SPAFACON2021

Papers from the SEAMEO SPAFA International Conference on

SOUTHEAST ASIAN ARCHAEOLOGY AND FINE ARTS

13 - 17 December 2021

Editor: Noel Hidalgo Tan

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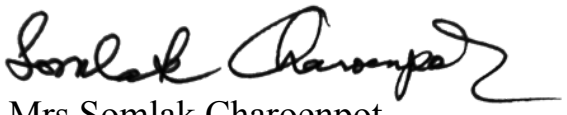
INTRODUCTION

This volume contains the extended abstracts from the papers presented at the SEAMEO SPAFA International Conference on Southeast Asian Archaeology and Fine Arts, which was held online from 13 to 17 December 2021. Also known as the SPAFACON2021, this conference was organised online due to the pandemic. Despite the disruption brought about by Covid-19 to our in-person events, training programmes and field research, it is heartening to see that archaeology and cultural heritage has continued under new modes of communication and collaboration.

This fourth iteration of the SPAFACON is also scheduled a year earlier than our usual triennial cycle to commemorate the 50th anniversary of SEAMEO initiating a centre dedicated towards archaeology and the fine arts. Over the past year, SPAFA has also been highlighting this legacy of international cooperation and capacity-building by sharing our photographic archives on our social media.

I am delighted by the high level of enthusiasm and intellectual curiosity brought by the participants to the conference. During our call for papers we received close to 90 submissions, but owing to the pressures of time and the online format, we were only able to accept 34 papers for the conference. The variety of papers present here, although a small set compared with our usual proceedings, reflects the breadth of the centre's ambit – covering not just archaeology, but also performing arts, visual arts, museum studies, and other aspects of Southeast Asian cultural heritage.

I would like to thank all the participants, without whom this conference would not be possible in its present form, in particular, our Governing Board members who represent every country in Southeast Asia, and to the Ministry of Culture, Thailand and the Ministry of Education, Thailand for their long-standing support of SEAMEO SPAFA and its activities.



Mrs Somlak Charoenpot
Centre Director
SEAMEO SPAFA

New Archaeological Discoveries: Gates and Turrets of 16th century Burmese Royal Capital of Haṁsāvatī

ရှေးဟောင်းသုတေသနဆိုင်ရာတွေ့ရှိချက်အသစ်များ – (၁၆) ရာစု လက်ရာ ဟံသာဝတီမြို့တော်မှ တံခါးပေါက်နှင့်ပြအိုးများ

10792/pqcnu8815a-11
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Abstract

This paper explores the styles of construction and the city features of the sixteenth century royal capital of Haṁsāvatī, located in Bago, Myanmar. It was founded by King Bayinnaung in 1566 CE. Throughout its existence, the ancient city has been devastated by natural disasters, weak heritage conservation policies, and urban encroachments. Starting from 2018, excavation work on Haṁsāvatī wall was started and research was carried out on up to four excavation mounds. Archaeological excavations have revealed a wealth of evidence on architecture, including the city walls, gateways, and turrets. This research examines the architectural elements found during the excavations of the Haṁsāvatī wall, construction techniques, renovations and destructions throughout centuries. New hypotheses and discoveries from excavations, cross-examinations with historical records will also be presented.

ဤစာတမ်းငယ်သည် မြန်မာနိုင်ငံ၊ ပဲခူးမြို့တွင် တည်ရှိသော (၁၆)
ရာစုနှစ်လက်ရာ ဟံသာဝတီမြို့တော်၏ တည်ဆောက်မှုပုံစံနှင့် မြို့ပြအင်္ဂါရုပ်တို့ကို
ရှာဖွေဖော်ထုတ်ထားပါသည်။ ဤမြို့တော်ကို ဘုရင့်နောင်မင်းတရားကြီးက အေဒီ (၁၅၆၆)
တွင် စတင်တည်ထောင်ခဲ့ခြင်းဖြစ်သည်။ ရာဇဝင်နှင့်မှတ်တမ်းများအရ မြို့ဟောင်းသည်
သဘာဝဘေးအန္တရာယ်၊ ထိန်းသိမ်းမှုမဝါဒညံ့ဖျင်းမှုများနှင့် မြို့ပြကျူးကျော်မှုများကို
တည်ရှိလာသည့်ကာလတစ်လျှောက် များစွာခံစားခဲ့ရသေးသည်။ (၂၀၁၈) ခုနှစ်မှ စတင်၍
ဟံသာဝတီမြို့ဟောင်းတူးဖော်မှုလုပ်ငန်းများကို စတင်နိုင်ခဲ့ပြီး လက်ရှိအချိန်အထိ
တူးဖော်မှုကုန်းလေးခုအထိ သုတေသနပြုလုပ်နိုင်ခဲ့ပြီးဖြစ်ပါသည်။ မြို့ရိုး၊ မြို့တံခါးပေါက်၊
ပြအိုးအစရှိသည့် များစွာသော ဗိသုကာဆိုင်ရာအထောက်အထားများကိုလည်း ရှေး
ဟောင်းသုတေသနဆိုင်ရာတူးဖော်မှုများမှတစ်ဆင့် ဖော်ထုတ်နိုင်ခဲ့ပြီးဖြစ်ပါသည်။
ယခုသုတေသနသည် ဟံသာဝတီမြို့ရိုးတူးဖော်မှုမှ တွေ့ရှိရသည့် ဗိသုကာဆိုင်ရာ အင်္ဂါရုပ်များ၊

ရာစုနှစ်အဆက်ဆက် တည်ဆောက်မှုပုံစံများ၊ ပြင်ဆင်မှုများနှင့် ဖျက်ဆီးမှုများအကြောင်းကိုပါ လေ့လာဖော်ထုတ်သွားမည်ဖြစ်ပါသည်။ တူးဖော်မှုမှ တွေ့ရှိမှုနှင့် တွေးခြင်ယူဆမှုများ၊ သမိုင်းမှတ်တမ်းများနှင့် တိုက်ဆိုင်စစ်ဆေးမှုများကိုပါ လေ့လာတင်ပြသွားပါမည်။

Keywords
Haṁsāvatī; Discoveries; Archaeological excavations; Architecture
ဟံသာဝတီ၊ ရှာဖွေတွေ့ရှိမှုများ၊ ရှေးဟောင်းသုတေသနဆိုင်ရာတူးဖော်မှု၊ ဗိသုကာပညာ

Introduction to the timeline of Haṁsāvatī

The historic city Haṁsāvatī is the second oldest rectangular shaped city founded in 1566 CE, located in Bago (Pegu) in Myanmar (formerly known as Burma). This capital was built by the king Bayinnaung to operate as a well-structured capital with the criteria of the royal capital in the second half of the 16th century, and the city flourished at its highest peak between 1566 and 1599 CE. According to chronicles and accounts, the city was built as a rectangular plan in the style of Ketumati (Taungoo) and Chiangmai in Thailand. The city was remarkably built on the floodplain beside the Bago River with an accessible way out to the sea, which made the capital a well-known sea port in this time. Between 1560s – 1580s, the Italian voyager, Cesar Fedrici, accounted about the gates and turrets of Pegu that the city has five gates on each face, these are straight towards each other's, there are places for sentinels (turrets), and the building are made of wood and covered with the tiles of gold (SBBR 2.2 2004: 141). The Burmese chronicles mentions that there are (20) Gates, (4) corner turrets, and (133) turrets which are varied in size (Zin Oo and Thaw Zin Latt 2020: 7). The gates and turrets were renovated again with order of King Nanda Bayin in 1591, to be similar as the Siamese capital, according to the Siamese offensive war this year (Kala vol.3 2006: 92). The capital was under the rule of Arakanese and Taungoo Kings' rule during a series of wars in the late 16th century (1597 CE). However, the palace and the city structures were destroyed by fire by the troops in 1600 CE, during the Siamese offensive war in this year (Kala vol.3 2006: 99-101). The city was again under war circa 1755 CE, during Mon-Burmese war in Bago.

The Components of the City

The Capital was beautifully planned to a rectangular shape, with (5) gates in each face. The whole capital is (2.66) km from north to south, and (2.25) km from east to west. The east and west sides are (0.41) km longer than the north and south sides. The components

of the capital are (3) Thana (Three sacred places or thanas[1]– 1. the Haṁsāvatī Rajathani[2] capital with full citadel and defence structures, 2. the wall of Shwemawdaw Pagoda, 3. Pitaka Library), four corner pagodas, and four great Buddha images. The gates were named by the regions under the king's rule. The gates from the northwest corner in the clockwise direction namely – Tanintharyi Gate, Ayutthaya Gate, Martaban Gate, Pakhan Gate, Pathein Gate, Pyay (Sri Kestra) Gate, Innwa (Ava) Gate, Taungoo Gate, Lanxang Gate, Dala Gate, Chiangmai Gate, Ohnbaung (Hsibaw) Gate, Mohnyin Gate, Mogaung Gate, Dawei Gate, Kalay Gate, Monai Gate, Nyaungshwe Gate, Tharyawaddy Gate, and Hsenwi Gate (Kala vol.2 2006: 295-296) (Figure 1). Two to three turrets were also built between the gates and the corners, not only for decoration purposes, but also as defense structures.

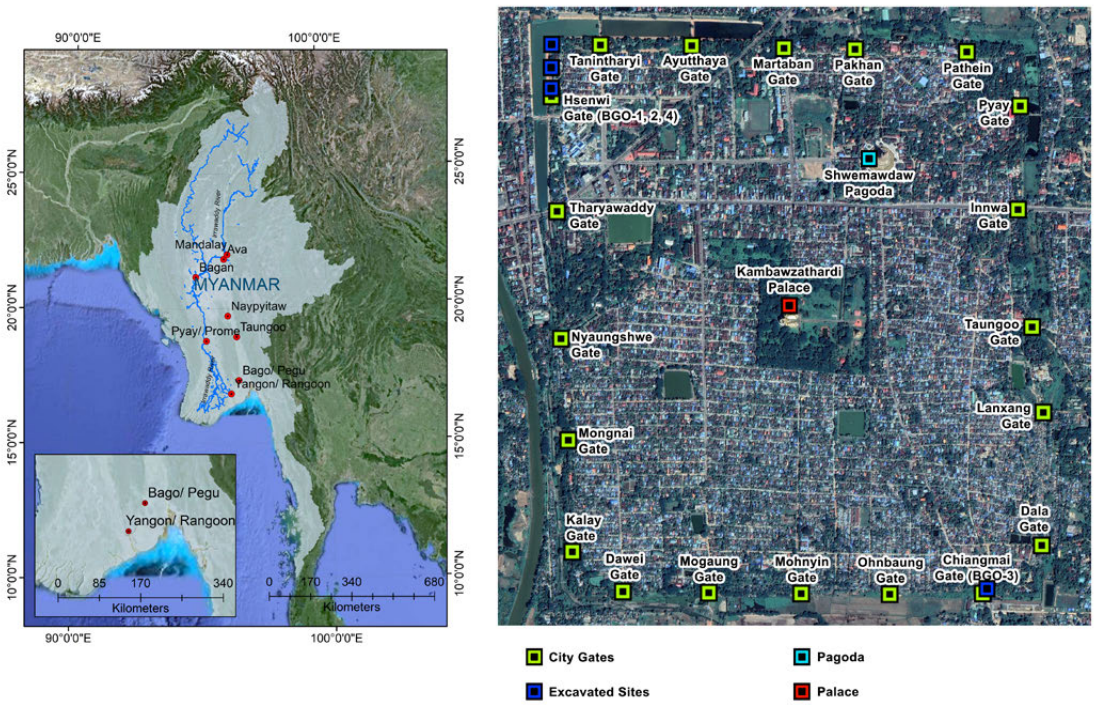

Fig. 1 Map of Myanmar showing the major cities and Bago (Haṁsāvatī) showing the locations of the gates and important places. Source: Thaw Zin Latt.

1 ဌာန in Burmese

2 ဟံသာဝတီရာဇဌာနီ in Burmese, which means "The Great Land of the Kings, the city of Hamsa" (Hamsa - A mythical bird in the ancient texts)

Plan of excavation and layout of trenches

After the city had been demolished by man-made and natural disasters for over four centuries, the citadel, palace, and city structures remained as the earthen mounds with dense shrubs. Moreover, the pressure of urban development is gradually dissolving the evidence of 16th century capital. Therefore, as of 2018, the Department of Archaeology and National Museum in Myanmar have revealed the plan to preserve the cultural heritage of Haṁsāvatī (Bago). According to the plan, the ancient city wall, city structures, and moat alongside the city will be revealed in about ten financial years. The site code was named Bago (BGO). As per the plan, in 2018, BGO-1 (destroyed turret) and BGO-2 (corner structure) were excavated. The Chiang Mai Gate (BGO-3) was excavated in 2019, and BGO-4 was excavated in 2019-2020, revealing two turrets and one complete city gate structure between BGO-1 and 2 (See Table 1).

According to the budget and the situation of the mound, BGO-1, 2 and 3 were excavated by using the grid method, which bear (5 x 5 m) grids covering the whole mound. In contrast, BGO-4 was excavated by using the long-trench method. As the Department of Archaeology had an objective to unearth about (285) meters long mound, totally (57) long-trenches (5 m x 20 m east to west in each) had been composed to operate excavation. During the excavation, the artifacts, and cultural layers in every 10 centimeters (1 unit) had been precisely recorded.

Site Name, Excavated Year	Type of Building	Location (GPS Point)	Remark
BGO-1, 2018-19	Turret	17.338710º N 96.482894º E	Destroyed normal turret with 50% presence
BGO-2, 2019	Corner Turret	17.341562º N 96.482796º E	Complete turret in northwestern corner of the city
BGO-3, 2019	Gate	17.319141º N 96.501361º E	Chiang Mai Gate, destroyed turrets due to road expansion
BGO-4, 2019-20	Turrets and Gate	17.341279º - 17.338908º N 96.482932º E	Two complete normal turrets and one complete city gate structure (Hsenwi Gate)

Table 1. The list of the excavated sites in Bago (Haṁsāvatī).

Excavation of Turrets (BGO-1, 2, 4)

Turrets can be defined as the places for sentinel and watch towers in order to defend the enemies. Essentially, the turrets are the key features of rectangular cities in Myanmar. These turrets are obviously roofed by the wooden pavilion buildings, supported by the evidence of the later rectangular cities. The turrets can be classified into two types –

1. Normal turrets, and
2. Corner turrets.

Normal turrets (BGO-1, 4)

The normal ones are the turrets[3] which are theoretically built between two gates or between corners and the gate, attached to the city wall. In Haṁsāvatī, there are (3) normal turrets have been excavated, one in BGO-1 and two in BGO-4. Although the normal turrets are built around (150) meters apart in Mandalay city (Burmese Latest Royal Capital), in contrast, in Haṁsāvatī, the turrets are unearthed in a distance of 55-75 meters apart from one another. The turrets are (14.8) meters north to south and (7.96) meters east to west. Although the roof tiles were found during the excavation, any traces of post holes which supported the pavilion were not found. The turret of BGO-1 (south of Hsenwi Gate) was destroyed by many factors, as the place is a huge garbage heap during the last three decades. The two turrets of BGO-4 (between northwest corner and Hsenwi Gate) are excavated in a better condition than BGO-1 (Figure 2). In the process of excavation, the turrets in the north were marked as Turret-A, and the other one as Turret-B. The turrets are found to be built as a core structure of bricks, which is different from the chronicles saying that the city was constructed by filling sand and debris inside.

Fig. 2 Turrets; BGO-1 (Above) Source: Zin Oo, Turret-A of BGO-4 (Below) Source: DANM – Department of Archaeology and National Museum, Myanmar.

3 ဖြဘိုး in Burmsese

Construction Techniques of normal turrets

In order to know specifically about how the citadel structures were built, a (5 m x 15 m) test pit was excavated in the Trench No. 9 (T9) to research the foundation system of the turrets and cultural stratigraphy (Figure 4). The place is the joint of Turret-A and the city wall of BGO-4. The test pit was dug up to (5.75) meters depth. As a result, it can be understood how the turrets were built.

The construction system of Turret-A begins by laying a clay layer to form a solid surface on the muddy soil. Above the topsoil are laterite blocks of about (14) cm thick to provide additional reinforcement. The lower part of Turret-A was laid with bricks measuring (40 x 19 x 8 cm). It was found that from the foundation to the top layer of the current excavation, the height of Turret-A is (4.49) meters. According to history and records, the height of the wall was (6.75) meters, so it is generally believed that about (2.26) meters of the turret had collapsed (Figure 3).

A wooden bar was found at the junction of the city wall and the turret. One end of the wood bar was placed on top of the girder rock, and the other end was found protruding to the base of the turret wall. In addition, (1.82) meters from the junction, a wooden pole was found about (0.77) meters below the foundation of the turret. This wooden bar and post can be assumed to be designed to keep the balance. Or it may be that the pillars were used for scaffolding to lay bricks on the wall (Figure 4).

The city wall and turrets are supported by internal and external fillings to make them stronger. The inside of the wall was filled with earth until it reached the surface of the wall, the outside was filled embedding 15 bricklayers, and a depth of (1.77) meters (Figure 3).

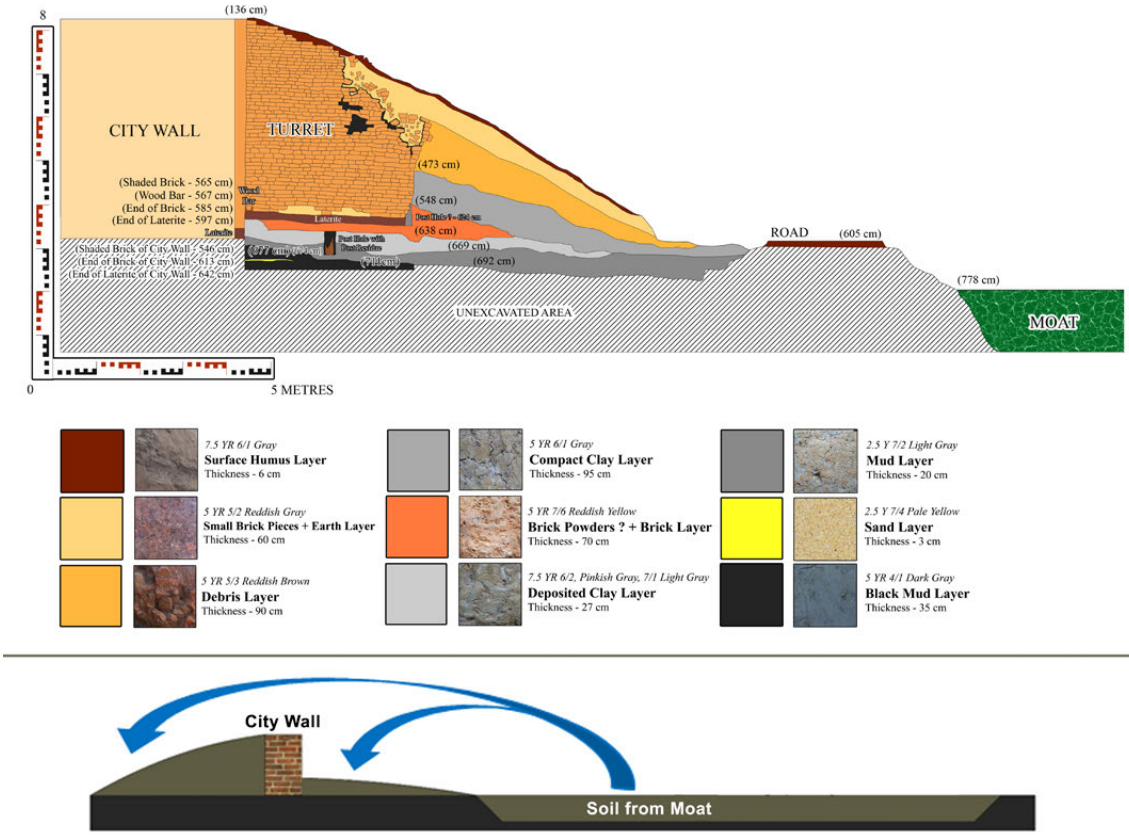

Fig. 3 Cultural Stratigraphy of Test Pit examining Turret-A, looking from North (Above) Source: Nyi Nyi Aung, Thaw Zin Latt, Demonstration of building of citadel structures (Below) Source: Thaw Zin Latt

Fig. 4 Test Pit examining Turret-A at T9 (Left) Source: Thaw Zin Latt, Foundation of City Wall and Turret-A (Right) Source: Thaw Zin Latt

Corner Turret (BGO-2)

The corner turrets[4] are the ones which are theoretically built for sentinels in the four corners of a rectangular city. In Haṁsāvatī, BGO-2 (the corner turret) was excavated in 2019. The turret is in the northwest corner of the ancient city (Figure 5) and the ruins of the corner pagoda were also found together, in the school compound above the turret.

Fig. 5 Aerial view of BGO-2 after preservation, looking from west. Source: Thein Tun Aung

Excavation of City Gates (Chiang Mai Gate, BGO-3 and Hsenwi Gate, BGO-4)

BGO-3 (Chiang Mai Gate)

The gates of Haṁsāvatī were dedicated to the regions under the king Bayinnaung's rule. The gates are the key components of the ancient Haṁsāvatī. According to the natural disasters, violences and wars across the city's presence, the gates were unearthed in destroyed form. The Chiang Mai Gate is marked as the easternmost gate on the southern city wall. In 2019, BGO-3, the Chiang Mai Gate, was excavated and it was found as a ruin of incomplete turrets, which was destroyed in expansion of Bago-Kadwinchan Road (Figure 6).

4 ထောင့်ပြကြီး in Burmese

Fig. 6 Ruins of Chiang Mai Gate, the west wing turret. (Left) Source: Thaw Zin Latt, View from the other side of the road. (Right) Source: Thaw Zin Latt

BGO-4 (Hsenwi Gate)

Surprisingly, while excavating BGO-4, the complete Hsenwi city gate was found. Excavations at the gate revealed a north arm of east-west (19.86) meters, and north-south (12.5) meters, a south arm of east-west (17.78) meters, and north-south (12.5) meters, and a (3.41) meters wide entrance way (Figure 4). The gate was built as the narrow route for the public which can be assumed as the gate is not a main gate among the (20) gates of the Haṁsāvatī. The gate was excavated with (6) meters higher than the top level of the moat. The unearthed structures of Hsenwi Gate might have been destroyed by fire, supported by the thin layers of ashes and the residual of a teak wood post in the post holes. The route also might had been blocked by the conditional pieces of bricks in the interim. Furthermore, the foundation of both wings of the gate was revealed through the excavation.

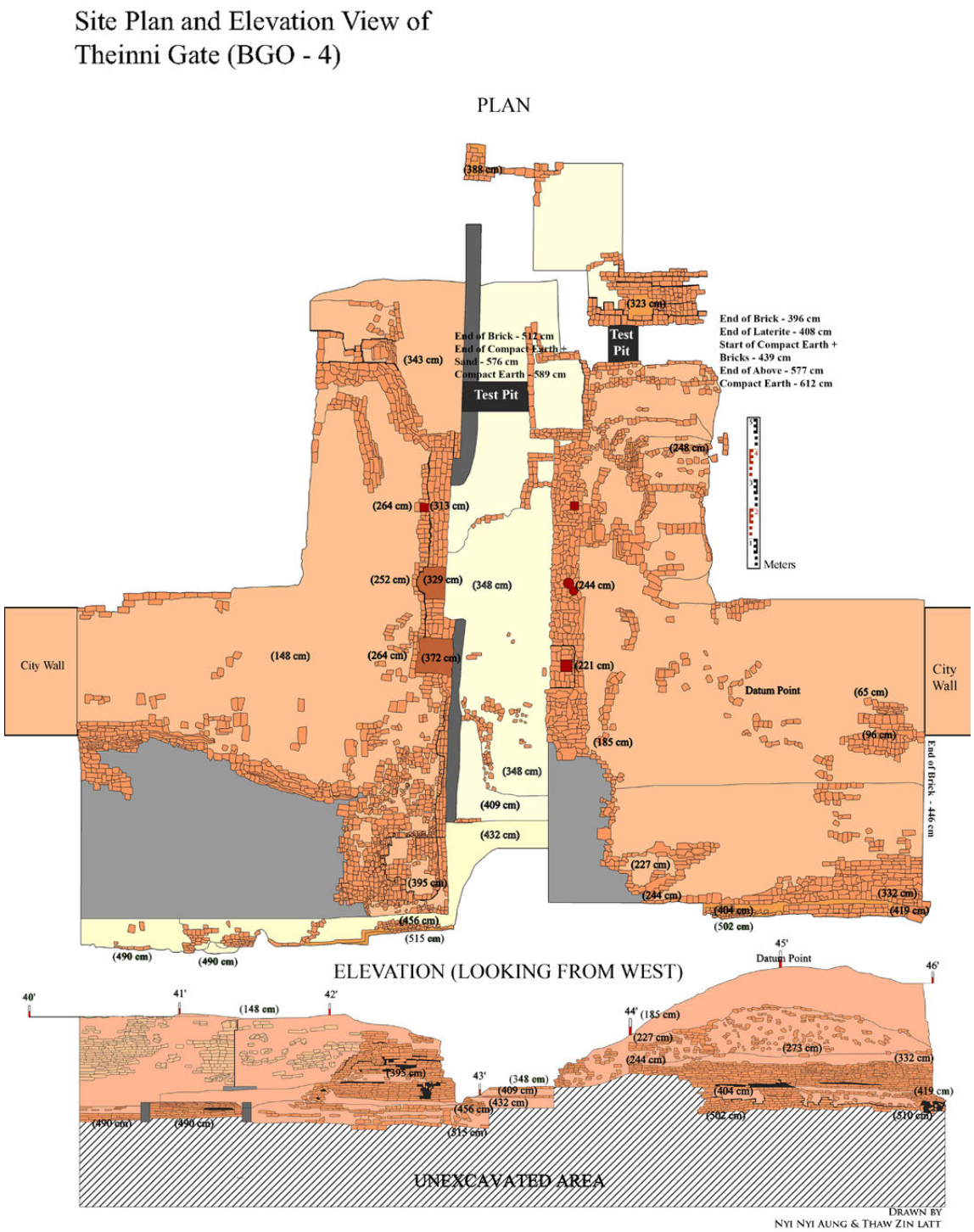

Fig. 7 Plan and Elevation of Hsenwi Gate (looking from west). Source: Nyi Nyi Aung, Thaw Zin Latt.

Fig. 8 Hsenwi Gate (after preservation). Source: Thein Tun Aung.

Construction Techniques of Hsenwi Gate

The gate is planned with (4) components -

1. Wings (turret structures) of the gate,
2. Post holes,
3. Unidentified rectangular structures,
4. The route to the city.

Wings (turret structures) of the gate

Obviously, both wings of the gate were built as the solid structures with no fillings within the core part, which is evidenced by the destroyed sections in some parts of the core structure. The sizes of the bricks are varied by about six types.

Fig. 9 Connected portions of the south wings of the gate. Source: Thaw Zin Latt.

In order to research the construction styles of the city gate structures, three test pits were excavated, (1 x 2.25 m) in T43, (1 x 1.25 m) in T44, (1 x 5 m) in T46, respectively.

Although the foundations of the city wall are (6.28) meters to (6.42) meters below Datum Point (the highest point of the gate), however, the south wing of the gate structure was built only (5.12) meters depth, then it was connected to the city wall by only touching the edges. Then, the other part of the structure was connected again with the former part, with only a difference of using the smallest brick sizes in the latest parts (Figure 9).

In the T46 test pit, the city wall was found to be anchored to a depth of (6.28) meters with laterite reinforcement, but the parts of the gate are observed to be constructed without any reinforcement. The parts were built connectedly and the size of the bricks varied greatly, so it can be assumed that the masonry walls were first built after the wall was built.

The T43 test pit was excavated by crossing the road between the north arm and the south arm at the entrance to the city. During the excavation, the foundations of the turrets are only (5.12) meters below. Then, a layer of broken bricks and sand, which was alternately prepared about (0.64) meters is found.

T44 test pit is excavated to find out the connection of the eastern part of the south arm of the entrance and the rectangular plan on the east side. During the excavation, it is found that both the structures were laid at the same depth, (4.08) meters below, and that the foundation was made of 10-13 cm thick laterite blocks. Below the foundation, there is a (1.38) meters thick layer of broken bricks and compacted mud.

Post holes

Totally six post holes are excavated along the route into the city, with three post holes on each side (See the plan of the post holes at Figure 7). These post holes can be classified as -

1. Round holes,
2. Rectangular holes, and
3. Unidentified holes due to damage.

The distance between the post holes is between 2.5 and 3 meters. The circular holes are located in the centre of the south wings, which are two consecutive circular pillars. The width of the trench is (30) cm each. Coal and ash were unearthed in the two-tiered pit, in addition, one teak wood residual of the post is also found. These facts indicate that the fire destroyed the gates during the war, and evidence suggests that the gate and pavilion were built using teak poles. The rectangular pillars are about (30) cm wide. No remains of wood were found, only charcoal and ashes were unearthed.

The unidentified holes are from the north arm, which are assumed to have been damaged due to later constructions.

Despite the mention of the forms of pavilions above the gates in Burmese styles in the chronicles and ancient accounts, the post holes unearthed form the long and narrow pavilion, suggests a Thai style rather than a Burmese one (See the plan of the post holes at Figure 7, and Figure 10). This is also supporting the fact that the style of gates were changed to Thai styles by the order of Nanda Bayin in 1591.

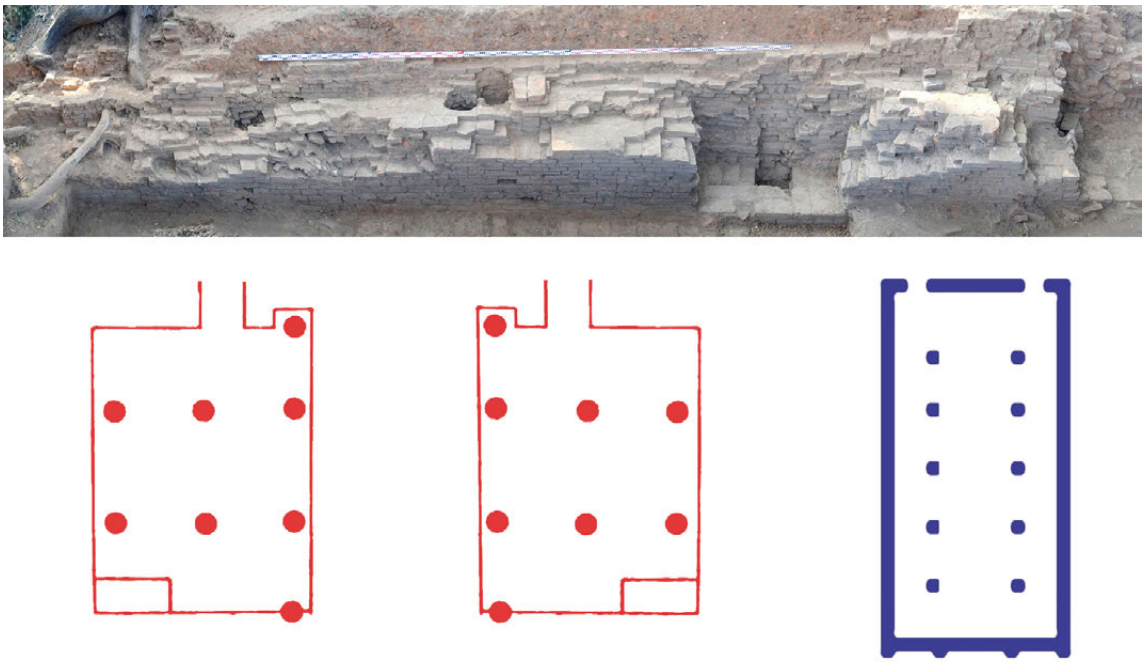

Fig. 10 Comparison of plans for Burmese and Thai pavilions, Post holes on the south wing of Hsenwi Gate. (Above) Source: Thaw Zin Latt, Plan of Pavilion, Kyaw Moe Gate, Mandalay, Myanmar. (Red) Source: DANM, Plan of Pavilion, Wat Yai Chai Mongkhon, Ayutthaya, Thailand. (Blue) Source: Timothy M Ciccone via Asian Historical Architecture https://www.orientalarchitecture.com/sid/991/thailand/ayutthaya/wat-yai-chai-mongkhon (accessed 31 August 2021).

Roof tiles were found in large quantities on the debris and floor layers. The excavated roof tiles were unearthed as fragments, leaving the impression. The tiles are shaped like roof tiles with hooks connected to each other, and the actual roof tiles are (21 cm x 14 cm) in size. This evidence and wooden post holes are supporting the idea that the city gate was roofed by the wooden pavilion.

Unidentified rectangular structures

Fig. 11 Aerial view of unidentified structures and the test pits. Source: Thein Tun Aung

From the excavation, the two unidentified structures were also found. The one is (4 x 2.5 m) in dimension and it is (1.25) meters on the east of the south wing of the gate. The structure is well built together with the turret according to the same foundation levels and mutual construction styles. The second structure (3 x 2 m) is built as an expansion with the south wing, connected with the turret and it was found from the test pits that it is only a loose and temporary plan over blocked bricks on the passage. These plans might have probably been used as dwellings and shelters for the soldiers, who guarded the city (Figure 11).

The route to the city

The route to the city, the passage between the wings of the gate, is (4.2) meters in the widest, and (3.41) meters in the narrowest part. Thus the passage is not wide enough for the bullock carts and people to pass through. Moreover, it is surprisingly found that the route had been blocked by the bricks up to (2.57) meters high from the ring road on the moat. Normally, the passage is built at the same level with the moat. As the passage was higher, it appears to have been blocked after the heyday of the city. (See the drawing at Figure 12).

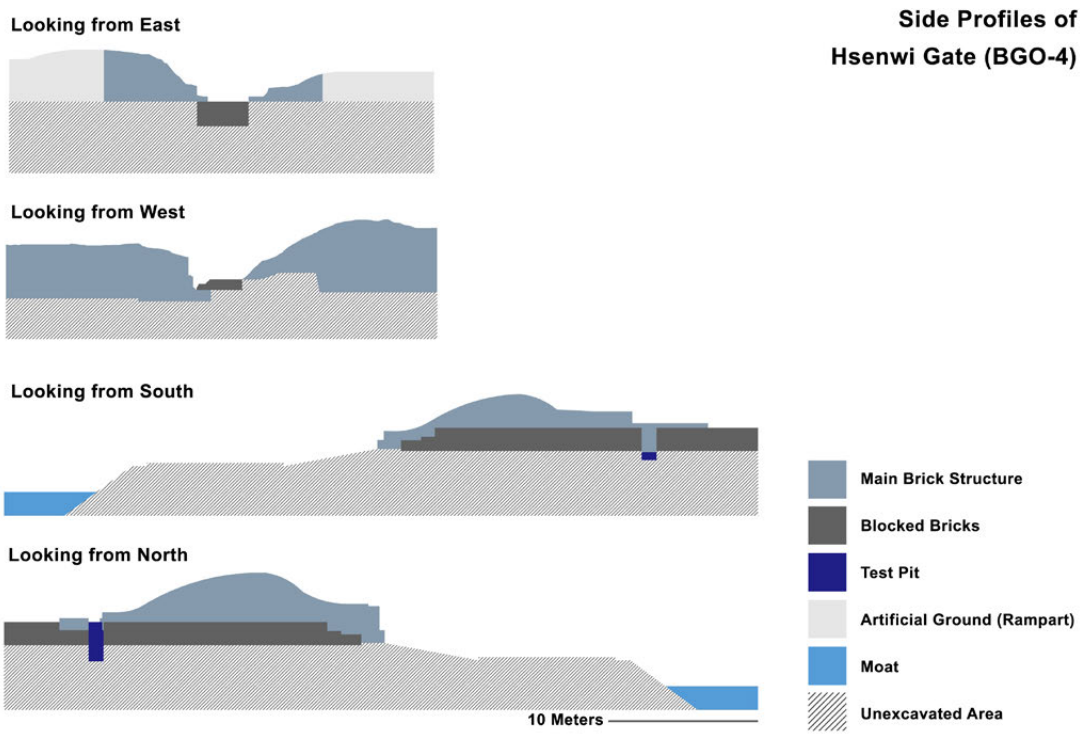

Fig. 12 Side Profiles of Hsenwi Gate (BGO-4). Source: Thaw Zin Latt.

Discussion

Researchers who have studied the rectangular city walls believe that the earth that was dug out of the ditch was used as soil fill to support the wall and citadel structures such as at Mandalay. In Lay Kyun Aung Myay (Mandalay) city wall, where the guards and soldiers were able to easily run onto the wall, the ground outside the city was believed to have been used to buttress the wall.

In the city gate structure, there are many differences in the depths of foundation, and the size of the bricks used. Due to these differences in addition to land preparation, this gate was probably renovated at least once.

The depths of foundation of the gate turrets varied: (4.46) meters, (4.08) meters, and (5.12) meters, and laterite blocks were not used in all places. This highlights differences in the materials used during the historic renovations.

Post holes are raised 3.6 m from the ring road. According to the height of the post holes and numerous excavated roof tiles, they appear to be pillars erected for a pavilion or building, not doorposts.

According to historical records, after King Nanda Bayin succeeded the throne of his father King Bayinnaung (1551 – 1581 CE), the city was renovated. This was verified with the excavated evidence. For example, the base of the excavated wall was made of (40 x 19 x 8 cm) bricks, while some of the upper part of the wall used (20 x 15 x 5 cm) bricks.

Conclusion

The rectangular city of Haṁsāvatī (Bago) was established in 1566 CE, while destroyed in the late 18th century. The splendour of the city as a significant sea route was noted in the accounts of international voyagers. This research has traced the architecture of the gates and turrets of ancient Haṁsāvatī, based only on the survey records and excavated evidence. The excavation yielded the new archaeological perspectives on the construction of Burmese cities in the historic periods. Moreover, the gates and turrets are the key components of 16th Burmese Royal Capital of Haṁsāvatī and the later rectangular cities. Significantly, the excavated evidence of both Thai and Burmese techniques, historic reconstruction and renovation obtained from the previously hidden turrets and gates of Haṁsāvatī has shed new light on the sophistication and variation of 16th to 17th century CE architectural techniques.

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