

Establishment of Cooperation Network for Safeguarding and Utilization of Cultural Heritage in the Mekong Basin Countries Future Possibility Considering from Comparative Study in Angkor-Cambodia, Hue-Vietnam and Japan

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Abstract

Angkor monuments are characterized by a structure with dry masonry and corbel arch standing on a high foundation constructed by rammed-earth layered soil. This structural engineering is considered to have likely been affected and developed by the climate, weather and geological condition of Angkor area. In addition, although a basic method of plan layout is hierarchical axuality and symmetrical arrangement, a central axis of a monument is slightly shifted from that of its' site in a conscious way. This declination can be considered as an arrangement to harmonize composition elements by placing historical and new values in the two axes: the central axis of the site representing traditional cultures as a sacred land, and that of the monument representing a new culture coming from the outside as an architectural style. Thus, Angkor monuments have such remarkable characteristics of harmonization among natural climate, native tradition and new cultures, and this tendency can also be seen commonly in cultural heritage in Hue, Vietnam and Japan. Furthermore, those, which have been formed in sub-margin cultures as a result of long succession of selective influences caused by moderate distance from cores-Asiatic ancient civilizations-India and China, are considered to have significance in the process of a world history after the modern period.

Keywords: Asiatic ancient civilization | Egypt | Angkor | Japan | Sub-margin

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1. Introduction

Ancient Egypt, one of the four major Asiatic ancient civilizations, seems likely to show straightforwardly a fundamental characteristic and structure of civilization. In their structure, a societal base consisted of small-scale and primitive family communes having a natural rhythm, and their bureaucracy integrated those communes. As a result of the strong integration from the bottom to the top, the civilization reached a high sophisticated and advanced state. In other words, the societal base itself created the hierarchy system of civilization which let ancient people have intense longing for the superstructure of their own. This characteristic is considered to be in common in ancient India and China though their systems are less clear than in Egypt. In this context, a key is a gradual relation of civilizational influences from each ancient civilization core to other areas.

Based on our previous research for ancient Egyptian pyramids together with Buddhism architecture in Sri Lanka and various architecture in Southeast Asia and China, our main focus has been on restoration and conservation of Angkor monument and research of imperial architecture in Hue, Vietnam. This paper discusses about some cultural heritages in Angkor, Hue and Japan and summarizes a key essence of cultural heritage

2. Characteristics of Angkor monument in Cambodia

2.1. Analysis of composition planning of Angkor Wat

Angkor Wat is a symbol of the legitimacy of Khmer architectural history. All Angkor monuments including Angkor Wat have two axes: a central axis of a monument site and that of a monument itself. Ancient Khmer people seem to have consciously employed this planning method to imply different importances between two factors. The site is a place representing a symbol of sacredness and has quite historical and environmental meanings, whilst the axis of a monument or architecture itself is a something representing a symbol of a new introduced civilization, culture, authority or dominance. This implication of Angkor monument, presumably an expression of coexistence and harmonization of the concept of two values, can be acquired only with actual and detailed measurement and analysis, and Khmer people already had such method.



Fig. 1: Aerial view of Angkor Wat

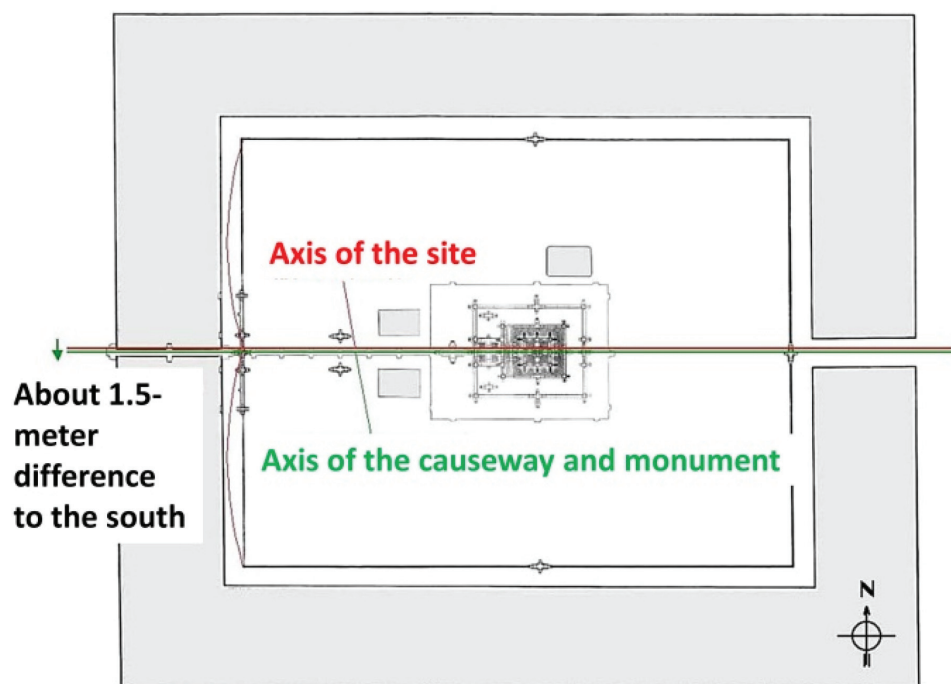


Fig. 2: Two axes of Angkor Wat

2.2. Inner structure of a platform of the Northern Library of the Bayon

On the other hand, the platform of the Bayon shows us the most striking character of Khmer architecture. Because of lack of arch construction engineering, Khmer architecture is generally built on a high platform and has several combined towers to raise and emphasize a monument height. Although their structure is unbelievable from a view point of modern engineering, the platform is designed to absorb and keep rain water inside the structure.

A general restoration work of Angkor monument deposits concrete to build an enclosure, and installs a drainage system. This is because a collapse of Angkor monument is caused by differential settlement results from infiltration of rain water into the platform and leaking of earthen compacted soil inside the platform. To prevent such settlement, Khmer people can be considered to employ a construction method using effects of two environmental factors: underground water flowing just beneath the surface of the ground in Angkor area, and strong consolidation of compacted sand which have some ability to absorb water. In addition, although a current climate change is making it difficult to imagine an original climate condition in a time of ancient Khmer people, a periodic half-year-long dry season possibly generated transpiration effect of the absorbed water inside the platform, and the remained water was able to be leaded into the underground water flow. This is such an astonishing engineering of harmonization with the local environment.

Considering the significance of building monuments in a sacred place their ancestors cultivated and the approach to creating with the notion of environmental harmonization, Angkor monument has apparently such characteristics. Since this is also related to the framework of *“Core – Margin – Sub-margin of Civilization,”* the essence of the framework is discussed in the following sections based on a history of Hue-Vietnamese and Japanese architecture.

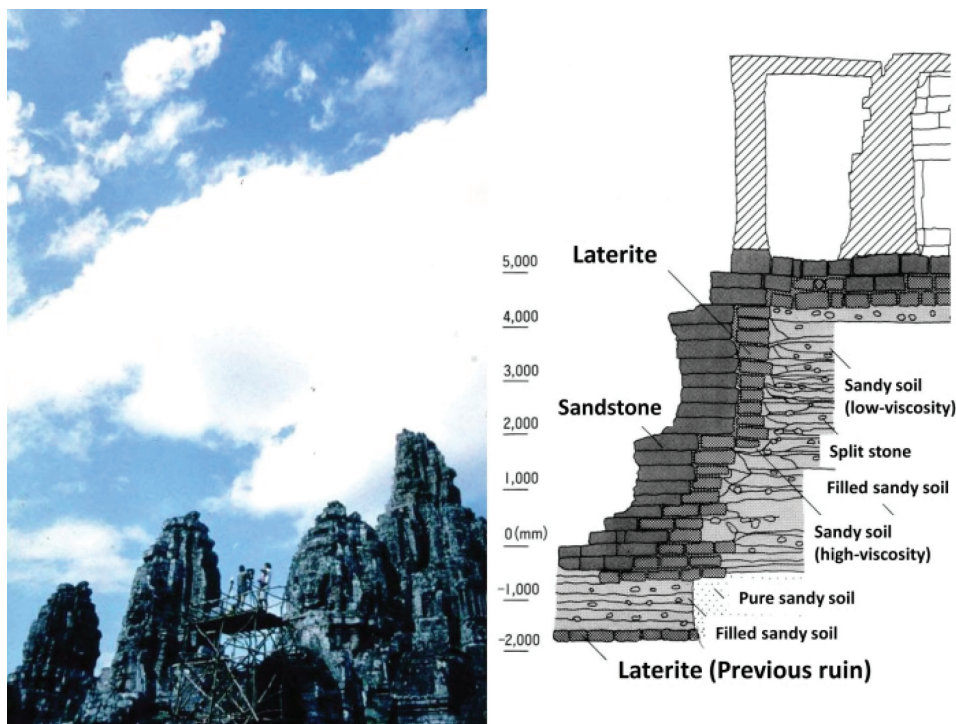


Fig. 3: The central tower and surrounding towers of the Bayon (Left) and the inner structure of the Northern Library of the Bayon (right)

3. Characteristics of imperial architecture in Hue, Vietnam

3.1. A history of Vietnam divided into north and south and their cultural diversity

According to some artifacts excavated from the Citadel of Thang Long showing features of the Tang Dynasty in China, Yue tribe (越族) based in the Red River Delta in the northern Vietnam had been controlled directly by the Tang Dynasty. From the middle of the 10th century, with gaining governing independency compared to the past, successive dynasties in Vietnam continued to build Chinese-styled wooden architecture. After the latter part of the 16th century, the Nguyen lords belonging to the Le Dynasty had been broadening their territory towards south aggressively based in the left bank of the perfume river.

Before the territorial extension, architecture in Vietnam is bicultural: the wooden architecture of the northern Yue people and the brick architecture of Cham people in the central and southern Vietnam. The Nguyen lords made inroads into

Champa, extended their influence after the 17th century, and established Annam country in Hue. This, however, encouraged a combative relationship between the Nguyen lords and the Le Dynasty based in the northern Vietnam, and the conflict between north and south became immobilized. In the beginning of the 19th century, the Nguyen Dynasty completed the unification of the country Vietnam, but yet the two fundamental cultures historically divided into north and south remained unaffected by the unification and separated.



Fig. 4: Wooden architecture of the northern Vietnam



Fig. 6: Timber-roof framework of the central and southern Vietnam using Keo

In a history of traditional Vietnamese architecture, there are Chinese-styled wooden architecture of Yue people, brick architecture of Cham people, and unique and diverse designed architecture of small tribes in mountainous areas. Among the architecture of Yue people, two major styles can be observed. The northern Vietnamese style flourished around Hanoi shows some features like a thick timber roof framework and an emphasized curvature of eave based on Chinese-styled truss roof framework using timber beams and short vertical posts. The central and southern Vietnamese style of important buildings uses two- or three-tiered transverse timber beams called Keo to form a roof framework. In addition, as there can be seen an obvious difference in square rulers for roof inclination, a method for jointing and constructing inclined columns and timber beams in the southern Vietnam are completely different from the northern one. This might root in their local historical culture based on the long divided history of north and south, not just in the difference of their geographical condition.

Although structural styles of architecture are completely different between north and south, their unit of length (尺) does not match to Chinese unit around 300mm but around 400mm in length which are in common throughout India to Malay Peninsula. Thus, these differences and coherences of each architectural element and style, and characteristics rooting in those various elemental contrasts can be found in an appearance of a city and architecture in Hue.

3.2. Cultural background of appearance of Hue

Based on an imperial culture of the Chinese Ming and Qing Dynasties as a civilization core, a historical characteristic of the Nguyen Dynasty can be considered to be formed by multiple layers of a mixture of acculturated Cham traditions in the central and southern Vietnam originated from India and native cultural traditions distributed through Malay Peninsula. The northern Vietnam had been influenced directly by Chinese traditional culture, whilst the central and southern Vietnam had been shaped by cultural layering with a strong tinge of native or local cultures. Given that the two different cultural conditions, there can be some scope for differentiation in architectural engineering and style. Characteristics of historical architecture are the traditional usage of transverse beams called Keo in the roof framework covering a main space of imperial architecture, and the different controlling means of roof inclination between the north and south Vietnam using different tools.

Moreover, based on those differences, the characteristic of architectural expression is symbolized by a sense of harmony between part and whole of architecture itself. In other words, spatial arrangements integrate architecture into a surrounding magnificent landscape of mountains and rivers with some awareness of smaller scale or segmentalization of architectural element, a sense of interval in a connecting space or gap between pillar spans, a spatial aerial layer occurring breakthrough of impression in a connecting space, and emphasizing the function by contrast of darkness. The harmonious appearance of the entire landscape can be considered to be composed of characteristics of architectural techniques for creation in respect for smaller-scale details and independence of each component.

4. Characteristics of Japanese architecture in Nogoya method (double-surface roof structure)

Japanese architecture has been received influences from the mainland China and Korean peninsula for a long period of time. The roof structure of ancient main architecture such as Buddhism temples is supported by liner thick balks, and an appearance curvature of tiled roof is formed by molding thick roofing soil on a wooden-boarded roof surface called noji-ita (野地板). This easily causes rot damage on a roof structure because of absorption of water by the roofing soil.

On the other hand, aristocrats also preferred to use natural materials as roofing of their private houses such as thatch and wooden tile, and especially hiwada (檜皮) or kokera (柿) materials were preferred the most. This wooden-tiled roof is a method requiring an additional wooden-boarded surface on the noji-ita surface to place wooden roof tiles. This double-surface structure of roof was developed and spread in a short period of time because a rainy climate condition in Japan required high inclination of roof and strong influences to the political power by Fujiwara clan in Heian era. This structural system called nogoya (野小屋), dividing architecture into three sections: form, structure and interior space, can be thought to be a trigger to enhance spatial expression of Japanese architecture literally.

Theatre showing a deep and soft expression¹ This characteristic appears not only in traditional architecture but also in modern architecture in Japan.

The National Noh Theater designed by Hiroshi Oe has a roof showing a deep and soft expression that was achieved by industrial engineering not by artisan skill. This design idea came from the traditional Japanese nogoya method by just placing square-shaped aluminum pipes, and using concrete for rain water prevention, structural stability and the outline form of the roof. In addition, there is a hidden huge space rooted in nogoya between two surfaces: a surface of the concrete roof outline and that of the interior ceiling.

showing a hidden space inside roof framework between exterior and interior surfaces derived from a traditional Japanese engineering nogoya²

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¹ Shinken-chiku vol. January, 1984, p.145

² Shinken-chiku vol. January, 1984, p.p.290-291



Fig. 7: Aerial view of the roof of the National Noh

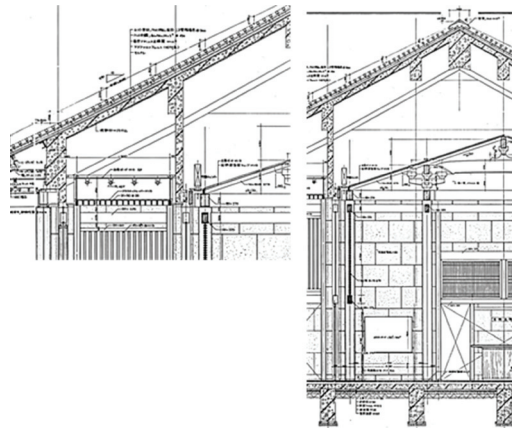


Fig. 8: Section plans of the National Noh Theatre showing a hidden space inside roof framework between exterior and interior surfaces derived from a traditional Japanese engineering nogoya²

5. Conclusion: a relation among core, margin and sub-margin of civilization

Surrounding or marginal areas next to India and China inevitably were influenced by waves of civilization core centers. In this condition, their cultures tend to show more core-like appearance. However, sub-margin areas can relatively keep independency from the core, maintain a societal base relating to natural environment, and receive selective influences because of the longer geographical distance from the civilization core than marginal areas.

In the case of the two different axes of the site and monument, a civilization core India just avoid placing something important in the center of a site, and a marginal area Indonesia shows the notion expressly by arrangement of monuments in a site. On contrast, Khmer method in sub-marginal area Angkor is quite harmonious but can be appreciated only by those who understand or notice the slight difference. This tendency also can be seen in a historical relationship among China, Korea and Japan. A traditional Korean architecture with a colorful and decorative appearance and strong curvature of a roof can be seen more Chinese-like features than in China. On contrast, Japan absorbed those features, but showed different appearances such as gradual curvature of a roof and a different color sense. Showing acceptance of Chinese civilization, Japan maintains a harmonious relationship with the surroundings

environment. The difference between Korea and Japan might be also applied to the two areas in Vietnam: the northern Vietnam directly influenced by Chinese civilization and the central and southern Vietnam.

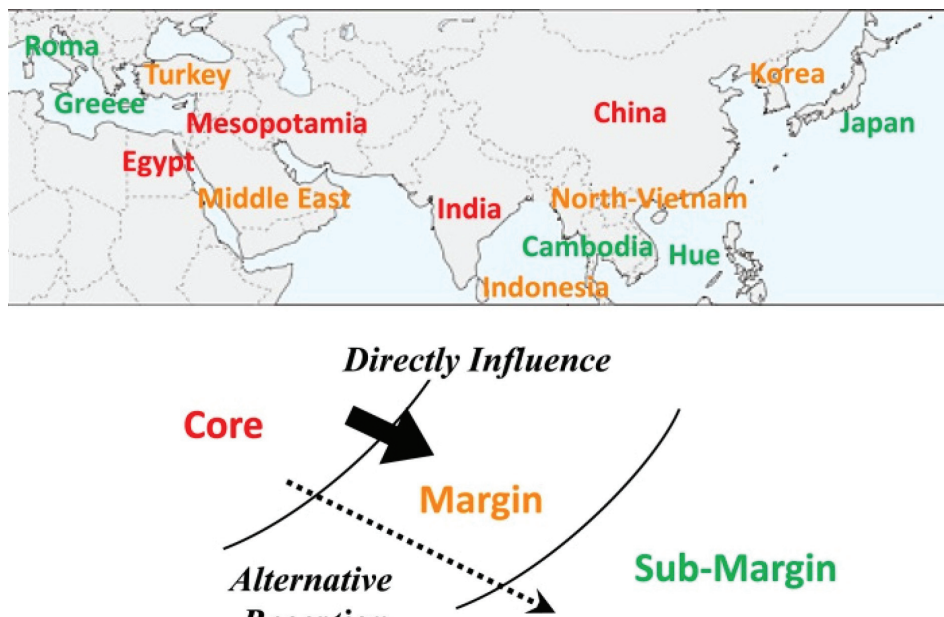


Fig. 9: Diagram of civilization influences based on the “Core–Margin–Sub-margin” relationship

We would like to continue with the same method of study to discover the structural characteristics of civilization and city of Ayutthaya in Thailand, Pyu Ancient Cities in Myanmar, and Vat Phu and Town of Luang Prabang in Laos. Furthermore, it is expected to create a cooperation network for safeguarding and utilizing the cultural heritage of the Mekong Basin Countries based on its common and fundamental characteristics. The present tentative conclusion for the subject is as following paragraph.

A system of the civilization core can be easily corrupted when something or some parts of its' system are falling apart, but what sub-marginal areas have is an ability to select and absorb naturally important elements on respect for independence of their communes or times by harmonizing with natural environment. The significance seems to be in the meaning of “Sub-marginality” handed down from generation to generation within the historical process of sub-marginal areas

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