

Fieldwork Conduction in Cambodia Report :

A Study of Cham's Architectural Characteristics in Damrei Krap Prasat, Siem Reap, Cambodia

By Miss Namphet Rattanapanya, Silpakorn University, Thailand

Overview and Issues Encountered

Due to the political and military conflict between Thailand and Cambodia, my fieldwork schedule was unable to proceed as effectively as expected. The original plan was to conduct the research in July for a month, in accordance offered by the EFEO. Due to the intensifying situation, I revised and shortened the schedule to *November 20-25, 2015* (one week). Under the limited timeframe, the fieldwork had to be conducted hastily. Nevertheless, I was able to obtain sufficient data for the architectural study, particularly for comparative analysis with Cham architecture (which was previously conducted by individuals in Vietnam). The research was conducted in 3 provinces; there are Phnom Penh, Kampong Thom, and Siem Reap (Phnom Kulen – Lolei area - downtown).

Unfortunately, *I was not permitted to use drones and advanced scanner*. Moreover, some research equipment was confiscated at customs department in the airport, these issues directly limited my ability to conduct as originally planned. Consequently, I had to modify my research methodology to comply with government regulations in order to proceed with the study by using only approved equipment. To solve the limitations, computer programs were subsequently used to support the data analysis.

Phnom Penh

I conducted intensive interviews with Professor Dr. Sokuntheary So, who was recommended by my supervisor as she is an expert in ancient Khmer architecture and her experience in conservation working with UNESCO. In addition, I interviewed Dr. Sirang Leng, a specialist in Khmer art history. Discussions with both experts provided valuable insights, not only into Khmer history but also into the history of Cham migration into the Khmer Empire, cultural exchange, connections among royal lineages (the elite) arts and architecture.

As an example from the discussions, a potential relationship between Cham migrated to the territorial of the Khmer Empire was identified. It is tentatively hypothesized, based on historical narratives and preliminary spatial analysis, there were possibility two principal migration routes: from Mỹ Sơn to Siem Reap via a northern route, and from Siem Reap to Phan Rang via a western (also south western) route. These hypotheses will be examined further through comparative analysis. The result will be used to develop a map illustrating the relationship of art and architecture across the 3 cities.

Kampong Thom – Sambor Prei Kuk

As the study of brick architecture at Phnom Kulen requires comparative reference to earlier Khmer brick constructions. I went to Sambor Prei Kuk archaeological site following the recommendation of my supervisor and two Cambodian scholars.

There are variety of building's plan layouts: square, rectangular, and octagonal. Moreover, the whole site contains both single-building (similar to Phnom Kulen) and complex buildings layout. Which I

focused on the square-shaped temples, particularly the Trapeang Ropeak temple, located between the Toa Temple and S Group. Fieldwork at this site revealed connections between the decorative ornaments that are both similar and distinct from temples at Phnom Kulen. Additionally, we observed interesting engineering aspects in the brick construction, particularly the bowing of the roof and the collapsing of the void (door), which differ from architectures at Phnom Kulen and Cham empire.

These observations should be regarded as preliminary, given the limited scope of available data. Further investigation, including consultation with specialists in ancient brick construction techniques, is necessary to support more conclusive interpretations.

Phnom Kulen

Although the Damrei Krap Temple is the primary focus of this thesis topic, it was essential to study other temples on the mountain for a more comprehensive understanding. In addition to architectural remains, the presence of sculptures may offer insights into contemporary context and beliefs thereby making a wider site investigation necessary despite time constraints.

Although data collection was restricted to specific authorized equipment, the study of the Damrei Krap Temple required adapting methods. Equipment such as small scanners, moisture meters, level meters, and distance measuring tools (both for manual and automatic) were applied in combination with on-site observation instead of advance scanner that wasn't allow.

One limitation encountered was dense vegetation covering the roof area that was one of the most important architectural ornaments of studied key. This issue constrained direct documentation and hindered the initial development of a 3D model generation. Consequently, supplementary visual data provided by Thai scholars who had previously visited the site were instead to use to support architectural analysis. This process required nearly two additional weeks after returning to gather sufficient data to create the 3D model. Following that, the architectural model will continue develop, and the result of architectural data will further be continually analyze from an engineering perspective.

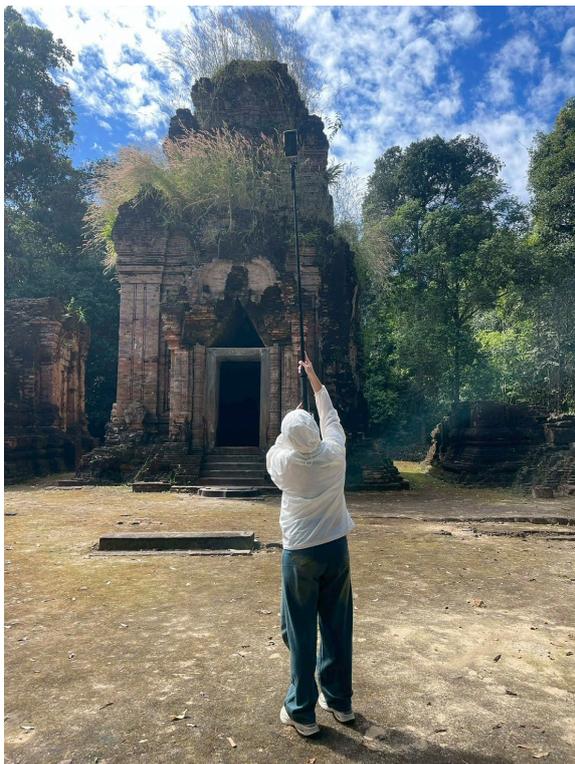


Fig 1-2: During scanning the building exterior

In addition to the use of technological equipment for fieldwork data collection, interviews with local villagers provided supplementary data on the historical landscape prior to the period when the Khmer Rouge utilized the mountain as a military base. This form of qualitative

information offered an alternative perspective that contributed to a more contextualized understanding of the site and its surrounding environment. Such insights were particularly relevant for interpreting the transformation of the landscape before the commencement of restoration and landmine clearance, which significantly altered both the physical setting and accessibility of the area.



Fig 3-4: During manual measuring inside the building

According to the large number of temples on Phnom Kulen, comprehensive comparison was not feasible. Therefore, fieldwork was limited to retain sufficient architectural ornaments that potentially related to the Damrei Krap Temple, there are: Chop Chrei temple, O-Phaong Temple, Thma Dab Temple, Bram Temple, as well as related attraction such as Srah Damrei (Elephant Pond) and Kbal Spean. The selected sites were used to support the development of a preliminary 3D model, together with architectural analysis to previously gathered in both Cambodia and Vietnam.

Siem Reap – Lolei Area

According to Damrei Krap Temple is located within the Mahendraparvata area that were associated by King Jayavarman II, so essentially comparative fieldwork was conducted at several nearby temples to explore potential architectural relationships. The research was conducted in 4 temples: Lolei Temple, Preah Ko Temple, Bakong Temple, and Prei Monti Temple.

Fieldwork at these 4 temples revealed both differences and similarities in relation to the temples on Phnom Kulen. Brick was the primary construction material at most sites (except at Bakong), the architectural decorations appeared comparable. As an example from the fieldwork conduction, at Prei Monti Temple, its three-building layout on the Paithi platform that similar to Damrei Krap Temple. The limited preservation of its remains restricts direct comparison especially the roof shape and decorative ornaments that Damrei Krap Temple had as its identity. Nevertheless, the three-building layout and other remain specific data will adapt to maximize their analytical value as possible.

Or regarding the roof proportions of the temple group at Lolei, a general observation indicates a clear consistency in form, reflecting a stable of some context. This contrasts with the architecture on Phnom Kulen, where greater variation in proportions, particularly roof forms. For example, although the roof of the Damrei Krap Temple is decorated with gables that resemble Cham characteristic, but another temple (Thma Dab) exhibits a slender proportion that similar to Cham architecture. Which is not observed in Lolei area or other remain temple on Phnom Kulen.

Additional research was conducted at the Siem Reap National Museum and the EFEO-Siem Reap center to use its library for in-depth research in Khmer, French, and English, as some critical information was not available online but would be essential for future analysis.

Discussion and Conclusion

The main issue during this fieldwork was the limited time and the prohibition on using the originally technological equipment. Despite the implementation of a secondary plan and alternative methods of data collection, the work could not be carried out with full effectiveness as originally expected. Nevertheless, the computer technologies after returning helped to mitigate some of these limitations. Although the results were not as detailed as initially intended, they were sufficient to allow the analysis to proceed and to enable comparison with data obtained from fieldwork in Vietnam.

To the development of architectural and engineering models for analysis requires further time for processing and analysis. Once the study is complete, I will provide a reference to acknowledge the funding support and send a copy of the publication to you in the future.