

## PRE-HISTORIC SETTLEMENTS: LAMPANG MOUNDS IN CONNECTION WITH WATER, THAILAND

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### Abstract

Mound building is associated with the early settlement of pre-historic habitants who settled in the low-lying hills based on the waterflow lines before gradually transitioning to agrarian societies. This paper will present archaeological evidence along with mounds from different countries including dolmen mounds found in and around Lampang which were employed as empirical study to explore a connection with water. The study methods used are based on archaeological studies either as documentation of the cultural landscape including stories, myths, rituals, religion or fieldwork in pre-historic mounds in Lampang, Thailand. The paper will also consider the Neanderthals who were ancient humans through the elements of the cultural landscape (cave paintings, sculpture, tools and mound building) from different countries. Learning from mounds as a coincident phenomenon across various regions; then certain pre-historic archaeological features; especially in the case of mounds in Lampang province will be presented along with mounds in other countries. Cave paintings called Pratu Pha and Tha Si are illustrations of where ancient man left pictorial records on rocks, cliffs, rock shelves, and walls of caves in human, animal and abstract images painted with red ochre. Learning from mounds in and around Lampang reflects how people lived co-exist with natural and watery landscapes based on the spirits of the place (either sun or water) to manage water flow which later developed into an agrarian society. However, conclusive evidence remains uncertain due to a lack of comprehensive studies on pre-historic settlements associated with climate change as a future challenge for Thailand. Further investigation in Lampang mounds should be conducted to achieve a more comprehensive perspective together with mixed methods across multi-disciplinary collaboration from different sectors (public, private, and communities) which are imperative approaches to preserve and manage archaeological sites for Thailand to coping with climate change in a more sustainable future.

Keywords: Mounds, Settlements, Cave paintings, Dolmen, Water, Lampang

### 1. INTRODUCTION

This study was mainly based on qualitative methods using both documentary reviews of various sites and fieldwork on pre-historic archaeological sites (dated *c.*13,000 years ago after the Ice Age) in Lampang, Thailand. The paper will be presented in four parts: firstly; a pre-historic human background will be briefly presented in line with

archaeological features (ancient human and small elements of animal figures) found across the world; secondly, earthen mounds as early human settlements found in various regions will be presented; thirdly mound buildings and their relationship with nature and watery landscapes will be discussed; and finally, a conclusion and recommendations will be presented at the end of this paper.

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## 2. LITERATURE REVIEW

### 2.1 Pre-historic Human Background

Before presenting the pre-historic mounds found in Lampang province in Thailand, it is important to understand ancient habitats and habitants in the broader region first. Neanderthals who were pre-historic humans are key to decoding the evolving global culture which can be seen from a variety of activities. For example, the worship of a mother goddess, ochre paintings in their rock-shelters, cosmology, ritual burials of humans and animals (bear and dog) which are related to the early mound settlements.

Neanderthals are humans who lived around the world more than 13,000 years ago (Hardy, B. L., and et.al., 2020). Neanderthal artefacts found in various forms including a polished plaque made from a mammoth tooth. Ochre is another important piece of evidence which was often abundant at early sites in Africa; but more attention is paid into ochre crayons found at ancient rock-shelters in Northern Australia. More faunal remains or stone tools (dated 10,000 - 46,000 years ago) found at Neanderthal sites in Abri du Maras in France (Hardy, B. L., and et.al., 2020). More paintings, dated as *c.*32,000 years-old, were found at Grotte Chauvet in France (Chauvet, J. M., and et al., 1996). During the Ice Age, old beads and pendants made of stone, animal teeth, and marine fossils were found at a site called Kostenki 17 in Russia which are dated as *c.*38,000 years-old. Proliferated ornaments deposited at the rock-shelter dated *c.*35,000 years-old (Hoffecker, J. F. and et al., 2008; and Holliday and et al., 2007).

### 2.2 Ancient Human Artefacts

Neanderthals are archaic humans who lived in Eurasia until about *c.*40,000 years ago. The oldest Neanderthal bones are dated to *c.* 430,000 years old and the first specimen (Neanderthal 1) was found in the Neander Valley in Germany. Researchers point out that Neanderthals had a more robust and shorter limbs compared to modern humans. These features were adaptations to the cold climate; body-fat storage and an enlarged nose to warm

the air in breathing are advantageous cold-weather adaptations. Average heights of Neanderthal men and women were 165 cm and 153 cm. However, they most likely became extinct because of climate change, disease, and assimilation into modern human society. Neanderthals held ritual burials, which imply highly-developed social behaviours and interaction. Neanderthals lived in Europe during the ice age more than 10,000 years ago; however, this paper argues that the Neanderthals came from Asia due to a higher admixture of Neanderthal DNA found in East Asian populations. Geographical variation in the proportion of miscegenation between Homo Sapiens and Neanderthals seem likely to have contributed to neurological and behavioural differences in modern humans. Similarly, people with a Denisovan genetic admixture were found to be better able to dwell in mountainous regions. Denisovans are extinct ancient humans who lived across Asia. The first Denisovan was identified in 2010 based on DNA extraction from the Siberian Denisovan Cave. The nuclear DNA of Denisovans determines a close connection with Neanderthals and its facial features and build appear to be like that of the Neanderthals (Wolf, A. B., and Akey, J. M., 2018). Denny as called for a first generation which has a Neanderthal mother and a Denisovan father according to a cross-breed DNA in human fossils found in a Denisovan cave in 2012 (BBC, 2018).



Figure 1: The facial approximation of a woman who lived more than 13,000 years ago (Source: Hayes, S. and et.al., 2017)

Importantly, skeletal remains (skull and teeth) of ancient woman found in 2002 at Tham Lod rock shelter in the Northwest of Thailand (Hayes, S., and et. al., 2017). By applying a digital reconstruction technique on skull remains shows female face who seems likely to be a descendant of the earliest migrants in Thailand today.

It revealed that her body was laid on her left side in a relaxed position with a hammer stone across the forearm. A circle of five large pebbles surrounded by rounded limestone fragments was created on the top of her burial mound that could imply a burial ritual which may be different in different places across different regions (Hayes, S., and et al., 2017). This could be interpreted as being part of the woman's burial ritual; however, different graves presented different internment practices across the region.

### 2.3 Ancient Animals Artefacts

Animal artefacts are important archaeological evidence which has shown how ancient humans were connected with other habitats. Dogs are another part of human history and they have remained a friendly companion of humans of many ancient cultures. In ancient India, Mesopotamia, China, Mesoamerica and Egypt, people had closed ties with their dogs. It was also common in ancient Greece and Rome (Mark, 2019). The ancient temple of Gobekli-Tepe in Turkey (dated to at least *c.*14,000 years ago) has provided the earliest evidence of domesticated dogs in the Middle East (Mark, 2019). Other evidence is the discovery of an old man buried with a puppy at the Natufian Grave (*c.*14,000) in Ein Mallaha, Israel. However, the first dog domestication was found in the south of the Yantze River which can be dated back to *c.*16,300 years ago based on a DNA test of 1,500 dogs around the old world which was analysed by Peter Savolainen from the Royal Institute of Technology in Stockholm (2009, Cited in Lobell, J.A., and Powell, R., 2010).

The man-made bear graves with laid slabs and small walls at Drachenloch Cave showing how the Neanderthals connected to a cave bear-based religion. An investigation of the fossil skeleton formations makes it clear that ancient bear cult sites are bone beds of natural origin based on geological and sedimentary processes (Ina Wunn, 2001). Interestingly, bear of the Grotte Chauvet paintings in France (Figure 2) are similar to the red-ochre bears painting at the rock-shelters in Doi Pha Kan, in Lampang, Thailand (Figure 3). Additionally, painting of dog rituals was also found in the nearby red-ochre rock shelters. These animal cave-paintings indicate that the Neanderthal were wide-spread across Southeast Asia 10,000 years ago.



Figure 2: Bear of Grotte Chauvet paintings (Source: Chauvet, J.-M., Brunel, D. E., and Hillaire, C., 1996)



Figure 3: Bear of red ochre rock-shelters at Doi Pha Kan site, Ban Tha Si, Lampang in Thailand (Source: Suparp Tajai, 2016)

### 3. EMPIRICAL STUDY

#### 3.1 Mound Buildings as Early Human Settlements

The earliest human settlements which have been found in different regions, can be seen typically in the form of burial mounds which were eventually developed into a mound city. Çatalhöyük is a great Neolithic and Chalcolithic proto-city settlement in Southern Anatolia. It is a UNESCO World Heritage Site and is an example of settlements which existed from approximately 9,500 to 7,700 years ago.

The largest prehistoric population centre in the United States is the Cahokia Mounds as the UNESCO World Heritage Site located in the north of the great pre-Columbian cities in South Western Illinois. The Cahokia Mounds (known as the Mesoamerican Settlement) were built near the Missouri and Mississippi rivers in, what is today, Illinois. It was the largest and most influential urban settlement of the Mississippian culture (Baires, 2015).

The Indian Mounds of Mississippi were constructed in various shapes either as a single mound or a group of mounds. It appears that the American Indians built these mounds for mixed purposes (burial ceremonies/ graveyard, worship/ sacred place, landmarks/ territorial icons, social unity/ identity). Many earthen mounds were built by mixed American Indian groups to represent the womb as a symbol of Mother Earth (Mounds of Mississippi, n.d.)

Mounds in China referred to pyramidal shaped structures used as ancient mausoleums and burial mounds where the remains of several early emperors of China and their imperial relatives were found. About 38 mounds are located in an area of about 25 - 35 square kilometres in the North West of Xi'an, on the Guanzhong Plains in Shaanxi Province.

Grave mounds could be akin to the 'barrows' where important people were buried in Northern Europe. The individual was buried with tools, equipment and sometimes money. Several of these barrows contained Viking type ships as in Oseberg, Norway (Holck, 2017). The Sutton Hoo grave mound in Suffolk, England was evacuated by Basil Brown in 1939. A burial chamber was arranged in the centre at the lowest bottom of

the ship (27 m. in length) laden with military equipment, tools, textiles, and other treasures. This ship burial indicated that the person was of high social status in early Medieval Europe connected to the Roman past. The Sutton Hoo burial ship tells us about the final resting place of important people in society before the early seventh century during the Anglo-Saxon period (British Museum, Room 41: The Anglo-Saxon ship burial, Sutton Hoo).

Orkney is known as Orkney Islands off the north-eastern coast of Scotland, north of the coast of the main island of Great Britain. These ancient islands contain the pre-historic remains of various periods (c.11,000 to 6,000 years ago) and villages, circles of standing stones, burial mounds dating to the ancient past have been found. The Orkney Islands were designated a UNESCO World Heritage Site in 1999 (Britannica). Ancient standing stones made Orkney unique with the remains of ancient standing stones made the Orkney Islands a unique archipelago to the Northeast of Scotland. The function of many of these remains, especially the stone circles remain uncertain. These could have served as territorial landmarks, clock calendars, and perhaps, astronomical observation. They may have had religious purposes as well. The heart of Neolithic Orkney encompasses 5,000-year-old sites on the largest island including Skara Brae which was well preserved village covered by sand over time, before it was unearthed by the great winter storm in 1859. This ancient village had eight dwellings connected together by passages (c. 5,200-4,200 years ago). The discovery of a charred hazelnut shell in excavations at Longhowe, in Tankerness shows people lived in the Orkney archipelago around 9,000 years ago (Towrie, n.d.).

Mounds in Southeast Asia can be found as an assortment of different religious buildings. Traditionally, Stupa is a Sanskrit word meaning 'heap' or 'mound.' Stupas built as reliquaries are most worthy and remarkable which are well-known as Chedis in Thailand and Myanmar or Zedis in Laos. The history of stupas can be traced back to Pre-Buddhist burial mounds. However, after the establishment of Buddhism, Buddhist stupas developed into different characteristics. Later, shrines were built as more permanent

structures; the Great Stupa at Sanchi in India is an example which was built in the 3<sup>rd</sup> century BCE.

Importantly, the Neanderthals began to believe in life after death, which led to ritual burials, symbolising the sun with a circular stone relating to other megalithic cultures (A megalith is a pre-historic stone used to build single or collective monuments). After the Ice Age, ceremonies were associated with rising sun with a Sun God who controlled the timing of the earth. Evidence related to this praying sun ceremony found on the rock-shelters where red-ochre paintings of bears and dogs faced into the East to pay respect to the rising sun. Similarly, dolmen mounds with either single or multiple stones marked in the East and functioned as a solar clock and calendar. These ancient cultural landscapes in Lampang revealed a strong connection with Neanderthal belief (Zeitoun, V., and et al, 2013). More artefacts were found in sedimentary layers of burials in the Doi Pha Kan site ascertained as Hoabinhian which refer to stone artefact assemblages (containing flaked, cobble artefacts) in Southeast Asia (c. 12,000–4000 years ago). While similar perforated stones described in the literature, that were found at Doi Pha Kan dated to c.13,000 years ago. Mounds were created before Buddhism when hunters moved from cave dwellings leading to the beginning of human semi-permanent or permanent settlements; especially, in the Equatorial Zone in Thailand and Southeast Asia.

Regarding the fieldwork conducted in Lampang, cave paintings were found in human burials with dolmen stones (single-chamber megalithic graves with large supporting stones) placed on top of the mound which was about eight kilometres to the south of Ban Tha Si, Mae Moh District. This study agrees that this kind of platform mounds are used for various purposes either ceremonial burials or dwellings. After hunters moved out from their caves; the beginning of human settlements near hills and later developed into farming societies which is one of the key developments (c.7,500 years ago) during the New Stone Age (Finlayson, 2019).

Mound buildings found in and around Lampang imply ancient human settlements where people assembled themselves based on food and water resources. This paper agrees with the Crown and Judge (1991) that the mound was a beginning process of the development of a new social order including migration and the abandonment of the area based on water and food security.

### **3.2 Mounds and Their Connecting with Water**

Mounds reflect a built cultural landscape and ancient settlements. Learning from mounds across different regions will provide a comprehensive overview on how the people lived and adapted to different climatic environments over a period of time and uncertainty. Randall and Sassaman (2010: 16) agrees that mounds, buildings and watery landscapes reflect a plentiful habitation of Native American history. The Cahokian people incorporated their ways of living with water and flooding which can be seen from natural landscapes between ridge, swale and watery marshland (Baires, 2015). The layout of Cahokia was cited as cosmological alignments and a watery world. Cahokia was an agricultural society which consisted of 120 mounds surrounded by hamlets and villages (UNESCO, 2011). The Cahokian settlement was built with numerous mounds, neighbourhoods, central plazas, raised causeways, water-retaining pits, and farmland. Interestingly, these features are located to form a direct link to flood zones. Water, is not only a necessity for life; it connected the spiritual underworld with the living world (Fash BW., and Davis-Salazar KL, 2006, cited in Baires, 2015: 10).

Mounds also provide geographical, archaeological, and palaeoclimatological evidence for further investigation. The study of White, A. J., et.al., (2019) on faecal stanols revealed that a major climate transition of seasonal drought and a Mississippi River flood simultaneously occurred (c. 3150 years ago) with a decline in the Cahokia population.

Mound building (Pha Hoai Dua) in Lampang reveals early human settlements where people built a relationship with nature and water in many ways; for living and

practicing ceremonies by connecting the people with a spirit of the place. Interestingly, the Avebury complex, one of the prehistoric sites located in Wiltshire, Southwest England dating from the Neolithic period (c.4850-4200 years ago). The Avebury monuments contain three stone circles as principal ceremonial sites. These British henge monuments were built as public theatres for rituals where the people were connected with the spirits of nature, the environment and their gods. However, a combination of banks, ditches and stone circles at Avebury are not completely understood. Avebury has been designated a Scheduled Ancient Monument and a World Heritage Site in 1986 as part of the pre-historic Wiltshire landscape known as Stonehenge, Avebury, and Associated Sites (English Heritage).

Similar to Lampang pre-historic sites located in the Northern Region of Thailand, where mounds were built in association with the mountainous water system which was called *Nam Jum* in Thai.



Figure 4: A Burial Mound at Pay Maehongsorn Province near the Tham Lod rock shelter in Northwest Thailand (Source: Suparp Tajai, 2016)

A finding of the survey, was that a great number of dolmen stones found in and around Lampang were built on the top of megalithic mounds. The dolmen stones are known as *Hin Tung* (Vertical Stone in Thai) were mostly built in each watershed in the Northern region of Thailand including Lampang.

Dolmen stones or megaliths or *Hin Tung* defined sacred places and they linked the people with spirits of the sun and the water. The former spirit is marked for time and the solar calendar. The latter spirit connected the people to the water. The people pay respect these holy stones, which are called *Jao Phor Hin Tung* (Father of the megalith), in the rain-begging ceremony.



Figure 5: Pha Hoai Dua: Dolmen on the Mound, Lampang (Source: Suparp Tajai, 2016)



Figure 6: Pha Hoai Dua: Dolmen on the mound in Lampang (Source: Witiya Pittungnapoo, 2016)

Interestingly, mounds in different pre-historic sites around the world were built for various purposes. There are certain common features reflecting the relationship of the people with natural and climatic environments. The mounds in Lampang, were built for ritual ceremonies and also to underline the importance of water. The dolmen stones and megaliths were built to point a location of each village at the highest point of each watershed settlement. These stones were built on the top of hills in each watershed as a mark to manage the water flow. Similar to mounds in the Mon States, Myanmar which were built for cultivation purposes; as the sites were elevated and surrounded by farm land to increase natural drainage and to retain water (Moore, and et.al., 2016). Mounds as early human settlement reflected indigenous strategy for water management where the people manage water flow from the top hill into low-lying areas where are later applied for producing crops and growing rice as called as *Na Lum* in Thai which later developed into agrarian communities which are commonly seen in and around Thailand.

#### 4. CONCLUSION & RECOMMENDATIONS

Mounds are pre-historic settlements which were built for various purposes and based on different geological landscapes in different countries. Learning from mounds along with tangible artefacts (either human or animal) provides with more understanding of how the people lived with nature and engaged with intangible spiritual events.

Empirical study of the Lampang mounds reminds Thais to understand how the people live with nature and water. This study agrees with Sarah E. Baires (2015) and Moore (2016) that mounds in Lampang were built in association with natural and watery landscapes based on agricultural communities. More specially, dolmen mounds found in and around Lampang mark sacred and spiritual places to communicate with the sun and the water spirits and to manage the dry and the rainy seasons in a locally relevant way. Then after this spiritual worship shifted to Buddhism in relation to farming-based culture forming into the

agrarian communities existing in Thailand to this day.

Learning from mounds built in and around Lampang by looking backward from archaeological sites provided us with a perspective on how people lived with natural and cultural landscapes within certain period. However, it is imperative and important to learn by looking forward which will broaden our perspectives on how people have learnt to cope with future uncertainty across their built landscapes during increasing climate change. Local wisdom learnt from the Lampang mounds reflected how people lived with nature and water which could be applied for dealing with flooding which is a global climate challenge. Further investigation with technical and technological support should be carried on to achieve comprehensive knowledge and practical approaches for managing a natural and watery environment in more sustainable ways.

This study agrees with White et.al. (2019) that the correlation between climate and environmental changes has remained uncertain; because existing studies cannot compare environmental degradation due to separate studies based on different methods, chronological periods, and across different geographical sites. Undoubtedly, further investigation in Lampang archaeological sites should be conducted along with a combination of mixed methods to enhance comprehensive understanding.

Importantly, the study suggests that collaboration from relevant partners (public, private, communal sectors) across multi-disciplines is a crucial strategy not only to preserve and sustain the pre-historic archaeological sites in Thailand; but also, to achieve appropriate planning and management in longer-term practice. Particularly as the Lampang mounds reflect collective cultural landscapes which potentially have high learning resources which should be preserved and promoted as pre-historic learning centres for all communities with a partnership engagement. Further applications should be developed for achieving a more prosperous and sustainable future.

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