A RESEARCH ON THE APPLICABILITY OF THE MANDALAY MODEL TO OTHER HISTORICAL CAPITAL CITIES OF THE BURMESE KINGDOM

Koji YAMADA

1Member of JSCE, Chief Planner of Tamano Consultants Co., Ltd., Tokyo Office
(2-26-2 Nishinippori, Arakawa-ku, Tokyo 116-0013 Japan)
E-mail: yamada-ki@tamano.co.jp

The author proposed a city model for Burmese capital cities based on the analysis of the spatial structure of Mandalay, the last capital city of the Burmese kingdom1). This paper discusses the applicability of the Burmese city model to other historical capital cities of the Burmese kingdom.

This research first examines and discusses the spatial structure of the historical capital cities of the Burmese kingdom from documents, maps, and satellite imagery in terms of shape, orientation, size, land use, and disposition of important devices. The historical capital cities dealt with, from the oldest to the newest are: 1) Sri Ksetra, 2) Bagan, 3) Toungoo, 4) Pegu, 5) Shwebo, 6) Inwa (Ava), 7) Amarapura, and 8) Mandalay. Most of the capital cities were rectangular- or square-shaped with a moat; in most cases they were aligned to the four directions; and that the size of the walled city ranged between 1 to a little less than 2 km on each side.

It can be seen from the analysis that the city model proposed for Mandalay may be applicable to the capital cities of Inwa and Amarapura in several aspects, including the square or rectangular shape of the capital city surrounded by a moat, and basically three gates on each side and the eastward orientation. In close scrutiny of Burmese historical capital cities, there is yet another model with five gates on each side instead of the three on each side as in Mandalay. The proposed Burma models are to be positioned as subsidiary models of the ancient India model.

Key Words : Burma, Mandalay, spatial structure, model, orientation

1. INTRODUCTION

(1) Background

The author proposed a city model for Burmese capital cities based on the analysis of the spatial structure of Mandalay, the last capital city of the Burmese kingdom1). This paper intends to discuss the applicability of the Burmese city model to other historical capital cities of the Burmese kingdom.

The Burmese kingdom had capital cities that housed its palace and administrative functions. The capital city of the Burmese Kingdom was typically a square-shaped walled city with a moat (ditch) around it. It often happened that the capital city under one king was discarded when a new king took over, and a new capital was set either in an old site where the capital had once been, or in an entirely new site. Thus, in Myanmar today, several discarded sites of historical capital cities exist. Most of them could be seen on topographical maps and/or satellite images, as the moats tended to remain as water impounding areas.

(2) Previous studies

a) City models in Asia

On the subject of the city models in Asia, two distinctive models had been proposed, namely, the ancient India and ancient China models by Ohji2), 3).

The ancient India model was formed in reference mainly to Arthasastra, a book written between the second century B.C. and the fourth century A.D. that contains chapters on the making of the capital (castle) city. Arthasastra’s capital city design, according to Kirk, is as follows: Ideally, the city is of geometrical form, normally a square. It is surrounded by a series of moats, fed by a perennial source of water and containing crocodiles, and by an earthen rampart surmounted by brick-built parapets and towers. Each side should have three gates allowing three royal roads to run east–west and three north–south, thereby dividing the interior of the city into 16 wards. The King’s Palace, with its internal courtyards, has to
occupy the two north-central wards\(^4\).

The ancient China model as proposed by Ohji combined ideas in several documents, including the 
Rites of Zhou, which was probably compiled in the third century B.C and *Liji*, "the book of rites" written in the eighth century A.D. The Rites of Zhou described capitals as being designed as squares, nine *li* in length (approximately 3.6 km) and having three gates on each side. Located in the very center is the Imperial Palace, with an Imperial Ancestral Shrine on the left, an altar of land and grain on the right, the government office in the front, and the commercial district in the back\(^5\). *Liji* offered a notion that the north was the most honorable direction and the emperor sat facing the south and had a court in the south and a market on the north\(^6\).

Conceptual patterns of both the Ancient China and India models according to Ohji are shown in Fig. 1. Both models are similar in that they have walls around the square castle city, with three gates on each side. However, there are at least two major differences between the two models. One difference is that the ancient India model has a concentric structure without a clear distinction of orientation\(^7\), while the ancient China model has a central north–south belt structure, with the supreme ruler facing the south. Most capital cities influenced by the ancient China model in China, Japan, and Korea have a clear north–south orientation. The other difference is the central facility: the ancient India model has a religious facility, such as a temple, while the ancient China model has a palace.

b) City models in Burma

With regard to capital cities in Burma, the author revealed the following characterizations based on analysis of Mandalay: 1) it was based on Buddha’s Prophecy; 2) it was intended to be a City of Buddhism; and 3) it followed Preceding capital cities of the Burmese kingdom. The characterizations above indicated that there had been a city model unique to Burma, like the ancient India and China models mentioned above. The research further examined this possible city model for Burma from viewpoints including structure, orientation, land use, and size. Consequently, a city model for the capital cities in Burma was proposed. One of the unique aspects of the Burmese city model is found to be the eastward orientation.

Based on this, a new model for Burmese capital cities was proposed as shown in Fig. 2. The proposed Burmese model is somewhat similar to either the India and China models but is unique in some other aspects, particularly the eastward orientation, which is unique to Burma. A comparison of the Burmese Model with the India and China models are shown in Table 1. The proposed Burmese Model of capital city based on the analysis of Mandalay is characterized by the following elements: 1) Shape: A square with a moat

---

*Fig. 1 The ancient India (left) and ancient China models (right) by Ohji.*

*Fig. 2 The proposed model for Burmese capital city, Mandalay.*
around; 2) Gates: Three on each side; 3) Orientation: Eastward (meaning the main gate in the east of the palace); 4) Land use: Concentric belt with a palace in the center, court functions in the inner belt, residence in the intermediary belt, and utility in the outer belt. Monastery and mausoleum in the east of the palace.

c) Points to be further addressed

The city model for Burmese capital cities in the previous subsection was primarily based on the analysis of spatial structure of Mandalay, while the issue of the model’s applicability to other capital cities in the Burmese kingdom was not addressed explicitly in the author’s previous works. This paper tries to focus on this point.

(3) Purpose of the study

This paper examines and discusses the spatial structure of the historical capital cities of the Burmese kingdom other than Mandalay in terms of the shape, orientation, size, and land use, including disposition of important devices such as mausoleum and monastery, to clarify the applicability of the proposed Burmese city model to other historical capital cities in the Burmese kingdom. The historical capital cities dealt with in this paper are: 1) Sri Ksetra (as a basis for comparison), 2) Bagan, 3) Toungoo, 4) Pegu, 5) Shwebo, 6) Inwa (Ava), 7) Amarapura, and 8) Mandalay. This paper will provide historiographical studies based on published documents and/or plans and then measurements of the capital cities as seen on the satellite imagery and topographical maps. This paper then discusses the spatial structure of examined Burmese capital cities in comparison with Mandalay. This discussion will lead to a justification of the proposed Mandalay model to other known Burmese capital cities.

(4) Method of the study

First, the historical background of the Burmese kingdom together with representative capital cities of the time was explained as a basis for later discussion in Chapter 2. Then, historiographical studies were done on the historical capital cities using published documents and museum pieces, such as drawings and plans, to clarify their spatial structure. Then, the sites of the historical capital cities were checked on current satellite imagery provided by Google and latest topographic maps by the Survey Department of the Myanmar Government. In all cases, all or a part of the moat around the capital cities are seen. The results of the historiographical studies are given in Chapter 3. In Chapter 4, the outcome of the historiographical studies is discussed, focusing on: 1) applicability of the model, 2) proposal of an alternative model, 3) nature and position of the Burmese city models, and 4) relations with other city models in the neighboring region. Chapter 5 gives the conclusion of this paper.

2. HISTORICAL BACKGROUND

Shifting of capital cities was common in the Burmese kingdom before the British colonization. Thus, there are several historical capital cities in Burma as shown in Fig. 3 and summarized in Table 2. This chapter describes the historical background of capital cities in Burma.

Source: Encyclopedia Britannica

Fig. 3 Capital cities in Burma (left) and those near Mandalay (upper).

Table 2 Historical kingdoms of Burma.

| State/Kingdom/Dynasty | Capital City | Period       |
|-----------------------|-------------|--------------|
| Pyu City State        | Bagan       | AD1 – AD5    |
|                       | Halin       | AD2 – AD9    |
|                       | Sri Ksetra  | AD4 – AD9    |
| Mon City States       | Thaton      | AD5 – AD3    |
| Pagan Kingdom         | Bagan       | 849 – 1297   |
| Pinaya Kingdom        | Pinaya      | 1313 – 1365  |
| Sagaing Kingdom       | Sagaing     | 1315 – 1365  |
| Ava Kingdom           | Inwa        | 1365 – 1555  |
| Prome Kingdom         | Prome       | 1482 – 1542  |
| Pegu Kingdom          | Martaban    | 1287 – 1364  |
|                       | Pegu        | 1369 – 1538  |
| Mrauk-U Kingdom       | Mrauk-U     | 1430 – 1785  |
| Toungoo Dynasty       | Toungoo     | 1510 – 1539  |
|                       | Pegu        | 1539 – 1550  |
|                       | Inwa (Ava)  | 1552 – 1599  |
|                       | Pegu        | 1599 – 1613  |
|                       | Inwa (Ava)  | 1613 – 1635  |
| Konbaung Dynasty      | Shwebo      | 1752 – 1760  |
|                       | Sagaing     | 1760 – 1765  |
|                       | Inwa (Ava)  | 1765 – 1783  |
|                       | Amarapura   | 1783 – 1821  |
|                       | Inwa (Ava)  | 1821 – 1842  |
|                       | Amarapura   | 1842 – 1859  |
|                       | Mandalay    | 1859 – 1885  |
| British Burma         | Mawlamyaing (Moulmein) | 1826 – 1852 |
|                       | Sittwe (Akyab) | 1852 – 1862 |
|                       | Mawlamyaing (Sittwe) | 1862 – 1942 |
| Japanese Burma        | Yangon (Rangoon) | 1862 – 1942 |
|                       | Yangon      | 1942 – 1945  |
| Myanmar               | Yangon      | 1948 – 2005  |
|                       | Naypyidaw   | 2005 – present |

Note: Bold letters indicate integrated kingdom in Burma. Source: various.
(1) Urban Period (5th C. BC to 8th C. AD)

In this period, for the first time in the history of Burma, the walled city appeared, some of which represented the Buddhist-Hindu universe with architectural features\(^7\). These were built mostly by the Pyu in Upper Burma along the middle reach of the Irrawaddy River. The largest of the walled cities include Beiktano and Sri Ksetra. In Lower Burma, some walled cities are known, and these are thought to be Mon city-states.

One of the oldest of Pyu’s city-states was Beikthano, meaning the city of Vishnu, thought to have prospered from AD 1–5\(^5\). There are ruins with an earthwork of a rounded rectangular shape. Sri Ksetra, or Thayekhittaya in Burmese, is the newest of Pyu’s city-states (Fig. 4). It sits on the Irrawaddy River, about 250 km downstream of Bagan. Sri Ksetra, meaning “Nation of Glory” in Sanskrit, prospered from AD 4–9.

In this period, north-east Indian influence predominated in the “Indianization” of the western part of Indochinese peninsula, particularly in the valley of the Irrawaddy\(^9\).

(2) Bagan Kingdom (8th to 13th century)

In AD 832, the Kingdom of Nancho, located in present-day Yunnan of western China, attacked the Pyu Kingdom in Upper Burma and captured about 3,000 of its people. Burmese from the north took over the Pyus and founded the kingdom in Bagan (also spelled Pagan) in 849, and a walled fortress was built in the middle reach of the Irrawaddy River. The fortress was built with thick high walls made of brick (Fig. 5).

The Bagan Dynasty (AD 1044–1287), which was the first Burmese dynasty, later integrated the nation of Burma. The capital city of the dynasty was in Bagan, and the center, “Old Bagan,” was built with square-shaped walls. Bagan developed an irrigated farmland system and promoted trade with India and China, resulting in economic prosperity\(^10\). In 1283, Mongols under Khubilai Khan from China invaded Burma, and Bagan fell in 1287.

(3) Ava and Pegu Kingdoms (14th to 16th century)

After the fall of the Bagan Dynasty, Burma became disintegrated again.

The Shan established kingdoms at Pinya and Sagaing, and then, in AD 1364, Ava, or Inwa in Burmese, was founded as the capital of the First Ava Kingdom in Upper Burma\(^11\). The kingdom was in the dry zone of Burma and was agrarian in nature.

In Lower Burma in 1369, the Mon reestablished power at Pegu, or present-day Bago, the capital of the First Pegu Kingdom\(^12\). Pegu, located near the river connecting to the sea, was more commercial.

(4) Toungoo Dynasty (16th to mid-18th century)

Both the Ava and Pegu Kingdoms reached their pinnacle in the 15th century, but had declined by the end of the first-half of the 16th century\(^13\). The Toungoo Dynasty then reunified the territory of Burma. In AD 1510, Toungoo was set as the capital city of the Toungoo Kingdom.

The Toungoo Dynasty resumed power in Lower Burma, and in AD 1539, finally recaptured Pegu, which became the capital\(^14\). A new Pegu was built in the 16th century.

In 1600, Ava took over the seat of the Second Ava Kingdom. In 1613, the capital was again shifted to Pegu. Then, in 1636, Ava was re-established as the capital until middle of the 18th century\(^15\).

(5) Konbaung Dynasty (mid-18th to end-19th century)

The Konbaung Dynasty, started by King Alaungpaya in 1752, reunified Burma in 1759, and ruled it until 1885. The Konbaung Dynasty was the last dynasty of Burma.

The capital of the kingdom was first set at Shwebo in Upper Burma in 1752 (Fig. 8). Then, the capital city was moved to nearby Sagaing in 1760. Both of them were located in the vicinity of Ava, in the heart of the kingdom along the Irrawaddy River.

In 1764, Ava, which had already served as the seat of the king more than once, was rebuilt as the capital, and a splendid palace was constructed (Fig. 9). Ava was also sometimes called Ratanapura, or the “City of Gems.”

In 1782, King Bawdawpaya built a new capital, Amarapura (meaning “City of the Immortals”), 10 km northeast of Ava. The plan of Amarapura followed the immemorial usage of a capital city, with a square site, a moat, and crenellated walls\(^16\) (Fig. 10). In September 1856, King Mindon made an intention for a new capital city, Mandalay, in accordance with the Buddha’s prophecy. Then, in January 1857, construction of Mandalay was started. The Royal Palace was completed in July 1858 (Fig. 11), and seven major elements of the new city were completed by March 1862. The construction of the city continued until 1874, when a ceremony for the new capital city was conducted.

3. ANALYSIS OF SPATIAL STRUCTURE OF CAPITAL CITIES

This chapter first presents the results of the historiographical analysis of spatial structure, followed by measurement of the capital cities in the Burmese kingdom using satellite imagery and maps. The comparison of the historical capital cities of the Burmese kingdom in this paper utilized up-to-date
satellite imagery shot in 2019 provided by Google, and topographical maps of 1:50,000 made in 2003 by the Survey Department of Myanmar. The subject of analysis are the six historical capital cities of Burmese kingdom: Bagan, Toungoo, Pegu, Shwebo, Ava (Inwa), and Amarapura.

(1) Sri Ksetra
Sri Ksetra (or Thayekyhittaya in Myanmar) is one of the ancient Pyu capitals located 8 km from the town of Pyay.
Sri Ksetra includes an elongated round castle ruin, running about 3.5 km east–west 4.4 km north–south. Having a round wall is rare, almost unique, among the walled cities in Burma. Sri Ksetra is known to have 32 gates on its periphery. It was built as an image of Indra’s city of Sudarsana on the summit of Mount Meru, with 32 main gates and a golden palace in its center. This is referred to as the parallelism between Macrocosmos and Microcosmos, or between the universe and the world of men17). The palace was located within a rectangular closure near the center of the walled city.

(2) Bagan
The founding of Bagan is considered to be in the middle of the ninth century A.D. Kan Hla discussed that King Pyinbya built Bagan’s city walls, Sarabha gateway, and moat in 849 A.D18).
The palace of Bagan was known to have been located in what is now called the old Bagan, and the rectangular-shaped city wall and the moat around it remain in the eastern and southern sides today. Most of the western side and a part of the northern side were thought to be washed away by the Irrawaddy river. In regard to the location of the capital city, Hudson showed a boundary of the rectangular-shaped walled city19) based on a parabaik as shown in Fig. 5.
An undated traditional folding book (Parabaik in the possession of Maung Maung Tin of the Myanmar Historical Commission) describes Bagan as having four walls and twelve gates20). Funo pointed out that there were three gates each remaining on the east and south; and two on the north wall. He also considered that there were three gates on each side of the rectangle21). The measurement by Hudson shows 1.150 km E-W and 0.992 km N-S, and the orientation is tilted 10 degrees from the east towards the north, as shown in Fig. 6.

(3) Toungoo
Toungoo (also spelled “Taungnoo”) was founded in 1279. In 1510, King Mingyi Nyo formally broke away from the Ava kingdom, and founded Toungoo as the capital city of the Taungoo Kingdom.
Toungoo had a square-shaped wall and a moat around the city with gates on each side, and the Palace was near the center (Fig. 7). According to Chotima, there are five gates on each side of the square22). Kan Hla observed that most probably, the north and the south (long) walls had five gates each, and the east and the west only three23). Funo observed that Toungoo had a regular square shape with gates on each side, although the exact divisions were unknown. He mentioned that Toungoo followed the tradition of Kaing24), the traditional square-shaped village in Burma, which was an Indian influence. He also pointed out that Toungoo might have served as a model for Pegu24).
In relation to the land use, the palace was in the center of the square, and a Shwesandaw stupa was located to the south of the palace, and there was a pond in the southwestern corner.
The moat for the capital city of Toungoo is almost completely visible on a satellite imagery today. The shape is almost rectangular, aligned almost perfectly to the N-S and W-E directions (Fig. 8). The size of the rectangle is 2.366 km E-W and 1.944 km N-S.
Pegu, or the present-day Bago, was a small city built by the Mon in the ninth century. Pegu was made the new capital city of the kingdom in 1539 by King Tabinshwehti. In 1566, King Bayinnaung rebuilt it as a regularly planned city (Fig. 9).

A British traveler who visited Pegu in 1568 wrote the following about the city: “it is a city very great and populous, and is made square, and with fair walls, and a great ditch round about it full of water, with many crocodiles in it: it hath twenty gates, and they be made of stone; for every square five gates.”

The orientation of Pegu has some controversy. Aung-Thwin discusses that the direction of the lion throne, the most important throne in the palace, and Myenan (an earthen foundation on which the palace building stands) was changed from the original westward to the eastward during the reconstruction in early 1990s and early 2000s. This was done apparently to avoid the inauspicious (western) direction these structures originally faced. A plan of Pegu at Kambawzathadi Palace & Museum which presumably dates from late 16th century shows the
palace buildings and ordination buildings facing the west, as shown in Fig. 10.

In respect to the land use, the palace was in the center of the walled city, and Shwesandaw Stupa, one of the most venerated pagodas in Myanmar\(^\text{26}\), stands to the north east of the palace.

At Pegu, or present day Bago, part of the moat still remains, and is visible on a satellite image (Fig. 11). The capital city was a rectangle, almost aligned rightly to the east-west orientation. The EW side is 2.156 km, and NS side is 2.331 km long.

(5) Shwebo

In 1752, King Alaungpaya assumed the royal title and founded Shwebo as the capital city, which became the first capital city of the Konbaung Dynasty.

The plan of Shwebo has two walls. The outer wall forms a 3.5 km square closure, surrounded by a moat. Of this closure, only about one-third is developed. The Royal Order of Burma \(^\text{iv}\) mentioned that after the completion of the palace of Shwebo in 1754 King Alaungpaya found that the city as originally designed was small and constructions on Greater Shwebo began in 1757\(^\text{27}\). The plan of the city displayed at the Shwebo Palace Museum (Fig. 12) confirms this observation. The plan shows the inner wall, located in the southeastern corner of the outer wall closure, having five gates on the east; three gates on the west; and two gates each on the north and south sides. The plan shown in Fig. 12 shows an indication of “inner moat” to the north of the inner closure.

With respect to the land use in the inner city wall, the palace was located in the west of the center of the inner closure, to which the third gate on the east seemed to connect. The reconstructed palace building faces the east, although the orientation of the original palace building needs to be discussed further in detail. The tomb of King Alaungpaya is located to the southeast of the palace building.

At Shwebo, the moat remains almost completely, around the outer wall, except for the southeastern corner of the parallelogram-shaped capital city today. The east-west side of the outer wall is 3.652 km and the north-south side is 3.563 km. The western and eastern sides are almost rightly aligned to the N-S orientation, while the northern and southern sides are tilted about 10 degrees to the north from the east as shown in Fig. 13.

(6) Inwa (Ava)

Inwa (or Ava \(^\text{v}\) as the British called it) located along the Irrawaddy river housed a series of kingdoms between the 14\(^{th}\) and 19\(^{th}\) centuries. In the 18\(^{th}\) century, King Hsinbyushin reconstructed the city, built a splendid palace, and moved the capital to the newly rebuilt Inwa in 1765. Later, King Bodawpaya moved the capital to Amarapura in 1783 but King Bagyidaw moved it back to Ava in 1821.

The plan of Inwa, which is the focus of this paper, was made in the late 18th century as shown in Fig. 14. A British physician visited Inwa at this time and observed that the principal front of the Palace was the eastern side, and in this direction, there were three gates. The main gate was the one in the center of the three\(^\text{28}\).

In regard to the number of gates, the eastern side had three gates as observed by Crawfurd. On the western and southern sides, two gates each can be seen in the plan, which are also seen on satellite imagery today. The plan of Inwa at Bagaya Kyaung as shown in Fig. 15 shows three gates on the east wall, two each on the north, west, and south walls\(^\text{29}\).

As for land use, the palace was in the center of the closure. To the northeast of the Palace is Me Nu Okk Kyaung Monastery built in the early 19\(^{th}\) century. Inwa is known to have double walls; one just around the Palace, and the other in outer circumference. The subject for measurement here is the inner wall around which a moat was built. The capital city is barrel-shaped with both the northern and southern sides convex to the outwards, but other than that, the shape is close to a rectangle (Fig. 16). The E-W side is 1.411 km, and N-S side is 0.805 km long. The

![Image: Plan of Shwebo](image1)

![Image: Satellite image (left) and map (right) of Shwebo](image2)
Amarapura, the capital city of the kingdom just before Mandalay, was built by King Bodawpaya in 1783. A detail plan of Amarapura was recorded by the British mission to the kingdom in 1795 (Fig. 17), which shows three gates on each side of the wall and the palace in the center.

In 1810, Amarapura was destroyed by fire and the capital city was moved from Amarapura to Ava in 1821, and then from Ava to Amarapura in 1842, where it remained the capital until the subsequent relocation to Mandalay.

Henry Yule, who visited Amarapura in 1855, wrote: “Entering the inner brick wall from the east, you find yourself in front of the Mye-min or Earthen Palace (as it is called from having a clay floor), the principal Hall of Audience.” Yule further observed: “The central part of the building runs back to a depth of sixty or seventy feet (21-24 m), and at the extremity of this is the throne. Just over the throne rises a graceful phja-sath or wooden spire.” From this, it is clear that Amarapura also faced the east. This could be confirmed in the plan of the palace of Amarapura at the end of the 18th century (Fig. 18).

In regard to the land use, Amarapura was known to have concentric linear belts similar to that of Mandalay, as noted in the author’s previous paper. In the wall, there are four pagodas on each corner of the wall. Also, tombs of King Bodawpaya and Bagydaw are located inside the wall but their locations are not indicated. Outside of the wall across the Taungthaman lake, Taungthaman Kyouktawgyi temple stands, which was built by King Bagan in 1847 on a model of Ananda temple in Bagan.

Amarapura is almost square in shape, with the northwestern cornerslimly cut off (Fig. 19). The orientation is slightly tilted from the east-west, by a mere two degrees or so to the south. The size of the square was measured by the author previously. Average of the four sides of the square is 1.604 km.

Mandalay

In 1857, King Mindon built a new capital city, Mandalay, the last capital city of Burmese kingdom. The plan of Mandalay (Fig. 20) was discussed in full in the author’s previous paper.

Mandalay is almost a perfect square in shape. The orientation is slightly tilted from the east-west, by a mere 4 degrees or so to the south (Fig. 21). The size of the square was previously measured by the author. Average of the four sides of the square was 2.043 km.
4. DISCUSSION

In this chapter, the results of historiographical studies and measurements on satellite images and topographic maps of the Burmese capital cities as presented in the previous chapter will be discussed in regard to the characteristics of the Burmese city model proposed by the author with a hope to expand the applicability of the model to capital cities other than Mandalay.

(1) Analysis of historical capital cities

a) Shape

The capital cities during the Burmese kingdom from Bagan to Mandalay, were basically rectangular- or square-shaped. This bears a contrast to an elongated round shape during the Pyu city-state era, such as seen at Sri Ksetra. Exceptionally, some of the Burmese capital cities had parallelogram shapes, which might have been a result of some error during survey and/or construction.

A moat around the walled city containing the palace was an essential element for the capital city in the Burmese kingdom. For Mandalay, for example, a moat is one of the seven most important monuments of the capital city34).

Most of the capital cities examined in this paper had a moat around the square or rectangular-shaped capital city. Part or all of the moats are shown in the topographical maps and are visible in satellite images. A moat is thus considered an essential element of the city model not only in Mandalay, but also in other Burmese capital cities.

b) Number of gates

As seen in the plans of the capital cities, Amarapura and Ava (Inwa) were known to have three gates on the main side of the square/rectangular capital city, similar to Mandalay. Pegu, according to a traveler’s record, had five gates on each side of the square (20 gates in total). Toungoo, according to an observation of Kan Hla as mentioned earlier, had five gates on the northern and southern sides, and three on the western and eastern sides (16 gates in total). For Shwebo, there were five gates on the east, three in the west, and two each on the north and south. The cases of Pegu, Toungoo, and Shwebo imply that there might have been an alternative model with five gates on the main side of the square, which will be discussed later.

For Bagan, there were probably three gates on each side as mentioned earlier, but this is yet to be confirmed.

c) Orientation

Burmese capital cities are in most cases aligned to the east and west directions. In addition to that, one unique aspect of the Burma model is the eastward orientation of the palace and the city35).
This research found that the orientation mentioned above are true in most Burmese capital cities, although in some cases there were some degrees of tilting, say, less than 2 to 4 degrees. Notable exceptions were Bagan and Shwebo. For Bagan, the rectangular shape of the capital city was tilted about 10 degrees, while in Shwebo, the two sides of the parallelogram on the north and south of the capital city was tilted about 10 degrees to the south.

The eastward orientation of the capital city in Burma is one of the unique characteristics of the Burmese capital cities as discussed in the author’s previous work[^36]. The historiographical studies in this paper showed that the eastward orientation is found for Mandalay, Amarapura, and Inwa[^37], [^38]. There are some exceptions. For example, in regard to Pegu[^39], the 16th century palace built by King Bayin-naung is said to be facing west[^40].

The eastward orientation may be connected to religious aspects. Myo Myint Sein wrote that the monasteries in the Konbaung Dynasty normally had the main gate in the east[^41]. Qingxi Lou mentioned that in Theravada Buddhism, the main building in the temple was made to face the east, and so did the Statue of Buddha. He mentioned that this eastward orientation of Buddhism buildings may not be limited to Burma, but extend to the neighboring countries where the Theravada Buddhism is practiced, such as Thailand, Cambodia, Laos, and some parts of Vietnam.

d) Size

The author’s previous work mentioned that the capital city of Mandalay measured about 1 mile and a quarter (2 km) on the side of the square inside of the wall. In this paper, the size of the walled city was found to range from 1 to about 2.4 km on each side. The largest was Toungoo, and the smallest was Bagan.

e) Land use / disposition of devices

The basic characteristics for the Burmese city model was the concentric linear belts with the central facility being the palace, and the inner belt was for the court functions of the kingdom; intermediate belt for residential and outer belt for utilities. This pattern was confirmed for Amarapura and Mandalay in the author’s previous work[^43]. For other historical capital cities, analysis of land use is left for further study. It will be imperative to clarify the land use of Pegu, which will be discussed as a source of a new sub-model.

In regard to the disposition of important devices, Mandalay had a mausoleum and a monastery in the courtyard in front of the palace; that is, to the east of the palace. Inwa had an important monastery northeast of the place. In Shwebo, the tomb of King Alaungpaya, the founder of the town, is located to the southeast of the palace. For Pegu, the most venerated Shwemaudau Pagoda is located northeast of the palace. The disposition of important devices seems to agree with the model proposed for Mandalay to some degree, but detailed examination needs to be carried out further.

(2) Applicability of model and proposal of alternative model

The results of historiographical studies for the historical capital cities are summarized in Table 3 and Table 4.

Among the historical capitals envisaged in this paper, Sri Kshetra has a different elongated circular shape with 32 gates and probably follows a different doctrine. The capitals from Bagan to Amarapura built by Burmese kings basically followed a rectangular-shape city model, but a close scrutiny reveals some differentiation in typology.

For the last three capital cities of the Burmese kingdom, i.e., Inwa, Amarapura, and Mandalay, the model proposed for Mandalay with a square city with three gates on each side (hereinafter called Three-Gate model) seems to apply rather well. All the three capital cities have three gates on the main (eastern) side, while the number of gates on other sides may be reduced, as in the case of Inwa.

For earlier capital cities, such as Toungoo, Pegu, and Shwebo, an alternative model with a rectangle shape with five gates on each side may better fit their plans. The number of gates may be reduced to three or two depending on the condition outside the walls, which may be the case for Toungoo and Shwebo. In Pegu, for which several reliable plans are available, a new model with five gates on each side of a rectangle (hereinafter called Five-Gate model) is proposed in this paper as in Fig.22. This model follows a model proposed by Chotima through the analysis of Pegu and Toungoo[^44].

[^36]: Author
[^37]: Author
[^38]: Author
[^39]: Author
[^40]: Author
[^41]: Author
[^42]: Author
[^43]: Author
[^44]: Author

---

![Fig. 22 The proposed Five-Gate Model for Burmese capital city, based in Pegu.](image-url)
Regarding the land use and orientation, this new model still needs to add spatial characteristics, such as the issue of whether a concentric linear belt structure is seen or not; or whether the eastward orientation is taken or not. Pegu originally faced the west, which is rather exceptional for Burmese capital cities.

(3) Nature and position of Burmese city models

The author’s previous paper showed a new Burma city model based on the analysis of Mandalay, which had some similarities and differences from the ancient India and China models. As discussed in this paper, what can be called a Burma model may have two forms: Three-Gate model and Five-Gate model. In the previous paper, the nature of the proposed Burma model was not discussed in full. It will be the last topic in the discussion part of this paper.

It is well established that Burma has been under the influence of India since its early times. Cœdès discussed that in Pyu kingdom two Buddhist sects coexisted: the Theravada, whose language was Pali, and the Mulasarvastivada, whose language was Sanskrit. Later in the 11th century, the doctrine of the Theravada was allowed to spread among Burmese subjects and was firmly established in Bagan.

Since then, the Burmese kingdom basically followed the doctrine of Theravada Buddhism until the end of Konbaung Dynasty. Thus, the capital city in Burma essentially followed the Indian wisdom shared in the court of the kingdom.

Theravada Buddhism, spread since the middle of the 11th century, may have added some changes in the model. Cœdès wrote that in Burma, the 12th century was a time of great literary activity in the form of a number of works in Pali. Theravada Buddhism believes that Buddha was facing east when enlightenment occurred. That was why many of the Theravada Buddhism monasteries and temples face east. The eastward orientation seen in the Burma model may have come from this influence.

In contrast, the relationship between Burma and China was more of trade partnership and rivalry. In the ninth century, Nancho kingdom located in the present-day Yunnan is known to have attacked Pyu. The last years of the Bagan kingdom saw invasion of a Mongol king who “fled the Chinese”. A formal diplomatic relation with China only started with the Treaty of Kaungton concluded in 1769 and diplomatic missions were exchanged from 1787 to 1823.

Some of early 20th century works regarding Mandalay attributed the planning of Mandalay to Chinese ideas. Duroiselle followed this idea and discussed more specifically that Mandalay was modelled after Kublai Khan’s capital city of Peking built in 1264. In recent years, however, this theory has been generally negated. Moore wrote that “features from most of Myanmar’s known enclosed settlements could easily be cited as predecessors of Mandalay, such as Toungoo, Inwa, and Amarapura, among others, without the need for Chinese prototypes”. Ohno (1983) discussed that Mandalay was designed basically on the same plan as the preceding capitals of Ava and Amarapura.

The Burma model(s) therefore can be said to follow in essence the ancient India model, as the wisdom of building a capital city originated in India and the knowledge was shared within the Burmese kingdom. It is therefore more appropriate to consider the Burmese model(s) as subsidiary model(s) under the ancient India model with some vernacular element added to it.

This paper proposed a yet new typology on the Burma model – the Five-Gate model. Funo discussed that the Five-Gate model was clearly under the influence of Ugrapītha as described in India’s ancient manuscript Manasara. Ugrapītha referred to a 6x6

| Capital City | Shape | Size in km (EW x NS) | Tilt in alignment in degrees* |
|--------------|-------|----------------------|--------------------------------|
| Sri Ksetra   | Elongated Circle | About 4 km x 5 km | * |
| Bagan       | Rectangle | 1.150 x 0.992 | -10 |
| Toungoo     | Rectangle | 2.366 x 1.944 | 0 |
| Pegu (Bago) | Rectangle (Square) | 2.156 x 2.331 | 0 |
| Shwebo      | Rectangle (parallel-ogram) | 3.563 x 3.652 (outer); about 2 x 2 (inner) | 0 (E and W sides) -10 (N and S sides) |
| Inwa (Ava)  | Rectangle | 1.411 x 0.805 | 0 |
| Amarapura   | Rectangle (Square) | 1.604 on average | +2 |
| Mandalay    | Rectangle (Square) | 2.043 on average | +4 |

* Notes: ‘+‘ indicates from the north to the east; “-“ indicates from the north to the west.

| Capital City | Moat | Gate | Orientation |
|--------------|------|------|-------------|
| Sri Ksetra   | No   | 32 gates | Unknown |
| Bagan       | Yes  | 3 gates on each side (assumed) | Unknown |
| Toungoo     | Yes  | 5 gates on N and S sides, 3 gates on E and W sides | Unknown |
| Pegu (Bago) | Yes  | 5 gates on each side | Originally westward |
| Shwebo      | Yes (at outer wall) | 5 gates on E: 3 gates on W; and 2 gates each on N and S | Unknown |
| Inwa (Ava)  | Yes  | 3 gates on E side 2 gates on S and W sides | Eastward |
| Amarapura   | Yes  | 3 gates on each side | Eastward |
| Mandalay    | Yes  | 3 gates on each side | Eastward |

Source: Author
division of a square and Funo showed an organization of the summit of Mount Meru after Brauen (Fig. 23). This square is composed of 32 small squares indicating the 32 leading gods and Mt. Meru or the palace in the center, which is a pattern similar to the one seen in the composition of Sri Ksetra. Probably, the Five-Gate model took over the Hindu-Buddhism cosmology as seen in Sri Ksetra and bridged to the Three-Gate model cherished by Burmese kings believing in the *Theravada* Buddhism.

(4) Relation with other models in neighboring region

The proposed two city models in Burma, namely, the Three-Gate model and Five-Gate model, were not the only city models found in the region that constitutes the Indochina Peninsula. The Angkor empire in rivalry with Burmese kingdom produced a number of castle cities, typically, Angor Wat and Angkor Thom. After the fall of Angkor, the Cambodian kingdom built such capitals as Oudong and Phnom Penh. In Thailand, capital cities, such as Sukhothai, Ayutthaya, Thonburi, and Rattanakosin (Bangkok) were made to provide a seat for their kings. In northern Thailand, Lan Na Kingdom created such capital cities as Chiangmai and Chiangrai. In Laos, the Lan Xang kingdom constructed Luang Prabang and Vientiane. In Viet Nam, the two capital cities of the Nguyen Dynasty – Hue and Saigon (Ho Chi Minh City today) – may have some relationships with other capital cities in Indochina. Spatial structures of these capital cities relative to the parent India model, or even the China model, are yet to be investigated in full, and the relationship between the local subsidiary models may come out from such researches.

5. CONCLUSION

The author proposed a city model for Burmese capital cities based on the spatial analysis of Mandalay, the last capital city of the Burmese kingdom built in the middle 19th century as described in Section 1. (2). The applicability of this model to other capital cities in Burmese kingdom has not been discussed so far.

This paper looked at historical capital cities from Sri Ksetra, Bagan though the 18th century Amarapura and 19th century Mandalay. Historiographic studies on these capital cities, as well as measurements using the topographic maps and satellite imagery, were done.

From the analysis in this paper, the following points could be made:

- Several elements proposed for Mandalay hold true in other capital cities, such as the square/rectangular shapes of the capital city; alignment of the capital cities to the four directions; and the size of about 1 to 2 km on each side of the square/rectangular shapes;
- Regarding the number of gates on each side, Mandalay together with Inwa (Ava) and Amarapura had three on the main eastern side of the square/rectangular shapes. There were cases of five gates on one side, and such was the case for Pegu. For Toungoo and Shwebo, there were five gates on the main side, but the number may be reduced to three or two depending on conditions outside the wall. Accordingly, this paper proposed an additional Five-Gate Burma model based mainly on the analysis of Pegu;

![Fig 23 Organization of the Summit of Mt. Meru.](image)

Source: Funo P.153, originally Brauen 1997.

![Fig 24 Influence Areas of the India, China, and Burma models.](image)

Notes
A1: India model and its influence (by Ohji)
A2: China model and its influence (by Ohji)
B: Burma model(s) (by the Author)
Source: Original figure by Ohji, 529; modified by the Author

195
• There are other elements, such as the eastward orientation, that would need further study as some capital cities agree and others disagree with the proposed eastward orientation. One of the apparent exceptions in the eastward orientation was Pegu when it was built, as it faced west; and

• Through the analysis of influences of India and China on Burma, it was found that the capital city in Burma essentially followed the wisdom of the Indian capital city model shared in the kingdom. Thus, the proposed Burma models are to be positioned as subsidiary models of the ancient India model.

Before the author proposed the Burma city model, the conflicting influence of the city models proliferated in the eastern part of Asia, particularly in and around the Indochina peninsula. With the Burma model, the influences in the eastern Asia could now be modified to include the Burma subsidiary model, as shown in Fig. 24.

Yet there are still unresolved issues regarding the Burma models, particularly the characterization of the Five-Gate model proposed in this paper. These issues include land use, orientation, and disposition of important devices.

ACKNOWLEDGMENT: The author would like to express thanks to Ms. Aye Aye Khaing of Tamano Consultants, Yangon Office for assistance in the Burmese language.

ENDNOTES

i] In regard to the ancient India model, there are some cases where direction preferences may occur. Ohji mentioned that within the Hindu-Indian tradition, the east was considered the most honorable direction, but it did not materialize in such a way that the structures and buildings within the city faced one particular direction [Ohji 2011, 88].

ii] Kaing is a traditional square-shaped village popular in Burma, as well as in the Indochina region. When Burmese ethnic groups who fled from Nancho settled in Kyause and Minbu area, they built the square villages. Kaing is believed to follow the Indian conception of cities [Funo, 154].

iii] This plan was shown at Kanbawzathadi Palace & Museum, although when the author visited the museum in December 2017, the plan was not to be seen. This plan is almost identical to a plan of Pegu in 1568, which is said to be from Yazawin Thit Chronicle (first published in 1798).

iv] In this chapter, ROB refers to Than Tun (1983-90), The Royal Orders of Burma, AD 1853–1885, The Center for Southeast Asian Studies (CSEAS) of Kyoto University. The Roman numbers after ROB indicates the part (volume) number. For pagination, numbers (1, 2, etc.) indicate the page in the main text part, while Roman numerals (i, ii, etc.) refer to the page in the summary part at the front of each volume.

v] It should be noted that the British often used the word Ava to refer to the court of the Burmese kingdom, or sometimes the Burmese kingdom itself.

vi] It is known that the reconstruction made in the 1990s and early 2000s changed the direction of the palace to face east, according to a foot note of Aung-Thwin [Aung-Thwin, 305.]

REFERENCES

1) Yamada, K.: Research on the spatial structure of outer city of Burmese capital cities - from an analysis of Mandalay, the last royal city of Burma, Urban and Regional Planning Review (URPR), Vol.6, pp.22-44, 2019.
2) Ohji, T.: Castle city in Asia and its cosmology, In: Funo, S. (ed), History of Urban and Architecture, Showado Press, p.203, 2003 [in Japanese].
3) Ohji, T.: Genealogy of castle city [Tojo no keifu], Kyoto University Press, p.82, 2011 [in Japanese].
4) Kirk, W.: Town and country planning in ancient India according to Kautilya’s Arthasastra, Scottish Geographical Magazine, Vol. 94, No. 2, p.71, 1979.
5) Ge Feng and Zhengming Du: Traditional Chinese Rites and Rituals, Cambridge Scholars Publishing, p.12, 2015.
6) Ohji, T (2011, op. cit., p.74.
7) Aung-Thwin, M. and Aung-thwin, M.: A History of Myanmar Since Ancient Times, 2nd Ed. London, p.65, 2013.
8) Tatsumi, M.: Palace City Ruins in Myanmar, Ritumeikan Chirigaku, No.12, pp. 57-68, 2000 [in Japanese].
9) Coedès, G.: The Making of South East Asia [Translated from the French by H. M. Wright: Les peuples de la péninsule indo-chinoise. Histoire, civilisations, Dunod, Paris, 1962], Routledge and Kegan Paul, London, p.111, 1965.
10) Tatsumi, op. cit.: pp.65-67.
11) Phayre, P. A.: History of Burma, Trübner & Co., London, p.63, 1884.
12) Aung Thaw: Historical Sites in Burma, Myanmar, Reprint with a title “Historical Sites in Myanmar” by Min. Religious Affairs and Culture, p.104, 1972.
13) Aung-Thwin, op. cit., p.107.
14) Aung-Thwin, op. cit., p.129.
15) O’connor, V. C. S.: Mandalay and Other Cities of the Past in Burma, London, p.118, 1907.
16) O’connor, op. cit., p.152.
17) Heine-Geldern, R.: Conceptions of state and kingship in Southeast Asia, Data Paper: No. 18, Southeast Asia Program, Dept. of Asian Studies, Ithaca, New York, pp.1-4, 1956.
18) Kan Hla: Pagan: Development and Town Planning, Journal of the Society of Architectural Historians, Vol. 36, No. 1, University of California Press, p.15, 1977.
19) Hudson, B.: The Origins of Bagan – The Archeological Landscape of Upper Burma to AD 1300, University of Sydney (A Thesis for Doctor of Philosophy), p.223, 2004.
20) Hudson, B., Nyein Lwin and Win Maung (Tanpawady): The Origins of Bagan: New Dates and Old Inhabitants, Asian Perspectives, Vol.40(1), p.66, 2002.
21) Funo, S.: The City as Mandala - Spatial Formation and Transformation of Hindu Cities [Mandala Toshi], Kyoto Univ. Press, pp.150-154, 2006 [in Japanese].
22) Chotima Chaturawong, Tawan Weerakoon and Pongpon Yasi: Ayutthaya and Burma, NAJUA Architecture, Design and Built Environment, Silapakorn Univ., Vol. 33, A-48, 2018.
23) Kan Hla: Traditional Town Planning in Burma, Journal of the Society of Architectural Historians, Vol. 37, No. 2, pp. 92-104, University of California Press, p.96, 1978.
24) Fitch, R.: “The Voyage of Mr. Ralph Fitch”, in J. Pinkerton (ed.) A General Collection of the Best and Most Interesting Voyages and Travels, 17 vols., London, IX, pp.416-417, 1811.
25) Aung-Thwin, op. cit., p.305.
26) Aung Thaw, op. cit., p.107.
27) Than Tun: *The Royal Orders of Burma* [ROB] in 10 vols., the Center for Southeast Asian Studies of Kyoto University, Part III, p.2, 1983-1990.
28) Crawfurd, J.: *Journal of an Embassy from the Governor-General of India to the Court of Ava*, 1827, Reprint in SOAS Bulletin of Burma Research, Vol. 3, No. 2, p.743, 2005.
29) Funo, op. cit., p.156.
30) Symes, M.: *An account of an embassy to the Kingdom of Ava, sent by the Governor-General of India, in the year 1795, 1800*, London. Reprint by Gregg International, 1969.
31) Yule, H.: *A Narrative of the Mission to the Court of Ava in 1855*, London, p.133, 1858.
32) Moilanen, I. and Ozhegov, S. S.: *Mirrored in Wood – Burmese Art and Architecture*, White Lotus, p.145, 1999.
33) Yamada, op. cit.
34) Than Tun (1983-1990), op. cit., Part IX, p.xviii.
35) Yamada, op. cit., p.34.
36) Yamada, op. cit., p.40.
37) Yamada, op. cit., p.34.
38) Moore, E.: The Royal Cities of Myanmar 14th-19th Centuries with Reference to China, in *South East Asia & China: Art, Interaction & Commerce, Colloquies on Art & Archaeology in Asia* No. 17, [Scott, R. & John Guy (ed)], University of London, p.108, 1995.
39) Moore, E. op. cit., p.108.
40) Aung-Thwin, op. cit. p.135.
41) Myo Myint Sein: Preliminary Research on Wooden Architecture in Konbaung Dynasty (1752-1885) in Myanmar, *Proceedings of Seminar on “Traditional Wooden Buildings in Myanmar” held on 13 Feb. 2015 by National Research Institute of Cultural Properties*, Tokyo, p.11, 2015.
42) Qingxi Lou [translated to Japanese by Teruo Shou]: *Chinese Traditional Architecture*, p.76, 2001.
43) Yamada op. cit., pp.37-38.
44) Chotima et al., op. cit., p.A52.
45) Coedès, op. cit., pp.111-114.
46) Coedès, op. cit., p.121
47) Than Tun: A Bagan Temple’s Main Gate: is there any significance when it opens in any other direction except east?, *Myanmar Historical Research J.*, No.2, p.106, 1988.
48) Aung-Thwin, op. cit., p.99.
49) Aung-Thwin, op. cit., p.164.
50) Scott, G.: Note on Town-planning, *Appendix: Report of the Suburban Development Committee*, Rangoon, p.87, 1916.
51) Duroiselle, C.: *Guide to the Mandalay Palace*, Rangoon, p.11, 1925. (Second Edition, Calcutta, in 1931)
52) Moore, E.: The Reconstruction of Mandalay Palace: An Interim Report on Aspect of Design, *Bulletin of the School of Oriental and African Studies*, Univ. of London, Vol. 56, No. 2, p.338, 1993.
53) Ohno, T.: Mandalay, the Royal City of Burma, *Tonan Ajia Kenkyu* (Southeast Asian Studies), Vol. 21, No. 6, pp.82-96, June 1983 [in Japanese].
54) Funo, o. cit., p.49.

(Received April 21, 2020)
(Accepted January 27, 2021)