Pinle (Maingmaw): Research at an Ancient Pyu City, Myanmar

MYO NYUNT and KYAW MYO WIN
With Additional Contributions From Elizabeth Moore, Win Kyaing and Win Maung (Tampawaddy)

Translated, Annotated and Edited by Elizabeth Moore, Htwe Htwe Win and Kyle Latinis
MYO NYUNT and KYAW MYO WIN (Original Report Authors)

U Myo Nyunt, the principal excavator is the Director of the Research Section of the Department of Archaeology, Ministry of Religious Affairs and Culture. He was previously Head of Research Section of the Mandalay Branch. Kyaw Myo Win is a Research Officer of the Department of Archaeology, Ministry of Religious Affairs and Culture. He has conducted numerous excavations and in charge of the GIS programme for his department.

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Citations of this publication should be made in the following manner:

Myo Nyunt, Kyaw Myo Win, Elizabeth Moore, Win Kyaing and Win Maung (Tampawaddy), Pinle (Maingmaw): Research at an Ancient Pyu City, Nalanda-Sriwijaya Centre Archaeology Unit Archaeology Report Series No 6 (Jun 2017).

Senior Editor : Kyle Latinis
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FOREWORD

The walled Pinle (Maingmaw) occupies a special place in the early urbanisation of Myanmar with this collaborative publication being the first solely focused on the site. It follows the NSC Archaeology Unit Report on Beikthano (Thein Lwin 2016). The present publication is an edited translation of two excavation reports of Pinle with editors’ comments adding background to the documentation of the unearthing of a brick structure and gate as well as exploration of potential sites in the surrounding region. Pinle was one of the network of independent Pyu polities in the first millennium CE, larger than Halin, one of the Pyu Ancient Cities. The importance of the Pinle region continued through the 9th to 13th centuries CE Bagan period. A significant multi-lingual inscription of the late 11th century was unearthed in Myittha, 14 km to the north and a contemporaneous walled rice fort is located south of Pinle. These details underline the fertility and strategic location of Pinle, vital in understanding the prosperity of Pyu cities of the first millennium CE and the formation of the first Myanmar state at Bagan.

We thank the Ministry of Religious and Cultural Affairs (MORAC) for making available the excavation reports. In translating, editing, and augmenting these, the authors have set the excavation record within a wider context to enable readers to gain more understanding, ideas, and sources for further research.

EDITORS’ NOTE ON TRANSLATION, ANNOTATION AND EDITING

This report combines findings from excavation reports submitted to the Department of Archaeology, Ministry of Culture, Myanmar in 2009 and 2010 by U Myo Nyunt, U Kyaw Win and their team. The reports were translated to English by Elizabeth Moore and Htwe Htwe Win. The purposes for combining and translating the reports are to: a) consolidate information, b) disseminate research results, c) reach larger audiences, and d) augment data, inferences and current site conditions to assist future research, conservation, outreach, education and related undertakings. The Postscript is adapted from the conference paper ‘Excavations at Pinle and Sri Ksetra 2009-2010’ (Moore et al. 2014).

TRANSLATOR-EDITOR-AUTHOR BIOS

Elizabeth Moore is Visiting Senior Fellow at the Nalanda-Sriwijaya Centre, ISEAS – Yusof Ishak Institute and In-Region Liaison and Emeritus Professor, SOAS. She was introduced to the site by U Aung Myint (Forestry) who detected the circular site of Pinle (Maingmaw) on aerial photographs.

Htwe Htwe Win received her doctorate from the History Department, Yangon University for her thesis on ‘Votive Tablets of Myanmar’ and is an independent scholar.

Kyle Latinis is Visiting Fellow at the Nalanda-Sriwijaya Centre, ISEAS Yusof-Ishak Institute and Senior Editor of the AU Archaeology Report Series.

U Win Kyaing is Director and Principal of the Field School of Archaeology (Pyay), Department of Archaeology, Ministry of Religious and Cultural Affairs, Myanmar. He has conducted numerous excavations with his present focus being to map the Pyu and Bagan period hydrology.

U Win Maung (Tampawaddy) is a traditional architect and independent scholar. He began his investigation of the Pinle area several decades ago as part of a wider study of urbanised sites in this region. He continues this archaeological interest alongside design of traditional Buddhist structures, sculpture, and reliefs.
Pinle (Maingmaw): Research at an Ancient Pyu City, Myanmar

ABSTRACT

The combined Reports of Excavation at Pinle (Maingmaw) Ancient City highlights the rich heritage of this lesser-known site. Pinle occupies a strategic location bridging the Central Plain of Myanmar and trade routes to Yunnan. Two excavation campaigns and a wider area survey trip are highlighted in the following report. The excavation of a structure from Mound No. 15 revealed one of the finest examples of the complex brick architecture of the first millennium CE Pyu cultures. Various shapes of bricks were adeptly used to create a stepped profile for a stupa mounted on a rectilinear platform. The second excavation identified brick and wall features that were part of a rectilinear entry gate. This particular gate is distinct from those found at other Pyu cities such as Halin, Beikthano, and Sri Ksetra. Other aspects, such as the presence of numerous extra-mural structures, parallel patterns found at the other Pyu cities. A survey of villages in the area surrounding Pinle documented an impressive span of material culture, from the Neolithic to the Bagan period as well as the foundation of a village and temple in the 18–19th century Konbaung period. While no radiocarbon dates have yet been obtained, the Pyu cultural span of Pinle (Maingmaw) is suggested to have an occupational range of circa 200–900 BCE. The site is one of the gems of early urbanised settlement in Upper Myanmar and is well deserving of further research. The final section of this paper provides a comparative discussion of Pinle with other Pyu cities, particularly Sri Ksetra.

Keywords: Archaeology, Pyu City, Gates, Structures, Myanmar, Pinle, Maingmaw
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1: INTRODUCTION

1.1: Overview

The department conducted nine excavations campaigns at Pinle Myo Haung between 1979–80 and 1980–83. However, there was a gap in the department’s research for 25 years from 1983 until 2008. In May 2008, the Minister of Culture instructed the department to re-excavate and re-implement research at Pinle Myo Haung. The main aim of the excavations at Pinle Myo Haung was to further document the site, features, and material remains combined with test excavations to understand structural remains and subsurface deposits. Ultimately, the aim is to compare the archaeological evidence of Pyu culture at Pinle Myo Haung, including monumental and structural remains, with other principal Pyu cities at Beikthano, Sri Ksetra, and Halin. The project has both academic and applied value to assist ongoing research, conservation and education efforts.

The following report brings together the results of two excavations between 2009 and 2010: beginning with the excavation and description of Mound no. 15, followed by Mound no. 18 and Mound no. 19. The report is subdivided between these two campaigns to synchronise with the two original reports written in Myanmar language. In addition, the latter sections include various surveys conducted in neighbouring areas and villages for the purpose of adding further depth to the archaeological knowledge of the area—useful for building a more complete understanding of large urban site complexes and the larger context of specific sites and features.

One of the most interesting structures was identified in Mound no. 15. It is a complex architectural structure built with a wide variety of ornate bricks. The bricks have unusual morphologies. Overall, the site exhibits uniqueness, expert design, and superb craftsmanship. Another unique set of structures highlighted in this report is the entrance gate to the outer wall at Mound no. 18. This gate, in particular, is unlike other Pyu city gates. These are discussed in further detail below along with the excavations, site features, artifacts, and other material remains. Analysis and implications are discussed throughout the report.

1.2: Pyu Cities, Sites, and Material Culture

Beikthano, Halin and Sri Ksetra—the three most excavated and documented examples of the Pyu walled cities—were inscribed as the Pyu Ancient Cities (*Myo Haung*) on the UNESCO World Heritage List in 2014. The three cities formed a serial nomination with the inscription being the first from Myanmar on the World Heritage List (Thein Lwin 2016; UNESCO 2014). Other significant Pyu ancient cities include Pinle (Maingmaw), Tagaung, and Wadi (refer to maps in Figures 1–3).

Of these, Maingmaw is notable due to its absence in chronicle accounts. It was detected on aerial photographs by Aung Myint in 1965. The first excavation occurred in 1979 (Aung Myint 1998). Aung Myint used the name Maingmaw, a village at the centre of the walled city to distinguish it from a later period, smaller, cup-shaped walled fortress located to the south of the circular site. The cup-shaped fortification dates to the Bagan period. However, in recent years, Pinle as a name found in old texts, has been adopted to refer to these sites for excavations of the Department of
Archaeology, Ministry of Religious and Cultural Affairs (see Section 7 for comparison between Pinle and Sri Ksetra).

The Myanmar chronicles describe the rise of ancient cities in the transition from the proto-historic period to the Pyu cultures of the first to ninth centuries CE (Pe Maung Tin and Luce 1960). Beikthano and Sri Ksetra are the two most well-known Pyu sites mentioned in the main Myanmar chronicles (Miksic and Goh 2017:200). Oral histories, legends and myths recorded in these chronicles have proven indicative areas of past importance, although accuracy for chronological placement is limited. Alternatively, art and architectural history can be quite useful for temporal placement.

Artifact types, styles, forms, trait frequencies as well as technological traditions also assist with building relative chronologies. Although initiatives to build comparative seriations remain at early developmental stages, there are useful categories already available, such as ‘finger-marked’ bricks.

Aung Myint is also responsible for coining the term ‘finger-marked bricks’. Aung Myint first noted these while measuring bricks in the massive walls of Pinle (Aung Myint ND; Moore and Aung Myint 1991:85). Finger-marked bricks are depressed markings on one broad face of the brick with one to four finger markings while in their pre-fired plastic state. These probably indicated the maker or his village (i.e., a trademark or stamp verifying in a manner similar to a tithe, the village contribution to a new construction).

The use of finger-marked bricks gradually disappeared in the late first millennium CE; thus making them a useful temporal index of first millennium CE at sites such as Pinle where absolute dating has yet to be undertaken. This is particularly important given the paucity of radiocarbon dates from Myanmar sites. Finger-marked bricks have been found at sites in many parts of Myanmar including Rakhine (Arakan) and Tanintharyi (Tennasserim) as well as walled sites of Upper and Lower Myanmar (Moore and Aung Myint 1991).

Aung Thaw established diagnostic criteria for labelling an archaeological assemblage or site as ‘Pyu’. This system remains in use (Moore 2009). The criteria are as follows:

- Masonry structures with massive walls made of large bricks
- Silver coins
- Burial urns
- Beads
- Pottery
- Iron artefacts
- Buddhist statuary and htarpanar (relic offerings)
- Pyu inscriptions
- Fort walls with massive curved gates.

The Pyu language has not been fully deciphered, though advances have been made in recent years (Miksic and Goh 2017:195). The present-day English term ‘Pyu’ designates the only known local Brahmi-derived script recording the Tibeto-Burman (and other) languages spoken in first millennium C.E. Upper Myanmar (Moore 2009).
Every walled site has a distinct assemblage indicating the prevalence of various forms of Buddhism and animistic or ancestral worship practices represented.

Thus, ‘Pyu’ is a general term only. While most Upper Myanmar walled sites have the above diagnostic criteria, the archaeological assemblages of each of the ancient walled cities is not homogeneous as the general label of Pyu might erroneously suggest. As mentioned, assemblages are often distinct. Distinctness may also include larger features. For example, the long arms of the brick gates of Pinle are 24 m—comparable to those at Beikthano (KKG-13) which are 26 m. Both are made of similar size bricks. However, the Pinle gate is rectilinear rather than curved like the gates at Halin, Beikthano, and Sri Ksetra (Moore et al. 2014; also Section 7).

Pyu sites in general have large walls, gates, enclosures, architectural remains, and unexcavated mounds. The sites are located in relationship to water, particularly seasonal lakes and ponds often called in-gyi. Aung Myint, building on many years’ experience in ground-truthing aerial photographs, noted that the building of walls may have in fact commenced from the in-gyi, and that it is from the perspective of these natural features that the brick walls of the Pyu sites in Upper Myanmar can best be understood (Moore 2007). The urban nature attributed to Pyu sites is primarily defined by these large structural features and their scale, although morphology varies (particularly visible in shapes of outer walls). However, sites do occur in fairly consistent ecological contexts (e.g., dry zone, floodplains, nearby water sources/streams). Topography, geology, resource locations, and particularly water systems explain some of the morphological diversity.

Pottery is common at most sites and site features. There are prominent representations of funerary/mortuary jars from certain sites and feature categories. It is noted that targeted sampling strategies do not necessarily represent a full spectrum of ancient activities, habitation, and industries in the larger urban contexts. Sites that would likely contain funerary pottery are often targeted. With this in mind, various studies are now underway by students in the universities’ Department of Archaeology and the Field School of Archaeology of the Department of Religious and Cultural Affairs at all sites in a particular focus area to further understand the diversity.

Dating is problematic in the absence of a robust sampling and absolute dating methodology at most sites; further exacerbated by the difficulties of dating total chronologies at urban or large-scale settlement sites. A few excavated deposits and features have been dated at Halin, Beikthano, and Sri Ksetra, however. These place their origins in the 1st to 3rd century CE (Hudson 2015).

Absolute dates for Pinle have not yet been obtained but comparative studies of the artefacts suggest its urbanised traits date to circa the 2nd to 4th centuries CE. The inner circular area may represent an earlier occupation phase (Hudson 2004:128). It is unknown if this could be a typical Pyu city pattern. However, artefacts from mound MM12 within this circular area at Pinle yielded pre-Bagan material while the Nandawya temple near the centre is thought to have been founded in the 18–19th century CE Konbaung period (Hudson 2004:128; Kyaw Myo Win, pers. comm. 2014). Despite Pinle’s proximity to Bronze-Iron Age sites of the Samon Valley, no pre-Buddhist bronzes have yet been excavated at Pinle.
Fig. 1: Map A – Map of Ancient Sites in First Millennium CE Myanmar
(Photo by Ye Myat Lwin, 2012).
**Fig. 2a–c**: Satellite Images.

**2a: Map B** – Locations of: Halin, Beikthano, Sri Ksetra and Pinle (Maingmaw).

**2b: Relation of Pinle to plains, mountain ranges and drainages.**
1.3: Location, Environment and Morphology of Pinle

Pinle Myo Haung is located at 21° 18’ 30.83” N, 96° 12’ 37.73” E. It is a large, walled, circular site approximately 14 square kilometres in area. Structural remains and landscape features such as walls, enclosures, mounds, canals, ponds, and moats are clearly visible. Surface surveys of artifact scatters have been conducted by the department in conjunction with GPS mapping.

The general environment at Pinle Myo Haung is characteristic of Myanmar’s dry-zone. The dry-zone occurs between the north-south mountain ranges of Myanmar in the Irrawaddy River basin, stretching approximately 650 km. The Dry Zone receives 750–1000 mm of annual rainfall, but is enhanced for agricultural practices by irrigation and water control infrastructure. The basin is surrounded by the West Yoma, Northern Highlands, and the eastern Shan Plateau, with the Irrawaddy delta to the south.

Elevation at Pinle Myo Haung is approximately 114 masl (meters above sea level). The immediate terrain consists of a relatively flat floodplain with the Nat Hlwe canal running through the site. The adjacent Mon Taung Mountains are located approximately 3.0 km east and the Shan Hills escarpment (reaching approximately 1300 masl) are 13 km east.

Proximate villages include: Yakainggyi to the east, Nyaunbintha to the south, Ah Yay Ma So to the west, and Kume and Gyobinchian to the northeast. Population density is low but increasing. Aung Myint cites the number of houses in Maingmaw village at 26 in 1998 but this has now increased to 127 (Aung Myint 1998:29).
Fig. 3: **Map C:** Plan view depicting the proximity of Pinle (no 2 on map) and the Bronze-Iron cemetery sites of the Samon Valley (Moore, Win Maung (Tampawaddy), Htwe Htwe Win 2012).
Most the area is under rural agricultural production. Villagers cultivate rice, sesame, beans, and other dry-zone crops such as tubers and onion.

Pinle Myo Haung is also located near the Yangon-Mandalay expressway 14 km southeast of Kume, Myitthar Township, Kyaukse District, Mandalay Division. Previously, site access was difficult. However, the construction of the expressway to Kin-da-se (Kindar Dam), 18 km from Kume, has made it easy to reach by bus.

Based on Pinle Myo Haung’s definitive outer wall, it has an overall circular shape similar to the Sri Ksetra site. However, as recorded by Aung Myint (1998), the shape of Pinle Myo Haung’s outer wall is more rounded than Sri Ksetra, Vesali, Dhannyaawadi (Mahamuni), Thagara (Dawei), and Wadi. There are altogether three distinct brick walls at Pinle Myo Haung: a large outer encircling wall, an inner rectangular wall, and a central circular area. Their dating and function remain to be fully studied. It is possible they had multiple functions such as defense and water management. The circumference of the outer wall is approximately 9.4 km; the settlement area contained by the outer wall being approximately 7.0 km² or ha.

There are numerous villages inside and adjacent to the walled areas. Many of these may be as old as Pinle, but have not been dated. The local area surveys conducted during the research period were intended to document other sites and village antiquities in order to understand broader and more holistic settlement and urban histories tethered to Pinle (refer to Sections 5–7). Ohn Hyne Poke Village is north of Maingmaw at the centre of the site with the Nat Htwe Canal running between the two villages from northeast to southwest across the walled area. Kan Swe Village lies on the northeast covering both sides of the outer wall. Tawdwin Village and Nyaung Pin Tha Village are on the southwest just outside of the city wall. Aung Chan Thar Village is adjacent to Tawdwin Village but inside the city wall. Approximately 1.5 km outside the city wall, northeast of Kan Swe Village, is a circular area surrounded by a moat known as Wet Myo.

1.4: Background History of Pinle Myo Haung

Pinle Myo Haung was not included in ancient Myanmar chronicles. Historic documentation or references about Pinle Myo Haung are almost non-existent. Yee Sein mentioned that during the Tang Dynasty, Sri Ksetra is listed among the fortified cites and that Htumin (near Kume, interpreted as Pinle) is one of the nine forts described in the New Tang history. The nine forts include the following (Chit San Win 2011:101–2; Than Tun 2006:97):

- Thibaw (Shweli River valley)
- Kanthidar
- Myingyan (east bank of the Ayeyarwaddy River)
- Mweyin
- Halin
- Thegone
- Taungtwingyi
- Htigyaingt
- Htumin (8 km southeast of Kume)
In 1965, Aung Myint (Forestry) provided the first academic description of Pinle Myo Haung. This was part of a larger documentation effort of Myanmar’s ancient cities using aerial photography to assess the topography and shape of sites. His numerous papers following the discovery over the years culminated in the publication of Aung Myint (1988), ‘Myanmar She-haung-myo-daw-mya’ (trans: ‘Myanmar Ancient Cities from Aerial Photos’), Yangon, Ministry of Culture.

From 1979 (December)–1980, 1983–84, and 1990–91, an excavation team under the leadership of Sein Maung Oo, Archaeology Department, Mandalay Division, carried out systematic excavations at Pinle Myo Haung. In the financial year of 2008–09, another excavation team under the leadership of Aye Maung (Director) conducted research on five mounds (Mound no. 10 through Mound no.14).

As described by Sein Maung Oo in his excavation report, Maingmaw is the name of the present day village initially built in the 19th-century Konbaung period. Maingmaw is located in the centre of the walled site. The ancient name, Pinle Myo Haung, has been adopted to refer to the archaeological urban complex to include discrete sites and features within and adjacent to the main structures—particularly the encircling wall. Whether or not many of the features are contemporaneous remains unknown in the absence of absolute dating methods (e.g., radiocarbon) or relative dating methods (e.g., pottery seriation; stratigraphic analysis). Art historical knowledge helps place many of the artifacts, but a detailed comparative study with absolute dating chronologies has yet to be established. The present excavations of the site aim to begin to address some of these issues.

In 1979, the so-called Shwetagar entrance at the southeast corner of city wall was uncovered, although the characteristic features of a city wall were not identified at that time. When the current excavation team noticed a mound (Mound no. 18) on the eastern wall following exploration and survey, they concluded that it was an entry point (e.g., a gate) and made preparations to further investigate the archaeological nature.

During the 1979/80 to 1983/84 financial years, a Department of Archaeology team under Sein Maung Oo carried out a series of excavations at Pinle Myo Haung. Subsequently, a team under the leadership of Aye Maung, Department of Archaeology, Upper Myanmar, excavated five mounds containing structures between May and July 2008.

Mound sites were targeted for excavation to understand structural remains, stratigraphy, and material culture content (artifacts and ecofacts). Similar mounds often contain brick and artifact remains—interpreted to represent past religious structures. Many display indicators of structural and artefactual remains, although they existed in different states of preservation—some are partially buried, partially eroded, and/or partially destroyed. Aerial photography, satellite imagery, survey, trench excavations, plan view drawings, artifact recovery, and basic analysis are the main methods for current surface and subsurface archaeological recording, assessment and analysis.

The excavation team excavated Mound no. 15, Mound no. 16, and Mound no. 17 (initial efforts) from June to October of 2009. The excavation team stayed on-site in Maingmaw Village from 4 June to 7 July 2009 while conducting archaeological research. Subsequent efforts included excavations at Mound no. 18 at the east entrance of Pinle Myo Haung, and Mound no. 19 which is part of Pinle Myo Haung city wall to the east where artefacts found during the survey and villager reports
indicated significant features. The cluster at Mounds no. 15, no. 16, and no. 17 are located about 184 m east of Mound no. 18. Most of the excavations revealed structural remains and yielded a variety of artifacts. These are described below.

1.5: The Archaeological Team

The Department of Archaeology, National Museum and Library and Historical Research Department appointed the following excavation team to oversee archaeological projects.

- **U Myo Nyunt**: Director, Department of Archaeology (Upper Myanmar); Team Leader
- **U Kyaw Myo Win**: Officer, Department of Archaeology (Upper Myanmar); Team Member
- **U Saw San Ba Aung**: Assistant Literature, Grade 2 (Historical Research), Team Member
- **U Than Kyaw Oo**: Drawing, Grade 2, Department of Archaeology (Naypyitaw), Team Member
- **Daw Khin Swe Win**: Assistant Researcher, Department of Archaeology (Upper Myanmar), Team Member
- **Daw Thu Thu Win**: Excavation assistant Department of Archaeology (Upper Myanmar), Team Member

2: ARCHAEOLOGY OF MOUND NO. 15

This section discusses excavations and results at Mound no. 15. Excavations at Mound no. 15 were conducted before excavations at Mound no. 18 and Mound no. 19. A separate report for Mound no. 15 was originally produced while Mound no. 18 and Mound no. 19 were combined in a second report. All Mound no. 15 images are placed at the end of this section in sub-section 2.7 (Figures 4–31) similar to the original report structure.

2.1: Mound no. 15

Mound no. 15 (also MM-15) is one of 30 ancient mounds located both inside and outside the outer wall of the old city. It was recorded during the excavation team’s research in 2008. Mound no. 15 is located 79 m north of Mound no. 13 and 82 m south of Mound no.14, and approximately 184 m outside of the city wall. Mound no. 15 was selected as suitable for systematic excavation, being 46 m² and 2.8 m high.

2.2: Mound no. 15 Excavation

The excavation followed a long trench system. Work began by digging a 1.0 m wide north to south trench at Mound no. 15 to determine the location of the monument and the composition of the mound’s soil layers. To determine the main frame of the building, a daily record of the excavation levels was kept within each 5 m² grid of the excavation.
Mound no. 15 is composed of three structural levels. The top level consists of an inner cylindrical core measuring 4.9 m in diameter. The second level is a square platform approximately 6 x 6 m with rounded corners between the core and the outer frame. The third is the square main frame 15.2 x 15.2 m, located between the main and second frame. The uppermost circular structure is degraded. However, 18 brick layers (courses) with a diameter of 4.9 m on the northern part of the circular centre are evident. The building is aligned 8° east.

2.3: Mound no. 15 Pattern of Construction

The natural soil was compacted in preparation for construction. A line (alignment, facing, or wall) of bricks 1.4 m wide was laid in a square plan. A second 1.4 m wide square line was laid 2.4 m inside of the original line, also at ground level. A platform on average 2.0 m above ground level was constructed between the lines using loose earth fill. This gives the impression of a walkway.

The inner square and circular shape at the middle of the building are offset by 30 cm in their north-south alignment and are attached with bricks. Although the bricks between the circular plan (at the centre) and square plan are similar to a brick floor, the cross-section shows that 0.9 m of compact soil (hard fill) was put on top of the brick floor possibly as a control system for the plan of the inner cylindrical core.

On the east-west axis, the building has an entrance with two inclined plinths or staircases, 91 cm thick, projecting to a length of 3.6 m in a straight east-west line from the main frame of the building. These two brick lines are 2.0 m apart, with compact soil (hard fill) placed between them.

The base of plinth or staircase is finished with vertically set bricks carved on one side. After careful examination, it was determined that that the entrance of plinth on the west was more damaged than that the entrance on the east. A number of bricks had been removed (possibly stolen).

Regarding the 2.0 m projections, while it was not possible to identify clear brick tiers making a staircase, it is postulated that three steps existed to reach the main frame of the building.

On the inner part of the cross section at the plinth, there are no carved/shaped bricks unlike other sections (refer to description below on carved bricks). Of note, natural soil and a 7.0 cm thick ash layer were identified. This suggests that the plinths were made of wood. This speculation is further supported by evidence in the form of several iron artifacts (nails and pins, see below) interpreted to be used for wooden architectural features.

Although the construction of Mound no. 15 is simple, the ornamentation of this building is complex and sophisticated. This suggests very high standards and skill. Six different kinds of architectural bricks were used in the decoration with each variety placed carefully and systematically around the building.

The masonry was made up of brick courses using bricks measuring approximately 48 cm long, 23 cm wide and 7–8 cm thick placed on the compacted soil. The six varieties of architectural bricks carved on one side were vertically laid on top followed by a layer of standard sized bricks (48 x 23 x 7 cm) placed horizontally. Next, “B” shaped bricks were vertically laid, followed by a layer of standard sized bricks laid horizontally. Pointed bricks carved on one side were laid vertically, while normal size brick layers were placed horizontally.
The next layer consisted of bricks with one circular side placed vertically on which normal size bricks were again placed horizontally. Above this were bricks in the shape of a triangular brass gongs similar to bricks used today. They were laid vertically in a single layer followed normal sized bricks placed horizontally. Above this, bricks with a floral design similar to a floral horoscope (za ta pan), slate (thin boun), or palm leaf (pei ywet) were placed vertically.

No finer example of this extraordinary workmanship is witnessed around the building. If other kinds of bricks are compared with the six types recovered from the debris, related uses may be inferred.

Mound no. 15 continued with the construction of the building using standard bricks (48 x 23 x 7 cm) and then covered with a red clay plaster. Although the system of brick courses is not consistently evident, the method of laying one brick horizontally and two vertically is common.

After connecting the brick floor with the circular plinth at the centre of the building and square brick line in the inner section, the vacant spaces were then filled with compressed loose earth (fill).

Study of the floor system of the building indicated that the bricks were placed horizontally at the centre of the circular plinth and the brick line of the square plinth around the building. The loose earth fill was first compacted to make a platform approximately 90 cm high.

A floor layer about 2.1 m high was then constructed between the square plinth and that of the main building. The original ground level of the building was determined as approximately 45 cm below the present ground level.

2.4: Mound no. 15 Stratigraphy and History of Structure

The stratigraphic excavation of Mound no. 15 indicated that the centre of the building had been looted. Bricks were also extracted on the west of the building from the entry plinth where loose earth was found. Despite the damage to the building at the plinth on the west side, a layer of mixed debris and soil was partially identified. The remains of the original debris layer (after the damage to the building within the original mound) was thus called 'the original debris layer'. The place at the centre of main plinth on the north of building is slightly lower than the rest from damage probably due to lack of resistance of the underlying soils (i.e, it is sunken or compressed) or a result of natural disaster. The decoration of the brick courses on this layer was also damaged.

The most extensive area where the architectural decorations have disappeared is from the centre of the building within mound at the southwest and northeast corners of the building. In places, the original loose earth between the main brick line of the plinth and the inner brick line of the plinth is intact. In other places, there are traces of old looter pits. Areas where the period of damage were contemporaneous were able to be identified.

The historical process of plinth construction is difficult to determine because of the deteriorations through aboveground and underground processes. These include bioturbation and removal of bricks by villagers (looting). As there was no underground foundation with the structure built on the surface, it had less resistance to natural disaster despite the use of compacted earth to provide stability.
2.5: Mound no. 15 Artifacts

The objects excavated from Mound no. 15 are predominantly composed of terracotta fragments of vessels and objects related to daily religious life. Three stone beads and iron fragments were also recovered. The inventory is provided in Table 1. A typology is provided in Table 2.

Table 1: Inventory of Mound No. 15 Artifacts.

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Material</th>
<th>Measurement</th>
<th>Quantity</th>
<th>Depth/ Layer</th>
<th>Pit (square grid) &amp; location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fragments of baked clay for religious objects</td>
<td>Terracotta</td>
<td></td>
<td>13</td>
<td>2</td>
<td>C-5</td>
</tr>
<tr>
<td>2</td>
<td>Circular clay disc</td>
<td>Terracotta</td>
<td>8 cm 4 cm</td>
<td>1</td>
<td>2</td>
<td>C-3, C-5, F-5, F-4, D-3, E-3, C-6</td>
</tr>
<tr>
<td>3</td>
<td>Fragments of circular clay discs</td>
<td>Terracotta</td>
<td></td>
<td>15</td>
<td>2</td>
<td>E-3, D-3, C-6, D-6, D-5, E-3, F-4, C-3, C-5</td>
</tr>
<tr>
<td>4</td>
<td>Broken stupa-shaped pot</td>
<td>Terracotta</td>
<td>13 cm 15 cm</td>
<td>1</td>
<td>2</td>
<td>C-5</td>
</tr>
<tr>
<td>5</td>
<td>Broken stupa-shaped pot</td>
<td>Terracotta</td>
<td>12 cm 12 cm</td>
<td>1</td>
<td>2</td>
<td>C-5</td>
</tr>
<tr>
<td>6</td>
<td>Broken stupa-shaped pot</td>
<td>Terracotta</td>
<td></td>
<td>14</td>
<td>2</td>
<td>E-3, D-3, C-6, D-6, D-5, E-3, F-4, C-3, C-5</td>
</tr>
<tr>
<td>7</td>
<td>Broken medium-sized water pot</td>
<td>Terracotta</td>
<td>26 cm 10 cm</td>
<td>1</td>
<td>2</td>
<td>D-3</td>
</tr>
<tr>
<td>8</td>
<td>Broken spout: medium-sized comb-designed water pot</td>
<td>Terracotta</td>
<td>9 cm 10 cm</td>
<td>1</td>
<td>2</td>
<td>D-4</td>
</tr>
<tr>
<td>9</td>
<td>Fragments of decorated potsherds</td>
<td>Terracotta</td>
<td></td>
<td>25</td>
<td>2</td>
<td>D-5, C-3, C-5, D-3, F-5, E-3, D-4</td>
</tr>
<tr>
<td>10</td>
<td>Broken based of urn</td>
<td>Terracotta</td>
<td>31 cm 5 cm</td>
<td>1</td>
<td>2</td>
<td>D-6</td>
</tr>
<tr>
<td>11</td>
<td>Assorted potsherds</td>
<td>Terracotta</td>
<td></td>
<td>2 bags</td>
<td>2</td>
<td>F-5, E-3</td>
</tr>
<tr>
<td>12</td>
<td>Pot spouts</td>
<td>Terracotta</td>
<td></td>
<td>42</td>
<td>2</td>
<td>E-3, C-3, D-5, F-5, D-4, D-6, D-3, C-3, F-4</td>
</tr>
<tr>
<td>13</td>
<td>Finger-marked triangular brass gong shape brick</td>
<td>Baked clay</td>
<td>45 cm 18 cm 9 cm</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Black and white line design Chin-padi short double-headed drum shape</td>
<td>Stone</td>
<td>2.3 cm 0.9 cm</td>
<td>1</td>
<td>2 (35 cm)</td>
<td>D-3</td>
</tr>
<tr>
<td>15</td>
<td>Octagonal orange bead</td>
<td>Fossil wood</td>
<td>3 cm 0.6 cm</td>
<td>1</td>
<td>2 (80 cm)</td>
<td>C-5</td>
</tr>
<tr>
<td>16</td>
<td>Purple bead</td>
<td>Crystal</td>
<td>1.2 cm</td>
<td>2</td>
<td>2</td>
<td>D-4</td>
</tr>
<tr>
<td>17</td>
<td>Broken white bead</td>
<td>Crystal</td>
<td></td>
<td>2</td>
<td>2</td>
<td>E-3</td>
</tr>
<tr>
<td>18</td>
<td>Beaten nail</td>
<td>Copper</td>
<td></td>
<td>16</td>
<td>2</td>
<td>F-4, E-2, C-3, F-3, C-6</td>
</tr>
</tbody>
</table>

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Table 2: Pottery Typology of Forms Mound No. 15.

<table>
<thead>
<tr>
<th>Grid</th>
<th>Depth</th>
<th>Layer</th>
<th>Pottery Classification Form</th>
<th>Pottery Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domestic</td>
<td>Religious or Burial Urn</td>
</tr>
<tr>
<td>C-3</td>
<td>80 cm</td>
<td>2</td>
<td>- Circular ring sherd</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Spout, black coloured</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, plain</td>
<td>- Long necked pot, fragment</td>
</tr>
<tr>
<td>C-3</td>
<td>150 cm</td>
<td>2</td>
<td>- Rim, medium pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Fragment, circular clay ring</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Rim, small pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, line-decorated</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, plain</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>C-5</td>
<td>40 cm</td>
<td>2</td>
<td>- Potsherd, square reed matting design (gyuu-hta-yan-kwet 90 degree squares not slanting yaza-mat-kwet cord-mark)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, plain</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>C-5</td>
<td>140 cm</td>
<td>2</td>
<td>- Potsherd, reed matting (htyan-kwet cord-mark) design</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, plain</td>
<td>- Long necked water pot, fragment</td>
</tr>
<tr>
<td>C-6</td>
<td>23 cm</td>
<td>2</td>
<td>- Potsherd, circular</td>
<td>- Stupa-shaped pot, neck</td>
</tr>
<tr>
<td>D-3</td>
<td>40 cm</td>
<td>2</td>
<td>- Potsherd, circular</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, line-pattern</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>D-3</td>
<td>60 cm</td>
<td>2</td>
<td>- Potsherd, circular</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Rim, medium pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Rim, small pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, two small circular sherds</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>D-3</td>
<td>120 cm</td>
<td>2</td>
<td>- Potsherd, circular</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, large pot with line-designs</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherds, rim and body</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>D-5</td>
<td>50 cm</td>
<td>2</td>
<td>- Potsherd, rim with line-designs</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, decorated</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>D-5</td>
<td>90 cm</td>
<td>2</td>
<td>- Potsherd, cog or gear wheel-pattern (rouletted, kwe-thwa?)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>D-4</td>
<td>90 cm</td>
<td>2</td>
<td>- Potsherd, rim with upturned shape (everted, hnoat-chan-lan oh)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, short necked pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, decorated</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, plain red</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>D-6</td>
<td>120 cm</td>
<td>2</td>
<td>- Potsherd, plain</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>E-3</td>
<td>40 cm</td>
<td>2</td>
<td>- Potsherd, rim</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>E-3</td>
<td>90 cm</td>
<td>2</td>
<td>- Potsherds, body, medium pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>E-3</td>
<td>140 cm</td>
<td>2</td>
<td>- Potsherd, black color, sherd, of vertically scratched cord marked (let khit, vegetable shredder)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, rim, medium size pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, circular</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>E-5</td>
<td>50 cm</td>
<td>2</td>
<td>- Potsherd, rim</td>
<td>- Water pot, neck</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherds, neck, gourd-shape pot</td>
<td>- Water pot, neck</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherds, various body sherds</td>
<td>- Water pot, neck</td>
</tr>
<tr>
<td>E-6</td>
<td>40 cm</td>
<td>2</td>
<td>- Potsherd, rim</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>E-6</td>
<td>90 cm</td>
<td>2</td>
<td>- Rim fragment</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>F-3</td>
<td>30 cm</td>
<td>2</td>
<td>- Potsherd, cog or gear wheel-pattern (rouletted, kwe-thwa?)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, lip of pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, sherd with line</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>F-4</td>
<td>40 cm</td>
<td>2</td>
<td>- Potsherds</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>F-4</td>
<td>120 cm</td>
<td>2</td>
<td>- Potsherd, long circular frame/ring (ka-ywet-kwe-sheh)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potsherd, neck, gourd-shape pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>F-4</td>
<td>60 cm</td>
<td>2</td>
<td>- Potsherds, 2 fragments, circular ring (ka-ywet)</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
<td>F-4</td>
<td>120 cm</td>
<td>2</td>
<td>- Potsherds, rim fragments, medium pot</td>
<td>- Stupa-shaped pot, fragment</td>
</tr>
<tr>
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<td>- Potsherds, various</td>
<td>- Stupa-shaped pot, fragment</td>
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<td>- Potsherd, circular ring (ka-ywet)</td>
<td>- Stupa-shaped pot, fragment</td>
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2.6: Mound no. 15: Comparisons, Interpretations and Conclusions

It is noteworthy that the shape and decoration of brick courses and workmanship at Mound no. 15 are similar to that of the plinth found in excavations at Mound no. 14 at Beikthano, Ma-thee-kya-gone, and excavated Mounds no. 7, no. 8, and no. 14 at Sri Ksetra. The shape of the plinth is also similar to some stupas of Amaravati and Nagarjunakonda in South India. Moreover, comparison of images and drawings show that it closely resembles Nalanda stupa in India.

Thus, the shape of ancient stupas in India seems similar to stupas of Pyu period in Myanmar suggesting some degree of influence. The overall implications may indicate internal affinities among Pyu sites and affinities with sites further abroad in India. Of course, additional evidence is needed to make any definitive claims concerning the degree and type of influence or the possibility of chance similarities. Regardless, these factors emphasise a need for continued comparative exploration and research.

Regarding site use and function, the excavated objects indicate (e.g., the terracotta fragments) relate more to religious life than utilitarian habitation utensils. The nature of the structures and artifact content indicate that the structure was likely part of sacred space and the building’s purpose and function were likely related to religious rituals and related activities.

In summary, the excavation team completed the excavation work within one month and recorded the construction of the building, the use of the building, the conditions (i.e., the building's deterioration and partial destruction through looting), and site stratigraphy. A basic inventory and analysis of artifact remains were also completed. Plan views, side views, profiles, photo-documentation, etc. are also useful for research, education, and a form of preservation. The findings will be used to carry out further comparative research with historical and archaeological evidence as well, especially among other Pyu cities such as Beikthano, Hanlin, and Sri Ksetra.

2.7: Images for Mound no. 15 Research

The following images are scans from the original reports. There will be some granularity and slanting.
Fig. 4: Map of Pinle Drawing (Credits: Kyaw Myo Win, 2008).
**Fig. 5:** Satellite image of Pinle  
(concentric circular and square walls visible on inside of dashed lines).

**Fig. 6:** Satellite image of Pinle depicting PL-18, PL-19 and MM-15  
(Mound no. 18, Mound no. 19 and Mound no. 15 respectively); magnified window of Mound no. 15 at bottom centre of image – clearly visible from satellite.
Fig. 7: Mound no. 15 before clearing (Photo by Kyaw Myo Win, 2009).

Fig. 8: Mound no. 15 after clearing (Photo by Kyaw Myo Win, 2009).

Fig. 9: Excavation team marking out grid (Photo by Kyaw Myo Win, 2009).
Fig: 10: Excavation grids (Photo by Kyaw Myo Win, 2009).

Fig. 11: Excavation grids from northeast (Photo by Kyaw Myo Win, 2009).

Fig. 12: East to west cross-section of grid from east side.
Fig. 13: View of Mound no. 15 structure from south.

Fig. 14: View of Mound no. 15 structure from southeast.

Fig. 15: View of Mound no. 15 structure from southwest.
Fig. 16: Plinth from SW.

Fig. 17: Plinth from NW.

Fig. 18: View from East after complete excavation.
Fig. 19: Brick profiles (originals on right)  
(Photo by Kyaw Myo Win, 2008).

Fig. 20: Brick architecture profile and facings—A  
(Photo by Kyaw Myo Win, 2008).

Fig. 21: Brick architecture profile and facings—B  
(Photo by Kyaw Myo Win, 2008).
Fig. 22: Final Plan View of Mound no. 15, East Profile, and Grid System (Photo by Kyaw Myo Win, 2009).

Cross section, east view:
- Surface soil
- Sediment layer
- Cleared loose soil
- Debris layer
- Original compacted soil
Fig. 23: View from southeast after complete excavation.

Fig. 24: Sketch of Nalanda by Percy Brown, oblique view—for comparison of design, layout and structural similarities with Mound no. 15.
Fig. 25: Nails recovered during excavation (top image: originals; bottom images: profiles and cross sections).

Fig. 26: Beads recovered from excavations (top image: originals; bottom image: profiles and cross sections).
Fig. 27a-e: Ritual terracotta pottery fragments recovered from excavations.
**Fig. 28:** Inspection tour Director General 14 June, 2009.

**Fig. 29:** Explanation of the work to the Director General.

**Fig. 30:** Preparation of temporary site shelter.

**Fig. 31:** Completion of temporary site shelter.
3: ARCHEOLOGY OF MOUND NO. 18 AND MOUND NO. 19

This section discusses excavations at Mound no. 18 and Mound no. 19 (also PL-18 and PL-19 respectively). The excavations were conducted after the Mound no. 15 excavations. Mound no. 18 and Mound no. 19 were previously included as part of a separate report which composes most of the following section ('Preliminary Excavation Report of Mound no. 18 and no. 19' in Myanmar language). As with section 2, the images are provided at the end of the section for convenience and in accordance with the original report.

3.1: Mound no. 18

Mound no. 18 is particularly interesting because it represents an entry point or gateway on the east side of Pinle Myo Haung at the midpoint of the city wall on the east side (21° 18’ 19.4” N; 96° 13’ 26.9” E). The mound measures 18 m north-south, 30 m east-west, and 2.0 m in height. Although excavations at Pinle Myo Haung have been relatively frequent since 2008, this was the first time an entrance into the walled area was systematically excavated and documented.

3.1.1: Mound no. 18 Excavation

The excavations followed a trench system by digging a lengthy 1.0 m wide north-south trench at Mound No. 18 and at Mound no. 19 to determine the location of the architectural remains, the stratigraphy, and the geomorphology of soil layers. To determine the main frame of the building, a daily record of the levels was kept within each 5 m² grid of the excavation.

From excavation results at Mound no. 18, it was determined that the eastern city gate consisted of two 2.0 m long outward extensions from the main wall. It appears the extensions served as a walled entry corridor and gateway. The two extensions are parallel to each other with a 5.0 m spacing in between. Both are perpendicular to the main city wall.

The north arm (extension) and a part of the gate where it attached to the wall are missing. The southern arm is more complete. The design indicates the arms were not the typical Pyu city inward-curving walls. Rather, they were connected at right angles to the city wall. It is estimated that the length of the two arms to the city wall was originally 24 m. As stated, the arms were separated by a 5.0 m width. At the right angle juncture with the city wall, an enclosure with a 90 cm thick brick wall was found. Inside the city wall, the plan of a structure approximately 30 cm by 62 cm was also found in the brickwork. The brick feature is inclined 10° to the north. This may be related to the gate closure mechanism or architecture.

3.1.2: Mound no. 18 Pattern of Construction

Following a typical system of Pyu site construction, the natural soil was first levelled and compacted. To ensure the ground was subsequently capable of bearing the volume of brick, a humus, and a mud layer was prepared under a humus layer where the foundation was laid. Given that Mound no. 18 is the entrance of the city wall on
the east and also the connection between the gate and the wall, the foundation layer and the upper fortification of the city wall appears to have been uniquely engineered.

During the initial stage of wall construction, two courses of bricks (46 x 23 x 7.6 cm) were laid flat in several patterns. Next, seven brick courses redented about 30 cm were stacked. Finally, the upper 10 redented brick courses 2.5 cm were added. This upper portion is not solid, measuring approximately 2.1 m of the brick wall. The bricks were laid horizontally and vertically and the cavity between the two brick lines were filled with pounded debris.

The entrance and city wall are of equal volume, attached with the two straight arms at right angles (length of the two arms: approximately 24 m; distance between the two arms: approximately 5 m). The roadway between the two arms has the appearance of concrete, a surface referred to in Myanmar language as myae thā yo: (transcribed) or myae ni thā yoe (common Romanisation) or ‘red earth substance akin to that used to make molded lacquer decoration’. Under this concrete-like substance, fill was systematically placed. The thickness of the concrete level varies because of the unequal levels of the foundation fill. Thus, it is not consistently thick from one place to another.

A brick platform, measuring about 61 cm high lies on the outside of the right angle intersection of the city wall and gate. It is partially obstructing the entrance/gate to the city. This suggests that it was likely part of a gate closure system.

Another brick line about 1.2 m thick was constructed across the centre of the entrance. It appears to connect with the north arm of the city wall. After excavation, the part of the connection with this north arm of the city wall on the north was completely damaged making exact assessment difficult. This is also the case as the 1.2 m brick line served to close the left side of the 5.2 m wide entry to the centre of the city, leaving an entrance of about 2.4 m wide for bullocks to move in and out. This is significant evidence of protection in conjunction with the other brick line 3.3 m in from the angled entrance which was 76 cm thick and 2.4 m in length projecting straight into the entry road. There is no other evidence for systematic closure of the door outside the entrance of city wall except a brick platform. As the present excavation represents the first entryway of Pinle myo haung to be unearthed, the pattern of construction can be further clarified in coming years when more of Pinle’s entrances are excavated. It is noted below that the only parallel for this gate feature is seen at Sri Ksetra.

3.1.3: Mound no. 18 Stratigraphy and History of Structure

A number of tree roots were found in mound no. 18 on top of a layer of natural soil, brick debris, lumps of the original humus, and the current layer of humus mixed with the natural soil. Large trees typical of this area such as the Neem or Margosa (tama - Azadiractha indica; cutch - Acacia catechu) and others grow on the surface of the mound at the entrance. The roots of these trees have damaged approximately two-thirds of the brick arms of the gateway at the entrance to the city. The damage below ground level has also resulted from disturbances by plants, animals, and people. Originally, the arms reached below the surface.

Pits and other damage were also caused by local people excavating and removing bricks. Kan Swe is on the east of city wall with the entrance of Mound no. 18 on the road leading to the village. Local people informed us that the rough ground
in this area was levelled by machines 20 years ago, leaving rough uneven ground and large clumps of thick loose earth. People have taken advantage of exposed structures and removed bricks and other materials. Two damaged modern knives from this layer were discovered, probably left during the removal of bricks by the villagers.

The entrance on the south side of the city wall is better preserved, with the layer of manmade compacted earth remaining between the city wall and the gate arms. A layer of debris with broken bricks about 30 cm thick was discovered under the disturbed loose layers of the east part of the north arm. A charred wooden pillar was also found within this layer. This evidence suggests that the entry gate, Mound no. 18, was damaged by fire and then rebuilt.

The brick debris and wooden pillar remains connect both repaired arms to the old pit suggesting a total length of approximately 14.3 m. Examination of the bricks used for the repair indicate that they are smaller by about 2.5 cm in length than those used in the first building.

The remains of the gateway within the surrounding wall and the floor system are particular to Pinle Myo Haung. At most other Pyu sites, the gateways are long and curved and not blocked in a similar defensive manner. Both sides of the roadway demarcated by the two 24 m brick arms frame the east entrance of city wall. Within these arms, debris has been placed systematically on compacted earth approximately 13 cm thick. The debris was flattened to make a concrete-like surface (myae tha yo mentioned above).

Interestingly, traces of old cart tracks can be seen as wavy patterns on the concrete-like surface between the two arms through the entrance. Some were the breadth of normal bullock cart wheels, approximately 23 cm and some were 28 cm wide. This undulating pattern was studied over a distance of circa 1.5 m. From this it is deduced that the many domestic bullock carts of the Pyu period were about 1.5 m wide with the wheel traces between 13 and 18 cm, similar to present day bullock carts.

3.2: Mound no. 19

Mound no. 19 is a type of fortification and lies at the middle of the Pinle Myo Haung city wall on the east and 85 m south of Mound no. 18 (GPS reading of 21° 18' 16.3'' N; 96° 3' 26.9'' E). It is connected with the south arm of the east gate of Pinle (mound-18) and measured 45.7 m north to south and 13.7 m east to west with a height approximately 2.1 m above ground level. The remains of the structure’s plan are 2.1 m thick with 18 courses of brick. This side of the wall is oriented north to south, inclined 10° to the east.

3.2.1: Mound no. 19 Excavation

The excavations followed a trench system by digging a lengthy 1.0 m wide north-south trench at both mounds to determine the location of the architectural remains, the stratigraphy, and the geomorphology of soil layers. To determine the main frame of the building, a daily record of the levels was kept within each 5 m² square grid of the excavation.
3.2.2: Mound no. 19 Pattern of Construction

Mound no. 19 is part of the eastern city wall of Pinle. It was constructed after compacting the soil at ground level. Subsequently, 46 x 23 x 7 cm bricks were laid. There is a difference of 30 cm between the present day ground level and the foundation of the city wall.

On the external face of the city wall, two courses of brick at ground level form a lip of approximately 5 cm, which gradually extends to the same amount on the upper level of the structure. The bricks are laid on the lengthwise face with the outer face more neatly finished than that the inside.

Fourteen courses of bricks were excavated intact. They form a wall 2.1 m thick. The bricks measure 46 x 23 x 7 cm. There are another four brick courses of similar size on top, although the outer upper lip of the wall (approximately 46 cm) was not intact. Many layers mixed together made the cross section less clear.

The wall is supported by yellow clay and compact earth inside of the city wall. Excavation showed how the compacted yellow clay supported the first 14 brick courses on the inner side of the wall. On top of this, there is a layer of debris and broken bricks. The supporting layer of compact earth is about 6.0 m thick on the inner side of the wall, and appears to continue to ground level. Bricks (46 x 23 x 7 cm) were laid in a 2.1 m thick line, with bricks placed on the outside and inside of the wall. Broken brick debris was not used at Pinle Myo Haung. Rather a mixture of broken and whole bricks were systematically placed as fill in the cavity of the city wall. This mixture and the systematic use are distinct from other Pyu cities.

3.2.3: Mound no. 19 Stratigraphy and History of Structure

The surface layer of Mound no. 19 consists of humus over a layer of brick debris and natural soil. Notably, earth mixed with debris was found outside the wall to a depth of 2.0 cm over a distance of 6.0 m outside the wall. It consists of whole and broken brick debris in equal portions.

The remaining 18 courses of the city wall are a mixture of broken brick and earth used to fill the cavity. From this it was concluded that the remaining upper 18 brick courses of the wall were made by pounding brick debris with loose soil. The jumbled remains of four brick courses 46 cm thick on the outer side of the wall are thought to be a cavity framed by bricks for pounding soil. It is estimated that if half of the brick debris outside the city wall were to be placed onto the wall, the height of would be at least 4.5 to 6.0 m.

The wall has gradually degraded over time at this location. Part of the enclosing wall on the east of Mound no. 19 is located on the road to Kan Swe Village making it vulnerable to brick mining. In 1997, the wall section was at risk of disappearing altogether as the local people continually removed large numbers of bricks.

Excavations at Mound no. 19 have facilitated study of the methods used to construct the thick walls typical of Pyu sites. The wall thickness has been considered in relation to the stratigraphy and the construction of a floor system using the surface soil between the two lines of brick. The remaining wall reaches below the floor system. Therefore, it was not possible to assess its entirety during the excavation of Mound no. 19.
3.3: Excavated objects from Mound no. 18 and Mound no. 19

Mounds no. 18 and no. 19 revealed structures that were part of the city fortification. Besides brick and fill, most of the excavated objects consist of domestic pottery. The pot sherds were classified into cooking vessels, large storage jars, medium globular vessels, plain round bowls, dishes, basins, drinking cups, and lamps or shallow cups.

Most of the potsherds are plain without decoration. Where decoration is present, patterns usually consist of incised or impressed lines at the neck. In a few cases, ‘rouletted’ patterns made with a stylus (e.g., pointed bamboo tool) were noted. Other patterns indicate that the lines were drawn on the plain surface by pressing with a fine smooth tool. One decorated sherd displayed an embossed human figure. Others suggest it may also represent a flower. Overall, the excavation team recorded potsherds filling 50 bags (35 x 41 cm each) from Mounds no. 18 and no. 19. Total mass was not determined and volume is difficult to estimate due to variance in size.

Other artifacts include: one stone bead decorated with painted lines; one square stone bead without holes; seven terracotta beads curved one side with holes for stringing (probably spindle whorls) recovered from Mound no. 18; and two irregularly shaped iron artifacts recovered from the upper layer of brick debris mixed with earth. Under this layer, a piece of charred wood was recovered (91.0 x 2.1 cm).

3.4: Comments on Mounds no. 18 and 19

The excavations of Mounds no. 18 and no. 19 yield data on the east entry gate and city wall of Pinle Myo Haung. A total of nine mounds have been excavated at this site since 1979. With the exception of Mound no. 5 on the east wall, which exposed a fortification structure, all others were religious structures, residential structures, or burial sites.

The Department of Archaeology excavation team made a test pit at the so-called Shwetagar gate of Sri Ksetra but no significant data was obtained on the manner in which the gate or wall was constructed (Section 7 will discuss Sri Ksetra) comparisons in more detail. The excavation team excavated Pinle Myo Haung once more in 2008 at Mounds no. 10 through no. 14. Again, religious and residential structures were documented.

The excavation team continues to explore the city walls of Pinle although dams erected for the irrigation of paddy fields have caused exceptional damage to the ancient wall and gate. From 1969 onwards, local people have dug systematic trenches to expose and collect bricks from the ancient city wall, subsequently selling the bricks. This has made it very difficult for the excavation team to obtain further information on how the city walls were constructed.

However, with the excavation of Mound no. 18 on the east side of the city in 2009–2010, an entry point/gate of city was documented for the first time. This is 185 m west of remnants of religious compounds investigated in 2008–2009 and may therefore have been along a road connecting the wall to these monastic areas.

About 91 m northeast of the east gate of the city wall, is a slightly elevated line of mounds 90 m long with a stream some 15 m from the end. Additional mounds are located on both sides of this stream, reaching the religious compounds.

If this demarks an ancient route, it would seem that a bridge would likely have been constructed across the stream to link the mounds since the Pyu era. To
investigate this idea, survey was undertaken, yielding a considerable quantity of brick debris in the paddy fields lying between the two lines of mounds. The bricks (46 x 23 x 7.6 cm), found by landowner Thar Khin while tilling his fields, were larger than those to construct the city wall and religious buildings.

The excavation team also was able to document some evidence of a remnant moat outside the east entrance of the Pinle Myo Haung city wall. Unfortunately, much of this has been obliterated by modern cultivation. It seems that originally there may not have been a moat south of the east gate but that a natural stream located 91 m east of the gate flowed from the east into the moat on the north side of the Pinle Myo Haung city wall.

The excavations also showed that two-thirds of the north arm of the eastern city gate of Mound no. 18 was destroyed. Fortunately, the arm on the south remains in almost perfect condition. The stratigraphy also highlighted that the entry gate was repaired two or more times. Furthermore, the remaining arm of the city wall is over 12 m long, but the original construction appears to have extended over 24 m following repairs with some remaining traces in both arms connecting the first and second construction phases.

The phases were able to be documented as the bricks used for the repair were 2.5 cm shorter than those used in the original construction. There was also a layer of brick debris near the north arm found under the layer where the charred wooden pillar noted above was identified. From this it is surmised that the feature was repaired following fire damage and that the wooden structure of the previous period was reconstructed after repairing the earthen rampart. Determining the construction sequences and repair history has implications for duration of site use and continuing importance of the gate feature.

3.5: Comparison with other Pyu Sites

This section adheres to the original Pyu site comparisons from the research described above. Section 7 (below), derived from a later analysis of existing data, will discuss comparisons in further detail, especially with Sri Ksetra.

By comparing the entry gates that have been excavated at the ancient Pyu cities of Myanmar, the east entry of Pinle Myo Haung with its arm extending 24 m is similar in form and size to the excavated Mound no. 13 in Beikthano Myo Haung which measures 26 m. In the connection between the city wall and gate arm, however, the Beikthano gate curves into the city whereas at Pinle Myo Haung the gate makes a right angle. The widths are similar, however, as Beikthano’s width is 6 m and Pinle’s is 5 m. At Halin, the lengths of the arms of the city gates excavated from Mounds nos. 10, 11, 17, and 21 range from 51 to 83 m with a similar distance between the two arms as found at Pinle. At Sri Ksetra, the gates appear to have more advanced construction methods with a systematic and proportional development of innovative curved entry gate architecture. The Lulinkyaw gate excavated from Mound no. 34 at Sri Ksetra, for example, differs from other ancient Pyu cities with a curved fortification built outside the entrance funnelling passage into the city. Nonetheless, the length of the Sri Ksetra gate arms, 44 to 113 m, and also the width are similar to other ancient Pyu cities. A difference is seen at Sri Ksetra, however, with the gates being wider at the entry point but rapidly narrowing on the inner parts of the arms. In addition, the Sri Ksetra gates
have a greater number of gaps in the brick constructions at the centre and ends of the arms. These would have been filled with wooden fortifications.

In summary, the Pinle excavations yielded data to compare the width of the wall with other Pyu cities with the Pinle (5.0 m) walls being variable. For example, at Beikthano and Halin the walls were approximately 8.0 m thick. In other regions they were 2.4 m. At Sri Ksetra, the excavated walls were approximately 5.2 m thick.

A large quantity of domestic pottery was recovered during excavation from the moat on the outside of the east entrance of Pinle. The pottery may have been used by guards or residents for cooking. Most of the excavated potsherds are plain, although some are decorated on the neck and the body with patterns made with a triangular shaped point or stylus. Similar decorations were found in the excavated sherds from Beikthano and Halin Myo Haung. However, the quantity of decorated sherds at the Pinle Myo Haung excavations seem fewer and simpler compared to those from Beikthano, Halin, and Sri Ksetra. The sherds from Pinle Myo Huang appear to be earlier in their manufacture, technology, pattern, and texture than the other Pyu cities with the exception of Wadi, a conclusion which supports the general dating of Pinle. Further seriation of pottery among all Pyu sites will assist with building relative chronologies.

3.6: Images for Mound no. 18 and Mound no. 19 Research

The following images are scans from the original reports. There will be some granularity and slanting.
Fig. 32a-c: Excavations at Mound no. 18 (compilation from original report).
Fig. 33: South arm of Mound no. 18 gate.

Fig. 34: North arm of Mound no. 18 gate.

Fig. 35: Both arms of Mound no. 18 gate.
Fig. 36: Plan drawing and isometric projections of Mound no. 18.
Fig. 37a-b: Digital images of Mound no. 18 from original report.

ANCIENT CITY OF PINLE, NO-18
ISOMETRIC PROJECTION OF EXPOSED STRUCTURE
(Looking Northeast Corner)

ANCIENT CITY OF PINLE, NO-18
ISOMETRIC PROJECTION OF EXPOSED STRUCTURE
(Looking Northwest Corner)
Fig. 38a-i: Excavation pictures of Mound no. 19 and wall.
Fig. 39a-j.: Artifacts recovered from Mound no. 18 and Mound no. 19:
a) stone beads; b) spindle whorls; c) unknown ceramic disc; d) iron nails/pins;
e) sherd; f) conical ceramic artifact; g) potsherds (several rims); h) potsherds (several rims);
i) potsherds; j) diagnostic potsherds
Fig. 40a-f.: Finger marked bricks recovered from Mound no. 18 and Mound no. 19; Note: inscribed brick (middle right; d) and brick with dog paw prints (lower left; e).
4: EXPLORATION OF PINLE MYO HAUNG REGION

The following areas and villages were explored and cursorily surveyed to enhance archaeological understanding of the ancient urban context. The aim was to document sites, features, and artifact variability in the area. The survey was opportunistic rather than systematic and comprehensive. However, it is intended to add breadth and depth to our understanding of Pinle Myo Haung as an ancient Pyu city. This is likely more useful than defining the city based on a few excavated features and their artifact content.

4.1: Pyay Son Gon and Nyaung Bin village, Wandwin Township, Mandalay Division

4.1.1: Location and Environment

Pyay Son Gon Village is located in Wandwin (Wundwin) Township approximately 13 km southwest (276°) of Pinle with Nyaung Bin Village being 4.8 km (132°) from Pyay Son Gon. Pyay Son Gon Village is 3.2 km down a rough dirt road on the east of the Yangon-Mandalay highway. Many cultivated fields mark the entry of Pyay Son Gon. It is a large village with approximately 300 households. The principal economy is agriculture. The main crops in addition to cereals (rice) are chilli, onions, and ground nuts. Nyaung Bin village is smaller with only 80 households. Both villages are on the side bank of the Samon River valley.

The Shan Hills and nearby Shwezeidi Taung range are found to the east of Pinle on the plain spreading out between the Ayeyarwaddy and Samon Rivers. Flooding from the Samon affects the villages while fertilising the paddy lands during the rainy season. Dams and canals, however, connect and manage the paddy lands to the west the whole year round. Pyay Son Gon Village and Nyaung Bin Village are situated between the Samon River and a medium sized road from Yangon to Mandalay, with the Samon River 4.8 km distant from Pyay Son Gon and the Yoma stream 1.6 km on the east. A creek about 61 m wide is found to the west of Nyaung Bin Village. In earlier times, however, the creek may have been an oxbow with Nyaung Bin on the east of the Samon. The local people say that this is dry in the dry season but becomes a watercourse in the rainy months. It is close to Nyaung Bin Village on the west. Nyaung Bin village is on a mound between this creek and the Samon River.

4.1.2: Survey Finds

The excavation team left Pinle for Pyay Son Gon in Wandwin Township at 7:00 am, arriving at 8:45 am, and then went with Tin Myint and Par Lwin from the village to inspect the area east of the village at 9:00 am.

A large quantity of potsherds were found on the surface at a heading of 103° approximately 800 m east of Pyay Son Gon (21° 18’ 53.0” N; 96° 05’ 48.9” E). The sherds were decorated with a range of motifs. They included a broken spout and a handle.

Local people said that a number of broken terracotta pipes were found in earlier years. In this area on the bank of a small north-south running stream connecting to the so-called Yoma creek, the remnants of a religious structure were
found on a small mound. The size of the bricks from this structure suggested that it dates to the later Konbaung period. Following this, the team investigated the Yoma stream.

The Yoma is about 3–5 m wide with a 2.5 m depth in some places. According to local people, the stream water is sufficient in the rainy season but does not flow during other seasons. Examination of the eroded cross-section of the bank of Yoma stream yielded some potsherds in the middle portions as well as stone implements and curved sections of worked stone, possibly bracelet sections.

From there, the excavation team continued about 5 km from Pyay Son Gon to a large old mound close to the west side of Nyaung Bin Village (21° 17'45.3" N, 96° 06'39.1" E). The mound, approximately 0.4 hectares, sits high on the landscape with traces of ploughed fields on the surface. The excavation team identified the following artifacts:

- Potsherds (a few with decorations)
- One stone tool
- Fresh water (mussel?) shells
- Set of terracotta beads
- Fossilised cow teeth
- Other miscellaneous objects were found scattered around the area but no concentrations of brick fragments as seen in the excavations

The excavation team continued to inspect the three religious structures on the south of mound about 50 m distant. The two structures on the north were submerged in the soil with the fragments of submerged bricks that were completely damaged. The temple on the south edge of the south side had received donations and was renovated along with the Buddha images inside the temple. They have been repaired and gilded. The face of the images indicate that the eyebrows and eyes were widely separated, had pointed lips, and the mouth smiling. The robe with folds is visible from the remaining bricks. The images were dated to the Inwa period. In addition, potsherds with various decorations were found.

The excavation team left Nyaung Bin Village and passed over a creek/gully about 61 m in breadth. The gully stretched ‘as far as the eye could see’ with local people assuming it was an old moat. However, when GPS readings were taken from the centre of the gully and examined on the computer satellite imagery, it could be seen that it was not an old moat but an oxbow of the Samon River from a previous era.

The team then went to the Nyaung Bin Village monastery where they met the chief monk, U Tazniya. Afterwards, they went to the bank on the Samon River on the east side of the village to check the small levees along the bank. From there, they travelled 2.4 km south of the village to inspect Pyu Gon (the hill of Pyu). Deep deposits containing potsherds were visible. Potsherds were also spread across the hill. These artifact bearing deposits has raised the natural level. However, like the sherds recovered from mounds near Nyaung Bin Village, the decorated sherds and the morphology of a spout and handle of a long-necked water pot indicate dates to the Inwa period. The team reached Pyay Son Gon Village at 3:00 pm and returned to Pinle Myo Haung.
4.1.3: Conclusion of Survey

The excavation team explored Pyay Son Gon Village 12.8 km south of Pinle as well as the area around Nyaunbin Village beside the Samon River. Using relative dating of the decoration, composition, and method of manufacture, artifacts such as potsherds and tools suggested long occupation of the area with continued use of traditional methods.

Examination of the potsherds found 2.4 km to the east of Pyay Son Gon Village indicated decorated and reddish colour fragments of terracotta pipes and the occurrence of many spouts and handles from water pots. This led to the conclusion that this mound dated to the Kongbuang period. A mound with a religious structure was also identified in the area.

From the examination of the Yoma stream that lies between Pyay Son Gon and Nyaung Bin Villages, potsherds recovered from the middle of a cross section of the bank exposed by erosion were unlike other potsherds found east of Pyay Son Gon Village. These deposits also contained stone rings and tools typical of Neolithic finds.

While surveying Nyaung Bin Village mound and the area to the west, a number of potsherds and a range of domestic pottery types were identified—similar in shapes and forms to excavated finds at Bronze Age sites and cylindrical cups, plates, and iron artifacts typical of Iron Age finds.

Other finds from this area included a number of human skeletal remains, fresh water shells, and fossilised bovine teeth.

The stratigraphy of Nyaung Bin Village thus yielded evidence of earlier Bronze and Iron Age cultures but not the brick debris typical of the Pyu cultures.

In studying the material from Pyu Gon on the southwest of Nyaung Bin Village, a 0.4 hectare mound contained thick deposits of potsherds on the surface, a fragment of water pot spout, and circular terracotta sherds as well as decorated sherds. When compared with other sherds from the mound and from Pyay Son Gon Village, some sherds such as the spout fragment and a broken storage pot were similar. However, other sherds were similar to those of the Inwa period from around the three religious structures (gu) near Nyaungbin Village.

The exploration of Pyay Son Gon and Pyu Gon were basic surface surveys. However, the finds strongly suggest that excavation would yield finds spanning a considerable range of cultural periods.

4.2: Exploration of Bulugon: Shwedaung Village group, Wandwin Township, Mandalay Division

4.2.1: Location and Environment

Bulugon is located about 1.6 km southeast of Shwedaung Village group, Wandwin Township, Mandalay Division, on the west of Yangon-Mandalay expressway (21° 16’ 40.6” N; 96° 00’ 03.7” E) 127 m above sea level.

4.2.2: Survey Finds

The excavation team departed for Bulugon in the Shwedaung Village group, Wandwin Township at 8:00 am. Bulugon Village (Shwe Chient Ywa) is small with
about 60 households. Yankin Taung pagoda is on the summit of Yankin Taung Hill (U Min Din) about 76 m east Bulugon.

A large quantity of potsherds was identified during surface surveys. They were found from the foot to the top of the hill. There were many fragments of stone tools, stone rings, and sections of rings. Faunal remains included animal teeth and fossilised bones (note: with the numerous potsherds, the artifacts have made a compacted surface layer used for cultivation by the local people).

The majority of the potsherds are cooking pots with shapes typical of Neolithic pottery. This was also noted with some broken pots—similar to vessels excavated at Taungthaman.

Local people reported that most of the finds of stone tools, rings and other (Stone Age) artifacts were found during the rainy season.

The excavation team then visited Tamar Bin Ya Gon (21° 16’ 12.4” N; 96° 00’ 14.8” E) where a large quantity of human bones, broken pots, and fresh water shells were recovered. Local farmers reported that stone beads of various colors were turned up while ploughing fields. Examination of the potsherds suggested they were for storage or carrying water with lugs for stringing on the upper body of the pots. Similar vessels have been recovered from excavations of Bronze and Iron Age sites.

As the above findings show, evidence of Stone Age (Neolithic) culture is found in close proximity (175°, 928 m distant) to sites where soil layers have exposed sherds from more recent Bronze and Iron Ages. A number of early bronze and iron tools have also been exposed from ploughing.

Approximately 2.4 km east of Bulugon, a square structure was exposed at the centre of a circular mound of bricks (35 x 18 x 6.4 cm). A stone inscription slab of was also found. It was kept by the 81-year-old villager, San Kyaw. The inscription slab is 97 cm high, 42 cm wide and 6 cm thick. It contains 12 inscribed lines. While badly damaged, it could be seen that the script was the square-shaped ‘tamarind seed’ style of writing. From the style of the script and the associated finds, the slab was dated to the Bagan period.

4.2.3: Conclusion of Survey

The survey of the area around Bulugon in the Shwedaung Village group, Wandwin Township yielded a large quantity of Neolithic potsherds, stone tools, and ornaments. Moreover, bronze and iron artifacts as well as bone fragments indicated the site area was subsequently inhabited during the Bronze and Iron Ages, and, the Bagan period to the present. The site is thus well suited for further research on the occupational continuity from the Neolithic to the Bagan period and the modern era.

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2 The team report has conflated Neolithic and Stone Age against a brief excavation undertaken at Taungthaman in the 1980s. However, no defining characteristics have been given other than a similarity in pot shape. This is also the case with use of the terms Bronze and Iron Age sherds where sites and traits of the sherds that distinguish them from Pyu sherds are not included (EHM 23/06/12).
4.3: Exploration circa 3 miles east of Pinle: Mon Taung Gon (Nwa Chan Gon), Myitthar Township, Mandalay Division

4.3.1: Location and Environment

Mon Taung Gon Village is located 3.2 km east of Pinle, and 1.6 km south of the Mon Hill range from which it takes its name (21° 16’ 18” N; 96° 14’ 45.7” E; 765 msl). As the principal means of subsistence is cow husbandry, the village it is locally known as ‘Cow Farm or Fence’. It a small village with 20 households.

4.3.2: Survey Finds

Many local people advised the excavation team to check a cross-section of earth made by bulldozing activities in an area 4.8 km east along the road to Kindar Dam and then south to northeast of Mon Taung Gon Village (96°, approximately 213 m; 21° 16’ 21.2” N; 96° 14’ 50.5” E; 528 msl). A survey confirmed urns, potsherds and skeletal material were unearthed in a creek along the road to Pyat-kha-shwe-taung (mountain).

Fragments of human bone were documented in a large water storage vessel decorated with comb marks. The vessel had been compacted in the layers of the cross-section and exposed by the bulldozer cut. Further study of the pot and the surrounding earth yielded potsherds, animal teeth, and fragments of fossilised bone. Brick debris was not found but brick-colored orange layers could be seen in some parts of the cross-section exposed during rainy seasons—indicating degraded bricks were present.

Bricks sizes were not known by the local people due to the irregular profile of the layers. The survey team, however, detected brick-colored layers in the surface humus circa 60 m to the east. Attempts were made to clean these by hand to obtain a measurement for the bricks but the remnants of the bricks were too thin for this to be successful.

The team proceeded to study a 76 cm deep pit where Win Shwe of Mon Taung Gon had unearthed a small pot (1 cm thick, 15 cm high, 18 cm wide with a 11.4 cm diameter at the top). No evidence of cultural layers could be seen in the stratigraphy of the pit. The pot appears to have been wheel-made. While well shaped it had not been smoothly finished. However, it is similar in shape to some Neolithic vessels, and may have been a medium size cooking vessel simply decorated with combed lines made vertically on the body.

The excavation team subsequently went to the Mon Hill Range (Mon Taung Tan) to check for evidence of iron production and metal sources. Notably, however, there was no iron slag found and few remains of any iron artifacts. From this it was concluded that the Mon Taung range was not the source of raw material for the production of the iron implements found in the excavation of Pinle Myo Haung.

4.3.3: Conclusion of Survey

The finds of urns and potsherds at a depth of approximately 1.0 m suggest that the first location with the pot and skeletal material was a burial site exposed in the drainage cross section. Due to the location (approximately 5 km east of Pinle), it is
speculated that this may have been an early outpost. The stratigraphy of the small, seemingly Neolithic pot, however, does not appear associated as it was found in another deposit.³ Finally, the Mon Hill Range did not yield evidence of iron production or iron sources.

4.4: Exploration of inscription at Myanadi village, Myitthar Township, Mandalay Division

4.4.1: Location and Environment

Although Myanadi Village, Myitthar Township, Mandalay Division is only 6.4 km east on a straight heading of 96°, it is necessary to first go about 4.8 km on the way to Kintar Dam and then around the Mon Taung Hill range to reach the village. One also needs to turn north, go across the left canal of the Nyein Chan Tha Village and Panlaung River and then proceed by foot for about 16 km. Alternatively, it is possible to reach Myanadi via Min Ywa Leh and Min Ywa Gyi.⁴ Villages to northeast of Maingmaw via a new district road across the Panlaung River, Ma-taung-ta-htaung-hpaya (pagoda), Naing ywa and Nat-hlwae Village.

Myanadi is a large village with 50 households located on the east bank of Panlaung River. The main economy of the village is farming including a number of banana cultivation areas along the bank is found.

4.4.2: Survey Finds

The team inspected the Myanadi inscription stone kept in a building of the Shwe Muhtaw Hpaya compound, Myitthar Township. The inscription measure 1.8 m long, 81 cm high, with a thickness ranging from 7.6–15 cm. The inscription has taken the name of village as it was found 2.4 km southeast of Myanadi Village, Myittha Township, Mandalay Division. It is inscribed with 10 lines of Pyu script.⁵ The stone is harder than the typical sandstone for inscriptions seen at most Pyu ancient cities. The engraving is not even across the stone. When the inscription was first found, only the upper part was recovered. It is assumed from the stone that it is a local product as stones with a similar texture can be seen protruding from the ground along the road where the inscription was found.

After reaching Myanadi Village, the excavation team sought out Phone Maung, an 84 year-old local resident who participated in the initial discovery of the inscription. He took the excavation team to the place where it had been found (21°17’22.7” N; 96°18’08.4” E).

The site is in an area with creeper vines used to make baskets.⁶ It is beside an old cart track and Wut-lay Taung Tan hill range about 183 m to the north. No additional archaeological evidence such as potsherds or bricks was documented during inspection of the area around where the inscription was found. According to

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³ This area to the east of Pinle suggests both earlier and contemporaneous occupation with the Pyu period culture of Pinle.
⁴ Small (lelh) and large (gyi) king’s (min) village (ywa).
⁵ The stone was heavily eroded due to weathering. No dates or words could be decoded.
⁶ Na-bu, or Valaris solancea, used in place of bamboo or cane (Myanmar Language Commission 2003:221).
Phone Maung, the inscription stone lay on its side; as it was laying just beside the cart route, it was often scraped by the cart wheels until one villager unearthed it. Prior to this finding, no inscriptions or artifacts had been recovered in the area.

4.4.3: Conclusion of Survey

At present, the inscription stone yields very little decipherable or other information. It is difficult to discern a clear conclusion on whether the inscription was made locally. The absence of other archaeological information from the area precludes association with an archaeological feature, assemblage, or site. It was equally possible that the stone was brought from another place. It also may have been made from local stone as a boundary marker.

4.5: Exploration of Taung Taw Gon, 5 miles east of Pinle, Myitthar Township, Mandalay Division

4.5.1: Location and Environment

Taung Taw Gon Village\(^7\) (21° 15' 52.4" N; 96° 15' 14.9" E) is located south of Pinle Myo Haung along the road to Kintar Dam. To reach the village, after approximately 4.8 km along the road, turn west for about 1.6 km along a cart route. The village consists of 90 households. The main economy is farming.

4.5.2: Survey finds

After arriving at Taung Taw Gon Village, the excavation team met the village headman, Than Oo, and checked the reported existence of brick lines (alignment, wall) 30–35 m distant, on a heading 147° to the southeast. The bricks documented were 25.6 x 17.8 x 5.1 cm although the length and width of some thicker bricks (7.62 cm) were not able to be measured. The brick line is 91 cm high in some places but was absent in others. The excavation team took GPS readings and determined that the line was in fact a square mound about 122 meters on each side with bricks. The west side has disappeared. No brick lines, structures, or brick fragments were found at the centre of the square. It was concluded that after laying the 1.2 m thick brick perimeter, that inner structures was constructed from timber.

In a 2000 survey, the team recovered two overlapping silver pots on a heading 141° southeast at a distance of some 183 m. The pots had been found together with a number of peacock embossed coins, Ratanapon 19th century coins, gold plates, earrings, and beads. The owner of the farm, Khin Maung Oo, had received an award (42750 kyats) from the Department of Archaeology for handing over these artifacts to the department.

The fragments of a votive tablet bearing an inscription on the reverse and brick fragments were also found at this place. From the size of the brick fragments and the style of the inscribed votive tablet the objects were dated to the Bagan period.

The excavation team then left for Pinle Myo Haung, stopping to check a mound near the entrance of Taung Taw Gon Village with abundant surface finds of

\(^7\) Literally 'forested hill' or 'mountain village'.
fresh water shells (possibly local mollusk), bone fragments, and potsherds (21° 16’ 33.3” N; 96° 15’ 21.5” E). They scraped the surface of the mound with an iron trowel where traces of human bones could be seen and exposed a human tibia. After taking photographs, the find spot was covered again as a safeguard. The surface of this area is severely eroded from rains and runoff from the mountain. This has exposed the underlying bone fragments and broken pots.

4.5.3: Conclusion of Survey

Ground survey around Taung Taw Gon village, 8 km east of Pinle, yielded artifacts indicating construction of Bagan period stupas and religious structures. Investigation of the mound at the entry to Taung Taw Gon Village, however, appeared to be a prehistoric burial site.

4.6: Images from Surveys

The following images are scans from the original reports. There will be some granularity and slanting.
**Fig. 41a and b:** Human remains and ecofacts from Pyaesongone village on the east (Nyaunbinywar) in Wandwin Township; a) human skeletal remains; b) mussel shells.

**Fig. 42a-f:** Artifacts Pyaesongone village on the east (Nyaunbinywar) in Wandwin Township; a) potsherds; b) spindle whorls; c) potsherds; d) potsherds; e) cow teeth; f) potsherds.
Fig. 43: Ground stone tool – probably a triangular sectioned adze.

Fig. 44a-c: Artifacts from Bulugone Wandwin Township; a) various artifacts; b) stone beads; c) human figurine.
Fig. 45a-c: Potsherds on surface at Bulugone Wandwin Township; a) farm fields yielding pottery remains in plow zone; b) farm rows with numerous potsherds; c) closeup of potsherd density in farm fields.
Fig. 46a-d: Monetaunggone village; a) location of ceramics in profile; b) pot and location of pot in profile; c) artifacts in profile; d) assessing artifacts recovered by villagers.
Fig. 47a-c: Myanadi inscription and Wutle Hill Range; a) surveying the area; b) location where inscription was recovered; c) inscription stone.

Fig. 48a-f: Taungtawgone Village
5: PROTECTION AND CONSERVATION OF MOUNDS AFTER EXCAVATIONS

In our efforts, archaeological excavation necessitates site protection, preservations, and conservation efforts. Following the maxim, ‘if the activities of conservation cannot do, do not carry out excavation’, all of the mounds excavated under the present Pinle Myo Haung program have been maintained and continue to be researched.

The aim of our conservation, in this case, is renovation following ancient methods without destruction of the original morphology of the sites. Moreover, we have refrained from extraneous planting or building brick rafters at the edges and outside the walled area where our research has been undertaken to guard against deterioration of the brick lines and original layers. Instead, Archaeological Protection notice boards have been erected, and the areas where our work has been undertaken have been enclosed with chain link fencing to prevent entry of animals.

The research of the Department of Archaeology, National Museum, and the Department of Library, Ministry of Culture has also been documented with an extensive photographic record. This adds to our preservation and conservation efforts.

The excavation team also was able to document some evidence of remnants of a moat outside the east entrance of the Pinle city wall but much of this had been obliterated by modern cultivation. It seems that there may not have been a moat south of the east gate and that a natural stream located 91 m east of the gate flowed from the east into the moat on the north side of the Pinle city wall.

The excavations showed that two-thirds of the north arm of the east city gate of Mound no. 18 was destroyed but that the arm on the south is left in almost perfect condition. The stratigraphy also showed that the entry gate was repaired two or more times. Furthermore, the remaining arm of the city wall is over 12 m in length but the original construction appears to have been extended over 24 m following repairs with some remaining traces in both arms connecting the first and second construction phases. The phases were able to be documented as the bricks used for the repair were 2.5 cm shorter than those used in the original construction. There was also a layer of brick debris near the north arm found under the layer where the charred wooden pillar was found. From this evidence, it is surmised that the construction was repaired following fire damage and that the wooden structure of the previous period was reconstructed after repairing the earthen rampart.

A comparison of entry gates excavated at ancient Pyu cities indicates that the east entry of Pinle Myo Haung with its an arm extending circa 24 m is similar to excavated Mound no. 13 in Beikthano which measured 26 m. The connection between the city wall and gate arm, however, the Beikthano gate curves into the city—a normative Pyu city gate pattern—whereas at Pinle Myo Haung the gate makes a right angle.

5.1: Images For Site Protection and Conservation Activities

The following images are from the original reports. They display activities related to the site protection and conservation measures. Not all activities are necessarily represented. The images are meant to provide a sample so that readers better understand the conditions before and after.
Fig. 49a-f: Mounds no. 16, 17, 18 protection and conservation efforts.

Fig. 50: Mound no. 15 protection and conservation efforts.
Fig. 51a-j: Mound no. 15 protection and conservation efforts.
6: SUMMARY AND CONCLUSION OF PINLE MOUND EXCAVATIONS AND LOCAL AREA SURVEYS FROM THE 2009 AND 2010 CAMPAIGNS

The excavation team conducted research at Mounds no. 15, no. 18, and no. 19 at the ancient Pyu city of Pinle. These are only a few of the numerous features associated with Pinle. Despite the small sample size, the excavations and analyses help us better understand Pinle and its relation to other Pyu cities.

We were able to determine and record the construction sequence of structures, the possible functions, depositional and stratigraphic sequences, and the current conditions of the sites. The team also explored aspects of the prehistoric, protohistoric and historic periods of the area surrounding Pinle Myo Haung. The area survey of several villages and landscapes help us better understand the ancient city more holistically rather than relying on only a few key features. These findings along with historical research and comparative studies continue to add to our understanding of the physical and cultural characteristics of the Pyu ancient cities such as Beikthano, Halin, and Sri Ksetra.

It is emphasised that the survey of surrounding areas highlights the need to understand the interaction of the walled site and the habitation areas in the region. At Pinle, as at other Pyu sites in Upper Myanmar, many structures—such as PL15—are found outside the city wall. The excavation team survey began the process of extending knowledge of the Pyu culture to include villages, production, and resource areas beyond.

Kyaw Myo Win
Research Officer

Myo Nyunt
Director
7: DISCUSSION AND CONCLUSION: PYU SITE COMPARISONS
(Adapted from Moore, E., Kyaw Myo Win, Win Kyaing and Win Maung [Tampawaddy] 2014)

7.1: Background

The following section emerged from an unpublished paper presented in 2014. It provides a summary of analyses, comparisons, and hypotheses. The authors and editors determined its inclusion as a discussion section was prudent in order to provide the most updated information and conclusions concerning the site and inter-site comparisons with other Pyu cities—particularly Sri Ksetra. The original paper has been adjusted to better fit the flow of this paper and reduce unneeded redundancies.

The research teams have examined features from the excavations and surveys conducted from 2009–2011 at the walled sites of Pinle and Sri Ksetra to highlight individual and shared traits, the continual rebuilding of Pyu walled sites of Upper Myanmar, and shifting patterns of trade illustrated by the investigations of the Department of Archaeology. In the June 2014 World Heritage Inscription of the Pyu Ancient Cities, the inclusion of three cities (Halin, Beikthano, and Sri Ksetra) underlined the individual character of each of these massive walled sites (UNESCO 2014). They share a process of ecological adaptation; social, agricultural, and religious transformation; and are the earliest and largest Buddhist walled cities of mainland Southeast Asia. Brick, in combination with wood, created a new architectural tradition. It is noted that the three sites that were selected are emblematic and representative of geographic distribution and variability to a degree, but they are not the only walled sites in Upper Myanmar during this period. The UNESCO inscription, the first site listed on the World Heritage List, is recognition of the unique value of the Pyu Ancient Cities and also the work of the Department of Archaeology in documenting and managing this cultural heritage. This summary draws upon previously unpublished excavation reports of the Department of Archaeology of work undertaken at Pinle/Maingmaw (Sections 1–6 above) and Sri Ksetra (publications in English forthcoming).

A comparison of Pinle and Sri Ksetra illustrates interesting parallels and variability among the Pyu cities. Besides structural form, we must also consider ecology, economy, geography, and historic relations among Pyu politics as well as outside polities, among many other factors. There are three primary reasons, however, for the current comparison (refer to Fig. 1: Map A; Figures 53–57):

- Pinle and Sri Ksetra are both strategically located and illustrate the changing pattern of exchange networks from the middle to later part of the first millennium C.E. Pinle is located at the foot of upland passes to the eastern Shan Plateau, an important route linking the Samon Valley south of Mandalay to Yunnan during the Bronze-iron era ([circa] 600 BCE–300 CE). Sri Ksetra is adjacent to the river port of Pyay on the Ayeyarwaddy River with access to the delta and maritime trade to South Asia. Pinle was noted in New Tang histories as Htumin, one of nine ‘forts’, while Sri Ksetra was recorded in Tang histories

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*a For full title, see Moore et al. (2014)
as one of the fortified ‘cities’ (Myo Nyunt and Kyaw Myo Win 2009) (Figures 53–57).

- Both share an early and significant style of a tiered ritual structures decorated with terracotta plaques (Figures 58–64).
- Both have a similar enclosure of upland and lowland areas with the city wall that is linked to the water management of enclosed land and surrounding areas. Disparate habitation zones amalgamated multiple villages through the construction of a ‘city wall’ serving social, military and agricultural purposes. The social organisation may have been related to that of the later khayaing of the Bagan era with an expanding group of villages linked to and perhaps dependent upon a central point exemplified by the central palace-citadel (Luce 1959: 41 cited in Moore, Win Maung (Tampawaddy) and Htwe Hwe Win 2012: 145).

7.2: Pinle (Maingmaw, Mongmao)

From June to July 2009, excavations were carried out at a stupa-like structure (Mound no. 15; also PL-15) located east of the walled site of Pinle as described above. Work was also conducted at PL-16 (Mound no. 16) and PL-17 (Mound no. 17). In April 2010, further work took place on the east side of the site with the excavation of a wall and gate feature (PL-18 and PL-19; Mound no. 18 and Mound no. 19 respectively). The main activities and finds are described above. An important recent contribution is Mound no. 20, excavated in 2009–2010 (formal report pending).

Pinle is located at the foot of the Shan Plateau, 8.0 km southeast of Kume, Myitthar Township, Kyaukse District, Mandalay Division (21°20’ N, 96°12’ 51” E). It is a triple-walled site with a diameter of circa 1.9 km and an area of 625 ha (note: dimensions noted above have slightly larger estimates at 700 ha). The wall encloses a flattened circle (1.89 km east-west and 2.63 km north-south). It consists of a large outer circular wall, an inner rectangular wall and a central circular area.

Pinle is not included alongside Sri Ksetra, Beikthano, or Halin in the principle Myanmar chronicles. Its distinct rounded ‘scar’ was first spotted on aerial photographs by Aung Myint in 1965 and first excavated in 1979. No radiocarbon dates were obtained from the excavations but the stupa is comparatively dated to circa the 4th to 7th century CE based on the plan. As described in the report, the stupa (PL-15) uses five different brick shapes, one of the most complex masonry profiles seen in Pyu architecture. The gate and wall structures (PL-18 and PL-19) on the east are the first features of the city’s fortifications to have been unearthed. Their excavation is of particular urgency given the recent construction of dams for paddy irrigation in addition to local people excavating sections of the wall in 1969 to sell the bricks.

Several villages are clustered around the Pinle wall both inside and outside the walls as is typical of Pyu walled sites. Most villagers engage in the cultivation of rice, sesame, beans, and other dry-zone crops, with the expansion of cultivation having eroded a number of the wall features. At the centre is the Konbaung period village of Maingmaw, which was adopted by Aung Myint to name the ancient site. North of Maingmaw is the village, Ohn Hyne Poke, with the Nat Htwe Canal running from northeast to southwest between the two villages across the walled area. Kan Swe Village is on the northeast inside and outside of the outer wall while Tawdwin Village...
and Nyaung Pin Tha Village are on the southwest just outside of the city wall. Aung Chan Thar Village is adjacent to Tawdwin but inside the city wall.

Approximately 1.5 km outside the city wall northeast of Kan Swe Village is a circular area surrounded by a moat known as Wet Myo. Exploration in the reports give a clear profile of habitation in the centuries prior to the construction of the Pyu walled site and subsequently in the Bagan period of the 9th to 13th centuries. The village of Maingmaw and pagodas in this village date to the 18th/19th century Konbaung period. Thus, earlier ideas that Pinle was short-lived and only active in the early centuries CE are currently being revised.

The PL-15 mound is located 183 m outside the city wall on the east, measuring 46 m² with a height of 2.8 m prior to excavation. 3 km to the east is Mon Taung Range (470 m) and the steep rise to the Shan hills plateau. Pinle is somewhat more isolated than Sri Ksetra today but is also transected by roads with villages breaching the old walls on the west and east of the site. In addition, virtually all of the walled area and perimeter zones of Pinle are rice fields with the upland area of the Mon Taung Range separated by 2 km on the southeast. By comparison, Sri Ksetra has a mixed landscape of upland, piedmont, and rice field areas bounded by the walled zone.

The unearthed PL-15 brick structure, aligns 8°, has three levels with a cylindrical core (4.9 m in diameter), a square platform with rounded corners, and a third enclosure 15.2 m on the perimeter. Two entrances with inclined plinths were identified. A layer of ash was found at natural soil levels indicating the plinths were likely constructed of wood.

The PL-15 stupa-like structure, while relatively simple in form incorporated six types of bricks measuring on average 48 x 23 x 8 cm (refer to images and descriptions above; Fig. 19–21): 1) horizontal row, 2) vertical row, 3) vertical row of bricks with ‘B’ shape, 4) horizontal row, 5) pointed bricks laid vertically, 6) horizontal row, 7) vertical row of bricks with one circular face, 8) horizontal row, 8) row of bricks shaped like triangular gong, 9) horizontal row with floral designs similar to a horoscope (za ta pan).

The overall shape of the PL-15 stupa-like structure is similar to Mathigyagon (Gwebindet) at Sri Ksetra where terracotta plaques on the exterior were decorated with a celebratory male figure on a horse or feline animal, holding his right arm raised aloft and grasping a massive sword. Other excavated structures at Pinle have revealed these plaques, with notable examples in situ at Pinle.

In April 2010, further work was completed on the east side of the site with the excavation of a wall and gate features (PL-18 and PL-19) that formed part of the city’s fortifications. A large quantity of pot sherds, mostly plain, were excavated and

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9 (Also described in section 5) At the completion of the PL-18 and PL-19 excavations, the team surveyed a series of villages in the region: Pyay Son Gon (21°18’53.0”n, 96°15’48.9”e) and Nyaung Bin (21°17’45.3”n, E 96°06’39.1”e), Wundwin, located circa 8 and 4.8 km southwest of Pinle, respectively. Konbaung (19th century) and Inwa (17th century) structures were recorded. However, artefacts from Nyaung Bin and to the west of the village included sherds and iron implements typical of the Iron Age. Additional survey of Bulugon (21°16’ 40.6”n, 96°00’03.7”e) and Tamar Bin Ya Gon (21°16’12.4”n, 96°00’14.8”e), Shwedau Village group, Wundwin, yielded a large quantity of sherds, stone tools and rings and fossilized teeth and bones. A Bagan period 97 cm inscribed stone slab recovered 2.4 km east of Bulugon was association with a brick structure. The final areas surveyed following the excavations were (1) circa 3 km east of Pinle at Mon Taung Gon (Nwa Chan Gon, 21°16’18”n, 96°14’45.7”e), Myitthar, Mandalay; (2) Myanadi, Myiththar, Mandalay where a 10-line Pyu inscription was recorded on a stone slab (21°, 17°22.7”, 96°, 18° 08.4”e); (3) Taung Taw Gon, Myitthar (21°15’ 52.4”n, 96°15’
classified into cooking vessels, large storage jars, medium globular vessels, plain round bowls, dishes, basins, drinking cups, and lamps or shallow cups. It was estimated that the sherds would fill fifty bags (35 x 41 cm). The absence of decoration contrasts with the more sophisticated sherds from Beikthano, Halin, and Sri Ksetra. Two black and white stone beads and seven terracotta beads were recovered along with two pin-shaped iron pieces and a 91 cm piece of charred wood.

When excavation was completed, the arms of the PL-18 gate measured 2 m although it was estimated to have originally been as much as 24 m in length with a 5 m width separating the two arms. The two arms of the gate are parallel; considerably different from the inward funnelling of gates excavated at Halin, Beikthano, and Sri Ksetra. The entry road was filled with a concrete-like layer of packed earth similar to myae nit ha yoe, a red earth substance used to make moulded lacquer decorations. Traces of cart tracks were seen as wavy patterns on the concrete-like surface, some of which were the breadth of a bullock cart wheel (23–28 cm). Outside the gate, a 61 cm brick platform was unearthed. Placed at a right angle, it was interpreted as part of a closure preventing entry—recalling the additional fortification on the outside of the Lulinkyaw gate (HMA-34) at Sri Ksetra. One arm of PL-18 was unable to be fully excavated with the second making a right angle on the ends. Again, this is very different from the characteristically long curved shape seen at other walled Pyu sites such as Halin, Beikthano, and Sri Ksetra. The estimated length of 24 m and the 5 m width are similar to Beikthano (KKG-13, 26 m and 6 m respectively).

The second feature was a north-south oriented mound (PL-19) located 274 m south of PL-18. Excavation of the feature exposed a wall section (45.7 x 13.7 x 2.1 m) oriented 10° to the east with 18 remaining courses of bricks. A large quantity of debris was found. However, considerable quantities were removed by local people in 1997. If at least half was to be put back onto the wall, the height would be at least 4.6 to 6.0 m. Several reconstructions were detected during the excavations. This was determined from the stratigraphic information and differences in the sizes of bricks. A layer of brick debris recorded under a charred wooden pillar also supports this interpretation.

It was surmised upon completion of the excavation of PL-18 and PL-19 that the entry connected to the cluster of religious structures including PL-15 to the east. Survey of the area between gate and the cluster of structures yielded a sizeable quantity of large bricks (46 x 23 x 7.6 cm).

Mound no. 20 was excavated in 2009–2010 (formal report pending). It is located 70 m west of Mound no. 15. Mound no. 20, like Mound no. 15, has a circular structure at the centre of a square brick structure. However, it was decorated with a series of terracotta plaques inserted in the outer wall. The plaques vary in their rendering, displaying a celebratory rider on a horse or feline creature. Other finds from Mound no. 20 show equally fine rendering. In combination with the complex brick moulding on the profile of Mound no. 20 and its proximity to Mound no. 15, Mound no. 20 highlights the outstanding architectural tradition of the areas to the east of the eastern wall of Pinle (Maingmaw). A few similar plaques have been

14.9°e) which yielded a Bagan period structure and possibly a prehistoric burial site. Maintenance work was also carried out at the excavated Pinle mounds.

10 21°18’16.3” n, 96°13’26.9”e

7.3: Sri Ksetra

In 2009, excavation was completed at HMA-44 and HMA-45 within the central palace-citadel (575 x 375 m) and its surrounding wall of Sri Ksetra.\textsuperscript{11} In 2011, further work was undertaken of these two features. Exploration of the site dates to the 1882 survey by Emil Forchammer with the first excavations in 1897 undertaken by the Director General Taw Sein Ko together with Léon de Beylié. The 2010–2011 excavations continued a renewal of work at Sri Ksetra, with 53 mounds unearthed between 1962–1963 and 2009–2012.

Sri Ksetra is a triple-walled site enclosing an area of 1880 ha at the foot of the Myinbahu Range (110 m), 5 km east of Pyay, Pyay Township, Bago Division (18° 47' 54"n x 95° 17' 24"'). The remains of the walls are thick, with a double wall on the south and west and three walls on the southeast. It has a circular shape, somewhat more oblong than Pinle. It is largest and most well-known of the Pyu walled cities of Upper Myanmar and figures prominently in chronicles. Sri Ksetra’s construction is attributed to Gavampati in 101 ME (739 CE) with Duttabaung as its first king. This was followed by a succession of monarchs until the city was destroyed in the reign of King Thu-nya-nar-gara-seinna-min, in the Short Era of 16 ME (654 CE).\textsuperscript{12} Its founding was predicted in an inscription of King Kyanzittha (1084–1113 CE) that a Beikthano hermit would build this city together with the sage Gavampati, Sakka (Indra), Vithakyone (a deva or spirit), and Gamdaba Naga in the year of his demise.

The earliest radiocarbon date (OZN909) from the site is calibrated to 50–200 CE from Tabet-ywa, a large mound of iron slag north of the northwest corner of the central palace-citadel (Hudson 2012:3). There are not as yet any radiocarbon dates for the walls or palace-citadel structure. However, a stele carved with a warrior figure found nearby is stylistically dated to the first century CE and comparable to the iron production date (Gutman and Hudson 2014). The dates of the palace and city walls, however, have not been firmly established, providing one rationale for the significance of the HMA-44 and HMA-45 excavations. As with Pinle, there are extensive areas with brick structures outside the city wall, with a radiocarbon date of 420–570 CE for a brick structure (HMA-47) outside the city wall on the south.

There are more villages within and around the walls of Sri Ksetra than at Pinle. Sri Ksetra is far bigger than Pinle. It is also bordered by a road leading east on the north side of the site as well as north-south roads to the west. The largest of the Sri Ksetra villages is Myo-thit or new city, an urban area on the northwest than extends across the wall. In the northern part of the site, primarily devoted to rice cultivation are Gawgon, Kyaungzogon, Twinbye, Myozogon and Konyo Villages. Close to the centre is Hmawza, mentioned in a 12th century CE inscription found in Pyay on the river. Moving south from Hmawza are Ywa-ma, Mogyobit Shanzu, Shwegyobinyo, Taunglon-nyo, Kyo-bin (Mataw Gyobin), and Kalagangon Villages. Just outside the

\textsuperscript{11} The 2010-2011 excavations were led by Win Kyaing, assisted by Daw Aye Nilar, Dr Than Htike, Kyaw Nyi Nyi Htet, Kyaw Myin Oo, Maung Maung Nan New, and Daw Myat Moe.

\textsuperscript{12} The fall of Sri Ksetra (Tharehkittara) in the Glass Palace Chronicle is noted as 94 AD at a time when the kingdom was ungovernable and infested with thieves. It marked the dissolution of the kingdom into three divisions of the Pyu, Kanyans and Burmans (Pe Maung Tin and Luce 1960:28).
walls is Mataw on the east. There are few settlements in the southern sector where numerous Pyinma (a timber species) and In (a resinous wood) trees fill forested areas. This surviving forest area contrasts to Pinle. At Pinle, apart from village areas, the whole area is devoted to rice cultivation which has eroded many surface remains. Outside the southern walls are significant archaeological remains such as the cylindrical Bawbawgyi and three large enclosed areas of burial urns known as Pyu-taik, and Beikthano-myo, a rectangular shaped town plan with further stone burial urns. While not as extensive as the Sri Ksetra examples, Pinle is likewise characterized by substantial extra-mural structures.

7.3.1: Sri Ksetra Gates

Nine city gates (Figure 68) have been documented with excavations at three of them: Natpauk (nat gate or pauk); Naga-tount pauk (wiggly dragon gate); Shwe-daga-pauk (golden gate, 68 m long, passageway 5.18 m wide); Hmoat-she-pauk (front door gate); Yahanda pauk (enlightened one gate); Bilu-ma pauk (Ogress gate); Thayarwaddy pauk, Muhtaw pauk, Lulin-kyaw pauk (young man pass, HMA-34 with two urns found outside the curve of the wall during excavation in 1997–1998) and Twin-byae pauk. The Shwe-daga gate area was excavated by Myint Aung that with arms 44–113 m long, and width circa 5.0 m is similar to those found at Beikthano and Halin. Unlike Pinle, the gates are wide at the entry point but rapidly narrow on the inner parts of the arms. In addition, the Sri Ksetra gates have a greater number of gaps in the brick construction than at Pinle, with spaces at the centre and end of the arms which would have been filled with wood fortifications. Both also have in-built alcoves that may have been used for storage (Hudson 2004:122).

7.3.2: Sri Ksetra Palace Excavation (Mounds no. 44–45): Structure and Stratigraphy

The 2009 excavations of HMA44–45 unearthed sections of the south and west walls of the palace-citadel. The area is 200 m from the gate on the outer west side of the palace wall, a 8.0 m wide entry and 120 m around the compound of the palace. This followed the previous year’s work where a stretch of low ridges of mounds (Mound no. 13) that lie on the west of palace that was excavated by Than Swe in 1968. At that time, the team examined the excavated city wall on the south and its relationship to the city wall on the west labelled Mound no. 45.

The excavation laid out 5.0 m grids across the mound, which measured 95 m north-south and 30 m east-west with a height of 5.0 m. The area had depressions created by gold digging in 1988. Some of the gold digging pits revealed parts of the brick courses from the underlying structure. The angled corner extension to the west revealed two foundation levels. The excavation began with grid D-19 and D-17 where the corner extends east-west. Two habitation layers were found with the rare finding of a habitation layer in the basal layer.

The east-west wall continued, although it had not survived in a continuous wall through grids (D-17), (D-16), (D-12), (D-11) and (C-11), (D-10) and (C-10), (C-9), (C-8), (C-7). A line of bricks was documented with further evidence of a habitation layer of approximately 7.0 cm in width and height some 60 cm into the footing level. The probable habitation layer was compacted with a white iridescent colour mixed with low-grade gems. A structure identified in grids (D-16) and (D-17) was identified
as a small room inside the palace wall on the west. A total of 27 brick courses were documented with a further 14 courses identified under the surface. The joint grid (D-15) swayed to the west with sections of the damaged wall making it impossible to identify an entrance. However, brick courses on the north and south were documented. The damage was different from the pattern seen from the 1988 looting and interpreted as earlier—possibly resultant from habitation and destruction from battle.

On the north excavated wall, a 15° sway was recorded on the north, with the excavation of grids (D-10), (C-10), (C-9), (C-8), and (C-7). No clear partitions were documented although it was provisionally identified as a partition. The finds, however, were different from the earlier excavated grid (D-13) where a brick foundation with ornamentation and decoration similar to a throne at the centre of the palace was recorded. The pattern of the building was complex with part of the west wall not clearly the surrounding wall of the palace but an internal entrance to the palace. The scale of the building was noted, with the massive construction of the palace covering an immense area.

The stratigraphy of the mound (Mound no. 45) recorded a thin humus layer with the layers mixed, particularly from gold panning in 1988. A gravel layer made during gold sieving, a mixed layer of soaked objects and small gravel from sieving, a silt layer, and a debris layer were found. Grid (D-17) 3.0 m in length and 1.0 m in width was dug as a test pit. Although a depth of 2.8 m was reached, a basal level was not identified. Rather, further evidence of gold panning was noted. Problems with water seepage halted the excavations.

The complex stratigraphy also meant that the earlier excavated mounds (Mound no. 13 and Mound no. 44) on the east of the inner palace wall were part of the original framing foundation. Two stages of construction were identified on the inner eastern side of the wall. In the first excavation in 1986, a plan of the structure emerged from the centre of the mound that dated to long after the excavation. However, the actual stratigraphy was difficult to identify with certainty because of the extensive digging in 1988, combined with an increasing number of large tree roots.

7.4: Conclusion

Pinle’s relative lack of excavation despite its size, location and architecture as well its absence in chronicle sources highlight the gaps in our understanding of the processes of urbanism across Upper Myanmar during the first millennium CE. The excavation data highlight the shared yet different features of Pinle and Sri Ksetra. Each has a strategic bridging location but Pinle’s is between the junction of the Samon and Ayeyarwaddy and the Myitngeh (Dhotawaddy) while Sri Ksetra with its port at Pyay. This epitomises the combination of agricultural surplus and the expansion of trade and inland-maritime exchange from circa 500-900 CE. The gate excavated at Pinle bears little resemblance to those at Sri Ksetra apart from a common system of masonry. The similar excavated structures, however, indicate cultural exchange during the chronological overlap in circa the 5th century CE.

The variations are an essential part of the tangible role of these cities in the emergence of urbanism in Upper Myanmar during the first millennium CE. This paper concludes, however, with the contrast in the available data for not just Pinle, but other prime walled sites such as Tagaung, in our understanding of the early
emergence of urbanism in the arid plains of the Ayeyarwaddy basin. Why did one survive, one fade, one grow to an immense size and the other (perhaps) relatively stable in size throughout its existence?

The excavations reported in the main body of this document demonstrate the need to conduct further exploration in the Pinle region. The features compare to those at the better known Pyu sites but are distinct and the pre-Pyu material needs documentation to assess against the Bronze-Iron finds of the Samon Valley. Like Sri Ksetra, Pinle has evidence of Bagan period construction that needs further study as well. In summary, both the Pinle excavation reports of this document and brief comparison between Pinle and Sri Ksetra pave the way for further research to establish the networks of communication over time.

7.5: Images for Section 7

The following images include original scans from reports, low-res field pictures and new additions such as the satellite images. Original presentation images that accompanied the unpublished paper forming Section 7 (this section) are not included here.
Fig. 53: Satellite image of Pyu cities.

Fig. 54: Satellite images of Sri Ksetra (left) and Pinle (right); slightly zoomed-in view for general landscape comparisons.
**Fig. 55:** Satellite image Sri Ksetra (left) and Pinle (right); zoomed closer for local area landscape and environment comparisons.

**Fig. 56:** Satellite image Sri Ksetra (left) and Pinle (right); closer view for urban site comparison of major features.

**Fig. 57:** Satellite image Sri Ksetra (left) and Pinle (right); major features depicted within dashed with lines to complement Fig. 55.
**Fig. 58:** Location of Pinle Mound no. 20 (see also Fig. 6) (lower left insert showing comparison of plan of HMA-19 from Sri Ksetra (UNESCO 2014, Annex IV, p. 33).

**Fig. 59a-f:** Various views of Mound No. 20 during excavations; note the structure and brickwork similarities.
Fig. 60a-d: Various views of excavations and data recording on wall facings at Mound no. 20 during excavations; with special attention to working on plaques inset into the structural facings.

Fig. 61a and b: Top and plan view of unique “B”-shaped brick style used to create complex moldings on the profile.
**Fig. 62:** Terracotta plaques at Mound no. 20 depicting horses or feline creatures and riders with legs and arms extended in a possible celebration pose (note: the feet may represent claws – hence a possible feline interpretation).

**Fig. 63:** Closer view of plaques depicting horse/feline creature and rider; the purpose and meaning of the unique legs and arms extension is unknown.
Fig. 64a-l: Terracotta plaque variations from Mound no. 20
(Photos by Kyaw Myo Win, 2009–2010).
Fig. 65: Pinle Mound no. 20 plan view drawing
(Drawing by Kyaw Myo Win, 2009-2010).

Fig. 66: Schematic of Mound no. 20 profile and facings
(Drawing by Kyaw Myo Win, 2009-2010).
Fig. 67: Gate structure plan views at Sites: Beikthano (top); Sri Ksetra (middle) and Halin (bottom).
Fig. 68: Gates at Sri Ksetra (Photo drawing UNESCO 2014).

Fig. 69: Lulin Kyaw gate showing the extended arms (Photo by Department of Archaeology, 2010)
Fig. 70: Moat-she gate seen from the north (Photo by Department of Archaeology, 2010).

Fig. 71: Baw Baw Gyi stupa located south of the city wall of Sri Ksetra (Photo by Department of Archaeology, 2010).
REFERENCES CITED


APPENDIX 1: Field Study and Excavation of Pinle Ancient City, Myitta Township, Kyaukse, Mandalay Region from June 4 to July 8, 2009. (Text only)
(a) အထောက်အကူသင်္ချောင်းသို့ (Plan of the Structure)
(b) အထောက်အကူသင်္ချောင်းကျယ်အနိမ့် (Pattern of construction)
(c) အထောက်အကူသင်္ချောင်း၏အစိတ်အုံများ (Stratigraphy and History of Structure)
(d) ကျန်ကပ်ပဲ (Floor System)
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(c) အာရိုင်အားဖော်ပေးများ (Plan of the Structure)

အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ ၏နေရာများအဖြစ် (Top Level)ကို အနေဖြင့်Inner Cylindrical Core Plan ၏အာရိုင်အားဖော်ပေးများ (Second Level)ကို Second Level Plan ၏အာရိုင်အားဖော်ပေးများ (Square plan)ကို Main Frame Plan ၏အာရိုင်အားဖော်ပေးများ (Ground Level)ကို Main Frame Plan ၏အာရိုင်အားဖော်ပေးများ (Main Frame)တစ်မျိုး အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure) ၏အာရိုင်အားဖော်ပေးများ (Plan of the Structure)

(a) အာရိုင်အားဖော်ပေးများ (Pattern of construction)

အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction) ၏အာရိုင်အားဖော်ပေးများ (Pattern of construction)
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(o) စောင်းရွက်ခြင်း အနေနှင့်အရာအဖွဲ့စျချင်ခြင်း
(Stratigraphy and History of Structure)

သို့သော် စောင်းရွက်ခြင်းနှင့်အတူ အနောက်တိုင်းဒေသကြီးမှာ အခြေစိုက်ပြောင်းလဲပြီးလေ့လာပါသော ပြည်ပန့်တိုးချိန်နှင့် အဆိုတော်များကို လေ့လာရန် အနောက်တိုင်းဒေသကြီးကို လေ့လာပြီးလေ့လာသော အခြားသော စောင်းရွက်ခြင်းများဖြင့် ဖောက်ရွက်သည်။ အနောက်တိုင်းဒေသကြီးနှင့် အဆိုတော်များကို လေ့လာရန် အနောက်တိုင်းဒေသကြီးကို လေ့လာပြီးလေ့လာသော အခြားသော စောင်းရွက်ခြင်းများဖြင့် ဖောက်ရွက်သည်။ အနောက်တိုင်းဒေသကြီးနှင့် အဆိုတော်များကို လေ့လာရန် အနောက်တိုင်းဒေသကြီးကို လေ့လာပြီးလေ့လာသော အခြားသော စောင်းရွက်ခြင်းများဖြင့် ဖောက်ရွက်သည်။

သို့သော် စောင်းရွက်ခြင်းနှင့်အတူ အနောက်တိုင်းဒေသကြီးမှာ အခြေစိုက်ပြောင်းလဲပြီးလေ့လာပြီးလေ့လာသော ပြည်ပန့်တိုးချိန်နှင့် အဆိုတော်များကို လေ့လာရန် အနောက်တိုင်းဒေသကြီးကို လေ့လာပြီးလေ့လာသော အခြားသော စောင်းရွက်ခြင်းများဖြင့် ဖောက်ရွက်သည်။ အနောက်တိုင်းဒေသကြီးနှင့် အဆိုတော်များကို လေ့လာရန် အနောက်တိုင်းဒေသကြီးကို လေ့လာပြီးလေ့လာသော အခြားသော စောင်းရွက်ခြင်းများဖြင့် ဖောက်ရွက်သည်။ အနောက်တိုင်းဒေသကြီးနှင့် အဆိုတော်များကို လေ့လာရန် အနောက်တိုင်းဒေသကြီးကို လေ့လာပြီးလေ့လာသော အခြားသော စောင်းရွက်ခြင်းများဖြင့် ဖောက်ရွက်သည်။
(၃၃) ရေပန်းယူနေရာ (Floor System)

ဗုဒ္ဓအားလုံးအားဖြင့် အောင်မြားသောအချက်များကို တင်သို့ပြောပြင်သွားခြင်း ဖော်ပြသည်။

ဗုဒ္ဓအားလုံးအားဖြင့် အောင်မြားသောအချက်များကို တင်သို့ပြောပြင်သွားခြင်း ဖော်ပြသည်။

ဖြစ်စဉ်အားဖြင့် အောင်မြားသောအချက်များကို တင်သို့ပြောပြင်သွားခြင်း ဖော်ပြသည်။

ဗုဒ္ဓအားလုံးအားဖြင့် အောင်မြားသောအချက်များကို တင်သို့ပြောပြင်သွားခြင်း ဖော်ပြသည်။

ဖြစ်စဉ်အားဖြင့် အောင်မြားသောအချက်များကို တင်သို့ပြောပြင်သွားခြင်း ဖော်ပြသည်။
APPENDIX 2: Excavation and Study of Pinle Ancient City, Myitta Township, Kyaukse, Mandalay Region (limited images included)
- p -

ပြည်ထောင်စုစစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန

ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာနနှင့် ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာနပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာနှင့် ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာနပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန

(3) စီမံ (စီမံးရည်မှု)
(4) စီမံခွင်
(5) စီမံခွင် (စီမံခွင်အဖွဲ့)
(6) စီမံခွင်
(7) စီမံခွင်
(8) စီမံခွင်
(9) စီမံခွင်

ချောင်းကို စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)
စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)
စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)

ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)

ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)

ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)

ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)

ပြည်ထောင်စစ်ဦးချာ အထောက်အပံ့စီမံခန့်ခွဲစိုက်ပျိုးဌာန စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်) စီမံခွင် (စီမံခွင်)
- ၉ -

ကြီးမားပြီး စောင့်ရှောက်သည့်အချက်အလိုများကို အပြောင်းအလဲချက်များအပြင်ကိုလည်း လေ့လာလိုပါသည်။

ကြီးမားပြီး စောင့်ရှောက်သည့်အချက်အလိုများကို အပြောင်းအလဲချက်များအပြင်ကိုလည်း လေ့လာလိုပါသည်။

ကြီးမားပြီး စောင့်ရှောက်သည့်အချက်အလိုများကို အပြောင်းအလဲချက်များအပြင်ကိုလည်း လေ့လာလိုပါသည်။

(၁) လေ့လာချက် (Location)

ကြီးမားပြီး စောင့်ရှောက်သည့်အချက်အလိုများကို အပြောင်းအလဲချက်များအပြင်ကိုလည်း လေ့လာလိုပါသည်။

(၂) အကြောင်းအရာ (Plan of the Structure)

ကြီးမားပြီး စောင့်ရှောက်သည့်အချက်အလိုများကို အပြောင်းအလဲချက်များအပြင်ကိုလည်း လေ့လာလိုပါသည်။
(o) အဓိကအရေးသောဖောက်ဆိုချက်များ (Pattern of construction)

(Translated Text)

- The main highlights of the construction pattern.
- The description of the main features and materials used.
- The construction method and techniques.
- The significance and importance of the construction.

(Translation)

- အဓိကအရေးသောဖောက်ဆိုချက်များ (Pattern of construction)
- ဖောက်ဆိုချက်များကို အဓိကအရေးရှိုးထားသည်။
- ဖောက်ဆိုချက်များကို အဓိကအရေးရှိုးထားသည်။
- ဖောက်ဆိုချက်များကို အဓိကအရေးရှိုးထားသည်။
(c) စီစဉ်နိုင်ငံသူ အတွက်အစီစဉ်အားပေးခြင်း
(Continued from previous page)
(c) ပြင်သစ်(File System)

(90x172 to 506x770)
(α) ပေးပေါ်လုံး၊ အခြေခံထောက်ပံုရွက်ခြင်းခြင်း
(Stratigraphy and History of Structure)
(c) ဗိသုကာဆောင်ရာ (Floor System)

ဗိသုကာဆောင်ရာအဖွဲ့ အလုပ်လုပ်ကို အသုံးပြုသော အုပ်စုများအတွက် အသုံးပြုသော အစီအစဉ်များနှင့် အခြေအနေများအတွက် အသုံးပြုသော အစီအစဉ်များ မျှဝေပြီး အသုံးပြုသော အစီအစဉ်များကို အနေနာဆိုင်ရာ ဆောင်ရွက်ပြီး အသုံးပြုသော အစီအစဉ်များကို ရှေးဟင်းအဖွဲ့ အသုံးပြုသော အစီအစဉ်များကို ပြောပြပါသည်။

Domestic pottery ကို အသုံးပြုသော ကျွန်ုပ်တို့ အသုံးပြုသော အစီအစဉ်များကို ပြောပြပါသည်။

Cooking vessels, Large Storage Jar, Medium globular vessels, Plain round bowls, Drinking Cup ကို အသုံးပြုသော ကျွန်ုပ်တို့ အသုံးပြုသော အစီအစဉ်များကို ပြောပြပါသည်။
မြန်မာစာ (Myanmar Script)
- ဗ-
မွေးနိုးနှင့် ရှိမ်: ပင်လေး နိုင်ငံစာရင်း XI စာရင်း No. 6

- ပြ-
- ၆ -

(က) တင်းခုံ (အပျက်သောဆိုင်ရာအမှတ်)
(j) အကြားနေရာ (က) ဒေ
(g) အပြင်ပွိုင်းတိုးခြင်း (က) ဒေ
(k) နေရာချုပ်ပေးချက် အပြင်ပွိုင်းတိုးခြင်း

အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။
အကြားနေရာမှာ တင်းခုံဖြစ်သည်။ တင်းခုံသည် မီးရာထူးအဖြစ် ရောက်ရှိသည်။

- ၁၈ -

ကြိုးမှူးသူမှာ GPS Location အပေါ် သေချာသော်လည်း ရှိသော အချက်များကို နှိုင်းယှဉ်ရေး ပြုလုပ်ရမည်။ 

"ယောက်ားယောက်ား (Neolithic pottery)" အဖြစ် ရွေးချယ်ပါသည်။ အထူးသဖြင့် မိုးလေးမှာ ဖျင်သွားသော အချက်များကို နှိုင်းယှဉ်ရေး ပြုလုပ်ရမည်။ အထူးသဖြင့် မိုးလေးမှာ ဖျင်သွားသော အချက်များကို နှိုင်းယှဉ်ရေး ပြုလုပ်ရမည်။
ဖြူစောင် (Neolithic pottery) ကို ရှုပ်ထွေး တည်ထောင်သည်။ ရောင်စါး (Iron outside) ရှိသည်။ ဖြူစောင်များကို ရှုပ်ထွေးတည်ထောင်သည်။ ဖြူစောင်များကို ရှုပ်ထွေးတည်ထောင်သည်။ (Burial site)အရေးအခံ (Cremation system) ရှိသည်။ အရေးအခံ (Burial site) ကို ရှုပ်ထွေးတည်ထောင်သည်။ ရှုပ်ထွေးတည်ထောင်သည်။ (Early period of Pinle) အရေးအခံ (Out post) ရှုပ်ထွေးတည်ထောင်သည်။ ရှုပ်ထွေးတည်ထောင်သည်။ (Associate Find) အရေးအခံ (Cultural Phase evidence) ရှုပ်ထွေးတည်ထောင်သည်။ ရှုပ်ထွေးတည်ထောင်သည်။ (Natural deposition Soil) အရေးအခံ (Natural deposition Soil) ရှုပ်ထွေးတည်ထောင်သည်။ ရှုပ်ထွေးတည်ထောင်သည်။
Aung Thaw /U/  Excavation at Beikithano
Moor/Elizabeth/  Early Landscapes of Myanmar
Stargards /Janice/  The Ancient pyu of Burma