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MA in Greek and Eastern Mediterranean Archaeology: From the Bronze Age Palaces to the Hellenistic Kingdoms

Tholos and Vatadage: A Study of Hellenistic Influence in Ancient Sri Lankan Architecture

MA Dissertation

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Abstract

Greek architecture has a long history that can be dated back several millennia. A fascinating characteristic of that is how it had spread and influenced the architecture of regions near and far. In some cases, the architectural influence was spread through military campaigns such as Alexander's. In other cases, it was later adopted for symbolic reasons. This paper analyzes the plausibility of Hellenistic influence in ancient Sri Lankan religious architecture within the framework of Transmission of Design. My study is focused on three significant characteristics between the tholos and Vatadage. The first is the structural comparison and illustrating where they share certain architectural attributes, as well as where they differ. The second is to draw a hypothetical path of influence based on historical data. The final characteristic is to compare the symbolic function of these religious structures to understand the purposes why they were built.

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My heartfelt thanks go to my family for their tremendous support. I would like to dedicate this work to my uncles Ananda and Varuna, whose invaluable help enabled me to learn more about ancient Sri Lanka.

1 Introduction

After graduating from University of Texas, I visited Greece as I have a passion for learning about Greek-Roman history. The *Tholos* in Delphi reminded me of similar structures, *Vatadage* atancient ruins in Sri Lanka (where my parents are originally from). I was intrigued to study if there is a connection. The Greek architectural influence in north India (as a result Alexander's expeditions), and how Buddhism came to Sri Lanka during King Asoka's reign are well known facts. My research led me to learn more about the ties between the two countries during ancient times, as well as to analyze the plausibility of transmission of design.

Greek architecture has a long history that can be dated back several millennia. A fascinating characteristic of that is how it had spread and influenced the architecture of regions near and far. In some cases, the architectural influence was spread through military campaigns such as Alexander's. In other cases, it was later adopted for symbolic reasons, such as prominently portrayed in US governmental buildings.

This paper analyzes the plausible Hellenistic influence in ancient Sri Lankan religious architecture within the framework of transmission of design. There are several historical sources that support Greek-Sri Lankan relations even in ancient times. It is also an established fact that some of north India's architecture was influenced by the Bactrian Greeks.

To begin with, the images below depict the lateral and aerial views of the Delphi tholos in Greece and the Medirigiriya Vatadage in Sri Lanka. The similarities and differences are further analyzed in later sections.

Figure 1: Delphi tholos, lateral view

Figure 2: Delphi tholos, aerial view

Figure 3: Medirigiriya Vatadage, lateral view

Figure 4: Medirigiriya Vatadage, aerial view

(Photo credits: Fig.1 – Wikipedia, Fig.2 – Getty images, Fig.3 – Flickr, Fig.4 – Zamani project)

2 Overview

My study is focused on three significant characteristics between the Tholos and Vatadage. The first is the structural comparison and illustrating where they share certain architectural and engineering attributes, as well as where they differ. The second is to draw a hypothetical path of influence based on historical data. The final characteristic is to compare the symbolic function of these religious structures to understand the purposes why they were built.

2.1 Definitions (Tholos and Vatadage)

It would be helpful to define the primary terms used throughout the essay.

- ***Tholos****:* The architecture of the shrine at Delphi is called a tholos which was built upon a round, stone platform with a circle of columns. It is a circular building with a conical or vaulted roof and a peristyle colonnade. (Figure 1)
- ***Vatadage****:* The Vatadage is a colonnaded Buddhist shrine enclosing a small stupa. A stupa is a dome-shaped Buddhist structure. The word, "vata" means "circle" and "dage" means "relic-house/shrine" in Sinhala. The literal translation is, "circular-relic-house." (Figure 3)

2.2 Potential paths of influence

While the Vatadage and the Tholos have some structural resemblance, that alone does not imply a shared history as the two countries are over 4000 miles apart. However, there are two possible modes worth consideration. One is the arrival of Buddhism in Sri Lanka in the third century BCE and plausible Greco-Indian architectural influence. The other, is the direct connection between the countries in ancient times (both with seafaring traditions), as supported by historical records.

In later chapters, historical data will be presented to illustrate the ties between the two countries, including proof of Greeks living in Sri Lanka. In Sinhala (and Pali), they were known as *'Yona'*. The Sanskrit term is '*Yavana'.* These terms etymologically link to the Greeks as they both refer to "Ionians."

This group of people have been repeatedly referenced in ancient literature, not just in Sri Lanka. The fact that Greeks were living in Sri Lanka is fundamental to the unique relationship between the two ancient civilizations. Additionally, it bolsters the hypothesis of the possibility of transmission of design and the concomitant influence on the ancient Sri Lankan architecture.

To investigate the theory of a path of influence, I have surveyed Greek influence outside of Sri Lanka as well. The assumption is that exploring the regions in between Greece and Sri Lanka may reveal evidence for potential path of influence. These regions would include parts of the Middle East, and the south Asian subcontinent.

2.3 Transmission of Design and Coulton's Theory

The primary focus of this paper is to study the modes transmission of design applications. However, architectural influence cannot happen in a vacuum. That is to say, it was not a standalone event. It is also important to consider other 'collaborative' factors. One such driving force is the cultural influence in affecting a region's architecture. To illustrate that point, Chapter 6 is devoted to the early history in the regions before the arrival of Greeks. This is contrasted with the situation in the regions after the Greek influence.

Coulton's Theory

In researching the modes of transmission of ideas, it is helpful to review the theoretical foundation first. Coulton offers a description of what that entails. According to him, the transmission of architectural ideas is driven by several forces, primarily the masons and the architects.

- *Craftsmen:* Helps spread detailed traits, whether technical, such as specific forms of a mechanism such as a clamp, or stylistic - new types or arrangements of decoration.[1]
- *Architects:* Tend to be more concerned with matters such the relation of the one part of a column to a surrounding colonnade.[2]
- *Patron:* Could play a considerable part in assembling the ideas plus influence in such matters.[3]
- *Workmen:* Would spread new ideas by themselves moving from place to place.[4]

The present study is focused on the analysis of architectural, cultural, and symbolic characteristics. In this context, Coulton's method offers an explanation on the role played by the above categories: Bactrian satraps such as Menander's *Patronage* helped bring Hellenistic architectural traditions via Silk Road to north India. Similarly, the *Architects* and *Craftsmen* may have transmitted the knowhow via travel during the spread of Buddhism in the Indian subcontinent. Finally, maritime and overland trade during Greek and Roman times may have contributed to the movement of skilled *Workmen*.

[1] Coulton 1983, 457
[2] Coulton 1983, 466
[3] Coulton 1983, 453
[4] Coulton 1983, 454

3 Architectural characteristics: Vatadage vs. Tholos

Figure 5: Delphi tholos and Medirigiriya Vatadage

Subsequent to the arrival of Buddhism in Sri Lanka in 3rd century BCE, a number of building architectures emerged. None were as significant as the unique circular colonnaded buildings, similar in form to the Greek tholos or round temples.[5] But resemblance alone is not sufficient to address the question whether there was a direct link from Tholos to Vatadage. As such, this chapter delves into an architectural comparison of columns, capitals, and colonnades. The engineering and the material composition aspects are examined in the next chapter. Possible paths of influence are analyzed in later chapters with the findings summarized in Chapter 12.

3.1 Column and Colonnade comparison

One similarity between the Vatadage and the Tholos is the multitude of columns and their arrangement. The Vatadage column capitals seemed similar to Greek Corinthian order capitals. The appearance and composition of the columns is discussed below.

In Ancient Greek architecture, there are three main column types: Doric, Ionic, and Corinthian. Each order had different origin location. The Doric order began on mainland and western Greece[6]; Ionic from eastern Greece, bordering modern-day Turkey[7]; and Corinthian connected to the eponymous city, Corinth, in the Peloponnese[8].

At the Delphi tholos, we see that the circular colonnade is entirely cylindrical in shape and sculpted with a Doric motif. The tapered column structure is considered an engineering marvel for its weight-bearing design. The columns are made of marble drums stacked together.

[5] DeVos 1988, 8
[6] Vitruvius 1960, Book 4, i,3
[7] Vitruvius 1960, Book 4, i,4
[8] Vitruvius 1960, Book 4, i,10

In comparison, the columns at Medirigiriya consists of eight-sided columns, which is somewhat unique to that period. Each column was made from one whole slab of stone, as opposed to the Greek columns' stacked design. In addition to columns, there are other rectangular structures and semi-circular structures carved out of gneiss.[9] While there is no firm evidence on the types of tools used, the ability to create geometrically accurate, even-width octagonal columns are a testament skill of the ancient craftsmanship. Any slight error would cause a visible mismatch on the sides of the polygon.

Additionally, the difference between the single slab vs. drum column design speaks further about the characteristic of material available at each location. In Greece, carving and transporting a heavy marble column would have been practically impossible. In contrast, the construction is different for a vatadage. Each column is made from a single piece of gneiss. While the columns are slimmer undoubtedly, they were carved out of larger blocks of gneiss.

Also, since ancient times, elephants were used to pull heavy loads. A related question is how the columns were raised to their vertical form. One could surmise that the commonly available oxen were used to pull the loads, supported by ropes and timber scaffolds. Perhaps a more pertinent question is how the engineering construction of such a large scale was carried out with precision. This issue is discussed in Chapter 4.2.

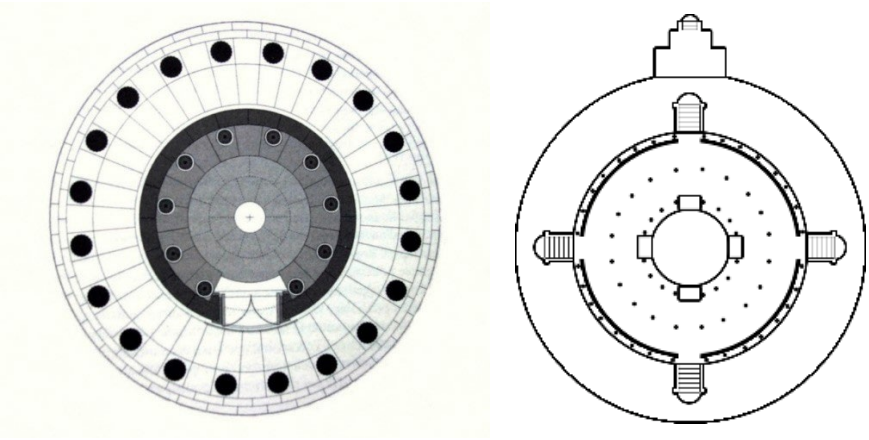

Figure 6: Column Layout of Tholos (left) and Vatadage (right)

[9] Wagalawatta 2017, 388

Colonnade Measurements – Delphi Tholos

The foundations of the Delphi tholos are of porous stone and the euthynteria is made of local limestone of St. Elias. The Delphi Tholos is a fully circular building, supported by a crepis on three levels. It has a diameter of 13.5 meters, whereas the diameter of the interior of the cella is 8.41 meters. The outer colonnade had twenty particularly tall and thin Doric columns, 5.93 meters high, an architrave with triglyphs and metopes and a sima with floral decoration and gutters in the form of lion heads, one over each triglyph.[10]

Colonnade Measurements - Vatadage

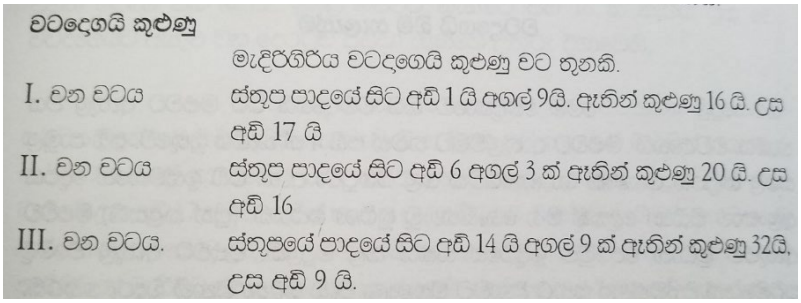

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Figure 7: Medirigiriya Vatadage - Measurements

English Translation

Medirigiriya Vatadage column structure consists of 3 rings of columns. *[11]

I. *First Circle* – 16 columns, each of height 17 feet. Radius, as measured from the perimeter of the circular inner temple (since the center of the circle is inaccessible) is 1’ 9”.

II. *Second Circle* – 20 columns, each of height 16 feet. Radius, as measured from the perimeter of the circular inner temple (since the center of the circle is inaccessible) is 6’ 3”.

III. *Third Circle* – 32 columns, each of height 9 feet. Radius, as measured from the perimeter of the circular inner temple (since the center of the circle is inaccessible) is 14’ 9”.

* (the encircled inner temple is approximately 26 feet in diameter).

There is also the question of the significance of the column numbers (16, 20, 32). The layout of the Vatadage indicates that the columns are spaced evenly. They are roughly equidistant on the second and third outer circles.

[10] DelphiCulture
[11] Balasuriya 2001, 24

Figure 8: Medirigiriya Vatadage – 3 circles of columns (Zamani Project)

The Inner & Outer circles have 16 and 20 columns respectively. It is a bit intriguing to imagine how the exact number of columns were calculated. At first glance, it appears that each line of radial columns forms the sides of a wedge (section of a pie). But the inner and outer columns do not align, as shown in Figure 9.

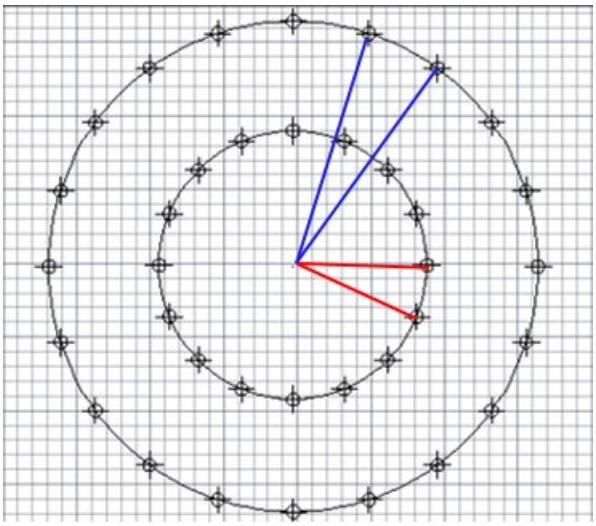

Figure 9: Vatadage columns not radially aligned

Assuming all columns are placed equidistant, the angle between the lines joining the center and two adjacent columns of the inner ring is 22.5 deg. (360/16). Similarly, the angle between the lines joining the center and two adjacent columns of the outer ring is 18.0 deg. (360/20). As such, the inner and outer columns are not radially aligned, and the column placement is not a simple pie structure.

The explanation is related to the function of the gneiss columns, which was to support the heavy timber roof. It could also be a combined two conical roofs as conjectured in Figure 13). The lengths of rafters and joists are also limited by the type of wood used in the construction. Since the end points of a wooden beam must rest on the stone columns for weight bearing purposes, one could surmise the column placement is based on the weight estimation of the roof and the length limitations of the wooden beams.

3.2 Capital Comparison

The motifs on the column capitals are different. At Medirigiriya, these upper halves have an inverted, truncated, octagonal pyramidal shape with a floral motif along its upper edge and a bowl-shaped base connecting the shaft, as depicted below.

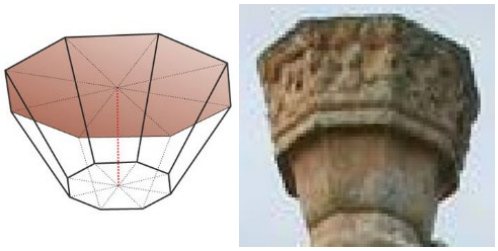

Figure 10: inverted, truncated, octagonal pyramid shape of Vatadage capital

At the Delphi tholos, the column architecture is a Doric order. It appears the Vatadage columns are similar to the Corinthian order which has a *kalathos* shape and acanthus leaves rising from its base. In most Vatadage architecture, each column is square at the base, octagonal in the upper section, and is capped with a lotus-bud capital. The capital is secured to the column shaft with a mortise-and-tenon joint. The ornate capitals have motifs of flowers and sometimes dwarf figures carved into the stone.[12]

Beyond the ornate appearance of the column heads, it is worth noting that columns in both locations consists of flat tops. This may indicate that the columns were once used to support roofs that sheltered the shrines below.

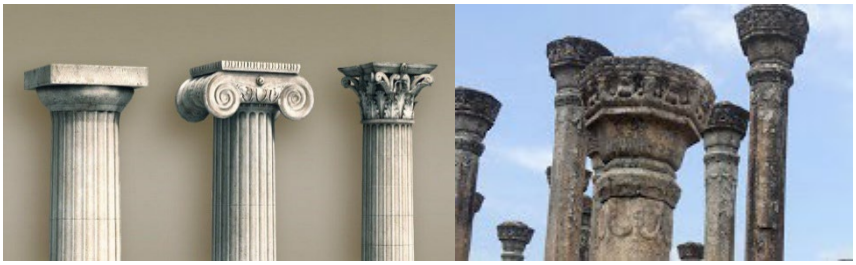

Figure 11: Doric, Ionic, Corinthian (left to right) Close up of Vatadage column

[12] Phuoc 2010, 219

To examine if ancient vatadage capitals were a product of transmission of design, it would be useful to re-trace evidence of Corinthian capitals chronologically and geographically. As Hellenistic influence travels further eastward, the Corinthian model gradually diminished to reflect the region's style. This is represented in Figure 12. At the left is the earliest form of Corinthian order at Bassae and Epidauros in Greece. The full-blown Corinthian features gradually diminished in later versions as depicted to the right of the Figure.

					
One of the earliest forms of the Greek Corinthian order was constructed at the Temple of Apollo Epicurius at Bassae, dated 427 BC	Later on, the tholos at Epidauros (4th century BC)	Bactrian city Ai Khanoum (Takhar, Afghanistan) was founded in the 4th century, and was built to resemble a Greek city	During the 3rd century the Butkara stupa (Mingora, Pakistan) began construction, but took on Hellenistic attributes joining Buddhist features (2nd century BCE)	3rd century capital from Mauryan capital, Pataliputra (Patna India). While not a Corinthian model, displays Hellenistic ToD	Medirigiriya Vatadage: Not a strong Corinthian model, but it shares a decorated upward flowing attribute.

Figure 12: Placement of Indo-Corinthian capitals chronologically

3.2 Conjectural Roof Comparison

Sri Lankan archaeologist Devendra argues that they were generally constructed on a round hill, specifically for aesthetic purposes. Notably, the core object was a stupa and *"encircled by three concentric rings of stone columns having ornate capitals and surrounded by a sculptured screen."*[13] He also offers a conjecture that the columns reinforced a "domical roof." Such specificity about the roof is interesting, as there are a few differing styles that the roof could have been styled, not to mention the question of whether there was a roof in the first place.

[13] Devendra 1959, 27

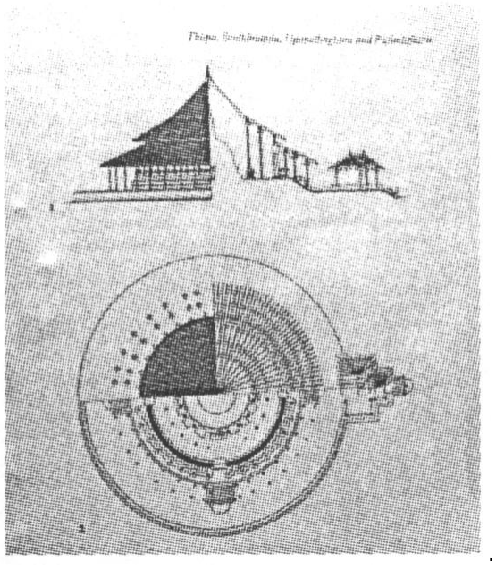

Figure 13: Conjectural roof reconstruction of Medirigiriya vatadage (Roland Silva)

Roof Forms: In ancient Sri Lankan architecture the roof structures were determined by the climate, such as the annual monsoon seasons. In the traditional village, the roofs were covered in straw thatch. They were steep to quickly shed off the rainwater and had wide and low eaves to protect the mud walls from erosion and to keep out the strong winds. The use of straw suited an agricultural people, who re-thatched the roofs and re-rendered and re-plastered the floor and walls after every harvest. But the application to religious structures becomes hazy.

Author Shanthi Jayawardene states that the Vatadage had a *"a conical tiled roof covering an ambulatory surrounding a small stupa."*[14] There are a few important things to note in this statement. The first is the shape of the roof mentioned. A cone-shaped roof is an important decision to make as an architect, and its due to consideration of Sri Lanka's climate. It is a tropical country with heavy rainfall. A completely flat roof would allow rainwater to collect and start accumulating weight. Any roof other than solid stone would eventually collapse. Therefore, a conical shape would allow water to flow outwards easily. Moreover, this design would allow different materials to make up the roof. The second point to note is the composition of the roof. There is currently no clear evidence of the roof material. If the tiled-roof covering was made up of clay, then any proof of that is lost to time. Unlike hardened clay pottery, the tiles were probably unprocessed clay and have melted away long ago. The third point is the indication that the purpose was to enclose the stupa. It is possible that more than one roof was built around the Vatadage. i.e.: The primary one is to symbolically cover the central stupa and to protect it from elements, as well as a secondary annular roof to protect the visitors/devotees from the torrential rains which are common in Sri Lanka. Paranavitana also notes that, the *"roof of a dage above the stupa was domical in shape and that it was constructed of rafters*

[14] Jayawardene 2016, 9

which must have been held together on the top by means of a circular boss."[15] Despite the theories, the shape and form of roof of the Vatadage remain to be speculatory without hard evidence.

3.3 Significance of Circular Structures

One of the prevalent types of ancient shrines was in circular form.[16] The circular structure has shown itself across borders and thousands of miles apart. Sometimes, the structures had shared history, while in other cases they were developed independently in different regions. An encyclopedic Sanskrit text, named Brihat Samhita (from 6th century CE), has a section devoted to architecture. In that, circular temples are defined as constituting an important group.

An interesting example of this is found in the north of Sri Lanka. These are the half-sphere structures that are scattered in groups. Archaeologists believe that they were used as funerary structures perhaps from around 200 BC to CE.[17] At some point this structure transitioned and elevated to a temple. A similar trait is observed in the Greek tholos history, as the tholos was also repeatedly used as a tomb. Evidence of such practices were found across southern Greece and in Crete. However, despite the similarities, a disconnect remains between the prehistoric tomb contexts and later Greek tholoi. Thus, the connection of meaning also remains uncertain.

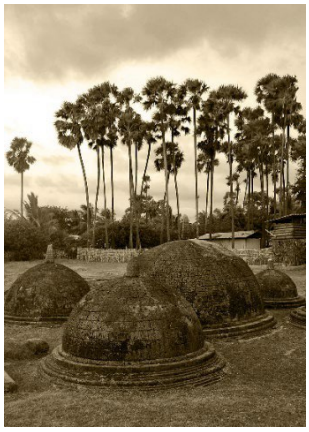

Figure 14: Ancient burial mounds found in north Sri Lanka, Kantharodai

[15] Paranavitana,1988 88
[16] Devendra 1959, 38
[17] Pieris 1917, 12

3.4 Components of an ancient Buddhist stupa

The elaborate Buddhist stupa has named components to it. These are described with reference to Sanchi stupa erected during king Asoka's reign.

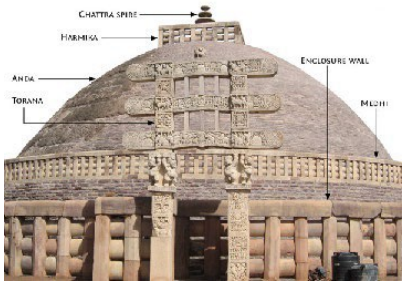

Figure 15: Components of Sanchi stupa

Medhi- A type of railing with columns that surrounds the stupa and supports the stone platform.

Side walls- Four-sided walls which serve as a fulcrum of both the central portion or the platform and the ornamented parapet - they are a kind of an insignia of the four cardinal directions.

Thoranas- Two distinctive gateways which are usually positioned on both sides of the side walls. However, Polonnaruwa Vatadage has four gateways which are installed in a very intricate way and are richly embellished with stone mosaics with floral and geometrical motifs and small figures carved into the stone.

Stairway- Like in any other monument, there are four sets of stairways on the four sides which lead to the platform of the stupa.

Guardian statues- The guardian statues are placed on both sides of the stairways on the four sides of the stupa.

Roof- The Sanchi stupa had a wooden roof which was supported by an imposing colonnade. Today, both the roof and part of the columns do not exist anymore, but the front row of columns is intact due to recent restoration.

Anda- The domed shape reflects a mound of dirt that was used to cover the Buddha's remains. Additionally, this part of the structure is solid and cannot be entered.

3.5 Transmission of Design - Counter Example

Determining whether an architectural similarity is due to transmission of design or just coincidence is sometimes hard. The Figures below depicts two ceremonial gates/gateways, but in different countries. The figure on the left is the Sanchi Stupa built during Mauryan period in India. Ushering/welcoming visitors is a large torana (ceremonial gate). It is made of two carved stone pillars holding up three curved frieze panels that display religious scenes and symbolic stone carvings. The figure on the right is a formidable looking Torii gate, which are a common site at the entrance to a Shinto shrine (Jinja) in Japan. While both gates resemble some similarity in appearance, it is to be noted that Shinto is a religion indigenous to Japan. Besides, Buddhist shrines in Japan (known as Otera), do not have similar gates.

The question of whether there is a direct correlation is far from settled as can be seen in the following excerpts. This example points out the caution one must exercise in applying the transmission of design principle.

> *"The oldest Buddhist funerary stupa in Sanchi, India has prominent entrances on the four sides, which look like an ornate torii with a third transom. These gates are called torana in Sanskrit. The similarities in word sound and appearance led early Japanologists (including Aston and Chamberlain) to assume that torii descended from torana. However, in order to substantiate this theory, one would have to study the way of the toranavia Chinese Buddhism to Japan, which, to the best of my knowledge, has not yet been successful."*
>
> *"A clear doctrine as to whether torii are a purely Japanese invention or developed under the influence of other cultures has not yet been established either in Japan or abroad."*[18]

Figure 16: Ceremonial Gates of Sanchi (India) and a Shinto shrine (Japan)

[18] Scheid 2010

4 Non-Architectural Characteristics

In this chapter, the Tholos and Vatadage are compared based off their rock composition and the engineering involved.

4.1 Rock Composition

At the Medirigiriya Vatadage, the columns and the Buddhist statues are all made of gneiss.[19] In contrast, the columns at tholos are marble. A comparison of the two materials on the Mohs scale reveals interesting facts about the composition. It also helps us understand the specific architectural styles at different locations.

With a base composition of calcite, marble has a hardness of 3 on the Mohs scale.[20]Due its low rating, the material is easier to carve. And this makes it useful and appropriate for sculptures as well as ornate objects. Additionally, marble has a translucent characteristic which makes it an object of particular attraction for a variety of sculptural projects.

In contrast, gneiss is rated 6-7 on the Mohs scale, which signifies several traits. First, it has the same hardness as steel! Therefore, it can endure heavy use and can withstand harsh weather conditions through millennia. On other hand, it is much harder to work on as compared to marble.[21] This might explain the shape and design differences of the gneiss columns (e.g., slimness). To manipulate a stone as hardy as gneiss and to produce the kind of ornate capitals on the Vatadage capitals, showcases the skills of ancient sculptors. It would also be intriguing to learn about the types of tools they used.

Greek architectural influence is still a plausible assumption, as the differences in the column structure is an indication of how the ‘transmission of design’ is adapted based on the construction material available.

[19] Wagalawatta 2017, 388
[20] King 2014
[21] King 2015

4.2 Engineering

The composition of column material is not the only notable characteristic for comparison. It is also important to discuss the engineering behind the constructions.

Greek engineers applied stone suspension mechanics to ease the construction as shown below. Systems to elevate stone blocks took on various forms. Essentially, stone blocks were fastened by ropes which were attached to a crane.[22] However, in this rudimentary method, the ropes wouldbe crushed underneath post-placement, so removing these ropes was a difficult ordeal. Ancient Greek engineering devised various apertures for the crane to safely attached ropes. At Delphi, these apertures were in a U-shaped form which were carved onto the top as well as internally ofthe stone. In addition, tongs, acting as anchors, could also have been used. They were hung in tenons or mortises and properly carved apertures befitting the type of stone used.[23] Because of these advanced suspension technology, Ancient Greek architects and builders could dismiss the issue of searching for large enough slabs of marble for the columns, and stacking drums became the more appropriate solution.

Figure 17: Stone Suspension with tongs and curved aperture (Kotsanas)

In comparison, the Vatadage columns were composed of solid slabs of rock. While the available data are limited at this time, it is not unreasonable to imagine that the capital of the column was constructed separately and attached.

It is also important to compare the rest of the column structure as well. The gneiss columns of Vatadage are slimmer (~2 feet cross section) compared to marble drums of tholos (6 feet diameter). Though the gneiss columns are slender, the weight bearing capacity is still maintained due to the hardness of gneiss. Another difference is that the marble columns of Tholoi are made up of drums (short barrels) for ease of maneuverability, whereas each octagonal gneiss column was made from a single piece of gneiss. Also, slicing a slender column into smaller cylinders would affect its stability, once the column is erected. Elephants and oxen may have been used in the transportation of columns. In Sri Lanka, it is a common sight to see elephants being used to haul heavy timber.

[22] Kotsanas, 2018. 88
[23] Kotsanas, 2018. 89

There are other engineering questions that remain unanswered, such as how the columns were straightened up to a vertical position. A more intriguing question is how the engineering construction of such a large scale was carried out with precision. It is not just the architectural aspect, but the site planning, estimation of the weight bearing etc. would require more sophisticated knowledge as well as tools usage.

In this regard, it may be pertinent to mention the tallest stupa in Sri Lanka, 'Jetavana-ramaya' (Figure 18) is 400 feet of height and was constructed in 3rd century AD. The second largest stupa, 'Abhayagiri Vihara' is over 300 feet tall and was built in 2nd century BCE. It is fair to assume the technical knowhow to build such mammoth brick structures could have also been used in the Vatadage construction. Unfortunately, there are no detailed written records of the technologies, or the tools used. Timeline wise, these sacred structures were built after the arrival of Buddhism in Sri Lanka in the 3rd century BCE. It is concurrent with the Mauryan period in India, which was preceded by Alexander's eastward expansion and the formation of Bactrian satraps, pointing to a possible two-phase transmission of design.

Figure 18: Jetavana-ramaya (Photo Credit: Michele and Ed Hubbard)

5 Description of Tholoi and Vatadage

This chapter presents details of Tholoi and Vatadages in various locations. The Delphi tholos is the most well-known and the oldest. Perhaps it is the most iconic and recognizable Greek round structure. The Tholoi in Epidauros and Philippeion also provide rich architectural details.

5.1 Delphi Tholos

In ancient Greek architecture, Tholos is a circular building with a conical or vaulted roof and with or without a peristyle. Sometimes a colonnade comprising of several concentric rings of columns accompanied the Tholos. For example, the Tholos in Delphi, built in 380-370 BCE, is a circular building containing several column colonnades. It had stone foundations and marble at the upper-case part of the building. On a three level crepidoma (base) was standing a circular cella which was externally surrounded by 20 Doric columns. In the interior 10 engaged Corinthian columns among the earliest examples of this type, were resting lightly to the walls. Between the external columns and the walls of the cella existed narrow path with delicate decorative roof. Above the outer colonnade rested epistyle with frieze of triglyphs and metopes with relief representations from the fight of Greeks with the Amazons.

Most of the building is made of white Pentelic marble, but the ledge of the interior columns and the floor of the cella (chamber) were made of top-grade grey limestone from Eleusis; their different shades created a nice contrast between the different elements of the building. Another feature is the rich sculptural decoration and floral motifs. The foundations are of porous stone and the euthynteria is made of local limestone of St. Elias. It is a fully circular building, supported by a crepis on three levels. It has a diameter of 13.5 meters, whereas the diameter of the interior of the cella is 8.41 meters. The outer colonnade had twenty particularly tall and thin Doric columns; 5.93 meters high. The Doric columns of the circular colonnade were crowned by a frieze with forty metopes.

The Tholos comprises almost all the styles of Classical architectural design, whereas it offered a sense of polychrome due to the combination of materials, particularly of natural stones. The building was destroyed by a fire in the 1st century B.C. It was partly restored in 1938.[24]

5.2 Epidauros Tholos

The tholos at Epidauros was a 30 year-long project from 365 to 335 BCE. It was designed by the architect Polykleitos the Younger of Argos, and it is one of the few round buildings of Greek architecture. The exterior colonnade had 26 Doric order columns, while the interior had 14 columns of Corinthian order. The metopes (panels above the columns) were decorated with rosettes. The elaborate décor was not confined to just the columns. The ceiling and the sima was also carved with sculptural decoration. And the floor was intricately laid with a black and white pattern of marble tiles.

When describing the Sanctuary of Asclepius in Epidauros, the ancient author Pausanias, mentions a round building near the temple of Asclepius, which he calls a Tholos, though he does

[24] DelphiCulture

not mention its use. However, Pausanias believes it is worth visiting while emphasizing two murals in its interior, which were works of Sicyon painter Pausias (who dates to the first half of the 4th c. BCE).

According to the site's current excavators, the Tholos served as the tomb of Asclepius. However, the basement of the Tholos was on the same level as the basement where patients of the sanctuary went through the last phase of the healing ritual. That led the excavators to the conclusion that the two basements possibly created a metaphysical plane where the patients and the god communicated symbolically.[25]

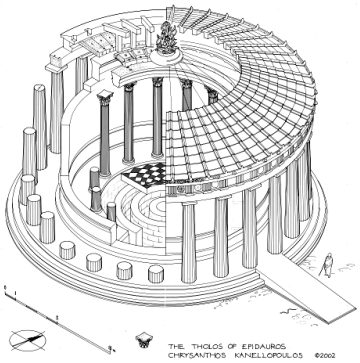

Figure 19: Epidauros Tholos

5.3 Philippeion Tholos

The Philippeion, located in Olympia, is a small *circular* memorial to Philip of Macedon and probably finished by Alexander. the Philippeion was erected to commemorate Phillip's victory at Chaironeia in 339 B.C. The structure is of Ionic order. The temple diameter is 15 meters. Three steps lead to the circular building on which there was an external colonnade consisting of 18 Ionian columns.[26] The colonnade surrounds a circular cell. Its roof may have had marble tiles and ornamental antefixes such as palmettes and moldings.

Nine half-columns with Corinthian capitals and contained a group of five statues decorated the inner cell. The naos contains two windows, much like Hera II at Paestum. It had a carved marble roof which was decorated with a bronze finial on top. A Corinthian capital and a part of the marble gutter with a lion's head waterspout was located in a museum.

Figure 20: Phillipeion (source-flickr)

[25] AristotleGuide, Tholos of Epidaurus
[26] Dinsmoor 1973, 236

5.4 Medirigiriya

The Vatadage is considered to be one of ancient Sri Lanka's most prolific architectural creations. While Medirigiriya is well-known for its beautiful ruins, there are other Vatadages as shown in the map. There are about a dozen uncovered so far. While they all share the base characteristics, none of them are identical. For example, the number of colonnades differ from each other. At Medirigiriya, Lankarama, and Polonnaruwa, three rings of columns encircle the stupa. The Vatadages at Tiriyaya, Ambasthale, Thuparama have two circles of columns.

Figure 21: Map of Northern Sri Lanka w/ annotated Vatadage locations (in green)

The Vatadage at Medirigiriya is the principal shrine of a monastic site. It was built upon the summit of an outcrop of bare rock and is entered from the north by means of 27 stone steps, a high oblong platform, and a second flight of four stone steps. Its circular terrace is 91 feet in diameter, and it is sustained by a retaining wall of brick and mud mortar reinforced in places by rough-hewn blocks of granite.[27] The stupa (hemispherical structure containing relics) in the middle was built on a small rock circled by three concentric rings of columns and four Buddhist statues that are all still intact. The outer ring had 32 columns standing at nine feet, the middle ring 20 columns standing at 16 feet, and finally, the inner ring had 16 columns standing at 17 feet. Brahmi characters are etched in the stone; however, the stupa (hemispherical structure containing relics) no longer remains.[28]

[27] Dohanian 1969, 35
[28] Lakpura

Figure 22: Medirigiriya octagonal columns (Photo credit – bslpat.com)

This shrine is situated in the ancient city of Polonnaruwa and originally consisted of a square sanctum, defined by eight squared stone columns and thick walls of brick which had been molded at the base. On the four faces of the sanctum, rectangular brick projections supported four stone Buddhas seated in the dhyaana position, of which one has been preserved intact. Fragments of two others survive and of the fourth, only traces of the brick aasana remain. A second row of twenty stone columns, arranged in a square around the sanctum and images, marked out an open corridor around the shrine and probably supported a tile and timber roof. No evidence for the entrances to this corridor have been found. But it is clear that the design of the shrine allowed no access to the sanctum, which must have been vaulted over in brick. In appearance, at least, this shrine resembles certain square stupas common in northwestern India and Afghanistan, where, in niches each face, Buddhas seated in the dhyaana (meditation) position were installed.

5.5 Tiriyaya

At Tiriyaya (Thriyaya), a dagoba which was originally small in size had been enlarged sometime in the 8th century CE and a Vatadage was built enclosing it later. In this case, the Tiriyaya site showcases that the Vatadage project was not a one-time occurrence. For reasons currently unknown, the regional king wanted to elevate the status of this dagoba and have it physically expanded.

Figure 23: Tiriyaya Colonnade

The Vatadage was built on a circular stone platform with two colonnades of stone columns. Encircling the columns is a brick wall containing cavities to secure timber columns. For each of the cardinal direction is a flight of steps leading to the Vatadage and four flower altars. It is suggested that there could have been a roof atop the stupa, but no conclusive evidence was found.

5.6 Polonnaruwa

The Polonnaruwa Vatadage dates much later than the Medirigiriya as it was constructed during the Polonnaruwa kingdom, circa 11th century CE. Colonnade consists of three concentric rows of stone columns. The purpose of the Vatadage is to symbolically protect the stupa at the center containing relics. The structure is adorned with elaborate stone carvings. The outer brick wall was coated with a thick, lime plaster, and entranced fitted with lattice doors. The upper terrace and stairways have symbolic figure carvings. The Vatadage may have been topped by a domed and vaulted double roof.[29]

The Kingdom of Polonnaruwa came to an end with South Indian invasions around the 13th century and the ruins were abandoned for nearly a thousand years.

Figure 24: Polonnaruwa Vatadage

5.7 Thuparamaya

Though the main vatadage selected for in-depth comparison is Medirigiriya, it was not the first vatadage of its form to be built. Thuparamaya is credited as the first Buddhist temple constructed in Sri Lanka (circa (247-207 BCE). Originally, a Vatadage was built around the stupa, but it was destroyed during enemy invasions. The monument has a diameter of 18m at the base. The dome alone is about 3.5m in height. Its construction has similarity to Gandhara stupas, but what is shown in the picture is after recent renovations. There are two rows of stone columns round the dagoba (in comparison, Medirigiriya has three concentric rings).

[29] Dohanian 1969, 32

Figure 25: Thuparamaya stupa in Sri Lanka (Photo: BT Options)

It is speculated that Vatadage columns once supported a timber roof, and the inner column colonnade supported a hemispherical dome. As Phuoc notes, this *"curved roof would probably be covered with sheet copper"*[30] comparable to the Lohaprasada as mentioned in Sinhalese chronicles (translation: 'loha' is metal, 'prasada' is palace). Thuparama is thought to have been developed in several phases: In the initial phase (c. 250 BCE), it may have been a simple heap of mound and basic structure similar to Piprahwa. In later centuries, more artistic features were added, including the moonstone at entrance.

Moonstones are half-moon shaped stones, usually found at the entrance to Buddhist religious sites. The moonstone in Thuparama, which is profusely decorated with flora and animals such as thebull, lion, horse, elephant, and goose, is also of Indian origins.

Figure 26: Moonstone at the entrance to shrine

[30] Phuoc 2010, 209

6 Regional Civilizations prior to the Hellenistic Influence

It is helpful to first discuss the cultural environment in the regions of south-central Asia prior to the arrival of Greeks. The highlighted regions are in south-central and south-western Asia, which had thriving ancient civilizations. The architectural environments of the selected regions are presented with examples. The analysis also forms the backdrop for the discussion of Alexander's eastward campaign and the subsequent surge in Hellenistic diffusion of ideas.

6.1 Ancient south-central Asia

Ancient Afghanistan was a region with many different layers of history, arts, cultures and architecture. The Indus Valley Civilization was a Bronze Age civilization (3300-1300 BCE) extending from modern-day northwest Pakistan to northwest India and included northeast Afghanistan. While its mature period was from 2600-1900 BCE, the region was invaded by Aryans (c. 1500-1200 BCE), Persians (c. 558-326 BCE), Greeks (c. 326-90 BCE), Indians (c. 323-185 BCE), and many more in the centuries following.

An important ancient architecture in the region (modern day Pakistan) was Mohenjo-Daro Harappa civilization. The early Harappan site at Kalibangan showcases fortified urban development as shown below. The city is organized like a grid and the early Harappans developed a drain system. The more important detail is that the settlement was constructed with mainly mud-brick. In addition, "wedge-shaped mud bricks" constructed rectangular houses were found and dated between 4400-4200 BCE. A transition in the material used as well as a near standard shape of constructions has been noted.[31]

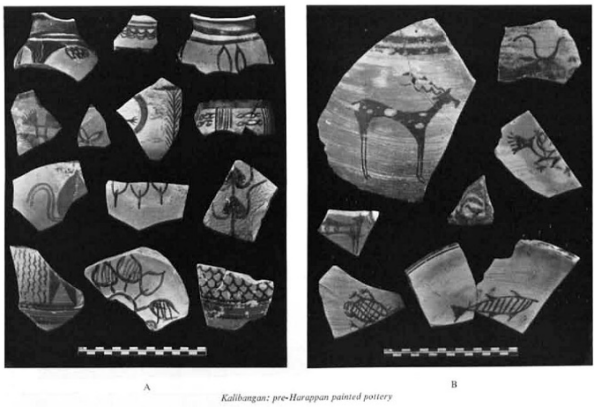

Figure 27: Kalibangan Pottery

[31] Nath 2014, 129

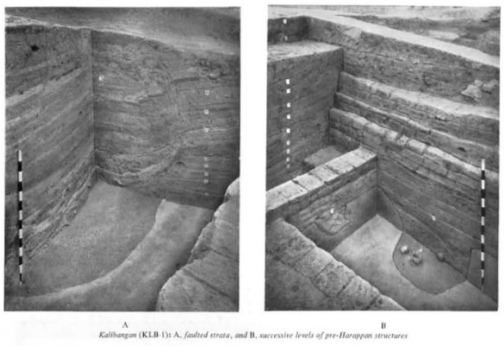

Figure 28: Kalibangan rectangular living structures

In the Second Urbanization period (1025 BCE – 320 BCE), A stone palace predating the Mauryan period was discovered from the Kausambi ruins in north India. The decorated stones of the palace were set and coated in lime and a thick layer of plaster. Complete with its own walls and towers, the architecture resembled a fortress.

Figure 29: Kausambi Ruins, 6th century BC

Later in the fifth century BCE, dome-shaped monuments were beginning to be established as early forms of the Buddhist stupa. From the beginning to its modern use, these stupas were monumental buildings and stored sacred relics associated with Buddha. One of the earliest forms of the monument can be found at Piprahwa (near India-Nepal border), where the stupa is positioned atop a rectangular platform. It is interesting to note this particular rectangular feature. The structure is modified in later centuries to the more familiar form as a '*Vatadage'* with circular platforms, circular colonnades etc. However, one feature that is maintained since its inception are the guard rails, which consisted of a coping, crossbars, and posts.[32]

Figure 30: Stupa at Piprahwa

[32] Chandra 2008

The Indus valley civilization in Mohenjo-Daro and Harappa regions offers a treasure trove of archaeological artifacts, yet we know very little. The origin of their language script is not well understood, unfortunately. Until a 'Rosetta-Stone' of bilingual inscriptions is discovered one day their writing system will remain undeciphered.

6.2 Ancient Persia

The beginning of relations between the Persian and Greek civilizations can be attributed to the Achaemenid invasions of Greek cities of coastal Asia minor around 550 BCE.[33] The region is modern day west Turkey.

The westernmost region was incorporated into the Persian empire via the defeat of Lydia and loss of its territories to Cyrus in 546 BC. Ionia was the first Greek region that initiated close relations with Persia.[34] While the harmony did not last long (Ionian revolt), Greek and Persians influenced each other's culture as a result of this encounter.[35]

One interesting example is *Ka'ba-ye Zartosht* which was constructed in the early Achaemenid period. It is a rectangular prism-shaped building erected within a rectangular depression, sitting upon rectangular platforms. The structure measures 12.5 meters tall (approx. 35 feet), with its square base sides measuring approx. 22 feet.[36] The *Ka'ba-ye Zartosht*, which translates to the "Cube of Zoroaster," has been interpreted to function as a fire temple worshiping the holy fire of Zoroastrianism. Its plain rectangular design contrasts with the round shaped Tholos of Greek origin around the same time, such as the Tholos in the Athenian Agora. It is possible the *Ka'ba-ye Zartosht* may have been built before the cultural influence referenced by Burkert took place. It is an example of the 'pre-circular' temple architecture, in contrast to the stylized forms later erected throughout Greece and in parts of south Asia (such as in Sirkap, Pakistan).

In contrast, evidence of Greek influence is present in the ancient Persian city of Persepolis. Due to its importance, it deserves its own separate section which is discussed next.

Figure 31: Ka'ba-ye Zartosht

[33] Graf 1979, 57
[34] Morris 2006, 69
[35] Burkert 2004, 99-100
[36] Fergusson 1851, 207

6.3 Persepolis

Persepolis is one of the oldest predominant monuments of the world and has remained since the Achaemenid period with more than 2500 years old history. Persepolis was known to the Greeks as the "city of the Persians," and was a capital of the Achaemenid empire which was the first Persian Empire. Cyrus the great founded the empire and it prospered from c. 550-330 BCE.

Figure 32: Persepolis

Cyrus established Persepolis as the private residence for the Persian kings as well as the place of governance and ordinance. King Darius continued developing the city, expanding it to become a center for ceremonial and cultural festivities. His descendants took up the throne and continued Darius's work. Persepolis's prestige and riches were well known in the ancient world, best described by the Greek historian Diodorus Siculus (1st century BCE), as "the richest city under the sun."[37]

Architecturally, the massive Apadana palace and the Throne Hall ("Hundred-Column Hall") are significant. The Double Bull capital in Figure 32, and in some cases griffons or other depicted animals, indicates the prevailing architecture during this period. These decorations supposed to be of Achaemenid origin.[38] In contrast, the bas-relief of Figure 32 depicts rosette motifs, which have origins elsewhere.

Rosette Motifs

These round-shaped floral designs first appeared in Mesopotamia many millennia ago. Later civilizations also adopted the decorative design. Rosettes are a flexible motif for the artisan, so rosettes could be carved or painted or applied on either stone, wood, or metal.

Figure 33: Lotus flowers at Persepolis ruins

[37] Ferrier 1989, 27-8
[38] MetMuseum 2016, 47.100.83

Figure 34: Double Bull capital Photo Credit - Luis Argerich
Figure 35: bearded, male sphinx relief
Figure 36: wall-painting with rosettes (Akrotiri, Thera, 17th century BCE) [39]
Figure 37: a Mycenaean bridge-spouted jug, Minoan influence, (Kalkani tomb,1500-1450 BCE). [40]
Figure 38: Ishtar Gate includes linear borders of rosettes (Neo-Babylonian Empire, 604–562 BCE) [41]

ToD in Persepolis

Under Darius I (522-486 B.C.E.) rule, the Achaemenid empire was at its height. He embarked on constructing a grand royal center for Persepolis which consisted of storerooms, columned halls, and a palace complex. Darius, among other Persian kings, employed many Greek artists and craftsmen at the end of the 6th century.[42]

Figure 32 (discovered at Persepolis during June 1826 excavations) a relief of a bearded, male sphinx adorned with an elaborate headdress of a divinity. The image of the sphinx raising his left front paw intended to protect the building from an enemy warding off intruders.[43] Such fantastic beasts were derived from Assyrian art. In addition, Roman historian Pliny the Elder documents Greek artist Telephanes (dated to early 5th century BC). While Telephanes came from Phocaea, his portfolio includes work in Larissa and Thessaly, Greece as well as Persia for Darius and his son, Xerxes.[44]

Such movement of artisans is a manifestation of Coulton's. principles of Transmission of Design. In fact, the rosette motifs can be seen as far as in India where it was used as a decorative motif in Greco-Buddhist art. Figure 56 shows a border of rosette motifs below the statue of the Buddha in Gandhara.

[39] Museum of Prehistoric Thera
[40] Archaeological Museum of Mycenae
[41] Bertman 2003, 130-132
[42] Richter 1946, 15–30
[43] British Museum 2007, 129381
[44] Linder 2015, 51

7 Alexander the Great's Eastward Expedition

Direct historical records of Greek interaction with Sri Lanka are scant. To study the application of Coulton's hypothesis, I researched the ancient Greek interactions with northern civilizations in Indo-Pakistan (Pak)-Afghan region. It provides indirect evidence of the Hellenistic influence.

In this regard, a major historical point of reference is Alexander the Great's eastward expansion. He was able to push into a vast area including modern day Afghanistan, Pakistan and North-East India. Alexander reigned as the King of Macedon from 336 to 323 BCE. His eastward campaign began around 327 BCE but ended when he was faced with a revolt from his fatigued and war-weary soldiers. At this point, Alexander ended his military campaign, but left behind Satraps to rule the land. The Satraps left a lasting impression of the Greek influence on the Indian sub-continent.

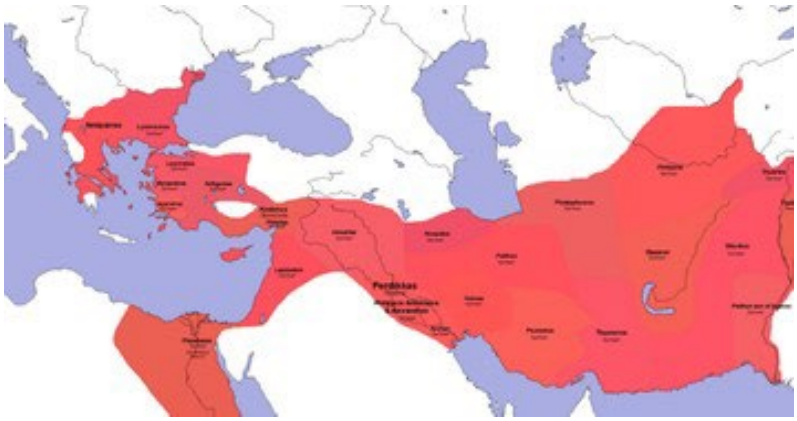

Figure 39: Greek Satraps left by Alexander

Alexander's expeditions changed the political and cultural structure of south-central Asia along the Silk Road. Prior to that, the region traditionally identified as south-central Asia encompasses Afghanistan, the five Central Asian republics of Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan, and the western border of India. Buddhism was one of the earliest religions in the area. South-central Asia had long been inhabited by and under the influences of the Iranian speaking peoples whose religion was Zoroastrianism. This region was wedged between three other great ancient Asian cultures: In the east, the Chinese; in the west, Persia; and India in the south.

In the sixth century BCE much of south-central Asia, such as Gandhara, had been subjected to the Persian rule which was vanquished by the Greeks during Alexander's eastward expansion. After his death, the remaining Greek satraps based their center of power in Bactria. The Greco-Bactrian kingdom was founded when the king Demetrius invaded India from Bactria circa 200 BC. Eventually, the Greeks in the Indian Subcontinent dispersed from the Greco-Bactrians in

Bactria (modern-day border between Afghanistan and Uzbekistan), and the Indo-Greeks in the modern-day northwestern Indian Subcontinent. The most famous Indo-Greek ruler was Menander (*Milinda,* in Buddhist texts), and he claimed his capital in the modern-day Punjab region at Sakala.

In India, Greeks were able to maintain a structured presence at the door of India for about three centuries. After Alexander, it continued through the Greco-Bactrian and Indo-Greek kingdoms which ended sometimes in the 1st century CE. The cities of Ai-Khanoum and Sirkap are considered to be prime examples of how the Hellenistic artistic influence transmitted to north India. Some of these examples, which are shown and expanded on in Chapters 8.2 and 8.4 respectively, included the erection of the Pataliputra capital with Ionic motifs and Columns of Asoka with floral friezes. Greek ambassadors, such as Megasthenes of the Seleucidempire, stayed at the Mauryan court of emperor Chandragupta in Pataliputra.

It is also worth noting that during Alexander the Great's invasion of India (326 BCE), there were many parts of India under republican forms of government, and not under kings. (There were a few exceptions: e,g. Porus and Ambhi). Additionally, ancient Greek historian Diodorus Siculus also mentions that most cities in India had democratic forms of government notably the northwest region as the extent of his travels. This fact is also mentioned by the historian Arian. Alexander's army faced fierce resistance from the armies of these republics, such as the Mallas.[45]

In addition to Alexander, it is helpful to learn about other key figures who played the role of patrons in Coulton's theory who are explored in this chapter.

7.1 Menander I

Another key Greek figure is Menander I who served as administrator of the Northwestern region of the Indo-Greek Empire (165-130 BCE). He is noted not just as a public figure of Greek origin serving in India, but also for his religious views. According to historical records, he embraced Buddhism and became a patron of the religion. In south-central Asia, Menander I is often known as Milinda per Buddhist literature. This moniker is used in the publication of the *Milinda Panha* (dated between 100 BCE-200 CE), which illustrates a series of inquiries between Milinda and a Buddhist sage. This book contains a notable reference, which is that Milinda came with a bodyguard of 500 ***yona/yavana*** soldiers. Depending on the book's translation, either word can be used, but both are used to refer to the same group of people (Ionians).[46]

In addition, *Mahavamsa*, the ancient Sri Lankan historical chronicle also supports Menander's activity. According to the text, there were Greek monks who aligned themselves with Menander and served as missionaries for Buddhism. Moreover, a Buddhist elder named *Dhamma-rakkhita* (literally, 'the protector of dharma/religion') is said to have originated from "Alasanda." This city could be interpreted as Alexandria of the Caucasus located near modern-day Kabul and was founded by Alexander the Great. The monk is said to have journeyed to Anuradhapura, Sri

[45] Katju 2013
[46] New World Encyclopedia, Yona

Lanka to celebrate the founding of *Ruwan-weli-saya*, an important Buddhist stupa, during the 2nd century BCE.[47]

7.2 Seleucus I Nicator

Seleucus I Nicator was an administrator of satrap of Gandhara. He accompanied Alexander in his campaign into Asia. He became king of the Seleucid empire from 306 BCE to 281 BCE. Seleucus warred against Chandragupta, the grandfather to Asoka. But a peaceful resolution was reached when Chandragupta married Helena, the daughter of Seleucus, according to the records by Strabo.

7.3 Megasthenes

Megasthenes was an ambassador of Seleucus to the Mauryan court of Chandragupta. Megasthenes has supposedly written the first account of India in his book *Indika*. Although the book is now lost, it is referenced in later works by Strabo and others.[48]

7.4 Chandragupta Maurya

Chandragupta was a contemporary of Alexander though younger (born around 340 BCE). He is well-known as the founder of the ancient Mauryan empire in north India, as well being the grandfather of the famed king Asoka.

After Alexander's untimely death (323 BCE), his eastern empire was divided up by his generals. Known as satrapies, a satrap governed each territory. However, that arrangement did not last long. Chandragupta was able to win back the territories and unite the kingdom. He was also a shrewd ruler. By marrying the daughter of Seleucus he avoided an endless war, thereby reaping the benefits of a multicultural society and its talented workforce.

7.5 King Asoka

Asoka (Ashoka) was the third ruler of the Mauryan Empire. During Asoka's reign (circa 268 to 232 BCE), the empire reached its zenith. Based on the edicts, Asoka was considered a benevolent ruler, especially in the latter part of his reign.[49]

Before his conversion to Buddhism, he was a merciless warier who waged a long and bloody war against the neighboring kingdom of Kalinga. In fact, his moniker was Chanda-Asoka (meaning "Asoka the cruel/terror"). According to historical records, the decade of war made him repentant of the death and destruction caused. A chance encounter with a Buddhist sage led to his transformation. Buddhist texts (*Mahavamsa)* identify him later as Dhamma-Asoka (which means "Asoka the righteous/pious").

[47] Peris 2006, 2
[48] HistoryFlame 2021
[49] Dhammika 1993

Archaeologically, his edicts and columns that survived to this day is a treasure trove of information to learn the cultural impact. Some of the columns contain Greek translations, indicating the strong Greek presence in the region. His son became a Buddhist monk (*Mahinda*) and was instrumental in bringing Buddhism to present day Sri Lanka. Without a powerful heir, soon after king Asoka'sdeath the Mauryan Empire split up and disintegrated.

Asoka Edicts

Asoka Edicts are king Asoka's proclamations and the announcements related to Buddhism. It is interesting to note the rock inscription at the Kandahar is multi-lingual, which includes Classical Greek.

Figure 40: Multi-lingual rock inscription (Kandahar)

7.6 Ancient leaders and the role of Patrons

The previous sections discussed the powerful leaders and their impact in the regions. In applying Coulton's theory, it is evident that they also played the key role of *Patrons*.

From the Mauryan kingdom, Buddhism was the initial mode of contact with Sri Lanka. However, it is not unreasonable to imagine that the relationship may have extended beyond religion. If the technical knowhow and artisans were also part of that interaction, then it provides a plausible mode for disseminating the technical knowhow between the countries.

8 Hellenistic influence on the Art and Culture

Despite the brief time in which Alexander the Great's conquests occurred, and the swiftness with which they were divided up amongst his successors, they transformed the Middle East and northern India for centuries. Cities were populated by Greek settlers and became centers for the spread of Greek civilization. The waves of Greek cultural influences continued beyond the political boundaries of Hellenism. In the Figure below, the statue of a southern Arabian king is depicted in traditional Greco–Roman attire (found in the southern coast of the Arabian Peninsula).

Figure 41: Coin of the Himyarite Kingdom

During the 2nd or 1st centuries BCE Greek sailors had explored the Red Sea and Indian Ocean coasts of north-east Africa, Arabia, Iran, and northern India. They had discovered the trade winds called *Monsoons*, which, once mastered, greatly aided voyages to India. Sailors and merchants ran the maritime trade routes between India and Arabia. Until the 1st century CE, Indian goods were traded across the sea and crossed Arabian ports before being furthered across land routes crossing the desert via caravans reaching consumers to the north. The famed Greek historian Herodotus was raised in Halicarnassus, on the Carian coast of modern Turkey. This points to the existence of hybrid cultures in the era.[50]

8.1 Gandhara civilization and major cities

The Gandhara Civilization existed in what is now Northern Pakistan and Afghanistan from the middle of the 1st millennium BCE to the beginning of the 2nd millennium CE. It was a center of Buddhism in ancient days. The Hellenistic influence on art and architecture is quite evident in Gandhara. In the figure below the Greek hero Heracles was adopted to represent Vajrapāni, the protector of Buddha.

[50] Higgins 2013

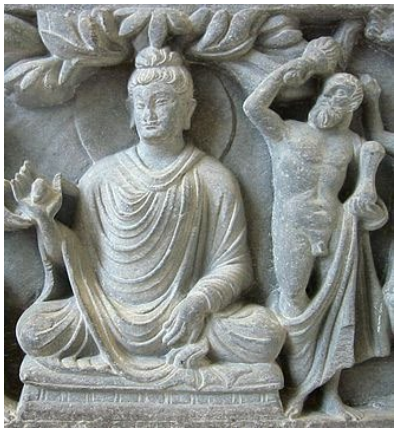

Figure 42: Buddha and Heracles as protector (Gandhara)

The greater Gandhara region is considered to be one of the best examples of the artistic impacts of the Greeks and Romans. Asoka introduced Buddhism to Gandhara and Afghanistan in the third century BCE. Several of his edicts were engraved on numerous boulders (Shahbazgarhi, Mansehra, Laghman, Pul-i-Darunta, Shar-i-Kuna, Kandahar) and on a column in Taxila. These edicts were written in many languages, specifically Aramaic, Greek, and Kharosthi, suggesting the cultural and ethnic diversity in the region. According to the Sri Lankan religious text Mahavamsa, after the Third Buddhist Council in c. 249 BCE, Buddhist missionaries were dispatched by king Asoka to many parts of the region including Sri Lanka and **Yona** country (possibly Bactria in northern Afghanistan where the Greeks settled down). Additional details on the Hellenistic influence are discussed throughout the paper.

Some of the major cities and their archaeological importance are discussed below next.

8.2 Sirkap and Taxila

Sirkap is an ancient city on the Indo-Pak border, opposite to the city of Taxila, Pakistan. It was first established by the Greco-Bactrian king Demetrius around 180 BCE and rebuilt by another Bactrian king, Menander I. The site of Sirkap was built according to the grid-plan characteristic of Greek cities. It was organized around a single main avenue with fifteen perpendicular breaching streets that overall covered a surface area of approximately 1200 by 400 meters. The famous ruins include the round stupa (shrine) and the double-headed eagle stupa as pictured below.[51]

The presence of stupas indicates a strong Hellenistic influence on early Buddhist statues. The ‘double-headed eagle’ stupa displays Corinthian columns, indicating Greek influence. This claim can be justified chronologically, in that, the double-headed eagle stupa was founded circa 80 BCE while the Corinthian order has been used for centuries prior.

[51] Naveed 2015

Figure 43: The Round Stupa in Sirkap and Double-headed eagle Stupa in Sirkap

Hadda (Afghanistan) has a rich collection Indo-Greek artifacts. It was one of the principal Buddhist pilgrimage centers. Chinese monk Fa-Hsien visited the site and mentions many of the shrines and monasteries in the region. The Greek divinity Atlas is represented holding Buddhist monuments with decorated Greek columns. The motif was adopted extensively throughout the Indian sub-continent, Atlas being substituted for the Indian *Yaksa* in the monuments of the Shunga Empire around the 2nd century BCE.

Nearby 'Tapa-Shotor' contains fabulous clay and stucco sculptures. The seated Buddha is a wonderful example of the Greek influence, as well as the unmistakably Greek two followers on either side of the statue. Unfortunately, extremists destroyed the statue in 1992.

Figure 44: Seated Buddha at Hadda (demolished)

8.3 Jandial

Known as the most Hellenic structure found on Indo-Pak region, Jandial is a striking example of Greek influence in architecture. Jandial is located across from Taxila, Pakistan and may have been built in the 2nd century BCE by the Indo-Greeks living in the region.

The monument showcases Classical elements essentially modeling a Greek temple. The 45m x 30m structure contains a naos, pronaos and an opisthodomos in the rear.[52] Significantly, there aretwo Ionic columns at the front that are framed by two anta walls. Thick-walled stairs between the naos and opisthodomos led some authors to consider that it was designed to support a ziggurat as in a Zoroastrian or a Magian temple[53]. In addition, the Ionic capitals of Jandial seem to be a localized version of the Ionic Temple of Artemis at Ephesus[54]. Further architectural elements such as the purity of the bases' designs, the wall moldings, and dowels joining the drums all suggest Greek influence. Some suggest Greek supervision or perhaps direct construction by the Greeks[55]. It is estimated that the Temple was built in the second century BCE and perhaps under the Greeks in India (Indo-Greeks).

The exact alignment of the Temple with Sirkap leads some authors to think that it may have been built during the main occupation period of the Greek city. The design may have been the work of an architect from Asia Minor, or from Greece or someone trained in Greece.[56]

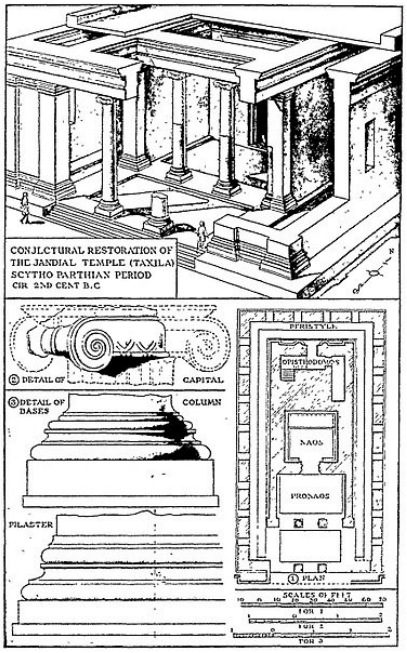

Figure 45: Conjectural restoration of the Jandial Temple

[52] Cohen 2013, 327
[53] Cohen 2013, 327
[54] Samad 2011, 62
[55] Rowland 1935, 493
[56] Rowland 1935, 491

8.4 Ai-Khanoum

Situated in the modern-day north-eastern Afghanistan, Ai-Khanoum is believed to have been founded by Alexander in 327 BC.[57] Furthermore, Ai-Khanoum exhibited all the characteristics of a Classical Greek city; a large gymnasium, an amphitheater, and temples to Greek gods complete with colonnaded courtyards. Greek-style sculptures and artwork littered the entire site, including column capitals carved in the Corinthian style.[58]

Figure 46: Column Capital (Ai-Khanoum)

8.5 Ad Deir

Ad Deir ("Monastery") is a building carved out of and inlaid into the natural pink sandstone of Petra, Jordan, and surrounded by mountains. The architectural significance is that it is a mixture of Hellenistic and Mesopotamian styles of construction. The Greek influence can be seen in the columns, which are constructed in an abstracted Corinthian style. The columns are not for weight bearing purposes, as the entire structure is carved directly into the rocky hill.[59]

Figure 47: Ad Deir, Petra (Photo credit: Wikipedia) and Corinthian capital (Photo credit: Alamy)

[57] Martinez-Seve 2014
[58] Hamer 2018
[59] UNESCO, Petra

9 Hellenistic Influence on the Architecture

Classic examples of ancient Indian architecture that showcase the Hellenistic influence is presented next.

Between circa 320 BCE and 550 CE a new wave of architecture arose in Ancient India. Known as the 'Classical era', it was led by the Mauryan Empire. A key location for the empire was the ancient capital city Pataliputra (modern-day Patna, India). The ancient Greek ambassador Megasthenes describes Pataliputra as an urban marvel. King Asoka erected monolithic columns ('Pillars of Asoka') throughout his kingdom. The pillars are noteworthy for their inscriptions of edicts. They were generally constructed next to Buddhist stupas.[60]

Figure 48: The Pataliputra capital and Sanchi Thorana (ceremonial gateways)

Following initial attempts at Sanchi stupa No.2 (125 BCE, later stupas were soon to be richly decorated with sculptural reliefs. Images and scenes of the life of Buddha were sculpted into fully-fledged decorations and were seen at Bharhut (115 BCE), Bodh Gaya (60 BCE), Mathura (125–60 BCE). An example of a stupa is shown in the figure above. The ceremonial gates or '*thorana'* were erected at Sanchi (1st century BCE/CE) and then at Amaravati (1st–2nd century CE).

The northwestern region of the Indian subcontinent is one heavily traveled with foreigners from central and western Asia passing into India. Through them, a diffusion of ideas elapsed as well as religion and art styles. Persian, Greek, central Asian, even Chinese influences arrived along the great trade routes of western and central Asia, and on the northwestern borders of India, which created a rich and hybrid culture.

An essay from the Metropolitan Museum of Arts claims that in the earliest Buddhist art of India, the Buddha was not represented in human form. His presence was indicated instead by a sign, such as a pair of footprints, an empty seat, or an empty space beneath a parasol. According to Cambridge professor Dr. Vidya Dehejia, *"the human image of one Buddha came to dominate the artistic scene"*[61] since the first century CE. In the Gandharan region along India's northwestern border was one of the first sites the propagation of the artistic Buddha began. and one of the first sites at which this occurred was along India's northwestern frontier. *"Artistic elements from the*

[60] UNESCO, Ajanta Caves
[61] Dehejia 2007

Hellenistic world combined with the symbolism needed to express Indian Buddhism" [62] in this area and created a unique merged style. Youthful Buddhas can be found with stylized hair arranged in Romanesque wavy curls resembling Apollo. Additionally, Buddha's monk robe covers both shoulders and were arranged to resemble the Roman toga, sculpted with heavy classical. [63] The transition from a symbolic representation to a robust Romanesque form shows gradual integration of ideas from the West as well as a way to continue preserving Buddhism. Moreover, it is also important to address the fact that this region of ancient India was able to combine foreign elements into their religious representation which allows consideration of transmission of design onto religious architecture.

9.1 Ajanta Cave

The Caves in Ajanta are approximately 30 rock-cut Buddhist cave monuments dating from the 2nd century BCE to about 480 CE in north-west India. They are considered masterpieces of ancient Buddhist arts and architecture.

During the time of the Buddha, Buddhist monks were also in the habit of using natural caves, such as the Saptaparni Cave in Bihar, India. This location has religious importance as it is generally associated with where the Buddha spent his last days. Initially the caves functioned as a place of residence sheltering the monks from the elements. Later, the elaborately architected caves were also a form of expression for the religious arts. Especially in the case of magnificent Ajantha and Ellora caves, the Greek influence is unmistakable.[64]

Figure 49: Ajantha Cave #26 (Photo credit: Sandeep Dey)

[62] Dehejia 2007
[63] Dehejia 2007
[64] Gwynne 2017

The construction of caves would wane after the 2nd century CE, possibly due to the rise of Mahayana Buddhism as well as the associated intense architectural and artistic labor involved in Gandhara and Amaravati construction. The building of rock-cut caves would revive briefly in the 5th century CE before finally subsiding, as stand-alone temples became more prevalent.

9.2 Pataliputra

One example is a column capital from the former capital city of Pataliputra, located in northeastern modern-day India. The structure is dated back to the 3rd century BCE which coincides with the ancient Mauryan Empire.

The heavy influence of Classical Greek designs can be seen from the repeating rosettes aligned in a single row as well as volutes with additional central rosettes. In addition, the bead and reel molding motif, while not entirely a Greek design, exhibits such characteristics along with the wave-like scrolls and robust flame palmette. However, because some of these designs are not entire of Greek origin, the Pataliputra capital design can be described as "quasi-Ionic," which could reveal additional architectural motif influences from the Near East.[65]

Figure 50: 3rd century BCE capital (Pataliputra, India)

[65] Hutton 2015, 438

9.3 Bairat Temple

Bairat is a Buddhist temple built during the time of king Asoka. It is a free-standing circular structure with an outer diameter of 5.6 meters. The significance is that it is one of the earliest circular shrines in the region. Today only the outline of its brick foundation remains. These circular-type temples were also found in later rock-hewn caves such as Guntupalli caves in east India, dated to be from 200 BCE.

Figure 51: Guntupalli caves in east India

The Bairat temple is another circular-shaped religious structure that housed a central stupa. The temple was also surrounded by a ringed colonnade and an enclosing wall. The restored elevation of Bairat is about 6 m high and probably consisted of two tiers.[66] The primary lower tier was surmounted by a dome that terminates in a finial; originally it might have been embellished with murals. The influence of this temple has been suggested as originated from the ancient Greek peripteral temples, with columns continued around the structure.[67] However, ancient circular timber structures certainly existed in India long before the Greek arrival and likely the prototype for Bairat.

Figure 52: Bairat Temple – Foundation and the conjectured double roof

[66] Phuoc 2010, 255-256
[67] Phuoc 2010, 233-237

9.4 Asoka Pillars

The Sphinx of Naxos at the Delphi Museum is compared with the Asoka pillar in the Figures below. The Sphinx of Naxos was constructed around 560 BC as a tribute for the Temple of Apollo. In its prime, the sphinx sat upon a 12-meter stele (the pillar) using an Ionic order. The pillars of Asoka in India dates back to the 3rd century BCE. This is important on several points. it is assumed that prior to this period, much of Indian architecture was built with wood, and these pillars' stone construction shows Persian and Hellenistic influence. The adaptation of decorative motifs as well as imposing lions are indications of the transmission of design.

Figure 53: Sphinx of Naxos and Column of Asoka

9.5 The Butkara Stupa

Butkara stupa ruins are located in the modern-day Swat, Pakistan. It was an important Buddhist stupa and was rebuilt by King Asoka, who reigned from c. 268 - 232 BCE. The core of the sacred area of Butkara I is the Great stupa, which is surrounded by 227 minor monuments, such as shrines, small stupas, and columns, of different periods.[68]. It was excavated by Italian archaeologist Domenico Faccenna and his team in 1956.

The Greek influence in the region is well expressed in the following quote*: "The diffusion, from the second century BCE, of Hellenistic influences in the architecture of Swat is also attested by the archaeological searches at the sanctuary of Butkara I, which saw its stupa "monumentalized" at that exact time by basal elements and decorative alcoves derived from Hellenistic architecture" [69]*

[68] Baig 2019
[69] Callieri 2003, 212

Figure 54: Indo-Corinthian capital from Butkara – a Buddhist devotee wearing a Greek cloak (National Museum of Oriental Art, Rome)

The Butkara structure was not a completed as one piece. It was enlarged on several occasions in the centuries afterward, while adding to the earlier form. This situation is similar to the Vatadage construction in Sri Lanka, in that the improvements were added after the initial construction of the structure. Also, the Hellenistic architectural decorative additions became part of Butkara during the 2nd century. This aligns with the Greek occupation in the region succeeding Alexander's campaign, and firmly establishes the Greek influence in Buddhist architecture. Suchfacts indirectly support the transfer of architectural characteristics to ancient Sri Lanka.

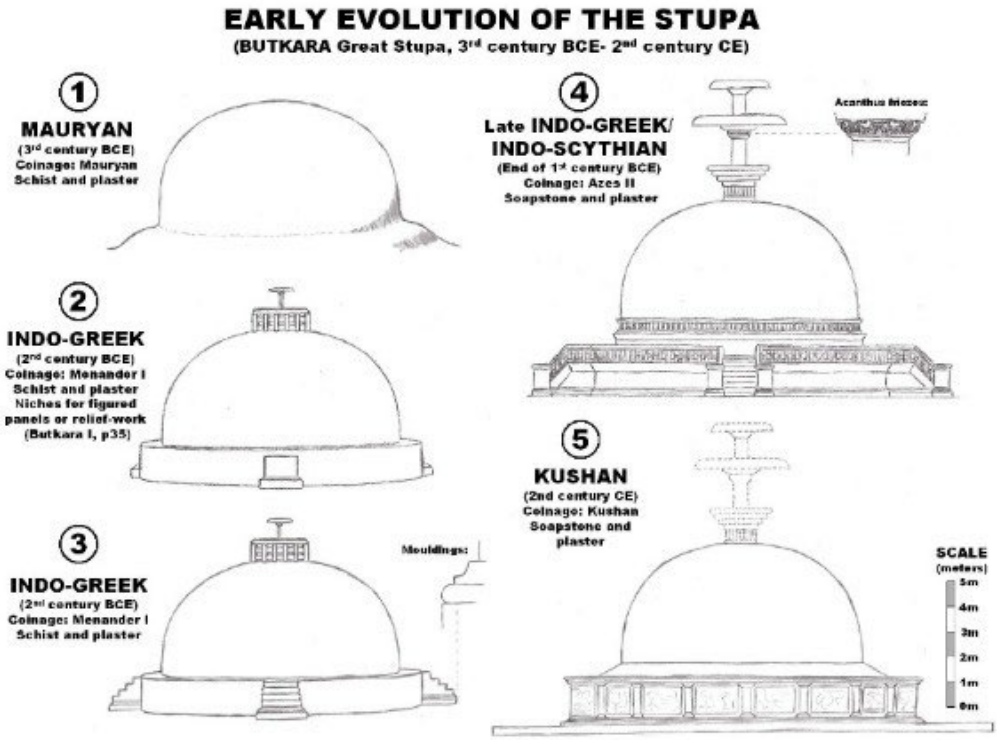

Figure 55: Evolution of the Butkara stupa, indicating the possible Greek influence

10 Ancient Sri Lanka and Greek References

The relationship between Greece and Sri Lanka in ancient times is analyzed in two ways. First, evidence of interaction, such as commerce is described. Next, evidence of Greeks living in ancient Sri Lanka presented. These corroborate the plausibility of architectural transmission of design. Counter arguments are also presented for a balanced view.

10.1 Sri Lanka and its myriad names

The mentioning of the country's name is a good starting point. Depending on the region, Sri Lanka has been referred to under many names. During the British rule, it was called "Ceylon." Another name, "Swarna-dweepa" is Sanskrit for *golden island.* To the Persians and the Romans, the country was named in variations of a shortened Sanskrit form: "Serendip" (Interestingly the word, *serendipity* was coined by Horace Walpole to describe accidental finds). As we see, there are many monikers. But the most important to this research is one that has been referenced since the 4th century BCE, "Taprobane." The name has Sanskrit roots to Tamba-Panni, which translates to copper-colored land, referencing the muddy, copper color beaches of the landing point of first arrivals from northern parts of India.

The Arab traveler Ibn Batuta referred to Sri Lanka as "Serendib" (The Island of Rubies). The country was also known as "Saheelan" (or Seylan) by the Arab traders. That term rhymes with "Ceylon", the name by which the country was known to Europeans.

10.2 Ancient references of Sri Lanka

There are several accounts on "Taprobane" by ancient Greek scholars. Famous ancient chronicles such as De Mundo treatise and *Histories* by Herodotus referenced the island. Ptolemy documented its coasts, rivers, and seaport towns. Pliny the Elder lived in the Roman period but compiled accounts of other historians and ambassadors. One such individual is Annius Plocamus who was ship-wrecked and drifted to Taprobane and spent six months there. He mentions about the kindness and hospitality of its inhabitants. The king also sent a delegation to the court of the Roman emperor, Claudius Caesar (AD 41-54).[70]

[70] Weerakkody1987, 22

Figure 56: Ptolemy's map of Taprobane (note the exaggerated size)

10.3 Ancient references to Ionians – *Yavana, Yona, Javan, Yawan*

"Ionian" refers to several groups in ancient Greece, and more specifically to those who lived in the region of ***Ionia*** in Asia Minor. Persians called them Yauna - which in Sanskrit was *Yavana.*[71] However, the Yavana/Yona name, and those who were so-called by the Indians appearto have pre-dated those who came to India with Alexander's troops. For example, the ancient Indian scholar Panini (circa 5th century BCE), mentions familiarity with *Yavana* and their script.[72]

Belyalkar also makes a strong argument regarding the oft quoted word, *Yavana* (and the female formation *Yavanani*). According to him, the 'v' sound in the word ' Yavana' represents an original digamma (double-gamma); and as the digamma was lost as early as 800 BCE, the Sanskrit word 'Yavana' must be at least as old as the ninth century BCE.[73] This is an interesting conjecture as it counteracts the general assumption that the Greeks came to the east only after Alexander's expedition. There is also the linguistic connection to the Semitic language. In the Old Testament, Ionians were referred to as Javan (Yawan). For the purposes of this analysis, Yavana and Yona refer to Greeks who lived in ancient India, and they may also be in Sri Lanka.

[71] Peris 2006, 2
[72] Pande 1984, 19
[73] Belyalkar 1997, 13

10.4 Historical References of Sri Lanka by Greek Scholars

There are several Greek scholars who claim to have either been to "Taprobane" or have heard accounts of the island country. Regardless of the case, the following people have taken note of Sri Lanka's existence.

- *Herodotus* (c.484 BCE – c.425 BCE) published famous ancient chronicles such as De Mundo treatise and Historiesand have referenced the island.
- *Pliny the Elder* (c23 AD – 79 AD) lived in the Roman period but compiled accounts of other historians and ambassadors. One such individual is Annius Plocamus who was ship-wrecked and driftedto Taprobane and spent six months there. He mentions about the kindness and hospitalityof its inhabitants. The king also sent a delegation to the court of the Roman emperor, Claudius Caesar.
- *Claudius Ptolemy* (c.100 AD – c.170 AD) documented its coasts, rivers, and seaport towns.
- *Onesicritus:* (360 BCE – c. 290 BCE). Historical writer who accompanied Alexander on his campaigns) Informed them that the elephants of this (Taprobane) island are larger, andbetter adapted for warfare.
- *Megasthenes:* (350 BCE-290 BCE). Ancient Greek historian, diplomat and Indian ethnographer and explorer in the Hellenistic period.) noted that Taprobane was divided by a river (Mahaweli), that the inhabitants have the name of Paleogoni, and that their country is more productive of gold and pearls of great size than even India.
- *Eratosthenes:* (276 BCE-194 BCE). Greek mathematician, geographer, astronomer among other titles and chief librarian at the Library of Alexandria.) He had given the dimensions of this island, as being seven thousand stadia (Ancient Greek/Roman unit of length. 1 stadia = about 607 feet / 185 meters) in length, and five thousand in breadth: he states also that there are no cities, but villages to the number of seven hundred.

Strabo, in particular, mentions Taprobane's international commercial ties. According to him, *"Taprobane sends great amounts of ivory, tortoise-shell and other merchandise to the markets of India."* Given its highly prized materials, Taprobane is marked as an especially noteworthy country. Another important document that revealed ancient Sri Lanka's economic significance was the *Periplus* was a manuscript that logged ports and coastal landmarks. From sources such as these, it can be inferred that Roman merchants were interacting with Sri Lankan trade. These Roman merchants would have engaged in trading for the same merchandise Strabo noted. Pliny also informs that, *"to procure pearls Indians go to the islands, the most productive of which is Sri Lanka."*

Pliny writes that another point of contact with Sri Lanka was made by a freedman working for Roman businessman, Annius Plocamus. Pliny's records state that Annius Plocamus had obtained a contract from the Treasury to collect the taxes from the Red Sea. While the ship was sailing around Arabia it was caught in heavy winds: *"While sailing round Arabia the freedman was carried by gales from the north beyond the coast of Carmani. After a fortnight, he arrived at the harbour of Hippuri in Taprobane, where he was entertained with kindly hospitality by the king. In a period of six months, he acquired a thorough knowledge of the language."*[74]

[74] McLaughlin 2014, 16

One of the earliest known visitors to Sri Lanka from China was Faxian, a 5th-century Buddhist pilgrim from Shanxi who travelled overland from his home through present-day Nepal, Pakistan, and India before coming to Sri Lanka, where he stayed from 410 to 414. After staying for ten years in India and two years in Sri Lanka, he brought back to China a great number of copies of Buddhist texts and translated them from Sanskrit into Chinese.[75]

10.5 Sea trade as a mode for transmission of design

Since ancient times, Kerala in India and the port cities of Sri Lanka were important for ongoing sea trade in the region between Arabia and China. The ships sailing along the coasts used the ports, but the link was not just based off trade. These ports also led to cultural and religious ties as well. From the home of Buddhism on the north of India, and the spread of Buddhism into close-by Sri Lanka, constant migration between the regions were fostered. Historical records indicate King Gajabahu (144-136 CE) of Sri Lanka attended the consecration of a deity image in Kerala, India.[76] Chinese historian, Ma Huan, writes in his record of 'General Chen Ho's journeys' a reference to a country called, "Quilon," and notes it *of having a Buddhist king.* (Pronunciation of Quilon may be Chi-lon, which rhymes with Ceylon/Seylan, former names of Sri Lanka).

10.6 Greeks living in ancient Sri Lanka (Taprobane)

There were several historians who have either traveled long distances and visited ancient Sri Lanka or have recorded the accounts of others who visited the island. Ptolemy world map (circa 150 CE) is an example of relying too much on hearsay than checking the facts. Taprobane is exaggerated to the size of India, (though actually it is about one-fiftieth the size of India).

Figure 57: Ptolemy's map of the ancient world

[75] Aryon 1998
[76] Kumar 2018, 178

One interesting fact is that there were Greeks residing in ancient Sri Lanka. They were known as "Yonas" by the Sinhalese. The Sanskrit equivalent is "Yavana", a transliteration of the Greek word "Ionians."[77] (A clarification to be noted is that the term 'Yavana' was later used for Muslim people in the Bactrian area, however that was after the Mongol invasion in the 13th century.) The original Yonas living in Sri Lanka (mainly in the ancient Buddhist capital, Anuradhapura) have been referenced in ancient literature. The fact that Greeks were living in Sri Lanka, albeit a short period, supports the possibility knowledge sharing, as this group (along with others interacted via sea trade), may have played the part of either *Architects* or *Workmen* in Coulton's hypothesis.

Professor Merlin Peiris, in his opening chapter on "Greeks in the Mahavamsa,"[78] describes the Greek presence as early as the 4th century BCE. It is claimed that the Yonas were accorded a separate quarter in the city. Yonas settling in and establishing their own quarters in the Capital "implies *a very prompt reaction*" of ancient Sri Lanka to the developing conditions "*brought about by Greek penetration into north-west India after Alexander the Great.*" [79] And furthermore, the Greeks spanning their conflict with King Chandragupta continue to breach further and establishing satrapies. In addition, Alexander built fleets when he withdrew his forces to enable his navigator, Nearchus, to sail even beyond the Indus Delta. *"Peris suggests that to such Greeks it would have been no formidable task to have made the voyage to Sri Lanka on the then much- traversed route along the west coast of India and gain information they needed from the well frequented ports along the coast."*[80]

10.7 Ancient trading patterns – From Rome to Tanzania

Ptolemy's exaggerated map of Taprobane could be a representation of Sri Lanka's importance. However, another possibility is that the merchants might have misinformed Greek traders about the scale and character of Sri Lanka to discourage Roman captains from sailing around the island to markets in the Bay of Bengal on the eastern India.

Similar such theory was based off misinformed accounts from Arab traders who traveled much further south along the African coast down to Rhapta, an outpost in modern-day Tanzania. Roman merchants assumed that this unexplored landmass might be part of Sri Lanka. It may be a case of mistaken identity as both regions have similar flora and fauna, such as palm trees. In recent years, Professor Felix Chami has found archaeological evidence that suggests extensive Roman trade on Mafia Island and, not far away, on the mainland. Such trading is dated to the first few centuries CE.[81]

[77] New World Encylopedia, Yona
[78] Peris 2006, 6
[79] Weerakkody 1997, 38
[80] Weerakoon 2012
[81] Chami 1999, 237-242

10.8 Numismatic evidence

The earliest unit of currency known in ancient Sri Lanka is referred to as a Kahapana (punch-marked coins). The 'Kahapana' had been in use in Sri Lanka from 3rd century B.C. to 1st century CE. They were excavated in a dozen or more locations in the country, including the then capital city, Anuradhapura.[82]

Clear proof that Sri Lanka was a functioning seaport in the past comes from the foreign coins used during the Anuradhapura era. A great number of Greek, Roman, Chinese, Arabic and Indian coins used in international trade were excavated in Anuradhapura and other locations throughout the country. The second most ancient coin, next to kahapana, was an Indian-standard drachma of the Indo-Greek king Menander.[83]

Several types of Copper Roman coins were used in Sri Lanka. These coins were minted in Rome. The fact that these coins were found all over Sri Lanka indicates that they were widely in use at the time. Majority of these coins belong to the 4th and 5th centuries CE. This implies that a great deal of trading occurred between the Roman Empire and Sri Lanka. Additionally, due to high circulation and consequent ware and tare, these coins have a tattered appearance.

Figure 58: Ancient Coins found in Sri Lanka

[82] Central Bank of Sri Lanka
[83] Bopearachchi 1996, 47

10.9 Hellenistic Influence in ancient Sri Lankan Arts

Figure 59: Buddha statue in Colombo Museum (left) in comparison to Gandhara style (right)

The photo on the left is from the Anuradhapura period between 3rd and 5th century CE (Colombo Museum). The photo on the right is from Gandhara civilization which indicates heavy Bactrian influence. The two photos show some similarities, such as the intricate details of the robes. However, there are major differences as well, such as in the hair and the covering of the shoulders. It appears the Sri Lankan Buddha statue portrays a more home-grown style. However, that begs the question, "*Why was the full Hellenistic influence missing from ancient Sri Lankan religious art?"* After all, Buddhism arrived in Sri Lanka in the 3rd century BCE.

One explanation is that the situation in Sri Lanka was different. Sri Lanka did not experience a Greek invasion like Alexander's expedition into the Afghan-Indo-Pak regions. In India, although Chandragupta Maurya pushed the Greeks out, he kept good relations with them by marrying the daughter (Helena) of the Greek king Seleucus Nicator. This set the stage for centuries of inter-relationships with the Bactrian kingdoms, enabling Greek influence to flourish. In the case of Sri Lanka, Buddhism's arrival occurred towards the end of King Asoka's reign, and the sun was setting on the once powerful Mauryan empire. (Note: Asoka was the third monarch of the Mauryan dynasty. Asoka's father was King Bimbisara, and his grandfather was King Chandragupta).

Soon after Asoka's death, the Mauryan dynasty disintegrated. It was no longer the patrons of Buddhism. Thus, it can be surmised that the contacts with Buddhist Sri Lanka also waned. That may explain why a full-blown Hellenistic influence was not manifested in ancient Sri Lankan architecture. On the other hand, there is historical evidence of strong ties between Sri Lanka and the Greco-Roman world, as exemplified by the ancient coins found on Sri Lankan soil as well Ptolemy's exaggerated map of Sri Lanka. This evidence suggests that, even without royal

patronage, the connections at artisan level may have continued through maritime and overland trade routes, contributing to a certain level of Hellenistic impact in Sri Lanka.

Another interesting fact is that in the early centuries after his death, Buddha was portrayed in symbolic form only, in both India and Sri Lanka.[84] It may be because of the *Anitya* (impermanence) philosophy of the religion. In contrast, the well-known anthropomorphic forms displayed in Gandhara happened centuries later. It is also established that the primary impact for Gandhara arts and architecture was the Hellenistic influence from the Bactrian Greeks.

10.10 Mauryan Polish

The very smooth and shiny surfaces of Mauryan artifacts are known as 'Mauryan polish'. It is believed the artifacts may have been influenced by the Achaemenid or Hellenistic styles. While exact replications of these are not found in Sri Lankan statuettes, two notable examples are mentioned below.

Figures below compare a statuette from the Mauryan era with a seated Buddha from Anuradhapura, Sri Lanka (8th century). The Buddha statuette is currently at the Metropolitan Museum of Arts, New York.

Figure 60: Mauryan polished Lohanian torso (Pataliputra), dated 3rd c. BCE (left) and Sri Lankan Buddha statuette (right)

In addition to the polished statuettes, Sudama caves in the Barabar granite hill area in India have fine examples of mirror-like reflective walls.[85] In the next section, these are compared with a mirror wall from ancient Sri Lanka.

[84] Dehejia 2007
[85] Dokras 2020, 2

Sigiriya, Sri Lanka

Sigiriya is a natural rock fortress in Sri Lanka from the 5th century CE. (etymology: Sigiriya is a shortened form for 'Sinha-Giriya' which translates to 'lion rock'. It bears the name from the gigantic lion constructed of bricks and plaster at the entrance to the site. The origin of the name can be compared to Singapore which originated from 'Sinha Pura' or lion city). At Sigiriya, the original lion statue no longer exists, partly due to vengeful wars. The only parts remaining are its impressive paws, which are about 4 meters high. The rock is 180 m high with steep slopes on all sides. The access is via stairs and platforms constructed around the rock.

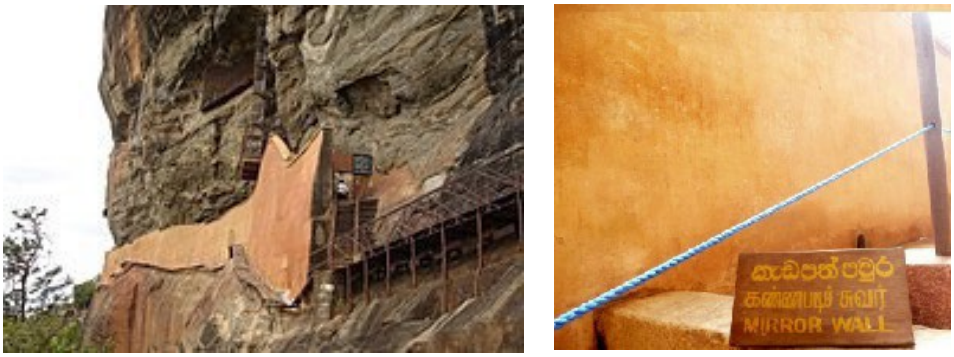

Figure 61: Sigiriya Mirror Wall (Sri Lanka)

The 'Mirror Wall' is a wall with a very smooth surface. According to historical records, the original wall was highly reflective like a mirror. There is some similarity compared to the 'Mauryan polish' examples from Barabar caves, India. However, the technical process may have been different than at Barabar caves, which used fine abrasives.

The following is an interesting excerpt from a UN report: *"The famous mirror wall at Sigiriya in Sri Lanka was painted with a mixture containing resins, egg white and beeswax, polished to a very high sheen. It can still be observed after more than 1500 years…Some of the wall paintings in Pompeii, Italy, prepared with coloured beeswax are still admirable after 2000 years."*[86]

Two examples were presented in this section which compared the polished artifacts from ancient Indian and Sri Lankan kingdoms. The reflective walls and the polished statuettes from two different regions show resemblance, but establishing ToD is difficult. While there is ample evidence for modes of transmission between the two regions (as discussed in chapter 10.5), no previous research has been done comparing the specific artistic techniques.

The excerpt from the UN report can also be interpreted to mean that such techniques could have been independently developed even in disparate regions. Another interpretation is that the Pompei paintings is one example of the prevailing technologies at the time. Alexander's eastward campaign and the transmission of Buddhism may have paved the way for such technologies to be transmitted to ancient Sri Lanka in the ensuing centuries. Further research is warranted for a conclusive determination.

[86] Krell 1996

11 Symbolic Significance

Up until this point, architectural and engineering aspects were discussed in comparing the tholosand Vatadage. In this section a different characteristic of the ruins is considered. That is, the purpose why they were built.

The symbolic significance of the two types of structures also reveals interesting similarities, in addition to the architectural comparison. It is clear that they are both religious structures, albeit for different purposes. At Delphi, it was constructed for the Pythia, the high priestess of the Temple of Apollo.[87] She was also known as "the Oracle of Delphi." People and states sought the oracle's wisdom to find out something like what awaits them in their future or to have justification for a decisive military move against another country etc. She appears in Greek myth as well as Greek history such as the story of Perseus and the decision of Croesus, the King of Lydia.

The tholos at Epidauros is close to the Sanctuary of Asclepius. Ancient author Pausanias references the tholos in its proximity to the Sanctuary but does not reveal its exact purpose. However, one possibility is that the tholos served a tomb for Asclepius, according to the site excavators.

At the Medirigiriya Vatadage, it was to house the relics of Buddha. The "dages," or shrines were under the patronage of kings and were highly respected. The Vatadage once held the relic of the tooth of the Gautama Buddha (~480 BCE-400 BCE), from whose teachings, Buddhism was founded. There were many "dage," (relic-house or shrine) that have been constructed while the religious relic migrated around the country during the reigns of different kings.

In summary, both the tholos and Vatadage were built for similar purposes, as such some form of similarity would not be uncommon.

[87] Theoi, Python

12 Conclusion

The scope of my thesis was to study the architectural aspects of Tholos and Vatadage. Although the countries are thousands of miles apart, the structures resemble some similarity. My intent was to conduct a more in-depth comparison via in-situ measurements. Unfortunately, due to ongoing travel restrictions I was not able to visit Sri Lanka. This gap was filled using material accessible online as well as contacting Sri Lankan resources and air-mailing relevant books.

In my analysis, two possible paths of influence were presented. The first is the well-known influence through the arrival of Buddhism in Sri Lanka in the third century BCE. The other is the historical records on the direct links between the two countries. Ptolemy's map of Sri Lanka *(Taprobane),* and the ancient coins found in Sri Lanka are examples of this.

Direct historical records of Greek interaction with Sri Lanka are scant and hard to obtain. On the Sri Lanka side, there is renewed interest on archaeological studies. However, the thirty-year civil war, the bombings and recent economic downturn have made historical studies a low priority. On the Greek side, the pandemic has prevented me from conducting research at the libraries.

In the present study, transmission of design principles were referenced in the analysis of architectural, historic, and symbolic characteristics. Coulton's method described several modes how the transfer could occur. In applying his theory, the roles played by each group were identified: Bactrian satraps such as Menander's *Patronage* helped bring Hellenistic architectural traditions via Silk Road to north India. Similarly, the *Architects* and *Craftsmen* may have transmitted the knowhow via travel during the spread of Buddhism in the Indian subcontinent. Finally, maritime and overland trade during Greek and Roman times may have contributed to the movement of skilled *Workmen*.

Historical data were presented to illustrate the ties between the two countries, including the proof of Greeks living in Sri Lanka. The Sinhala (and Pali) term *'Yona'* etymologically links to "Ionians." The fact that Greeks were living in Sri Lanka, albeit a short period, supports the possibility of knowledge dissemination, as this group (along with others interacted via sea trade), may have played the part of either *Architects* or *Workmen* in Coulton's hypothesis.

From the Mauryan kingdom, Buddhism was the initial mode of contact with Sri Lanka. A hypothesis was formed that the relationship may have extended beyond religion. If technical knowhow and artisans were also part of such interaction, then it provides a plausible mode for the transfer of technical know-how. The question, "*Why was the full Hellenistic influence missing from ancient Sri Lankan religious art?* was addressed. The explanation hypothesized was that the situation in Sri Lanka was different. There was no Greek invasion as happened in Afghan Indo-Pak region (Alexander's expedition). In the case of India, although Chandragupta Maurya pushed out the Greeks, he kept good relations with them. This set the stage for centuries of inter-relationships with the Bactrian kingdoms, enabling Hellenistic influence to flourish. In the case of Sri Lanka, Buddhism's arrival was towards the end of King Asoka's reign, and the sun was setting on the powerful Mauryan empire, hence the influence was limited.

There are several similarities (as well as differences) between the Sri Lankan vatadage and the Greek tholos, just as with the statues. The Greek architectural influence is still plausible, with the differences in the columns indicating how the *transmission of design* was adapted based on the construction material and technology available.

In addition to the architectural and engineering aspects, the symbolic significance of the two types of structures was also analyzed. They are both religious structures, albeit for different purposes. At Delphi, it was constructed for the Pythia, the high priestess of the Temple of Apollo. At the Medirigiriya Vatadage, it was to house the relics of Buddha.

Finding hard evidence for the Hellenistic influence in Sri Lanka is difficult because the evidence has mostly erased due to invasions and wars over the centuries. Another complication is differentiating between the transmitted vs. indigenous/home-grown architectural characteristics. Regardless of the final outcome on the Hellenistic influence in ancient Sri Lanka, pursuing further research would be impactful.

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