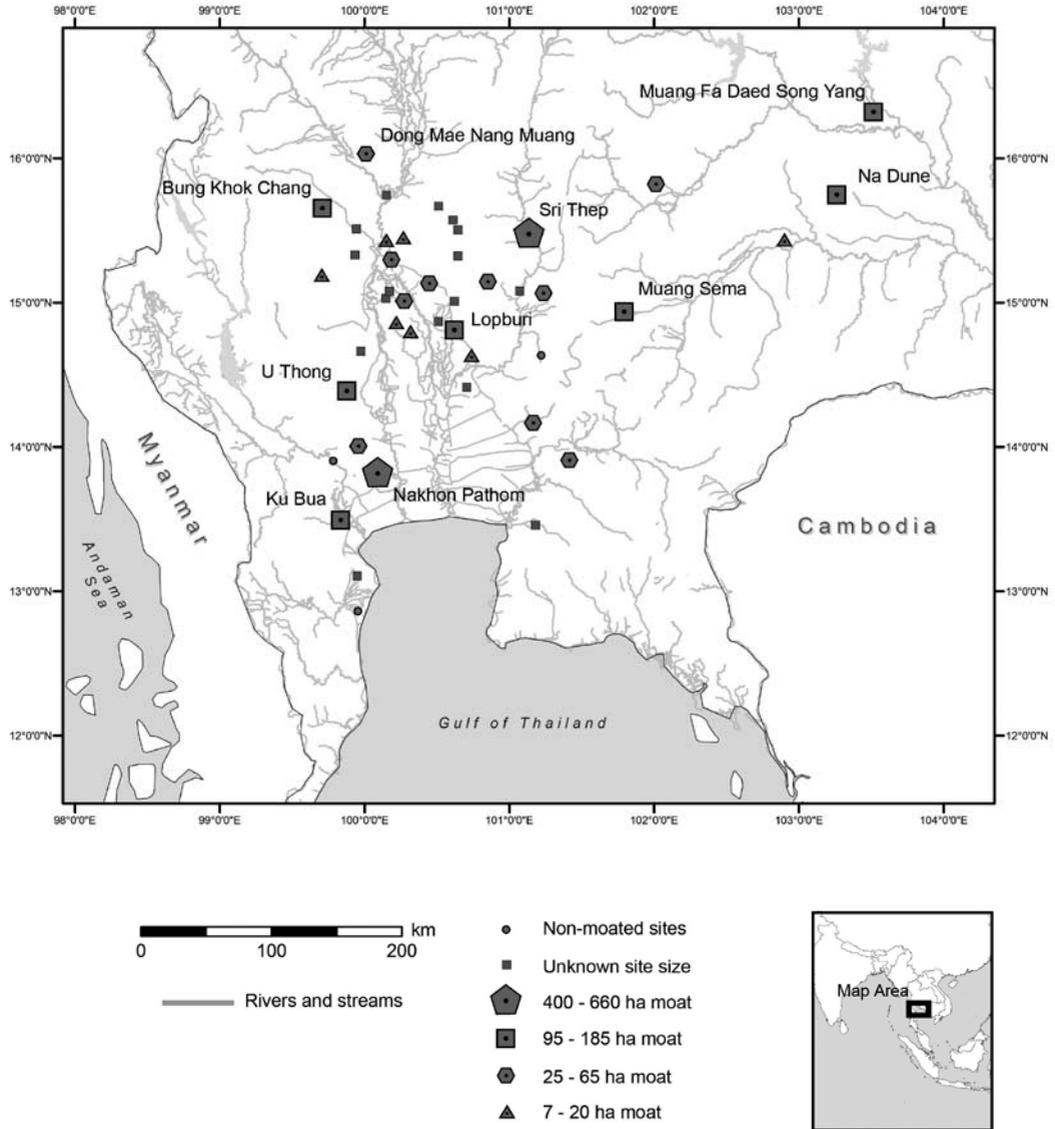


Figure 1. Map showing the site of Dong Mae Nang Muang and the major Dvāravati period settlements in the Chao Phraya Basin and northeastern Thailand. Photograph courtesy of Matthew D. Gallon.



Figure 2. View of Chedi No. 5 in 2010. Authors' photograph.



Figure 4. Map showing the site of Dong Mae Nang Muang and the areas excavated during the 2008–2009 research project. Image adapted from Google Earth.



Figure 3. Archaeological objects discovered during the course of excavation in 2009. Clockwise from the bottom: (1) Dvāravatī earthenware pottery, (2) Dvāravatī terracotta oil lamp, (3) Persian ware, (4) green-glazed Angkor-period stoneware, (5) Dvāravatī spindle whorl. Authors' photographs.



Figure 5. Three types of inhumations discovered at MS1. Clockwise from bottom left: (1) “bag” burial, (2) extended burial, (3) flex burial. Authors’ photographs.



Figure 6. Limestone *sema* located at MS1. Authors’ photograph.

contextualizes Dong Mae Nang Muang in its geographical setting with settlements in the near vicinity. Its characteristics and earlier research carried out at the site are reviewed, as well as the archaeological material and monuments discovered. The discussion covers recent survey and excavation work during 2008 and 2009 and concludes with the site's regional importance. Dong Mae Nang Muang, or Thanya Pura as it was known in antiquity, was a powerful economic, political, artistic and religious centre in its own right and, in a sense, was a gateway to and from the Upper Chao Phraya Basin.

The Upper Chao Phraya Basin

The site of Dong Mae Nang Muang lies within the region today classified as the Upper Chao Phraya Basin. A brief description of this area is provided below in order to place the site within its broader geographical context.

Definition of the Upper Chao Phraya Basin, its landforms and river systems

Research and investigations undertaken by Chulalongkorn University (Phongsabutr 1991) has approached the central basin of Thailand as two separate parts: the upper central basin, composed of the Lower Ping River and Lower Yom–Nan River, otherwise known as the “Pitsanulok Basin”; and the lower central basin, the so-called “Chao Phraya Basin”. The Chao Phraya Basin in turn is composed of the Upper Chao Phraya and Lower Chao Phraya basins. The Pitsanulok Basin's southern boundary is defined by the beginning of the Chao Phraya River at Muang district, Nakorn Sawan province. The Chao Phraya Basin includes the area of Muang district, Nakorn Sawan province as far as Samut Prakarn province, southeast of modern Bangkok.

The territory of the Upper Chao Phraya Basin consists of Kamphaeng Phet, Pichit, Pitsanulok, Nakorn Sawan and the upper part of Chainat province. The main waterways of this area are the Lower Ping River, the Lower Yom–Nan River and the Chao Phraya River. Since the Ping and Yom–Nan are major river systems that originate in northern Thailand, by the time they reach the Upper Chao Phraya Basin they have become large-scale, fast-flowing rivers with especially high water levels during the rainy season. Furthermore they have several tributaries that form large-scale river systems in their own right. Some of them, namely the Klong Kot, a tributary of the Nan River and the Huay Khamin, a tributary of the Ping River, were connected to the settlement of Dong Mae Nang Muang during the Dvaravati period, most likely for irrigation, communication and water management.

The Upper Chao Phraya Basin is characterized by alluvial plains, a result of its location at the end of major waterways and because it forms part of the middle-to-late Pleistocene delta, particularly in the area of Muang district,

Nakorn Sawan province. Having numerous important rivers and streams, the Upper Chao Phraya Basin is a fertile alluvial plain that has favoured agriculture and settlement from prehistoric times to the present day.

Dvaravati settlements in the Upper Chao Phraya Basin

Apart from Dong Mae Nang Muang, the Upper Chao Phraya Basin possesses a number of other important Dvaravati period sites. A summary of five of them below helps in placing Dong Mae Nang Muang within its wider cultural context and highlighting settlements with which it may have had both direct and indirect contact.

1. Chansen. The archaeological site of Chansen is situated in Chansen sub-district, Takhli district, Nakorn Sawan province. The settlement is a characteristically Dvaravati moated site with a surrounding rampart. The site was excavated by the Fine Arts Department in conjunction with Bennet Bronson, a doctoral student from University of Pennsylvania (Bronson 1976). The excavations revealed that the site had been occupied from the late Iron Age (1st century BCE onwards) to the Dvaravati period and also provided the first Dvaravati pottery typology for central Thailand. The most remarkable find from this site was an ivory comb, which is thought to have been imported from Taxila in present-day Pakistan. Much of the evidence from the site shows economic interaction between the local inhabitants and trade routes connected with Indo-Roman merchants.

2. U-Trapao. The archaeological site of U-Trapao dates from the late Iron Age to the Dvaravati period. Situated in Manorom district, Chainat province, in close proximity to the river terrace of the Hang Nam Sacorn, a tributary of the Chao Phraya River, it is a sub-round moated site with a surrounding rampart. One remarkable feature is the group of Dvaravati sites located in close proximity. U-Trapao therefore, may have functioned as a centre with sites such as Dongkorn, Paikwang, Klong Muay and Bangpra in Sanburi district being satellites. That may reflect a settlement hierarchy; however, more research is required to confirm or reject such an hypothesis.

The site was excavated in 1988 and 1990 by the Fine Arts Department, providing information about its cultural development from the prehistoric to Ayutthaya periods (Wilaikeo 1991). *Dharmachakra*, coins with *srivatsa* motifs, deer figurines, monuments, iron smelting furnaces and the burials were found. While the *dharmachakra*, *srivatsa* coins and monuments were thought to represent Dvaravati material culture, the furnaces and burials date from the prehistoric period.

3. Kok Mai Den. Discovered by Quaritch Wales, Kok Mai Den was excavated by the Fine Arts Department in 1965 (Wales 1965; Yupho 1965; Thailand 2000, 2002). Located in Phayuha Khiri district, Nakorn Sawan

province, the site can be separated into two parts: the territory of the ancient settlement, located on the left side of the modern-day Phaloyothin road; and an area in the nearby mountain ranges. This second settlement is composed of a moat and rampart like many other Dvaravati sites. Several monuments are located on top of a hill in a mountainous area with one of them (No. 4-2) surrounded by *sema* stones. Evidence for Dvaravati material culture found here includes votive tablets, terracotta oil lamps (referred to in Thai language as “Roman style”), a Buddhist “*Ye Dharma...*” inscription and stucco. Kok Mai Den shows no evidence of pre-Dvaravati occupation but continues to the early Sukhothai and Ayutthaya periods.

4. Khaogralone. Dating from the late prehistoric to Dvaravati period, Khaogralone is situated in Khanuworaluksaburi district, Kamphaeng Phet. The site was surveyed by students from the Faculty of Archaeology, Silpakorn University in 1987 (Sampaathip 1993); however, to date no excavations have taken place. The site is located in mountainous terrain and consists of ruined monuments with *sema* stones, numerous potsherds and polished hand-axes. Unfortunately, the occupied area and the monuments of this site were destroyed by quarrying in 1987, but there are still many artefacts visible on the surface. A number of polished hand-axes found here suggest that it may have been a production site during the late prehistoric to Dvaravati period.

5. Thap Chumpon. The site is a well-known Dvaravati settlement since a Buddhist “*Ye Dharma...*” inscription was discovered here on a terracotta stupa. Thap Chumpon is located in Muang district, Nakorn Sawan province. It is a round-shaped, moated site with surrounding rampart. While no excavations have taken place, it is known from epigraphic study (Ocharoen 1985). Survey work conducted in 2008 and 2009 by co-author Pongkasetkan has revealed carinated potsherds, fragments of terracotta stupas and Chinese ware.

All five sites are located in the Upper Chao Phraya Basin and have a number of common characteristics and material culture remains. Their location on or near river systems would have allowed for convenient access to travel by waterways. They were thus ideally placed to control trade and communication routes between themselves and Dong Mae Nang Muang as well as settlements farther afield in the Lower Chao Phraya Basin.

The Site of Dong Mae Nang Muang

Dong Mae Nang Muang is the present-day name of the Dvaravati-period settlement known through inscriptional evidence as Thanya Pura. It is situated in Banpotpisai district, Nakorn Sawan province. It is a moated site with a surrounding rampart. At some stage during the Dvaravati period, it was extended to the west by the addition of an extra moat resulting in the ground plan changing

from square-shaped to more oblong in character. The site measures 630 by 650 metres and covers an area of approximately 40 hectares.

This site came to be widely known due to the discovery of Inscription K966 of Dong Mae Nang Muang which mentions the name of a local king and is dated 1167 CE. The site is located between two tributaries of the Ping and Nan rivers, the Klong Kot or Klong Takiana, a tributary of the Nan River and the Huay Khamin, a tributary of Ping River. It appears that the inhabitants of the site adapted the tributaries of the two main rivers to create the moat and control the waterways for irrigation and water management. It also appears that they constructed a rampart, little evidence of which survives today.

The current proposed dates of occupation for the site cover the 8th to 12th centuries CE, on the basis of relative dating techniques. For example, the earthenware Dvaravati pottery suggests a date from the 8th century onwards; the stoneware and Persian ware point towards the 9th and 10th centuries; stucco found during excavations at monument MS1 is late Dvaravati in style, so falls between the 10th and 11th centuries; while Inscription K966 gives a 12th-century date. The application of absolute dating techniques (radiocarbon and thermoluminescence dating) are planned for the near future on the material excavated in 2008 and 2009 and should help in refining the occupation sequence and dating of the site.

Dong Mae Nang Muang was first surveyed in 1956 and excavated by the Fine Arts Department in 1967. Unfortunately, severe flooding at the site office resulted in loss of the excavation report; today only the notes remain (Vallibhotama 1985). At the time, the archaeological excavations at the site provided some of the most important information on Dvaravati settlements in the Upper Chao Phraya Basin.

Nowadays, the area of the site is used for growing crops such as corn, sugarcane and tapioca. The moat is still functioning, however, with water from the Ping and Nan tributaries. Most of the rampart has been greatly disturbed and almost totally levelled by cultivation, particularly in the southern and western parts of the site. A modern temple located within the western extension is named Wat Dong Mae Nang Muang. The local site museum is situated within its grounds and displays artefacts which have been collected from the site over the past five decades or so.

Previous research and publications

Archaeological research at the site of Dong Mae Nang Muang began in 1956 when the Fine Arts Department conducted survey work. Two further surveys were undertaken before the work conducted in 2008 and 2009. The following discussion highlights not only the archaeological discoveries made during this work but also the problems that have arisen due to looting and disturbance of the archaeological record. Attempts have been made to alleviate

the problem through heritage management programmes, consultation and co-operation with local villagers. However, even though looting of monuments has to a large extent been curtailed and prevented, people still regularly walk the ploughed fields in search of beads to sell at local markets.

Survey and excavations by the Fine Arts Department, 1956 and 1967. The following discussion of the 1956 survey and 1967 excavations is based on the notes that were published in 1985 (Vallibhotama), as no other literature on the subject exists.

The survey work of 1956 led to the identification of the settlement as belonging to the Dvaravati period. In the 1950s the site was covered by tropical forest with abundant wildlife, so it was called *dong*, which means “forest” in Thai. The notes that describe the site’s condition mention a number of earthen mounds being present. The survey also found a number of Buddha images, votive tablets and Inscription K966. The Fine Arts Department therefore organised an excavation project that took place 11 years later, in 1967.

The project in 1967 included a ground survey, recording of the settlement plan and excavation. The ground survey described the geography, waterways and land use. Fields were cultivated principally in annual crops and cereals. Many standing stones that were found all over the site were suggested to be *sema* stones (Vallibhotama 1985). The earthen mounds were surveyed and identified as *chedi* (stupa) and *vihara* (assembly halls). It appears that they were all excavated to a certain extent.²

The 1967 project focused primarily on the monuments. The excavations uncovered objects identifiable as Dvaravati material culture such as bronze and terracotta Buddha images, votive tablet moulds, burials and terracotta votive tablets. Since only monuments were excavated, the project did not provide detailed stratigraphical sequences for the site.

The monuments themselves were identified as mainly Dvaravati in style, but no definite conclusions were reached since only the base and foundations remained. There are a total of 15 mounds throughout the site, most of which represent monuments; one could also be a kiln. Tragically, however, all of the earthen mounds were severely looted before the Fine Arts Department’s project came about and were in an extremely damaged condition by the time the excavations took place.

The value of the project was the revelation of a significant Dvaravati settlement in the Upper Chao Phraya Basin that could in turn be compared with other Dvaravati sites throughout central Thailand. Its characteristics and the

² The surviving notes do not provide a detailed enough account to say which mounds were or were not excavated. It is also difficult to match monuments on the ground today with those described in 1967.

discovery of the inscription led it to be considered as a political and religious centre.

Survey work by students of the Faculty of Archaeology, Silpakorn University, 1987. This survey work was carried out in 1987 by students from the Faculty of Archaeology, Silpakorn University (Sampaonthip 1993). The article describes how this site was severely disturbed through looting by villagers after the Fine Arts Department excavations. The archaeological materials looted from the illegal excavations include Buddha images, votive tablets, glass and semiprecious stone beads, bronze rings and bracelets and human bone. The villagers looted the site both by hand and with machinery. This article therefore documents the amount and nature of disturbance that has occurred at the site over the years and serves as an important resource for subsequent research at Dong Mae Nang Muang.

Cultural Organization Program by Rajaphat Nakorn Sawan University. This project was carried out by Rajaphat Nakorn Sawan University in 1999 (Rajaphat Nakorn Sawan University 1999). The project aimed to do preliminary survey interviews with the villagers who lived within the area of the ancient settlement. The survey focused on the condition of the monuments and interviews were conducted to gather information about the archaeological objects that were kept by the local people. This project attempted to explain to the local villagers the importance of the site and it also gave guidelines for cultural and heritage management. The success and overall impact of this project was, however, rather limited but does at least represent an attempt to deal with the issue of looting.

The Archaeological Record at Dong Mae Nang Muang

This section provides an overview of the archaeological evidence present at the site in order to build a more complete picture of the material, artistic, religious, economic and political culture present at Dong Mae Nang Muang during the Dvaravati period.

The K966 Inscription. Discovered near a monument, Chedi No. 5 (figure 2), at the centre of town, Inscription K966 was moved to the National Museum, Bangkok in 1956 (Vallibhotama 1985). *Sema*-like in shape, it is 175 centimetres high and 37 centimetres wide. It is written in Khmer on one face and Pali on the other, and was translated by Cham Thongkamwan in 1956 (Vallibhotama 1978; Thailand 1965). Some researchers have proposed that certain words appear similar to words in the Thai language and should be considered as a prototype for Thai language in the Sukhothai period (Veeraprajuk 1983).

Inscription K966 mentions a local king named Sunat, who ruled at the city of Thanya Pura. It states the population of the city was exactly 2,012 people and defines the geographical boundary of the city itself. It also refers to a *Kamraten Jagat Sri Dharmasoka Raja* which Coedès (1961) proposed might represent a deified king or “god-king”; however, modern scholarship has largely rejected this theory with the term understood to be a title of kingship only (Jacques 1999, 44; Vickery 1998, 423–425). Woodward (2005, 163–165) argues that “*Sri Dharmasoka Raja*” refers to both the name of a king and a relic. The inscription states that on 5 February 1167 a king named Asoka gave gifts to a relic installed at Chedi No. 5. Woodward gives two explanations for this: that (1) the king gave his name to a relic of the Buddha and (2) the relic consisted of the remains of a former king also called Asoka, as this title appears to be hereditary during this period (Wyatt 1975, 29, 94–95). Referring to evidence from the Nakhon Sri Thammarat chronicles, Woodward (2005, 165) points out that a local king, also using the title Asoka, was able to discover lost relics of the Buddha which had been buried in the ground. That, claims Woodward, illustrates that the king’s power derives from his dominion over not only the soil, but the local spirits and the populace at large as only he could discover the location of the hidden relics. Perhaps a similar royal ideology was also in play with the donation of gifts to the relic installed at Chedi No. 5. Woodward further argues that King Dharmasoka did not reside at Dong Mae Nang Muang, suggesting Lopburi as a possible alternative; how Woodward reaches this conclusion is unclear.

The 12th century date of the inscription and its execution in Khmer script, paired with the reference to a *Kamraten Jagat Sri Dharmasoka Raja*, point to a degree of Khmer presence at the site. By the 12th century, central Thailand had largely fallen under the sway of Khmer political control emanating from Lopburi. The inscription may therefore represent a certain amount of Khmer influence at the site; if that is the case, it is interesting to note there is no distinct change in the material record, apart from the presence of green-glazed Angkor-period stoneware³, and no building of Khmer religious monuments, suggesting that the population by and large stayed the same.

Buddha images and votive tablets. As noted in the surveys of 1987 and 1999, there are numerous reports of votive tablets and Buddha images having been discovered at the site. Unfortunately, none of the objects were found *in situ* during excavations and therefore caution must be exercised in considering their

³ Green-glazed (ash-glazed) Angkor-period stoneware was until recently referred to as “Phnom Kulen ware” because the only kilns known to have produced this type of pottery were located there. However, recent research has revealed that similar pottery was produced at Sar Sey and Tani (Darith *et al.* 2008, 275–284).

authenticity. The site museum at Wat Dong Mae Nang Muang houses a small collection of votive tablets donated by villagers who usually discover them accidentally while farming. Iconographically and stylistically the votive tablets bear all the hallmarks of the Dvaravati period, with the Buddha usually depicted in a triad or surrounded by stupa images. The majority are probably Dvaravati in date; however, that is impossible to ascertain without secure provenance and without the application of scientific dating techniques.

Buddha images looted from the site have found their way into private collections and are largely lost to scholarship and the Thai national heritage. A photograph of one such object was published by Krairiksh (1985, 128). In form it resembles *sema* from the Khorat Plateau, with a somewhat different iconography showing the Buddha flanked by two individuals whom Krairiksh tentatively identifies as Brahma and Indra (1985, 111).

Another possibly Dvaravati Buddha image was discovered by local villagers about 30 years ago near Chedi No. 13 and brought to Wat Dong Mae Nang Muang where it remains to this day. The image is carved in low relief in double *vitarka mudra*, a Dvaravati iconographic trait, with facial features and depiction of the robe also in Dvaravati art style. This image was probably associated with one of the religious structures at the site, perhaps Chedi No. 13 itself.

There are reports of numerous bronze Buddha images from the site, with a number of them still kept by private individuals in the area. Due to their dispersal and lack of provenance, it is impossible to discuss or evaluate them in any detail.

Pottery. During the ground survey and field walking, a large amount of potsherds was discovered throughout the site (figure 3). Earthenware, or hard-baked clay vessels, and stoneware were mainly found. The majority of pottery is earthenware that is mainly used for everyday vessels and consists of such types as dishes, globular pots, carinated pots, bowls, basins and jars. Stoneware vessels that are found are usually smaller in size and come in types such as cassette shape, small jars and bowls. Earthenware finds are significant as certain types can clearly be identified as Dvaravati (referred to as Dvaravati diagnostic evidence) especially types such as the carinated pot (Indrawooth 1985), which is widespread from late prehistory to the late Dvaravati and early Ayutthaya periods. Nevertheless, no earthenware kilns have yet been discovered at the site; by now, however, they would be difficult to identify or might not have survived.

A further important observation about the earthenware pottery discoveries is the similarity with those found in certain sites in northeast Thailand. Earthenware pottery from Muang Fa Daed in Kalasin province, and from the sites of Muang Sema and Bahn Tanod in Nakorn Ratchasima province

in particular, is similar in form and design with that found in Dong Mae Nang Muang. The similarity may reflect close relations between the Upper Chao Phraya Basin and northeast Thailand.

The stoneware can be divided into two groups: Chinese Northern Song dynasty ware and Khmer green-glazed Angkor-period stoneware from kilns in Cambodia. Both the Chinese ware and the Khmer ware can be dated to the 10th to 12th centuries CE, corresponding to the middle to late Dvaravati period.

One notable type of pottery that has been discovered in plentiful amounts in both surface survey and excavation is Persian ware. This type of earthenware pottery has a distinctive turquoise glazed exterior and is datable to circa the 9th century CE. It would have reached central Thailand via trade with India. Its presence at Dong Mae Nang Muang is evidence of active economic exchange between coastal Dvaravati sites and those much farther inland. This type of pottery is usually found as part of a trade “package” along with Chinese wares such as Yue ware, Changsha ware and Xing ware. It is not possible to confirm whether such trade was also present at Dong Mae Nang Muang; future research may cast further light on the matter.

Beads. Beads are found at sites from the prehistoric period to the early Ayutthaya period. The variety created during the Dvaravati period reflects the interconnections between various communities. At Dong Mae Nang Muang, beads are found throughout the site, mostly being discovered by field walking in the present-day ploughed fields; some have been found in secure archaeological contexts. They are made either of glass in a variety of colours or of semiprecious stones or gemstone. There is no evidence of bead production in glass or gemstones in central Thailand; however, there are industrial bead sites in the Malay Peninsula such as at Khao Sam Kaeo where glass-working took place but probably not large-scale glass production (Bellina and Silapanth 2006; Lankton *et al.* 2008). Therefore, it appears that these objects were manufactured on the peninsula and then traded in central Thailand, among other areas.

The glass beads are of two types: monochrome and polychrome. While the majority of beads from the site are monochrome, usually being blue, green, orange or yellow in colour, polychrome beads are more rare; striped and mosaic beads have also been found.

Semiprecious stone and gemstone beads are quite rare at Dong Mae Nang Muang. They are usually made of quartz: agate, carnelian, quartz, rose quartz, amethyst, onyx, or garnet. Drilling of semiprecious stone beads is suggested to have been done with a pointed tool made out of metal, bone or mineral (Sarikkabutra 1980).

The presence of valuable goods such as beads at this site again illustrates that communication existed, either directly or indirectly, between sites in the

Upper Chao Phraya Basin and Dvaravati coastal settlements that controlled the maritime trade routes.

Standing stones. Survey work throughout the site has revealed numerous examples of roughly hewn limestone standing stones. Some examples seem to be associated with earthen mounds (see the discussion of MS1 below) while others are found placed in fields or ditches having no clear association with archaeological remains. As agricultural activity has increased dramatically over the last 50 years or so, most of the stones are likely no longer *in situ*. In some incidences the stones have been gathered and placed around local spirit houses while in other cases they have been placed on top of earthen mounds. As there is no clear evidence for prehistoric occupation at the site and none of the stones has been found in association with burials, they are unlikely to be megalithic in nature. Instead they most probably functioned as *sema* stones used to demarcate Buddhist sacred space.

Other artefacts. Other discoveries at the site include grinding stones, spindle whorls and stone hand-axes. Grinding stones were used to grind cereal or grain and produce food. In the Dvaravati period they have a very specific design. Spindle whorls (figure 3) were used in making fabrics and textiles. Both types of production reflect evidence of a society exploiting and utilizing its agricultural resources. The numerous grinding stones found at the site indicate that grain and cereal cultivation took place that would have produced a surplus of food for the inhabitants. The spindle whorls are found throughout the site, suggesting that textile manufacture also took place at the settlement.

Terracotta oil lamps are another artefact usually found at Dvaravati sites (figure 3). They could have been used to give light in domestic and sacred settings such as monasteries (Indrawooth 1985).

Excavations at Dong Mae Nang Muang, 2008–2009

Since the Fine Arts Department excavations in 1967, no further archaeological research has been conducted at Dong Mae Nang Muang. Since those excavations focused entirely on the monuments, no evidence for the length or nature of human occupation was obtained. Hence, the project “Cultural development of the ancient town of Dong Mae Nang Muang” was initiated by one of the present authors (Pongkasetkan) in order to explore the cultural and chronological development of the site. Field activity entailed survey work, interviewing of local villagers and excavation from January 2008 to July 2009.

Excavation of test pits TP1–TP4 and RTP1. Excavations took place between April and July 2009⁴ and consist of four 3 by 3 metre test pits (TP1–4), one test trench through the rampart (RTP1) and excavation of an earthen mound designated MS1 (figure 4). Two test pits, TP3 and TP4, were located within the interior of the moat. TP1 was located in the area enclosed by the western moat extension, while TP2 was situated outside the moat. All four test pits were excavated in order to clarify the stratigraphy and archaeological record and to provide information on the material culture, dating and activities being carried out at the site. The rampart test trench was excavated in the interior moat while MS1 lies just outside the southern moat.

TP1 was excavated to gain information on the dating and nature of the western extension of the site. The stratigraphy revealed evidence of occupation in the form of carinated potsherds, a polished hand-axe and animal bones; activity in these layers did not appear to have been particularly dense.

Dvaravati occupation was divided into two separate layers. The earlier layer, discovered at depths of between 1.50 and 1.80 metres below datum, might represent occupation in the area before the moat extension was constructed. A break occurs in the stratigraphy where no occupational evidence is found. Dvaravati occupation reappears at depths of between 40 and 80 centimetres below datum. That layer may represent later occupation of the site after the moat extension had been completed.

TP2, located outside the moat and close to the Ping River tributary, was excavated to examine the nature of the occupation and land use outside of the settlement. Very few sherds were discovered in this test pit and the stratigraphy and soil analysis suggest that the area was swampland during the occupation period of the site. The Dvaravati occupation layer is very slight, spanning depths of 20 to 50 centimetres below datum only.

TP3 was located at the centre of the settlement, close to Chedi No. 5 where Inscription K966 was discovered. The stratigraphy shows dense occupation with the Dvaravati contexts spanning depths of 20 to 150 centimetres below datum. Various types of potsherds were excavated, particularly stoneware, which was not produced locally and represents imported goods. Chinese, Khmer and Persian ware are among the pottery types found. Other artefacts such as glass and semiprecious stone beads were found in a stratigraphic layer datable to circa the 10th to 12th centuries.

TP4 was excavated at the southern part of the town, close to the southern rampart, approximately 100 metres from earthen mound MS1. Once again, the stratigraphy reveals dense occupation layers with the Dvaravati contexts

⁴ The present discussion is preliminary in nature. Full analysis of the excavated material is ongoing and a full site report will be submitted to the Fine Arts Department at Lopburi in due course.

spanning depths of 40 to 280 centimetres below datum. The pottery record was similar to TP3 and once again local earthenware, Chinese, Khmer and Persian ware was unearthed. Glass and semiprecious stone wares were again found. At the base of the pit postholes was discovered the remains of what could represent a hut or another type of structure from the Dvaravati period. Several species of animal bones were also found, mainly antelope, tortoise, fish and cow. TP4 is datable to circa the 10th to 12th centuries.

The excavation of the rampart (RPT1) took place on the western (outer) side of the inner moat. While the inner moat still remains, the rampart itself is no longer clearly visible, suggesting that it has been levelled by modern agricultural activity or was never actually very high in its original state. The test trench was 3.80 metres long and 1.50 metres wide; sterile sand was reached at a depth of 2.70 metres below datum. A number of Dvaravati earthenware sherds were found in the lower stratigraphical layers, permitting the conclusion that the moat and rampart are both of the Dvaravati period.

The test pit data yield new information about population density, habitation and economic activity at the site. The main inhabited and economic areas were located within the moat. The western extension and the area directly outside the moat appear to be much less densely occupied; further survey and excavation work are needed to give a complete picture. As would be expected, the moat and rampart are contemporaneous with the rest of the site. Their construction took place within the Dvaravati period.

Trade between Dong Mae Nang Muang and Dvaravati port towns in the Lower Chao Phraya Basin is evidenced by goods from India, the Middle East and China. While Chinese ware is commonly found in many Dvaravati sites, green-glazed Angkor-period stoneware ware is unusual. This latter type of pottery possibly indicates a direct connection with the Khmer Empire based around Angkor and may be evidence of the growing Khmer influence in the Upper Chao Phraya Basin at that time.

Excavation of the earthen mound MS1. Dong Mae Nang Muang has numerous earthen mounds inside and outside the moat. They are presumed to be religious structures of some kind, perhaps stupas, *viharn* or *ubosot*, but it is impossible to say for certain without detailed investigation of each individual structure. The loss of the site report of the 1967 excavations and the severe looting that the mounds themselves have been subjected have further compromised the research effort. In order to obtain new data and clarify understanding of the nature of the mounds, a test excavation was carried out on one such structure.

The selected mound, designated MS1, is approximately 16 by 20 metres in area and 2 metres high and lies about 100 metres south of the moat, outside the settlement. The northeast quadrant of the mound, about 20 percent of the

area, was excavated by the authors between the 12th and 26th June 2009, while the remainder of the excavation was conducted under the supervision of the Fine Arts Department, Lopburi during August and September 2009.⁵ The mound itself is surrounded by eight limestone standing stones that lie flat at its edge. Reliable reports from local villagers stated that the stones were still *in situ* and standing around the mound until some 30 years ago. With the increase in agricultural activity over the last few decades, the stones were removed and placed flat on the mound where they remain to this day.

The test excavation revealed evidence of Dvaravati pottery, finger-marked bricks consistent with those found at other Dvaravati period sites, Dvaravati-style stucco and a possible terracotta stupa finial. The mound was clearly a monument of some kind; the superstructure has, however, not survived intact. Instead there is a clear stratigraphical layer containing brick and stucco, most likely representing where the monument had subsided. The discovery of large amounts of brick suggests that the superstructure would have been built of this material and faced with stucco. This would be consistent with architectural design from the Dvaravati period. The stucco style can be classified as late Dvaravati and therefore points to a date of the 10th to 12th centuries. Further parts of a terracotta stupa finial were discovered in the Fine Arts Department excavation. From the evidence, the monument appears to have been a stupa of some kind.

Some of the most surprising discoveries during the course of both excavations, however, were the human burials at the foundation level of the monument. Over 50 inhumations were discovered in total throughout the entire area of the monument; however, they do not appear to extend outside of its boundary. Stratigraphically, the burials were found directly under the layer containing the remains of the monument proper. The layer itself is about 1 metre in depth; the burials were placed at different levels within it. The question therefore arises whether the burials predate the construction of the monument; not only are they located in a separate stratigraphic layer, but also no Dvaravati material was found within the layer of the burials themselves. However, since there is no evidence of prehistoric occupation at the site, the working hypothesis continues to be that the burials date to the Dvaravati period.

The burials can be divided into three types: extended burials, “flex” burials and what may be termed “bag” burials (figure 5). Bag burial consists of interment of the individual corpse at the time of death within a bag or sack. As a result, when this type of inhumation is unearthed, the body is usually discovered

⁵ The full site report of the Fine Arts Department excavations will be published by the Lopburi office of the Fine Arts Department in Thai language in due course. Future research at the site is planned by the present authors including further survey work, excavations and cultural resource management issues.

in a crouched position, the spine noticeably curved and the head above either the rib cage or the femurs. This type of burial has been encountered at a number of sites in central Thailand and in certain cases fragments of the bag still survive.⁶

No discernable pattern is initially visible among the burials. All three types have been found alongside each other at varying heights within the layer. There seems to be no division between male and females or adults and children. Initial analysis of the burials shows that both males and females as well as children were placed alongside each other in extended, flex and bag burials. Further detailed analysis of the remains should help clarify the issues.

Significantly, grave goods are absent. Burials in Iron Age sites in central Thailand are usually rich in grave goods. Burials found at Pong Manao in Lopburi, for example, were accompanied by a plethora of ceramic vessels, iron tools, and glass and shell beads (Natapintu 2002). Those at Ban Don Ta Phet in Kanchanaburi province possessed vast amounts of beads and some remarkable, high-tin bronze vessels (Glover 1990). At Dong Mae Nang Muang, on the other hand, no pottery or beads were found; in a number of burials, metal objects (some may be iron, others are bronze) measuring about 10 centimetres in length were found close to the cranium. No other associated finds were encountered.

At the northeast section of the mound, a line of laterite blocks was discovered running north–south and turning east–west along the perimeter, at the same level as the uppermost burials. Initially it was thought to be the foundation wall of the structure. Two factors argue against that, however. Firstly, the line of blocks does not continue around the entire mound, only in the northeast section. Secondly, the blocks are considered too small to support the weight of a monument such as that envisioned here.

Interpreting the date and precise nature of the burials is problematic due to the absence of grave goods and unavailability of comparative data. It is generally assumed that with the advent of Buddhism, cremation became the preferred form of burial. Research into Dvaravati archaeology has therefore focused primarily on site stratigraphy and analysis of monuments and earthen works. If Dvaravati cemeteries do exist, none has been discovered or excavated to date.

Recent research from the site of Pong Tuk in Kanchanaburi province, where Coedès's and Quaritch Wales's excavations are being re-evaluated, has revealed the existence of inhumation burials in the vicinity of four Dvaravati-period structures, two of which are stupas while another may be a *vihara* (Clarke, forthcoming 2010). Whether the burials are Iron Age or contemporary with the monument, and thus Dvaravati period in date, is still unclear.

⁶ Surapol Natapintu, personal communication.

Two interpretations seem possible for the burials at MS1. The first is that the monument was built over a pre-existing burial ground. If that is the case, the question arises as to what period do the burials date from and why the almost complete absence of grave goods, a characteristic at odds with every other prehistoric cemetery excavated within Thailand. Perhaps the burials therefore date to the Dvaravati period. If so, perhaps the custom was to bury the dead without grave goods of any kind.

The second possibility is that the burials are what can be termed “foundation burials”. Several contemporary sites in Burma (Moore 2007, 173–175) provide precedents whereby individuals were buried in urns beneath the foundation of Buddhist monuments and inside and outside the walls of settlements such as Halin and Sri Ksetra, presumably as part of the ritual to consecrate the space. If that is the case, the number of burials utilized is noteworthy as it would reflect a considerable number of deceased being incorporated in the ritual.

A number of avenues of future research may help to clarify the exact nature of the mound and its inhumations. First of all, a thorough analysis of the skeletal remains from both excavations needs to be undertaken.⁷ Secondly, comparisons with other monuments need to be made. At many excavation sites of Dvaravati monuments, the superstructure remains to a certain extent intact. In the majority of such cases the foundations of the monuments have not been excavated. Possibly they too possess burials that remain undiscovered. Another possibility to explore is further excavation of the earthen mounds at Dong Mae Nang Muang to ascertain whether burials were placed at the foundation level, as the surviving notes from the 1967 excavations seem to suggest. Such investigations would help determine whether the inhumations at MS1 were an isolated incident or part of a wider tradition, perhaps existing both at Dong Mae Nang Muang and other Dvaravati sites.

The standing stones placed around MS1 are most likely *sema* (figure 6). MS1 itself seems clearly to have been a religious structure, possibly a stupa, but its exact nature eludes us because of the absence of a surviving superstructure. *Sema* are usually placed around *ubosot*; notwithstanding, a number of examples of Dvaravati-period *sema* have been set up around stupa in northeast Thailand (Murphy, forthcoming 2010). Typologically, the stones from Dong Mae Nang Muang differ in material from those in the Khorat Plateau and may be classified as unfashioned *sema*. In addition their placement around a Buddhist monument strongly indicates the possibility that they functioned as *sema*.

⁷ Budget and financing allowing, the authors of this article plan to carry out radiocarbon (C14) and thermoluminescence dating on the excavated material. That should lead to more conclusive results in terms of dating of the burials and the mound itself.

Archaeological excavations often set out to answer specific research questions but end up producing more questions than answers. Such is the case with MS1, to a certain extent. While new sets of questions are welcome and can help direct future Dvaravati research, some answers have already resulted. For one, it is clear that the earthen mounds at Dong Mae Nang Muang are Buddhist monuments of one kind or another, constructed of brick and faced with elaborately decorated stucco work. The burials beneath the monument provide a vital window into Dvaravati burial customs and should alert archaeologists to the possibility that inhumation burials were still practiced to some extent during that period. Future research at the Dong Mae Nang Muang site will hopefully resolve some of the outstanding questions about monument MS1.

Dong Mae Nang Muang as a Regional Centre

The evidence presented here shows clearly that Dong Mae Nang Muang was an important regional centre in the Upper Chao Phraya Basin. Its location on the Ping and Nan tributaries opened it to communication with other sites in the area such as Khaogralone, Chansen, Thap Chumpon, U-Trapao and Kok Mai Den. Khaogralone, for instance, was also located on a tributary of the Ping River thus facilitating access with Dong Mae Nang Muang. The Ping and Nan rivers in turn join to create the Chao Phraya River with the confluence located at Pak Nam Po, Muang district, Nakorn Sawan. Dong Mae Nang Muang, with its direct access to those major waterways should therefore be considered a regional centre within the Upper Chao Phraya Basin.

From an economic and commercial point of view, this site can be considered as a trade centre. Excavations have revealed Chinese Northern Song ware, green-glazed Angkor-period stoneware, Persian ware, and glass and semiprecious stone beads. None of those products was manufactured locally; all were obtained through trade connections with sites along the coast or those plugged in to the maritime network. The excavations in 2009 unearthed Persian ware in the Upper Chao Phraya Basin for the first time. Before then, Persian ware had only ever been discovered at Dvaravati settlements in the Lower Chao Phraya Basin close to the coast. The discovery of Persian ware along with the other imported goods further emphasises the active role Dong Mae Nang Muang played in trade and commerce during the Dvaravati period. The earthenware pottery record also shows close connections with sites in the Chi and Mun river systems of northeast Thailand. It appears therefore that Dong Mae Nang Muang was interacting with both the northeast and Lower Chao Phraya Basin.

Dong Mae Nang Muang has a just-below-average Dvaravati site size of approximately 40 hectares.⁸ Inscription K966 states that by the 12th century the population numbered 2,012 people. The reliability of that figure, however, is

difficult to ascertain. Caution must be exercised in considering inscriptions of this nature, as it is not clear whether that figure referred only to the people living inside the site or included those in the surrounding hinterland as well.

The presence of the term *Kamaraten Jagat* in the inscription also reflects Khmer presence at the settlement in the 12th century CE and the existence of a clearly stratified, hierarchical societal structure. Green-glazed Angkor-period stoneware, which is regarded as a local Khmer ceramic and rarely exported (Thammapreechakorn 2010), also indicates growing Khmer influence from the 10th century onwards. The absence of Khmer monumental architecture, however, suggests that perhaps the Khmer influence was not as wholesale as it was at such other sites as Lopburi or Phimai.

Dong Mae Nang Muang also clearly functioned as an important religious settlement. Current evidence indicates the presence of Buddhism at the site from circa the 9th century onwards, while there is no indication of Hinduism such as is found at Sri Thep, Muang Sri Mahasot and other Dvaravati sites. The 15 earthen mounds found throughout the site indicate that there were religious monuments both inside and outside the moat. Excavations revealed that MS1 was likely to be a stupa. Chedi No. 5 located at the centre of the site, with a diameter of over 40 metres, was clearly a large religious monument of some kind, once again most probably a large-scale stupa. Unfortunately the widespread looting and the loss of the 1967 site report make it difficult to form a complete picture of what these monuments may have looked like. Comparisons with stupas uncovered at Kok Mai Den and the discovery of fired brick and stucco at MS1 suggest that they had brick superstructures faced with stucco in a style similar to those found at such sites as Nakorn Pathom, Ku Bua and U-Thong.

The numerous votive tablets, bronze Buddha images and stone relief Buddha images found at the site also indicate that the Dvaravati style of art, so prevalent among the religious objects of this period, was the prevailing aesthetic at Dong Mae Nang Muang. Roughly hewn limestone sema stones were set up around its religious monuments suggesting links with the Dvaravati culture present in northeast Thailand.

The site of Dong Mae Nang Muang, situated at a key geographic location in the Upper Chao Phraya Basin, developed over its 300-year life span into an important economic, political and religious settlement with considerable influence over its immediate hinterland.

In conclusion, the results of research conducted at Dong Mae Nang Muang over the past six decades allow for a preliminary synthesis of the available information that highlights a number of features about the settlement.

⁸ See Mudar (1999) for a survey and comparison of Dvaravati settlement sizes

Its geographic location permitted it to utilise and perhaps control certain waterways. The pottery evidence, in particular Persian ware, highlights the extent of its economic and trade activity. Evidence from the excavated test pits suggests that the main occupancy of the site spanned the late Dvaravati period, from circa the 10th to 12th centuries. The religious monuments and artefacts discovered at the site illustrate a flourishing Buddhist community while Inscription K966 provides a glimpse of the social and political life of the 12th century.

The work to date allows for an increasingly clear picture to be drawn, yet much research remains to be done in order to resolve a number of outstanding issues and questions. Nonetheless, it is clear that the site of Dong Mae Nang Muang was part of a larger, vibrant Dvaravati culture existing in the Lower and Upper Chao Phraya basins of central Thailand that consisted of settlements actively trading and communicating with each other, not just in terms of commercial transactions but also with regard to religious beliefs and aesthetic modes. Dong Mae Nang Muang, therefore, was truly an ancient gateway city in the Upper Chao Phraya Basin.

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References

- Bellina, B. and P. Silapanth, 2006. Khao Sam Kaeo and the Upper Thai Peninsula: Understanding the mechanism of early trans-Asiatic trade and cultural exchange. In E. A. Bacus, I. C. Glover and V. C. Pigott (eds.), *Uncovering Southeast Asia's Past – Selected papers from the Tenth Biennial Conference of the European Association of Southeast Asian Archaeologists*, 379–392. Singapore: National University Press.
- Bronson, B., 1976. *Excavations at Chansen and the Cultural Chronology of Protohistoric Central Thailand*. Dissertation, University of Pennsylvania.
- Clarke, W., forthcoming 2010. The skeletons of P'ong Tuk: A preliminary consideration of human remains in Dvaravati ritual contexts. In *Proceedings of the 19th Indo-Pacific Prehistory Association Congress*, November 29th – December 5th, 2009. Hanoi: Vietnam Academy of Social Sciences.
- Coedès, G., 1961. Les expressions *vrah kamraten an et kamraten jagat en vieux khmer*, *The Adyar Library Bulletin*, No. 25 (1–4), 447–460. Jubilee Vol.
- Darith, E. *et al.*, 2008. New data on Khmer kiln sites. In E. A. Bacus, I. C. Glover and P. Sharrock (eds.), *Interpreting Southeast Asia's Past, Volume 2: Monument, Image and Text*. Singapore: National University Press.
- Glover, I. C., 1990. Ban Don Ta Phet: The 1984–85 excavation. In I. C. Glover and E. A. Glover (eds.), *Southeast Asian Archaeology 1986*. British Archaeological Reports S-521, 139–183. Oxford: BAR.
- Indrawooth, P., 1985. *Index Pottery of Dvaravati Period*. (In Thai.) Bangkok: Silpakorn University.
- Jacques, C., 1999. *Angkor*. Cologne: Könemann.
- Krairiksh, P., 1985. Boranwatthu pob ti changwat Nakorn Sawan gon budhasatawat ti sibgao [archaeological evidence found at Nakorn Sawan before 14th century CE]. In Suporn Ocharoen (ed.), *Nakorn Sawan rath gueng glang: rai-ngan sammana prawatisat lae wattanatham tongtin changwat Nakorn Sawan* [Nakorn Sawan rath gueng glang: seminar proceedings on the history and culture of the region of Nakorn Sawan province]. (In Thai.) Bangkok: Rajaphat Nakorn Sawan University.
- Lankton, J. W. *et al.*, 2008. Glass from Khao Sam Kaeo: Transferred technology for an early Southeast Asian exchange network, *Bulletin de l'École française d'Extrême-Orient*, Vol. 93.
- Moore, E., 2007. *Early Landscapes of Myanmar*. Bangkok: River Books.
- Mudar, K., 1999. How many Dvaravati kingdoms? Locational analysis of first millennium A. D. moated settlements in central Thailand, *Journal of Anthropological Archaeology*, Vol. 18, No. 1, 1–28.

- Murphy, S. A., forthcoming 2010. The distribution of sema stones throughout the Khorat Plateau during the Dvaravati period. In *Proceedings of the 12th International Conference of the European Association of Southeast Asian Archaeologists (EurASEAA12), Leiden, The Netherlands, 1–5 September 2008*. Leiden, The Netherlands: International Institute for Asian Studies.
- Natapintu, S., 2002. Wattanatham gon prawatisat nai prathet thai [prehistoric culture in Thailand], *Borankadi lae prawatisat nai prathet thai* [archaeology and history in Thailand]. (In Thai.) Bangkok: Archaeology Department, Faculty of Archaeology, Silpakorn University.
- Ocharoen, S. (ed.), 1985. *Nakorn Sawan rath gueng glang: rai-ngan sammanna prawatisat lae wattanatham tongtin changwat Nakorn Sawan* [Nakorn Sawan rath gueng glang: seminar proceedings on the history and culture of the region of Nakorn Sawan province]. (In Thai.) Bangkok: Rajaphat Nakorn Sawan University.
- Phongsabutr, P., 2534 [1991]. *Phumilaksana prathet thai* [illustrated landforms of Thailand]. (In Thai.) Bangkok: Chulalongkorn University.
- Rajaphat Nakorn Sawan University, Department of Art and Culture 1999. *Rai-ngan kronggan garnsuksa samruat khormun peu garn wangpaen garnjudgarn lae pragad khet anuruk sing waed lom silpagum ban Dong Mae Nang Muang, Nakorn Sawan* [report of survey work project for the planning of cultural environment conservation at Ban Dong Mae Nang Muang, Nakorn Sawan]. (In Thai.)
- Sampaonthip, N., 1993. Khao Galon: Archaeology for the public. In *Muang Boran*, Vol. II (April–June), 95–109. (In Thai.)
- Sarikkabutra, P., 1980. *Primitive technology*. (In Thai.) Bangkok: Silpakorn University.
- Thailand, Government of; Fine Arts Department, 2000. *Rai-ngan beuang ton garn khutkon muang boran Kok Mai Den gon garn khut lok kumuang lae prubprung kamphaengmuang lae boransathan lae prubprung bhumithad muang boran Kok Mai Den ampore Phayuha Khiri changwat Nakorn Sawan* [preliminary report of the moat, rampart, and monument excavation before the landscape management of the ancient settlement of Kok Mai Den, Phayuhagiri district, Nakorn Sawan province]. (In Thai.) Bangkok: Archaeology Office and National Museum, Fine Arts Department.
- Thailand, Government of; Fine Arts Department, 2002. *Rai-ngan beuang ton garn boorana muang boran Kok Mai Den ampore Phayuha Khiri changwat Nakorn Sawan* [restoration report of the ancient settlement of Kok Mai Den, Phayuhagiri district, Nakorn Sawan province]. (In Thai.) Bangkok: Archaeology Office and National Museum, Fine Arts Department.

- Thailand, Government of; Prime Minister's Office, Kanagamagan jud pim ekasan tang prawatisat wattanatham lae borankadi, 2508 [1965]. *Prachum sila chareuk pahk tee sam* [inscriptions part 3]. (In Thai.) Bangkok: Prime Minister's Office.
- Thammapreechakorn, P., 2010. Development of Khmer ceramics in the Angkorean period. In D. F. Rooney, *Khmer Ceramics: Beauty and Meaning*. Bangkok: River Books.
- Vallibhotama, M., 1978. Sri Dharmasokaraja, *Thalang garn prawatisat ekasan borankadi*, Year 12, Vol. 1, January–June. (In Thai.)
- Vallibhotama, M., 1985. Buntuek khormoon rai-ngan garn kutkon kuttaeng lae sumruat ti Dong Mae Nang Muang, tambon Bang Ta ngai, ampore Banpotpisai, changwat Nakorn Sawan [notes of the excavation and survey work report of Dong Mae Nang Muang, Bang Ta Ngai sub-district, Banpotpisai district, Nakorn Sawan province]. In Suporn Ocharoen (ed.), *Nakorn Sawan rath gueng glang: rai-ngan sammana prawatisat lae wattanatham tongtin changwat Nakorn Sawan* [*Nakorn Sawan rath gueng glang: seminar proceedings on the history and culture of the region of Nakorn Sawan province*]. (In Thai.) Bangkok: Rajaphat Nakorn Sawan University.
- Veeraprajuk, K., 1983. Pop pasah thai nai jareuk gorn mee laiseutai [the discovery of Thai language in a pre-Sukhothai inscription], *Silpakorn* No. 27 (November), 76–83. (In Thai.)
- Vickery, M., 1998. *Society, Economics, and Politics in Pre-Angkor Cambodia: The 7th–8th Centuries*. Tokyo: Centre for East Asian Cultural Studies for UNESCO, The Toyo Bunko.
- Wales, H. G. Q., 1965. Muang Bon, a town of northern Dvaravati, *Journal of the Siam Society*, Vol. LIII, Part I.
- Wales, H. G. Q., 1969. *Dvaravati: The Earliest Kingdom of Siam (6th to 11th century A. D.)*. London: Bernard Quaritch Ltd.
- Wilaikeo, C. (ed.), 2534 [1991]. *The Ancient Town of U-Tra Pao*. (In Thai.) Bangkok: Fine Arts Department.
- Woodward, H., 2005. *The Art and Architecture of Thailand: From Prehistoric Times through the Thirteenth Century*. Leiden and Boston: Brill.
- Wyatt, D. (trans.), 1975. *The Crystal Sands: The Chronicle of Nagara Sri Dharmaraja*. Southeast Asia Program, Data Paper 98. Ithaca: Cornell University.
- Yupho, D., 2508 [1965]. *Borannawatthu samai Dvaravati hang mai lae rai-ngan garn khutkon borannawatthusathan na ban Kok Mai Den ampore Phayuha Khiri changwat Nakorn Sawan* [recently discovered Dvaravati archaeological evidence and site report of Ban Kok Mai Den, Phayuhagiri district, Nakorn Sawan province]. (In Thai.) Bangkok: Fine Arts Department.