SPAFACON2021

Papers from the SEAMEO SPAFA International Conference on

SOUTHEAST ASIAN ARCHAEOLOGY AND FINE ARTS

13 - 17 December 2021

Editor: Noel Hidalgo Tan

SPAFACON2021 is published by SEAMEO SPAFA, the Regional Centre for Archaeology and Fine Arts established by the Southeast Asian Ministers of Education Organization. SEAMEO SPAFA focusses on archaeology and fine arts in Southeast Asia, and promotes awareness and appreciation of the cultural heritage of the region. Its member-countries are Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam; and its associate member-countries are Australia, Canada, France, Germany, the Netherlands, New Zealand, Spain and the United Kingdom.

SPAFACON2021

Papers from the SEAMEO SPAFA International Conference on

SOUTHEAST ASIAN ARCHAEOLOGY AND FINE ARTS

13 - 17 December 2021

2021 SEAMEO SPAFA
ISBN: 978-616-7961-55-2
ISBN (e-book): 978-616-7961-54-5
DOI 10.26721/spafa.pqcnu8815a

Publisher
SEAMEO SPAFA Regional Centre for Archaeology and Fine Arts
81/1 Sri Ayutthaya Road, Dusit
Bangkok 10300, Thailand
Tel: +66 (0) 2280 4022 to 9
Fax: +66 (0) 2280 4030

www.seameo-spafa.org

E-mail: spafa@seameo-spafa.org

Editor
Dr Noel Hidalgo Tan

Organizing Committee
Mrs Somlak Charoenpot
Ms Vassana Kerdsupap
Mr Kanal Khiev
Mr Ean Lee
Ms Gabrielle Anne Mangaser
Dr Hatthaya Siriphatthanakun
Ms Ratchaporn Tesjeeb
Mr Patrick Xia Linhao
Dr Noel Hidalgo Tan

CONTENT

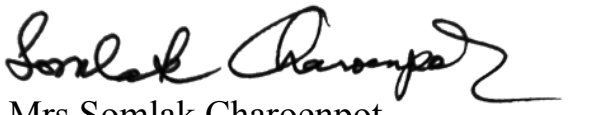
INTRODUCTION

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

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

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

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



Mrs Somlak Charoenpot
Centre Director
SEAMEO SPAFA

A Study on the Structure and Significance of the North Sanctuary at Western Prasat Top

ការសិក្សាអំពីរចនាសម្ព័ន្ធ និងសារៈសំខាន់នៃតួប៉មខាងជើងនៅប្រាសាទតុបខាងលិច

10792/pqcnu8815a-13
SATO Yuni, TAMURA Tomomi,
SUGIYAMA Hiroshi, LAM Sopheak,
SOK Keo Sovannara, LOEUNG Ravattey, ROS Visoth
Nara National Research Institute for Cultural Properties
yunisato@hotmail.com

Abstract

Western Prasat Top is located in the south-west quadrant of Angkor Thom. The Central, South, and North Sanctuaries, and the uposathāgāra are divided by sīmā stones and, along with a laterite boundary, form the temple precinct. In order to study the history of Western Prasat Top, the Nara National Research Institute for Cultural Properties (NABUNKEN), in collaboration with the Apsara National Authority (APSARA), began surveying in 2003. Our discoveries from the North Sanctuary have contributed new and important evidence to understanding the history of the late Angkor period. We will discuss this unearthed evidence from the perspectives of archaeology, archaeological science and iconography.

ប្រាសាទតុបខាងលិចស្ថិតនៅទិសនិរតីនៃប្រាសាទបាយ័នអតីតក្រុងអង្គរធំ។ បរិវេណប្រាសាទតុបមានតួប៉មកណ្តាល ខាងត្បូង និងខាងជើង ព្រមទាំងខឿនឧបោសថ (ព្រះវិហារ) ដែលមានសន្លឹកសីម៉ាថ្មភក់ភ្លោះមានជ្រាំបីទិសហើយមានជាកម្រាលរបងព្រំថ្មបាយក្រៀមព័ទ្ធជុំវិញ ដែលបង្កើតបានជាទម្រង់ប្រាសាទ។ ដើម្បីសិក្សាខ្លះៗពីប្រវត្តិប្រាសាទតុបខាងលិច វិទ្យាស្ថានស្រាវជ្រាវជាតិណារ៉ាសម្រាប់សម្បត្តិវប្បធម៌ (NABUNKEN) បានសហការជាមួយអាជ្ញាធរជាតិអប្សរា ដែលបានចាប់ផ្តើមធ្វើកិច្ចសហប្រតិបត្តិការស្រាវជ្រាវនៅឆ្នាំ ២០០៣។ ការសិក្សាស្រាវជ្រាវនេះរកឃើញវត្ថុមួយចំនួននៅតួប៉មខាងជើងដែលជាភស្តុតាងដ៏សំខាន់ ក្នុងការរួមចំណែករកឃើញរបកគំហើញថ្មី និង ដើម្បីស្វែងយល់អំពីប្រវត្តិសាស្ត្រនាសម័យចុងក្រោយនៃអាណាចក្រអង្គរ។ យើងនឹងពិភាក្សាអំពីភស្តុតាងទាំងអម្បាលមានដែលបានរកឃើញឲ្យបានស៊ីជម្រៅ ទៅលើទស្សនៈនៃបុរាណវិទ្យា, វិទ្យាសាស្ត្របុរាណវិទ្យា និងទេវកថា។

Keywords

ពាក្យគន្លឹះអំពីអង្គរ; ព្រះពុទ្ធសាសនាថេរវាទ; បន្ទប់ដីឥដ្ឋដុត; ការវិភាគ សំណ អ៊ីសូតូប

1. Research and Restoration of Western Prasat Top by NABUNKEN

According to the previous studies, Western Prasat Top dates, based on the inscriptions, back to the 9th century, and was thought to last until the 15th and 16th centuries. However, concrete archaeological research was not conducted in this area. The restoration work started in 2011. The sequence of restoration work was planned in the order of the South Sanctuary, the North Sanctuary, the Central Sanctuary, and the *uposathāgāra*. In the following section, we will focus on the North Sanctuary in detail.

2. Structure of the North Sanctuary – Upper Structure

2-1 Basic Structure of the South and North Sanctuaries

The Central Sanctuary is flanked by a sanctuary to the south and to the north. These South and North sanctuaries consist of a main building frame, upper and lower platforms, and partially collapsed roof elements that had been placed on the ground by EFEO during site clearance in the early 20th century. Old photographs of the North Sanctuary taken by EFEO in 1924 show a Standing Buddha image on the false doors on the south and west sides of the building (cliché EFEO, fonds Cambodge INVLU 1481, 1482). However, due to overgrowth by trees and unequal settlement of the foundations, the north side of the building frame had almost completely collapsed making it impossible to know what it looked like on the north side at the time of our restoration works.

As a result of reconstructing the North Sanctuary, all three sides of the North Sanctuary, except for the east side, which is the opening, have been restored with the image of Buddha on a false door. On the false doors of the south and west sides of the North Sanctuary, both images of the Standing Buddha hold their right hands in front of their chests to signify a sign of *abhaya-mudrā*, while their left hands are placed on the sides of their bodies. It can be seen that their feet are pointing both toes to the left with the expression of a slight twisting of the hips.

On the other hand, the newly restored north false-door Buddha image, whose face, hairstyle, robes, and mudras all show the same characteristics with the other two sides, south and west. But the body and lower body show a different aspect. The body is twisted to the right, with knees slightly bent to the right, and both toes pointed to the right, heels clearly raised. This pose indicates the same character of the so-called “Walking Buddha”. However, the Walking Buddha image is thought to have been developed during the Sukhothai period (1236-1438).

2-2. Structure of the North Sanctuary - Underground chamber

The lower platform of the North Sanctuary was dismantled to the top of the bottommost layer (N 25) when the top of a square brick structure appeared as an underground chamber. The top of the brick chamber measured 2.13m from north to south, 2.08m from east to west, and 1.48m in depth. The base measured 1.85m in the north-south direction and 1.6m in the east-west direction. The bottom of the chamber had a 10cm or so layer of artifacts that contained a large amount of carbonized wood, from which 174 gold objects, 29 bronze objects, 46 glass beads, 19 stone fragments, 42 crystal fragments, 11 bones and 21 unidentified items were found in burnt condition.

3. Scientific Analysis on the unearthed artifacts

Burnt bone Among the burnt bone fragments that have been found, three compact bone fragments were selected as samples to be subject to histomorphological examination. According to the result of a histomorphological species identification of compact bone in addition to visual observation by Sawada (Sawada 2018):

(1) The histology of Bones 1 and 2 was unclear, but Bone 5 displayed a good histological structure with a predominance of secondary osteons.

(2) From an observation of the histomorphology of Bone 5, the bone was judged to be of a medium to large-sized mammal. The closest species was thought to be human, but there is not enough data on the bone histomorphological findings for most animals living in continental Southeast Asia.

Analysis of unearthed glass beads

Materials and Methods We conducted chemical analysis on one of the blue glass fragments and two small beads from Western Prasat composition was analyzed by EDX (EDAX, EAGLEIII). The measurement was performed after removing the weathered layer on the glass surface using an ultrasonic grinder. Concerning the glass beads, lead isotope analysis was also conducted with a Finningan-MAR262 mass spectrometer by NIPPON STEEL TECHNOLOGY Co., Ltd.

Results and discussions The results indicate that the blue glass is soda glass with high Al_2O_3 and low CaO. It is presumed to carry on the tradition of Southeast Asian type of soda glass that existed since B.C. It is noteworthy that arsenic is detected in addition to cobalt in this blue glass. It shows that the coloring agent (cobalt raw material) is different from more ancient ones. Since sulfur was also detected, it is presumed that cobaltite is probably used as the cobalt raw material. Cobalt raw materials containing arsenic are not used in ancient glass of Southeast Asia. On the other hand, in the medieval western world,

cobaltite was common for cobalt colorant. It is possible that the blue glass from Western Prasat Top was made of Southeast Asian type of soda glass with a cobalt colorant obtained from the West.

The two glass beads were both potash-lead glass. Potash-lead glass is a relatively new glass that was invented in China and appeared in the Song Dynasty at the latest. The results of lead isotope analysis show that they have very similar lead isotope ratios to each other and differ from those of lead ores, ingots and bronze products from Southeast Asia.

Compared with the Chinese mining data (referred in Oga 2019), there are mines with similar lead isotope ratios in the lower and the upper Yangtze River basin (Region E and I) to those of the glass beads from Western Prasat Top. Furthermore, although not completely in correspondence, it is possible that there are mines with similar lead isotope ratios in the middle Yangtze River basin (Region G) and the Lingnan region (Region H). In particular, the existence of mines with similar lead isotope ratios in the lower reaches of the Yangtze River is notable because it is consistent with the description in 'The Customs of Cambodia' that the beads imported from Quanzhou or Chuzhou were desired in Chenla (Zhou 1989, 2007).

4. Discussion

4-1. Date of Construction of the North Sanctuary

Here, it is necessary to consider the date of construction for the North Sanctuary at Western Prasat Top. The radiocarbon dates of the six excavated carbon samples from the bottommost layer of the underground brick chamber were found to be within the range of the early 14th to early 15th century. Excavation results suggest that soils in the underground brick chamber were not deposited naturally or a long period of time after the fire ritual, but were buried with sand and then built on top of to form the base of the North Sanctuary and its structure. The three standing Buddha images on the false door, including the "Walking Buddha" on the north, were not altered in later times, but are thought to be carved at the same time with the construction of the North Sanctuary in the early 14th to early 15th century.

4-2. Summary

The numerous pieces of evidence found at the North Sanctuary of the Western Prasat Top Site have provided a great deal of new knowledge. As a result of the restoration project, a "Walking Buddha" style image was restored on the north side, in addition to the standing Buddha image on the south and west sides. This provides direct evidence of the close relationship between Sukhothai and Angkor, where the Walking Buddha was popular.

Another major discovery, the underground brick chamber, provided a great deal of information. Artifacts such as metalwork, including gold products, glass, minerals, burnt bones, and carbonized wood were found. Glass, especially in addition to beads made from Chinese lead as a raw material, and blue glass with a cobalt colorant which came from the west, were excavated and are notable. Analysis of the burnt bones showed that they were identified closely as human, which is a key to solving the meaning of the brick remains. The large amount of carbonized wood ,and the sooty floor and walls, suggest that a fire ritual took place in the brick remains. The excavated carbonized material provide a chronology assigned to the early 14th to early 15th century. These unearthed artifacts reveal that Angkor at that time had an established network of dynamic exchange not only with neighbouring countries but also across Asia.

The condition of the excavated artefacts suggests that the site was not subjected to fire for long periods of time at high temperatures, and only the lower part of the brick remains were sooty, which precluded the repeated use of fire for many times over a long period of time. Based on the results of the analysis of these artefacts, it is suggested that cremation may have taken place in a ritual involving fire in the underground brick chamber although it is necessary to continue to investigate the other functions of this chamber. There have been many cinerary vessels containing cremated bones at Angkor, but no cremation remains have ever been found at the site. We have confirmed cases of sub-surface remains found in the underground chambers of sanctuaries at Angkor and related sites, but we could not confirm the discovery of thermal subsurface remains. Therefore, the discovery of the North Sanctuary can be considered a very rare case.

At the time of the construction of the North Sanctuary, Theravāda Buddhism might already have been introduced to Angkor. Western Prasat Top is assumed to be influenced by transitional Theravāda Buddhism in some aspects - judging from the element of the structure and iconography of the temple. The various archaeological traces found here suggest complex and multi-layered cultural evidence for the late stage of Angkor. We plan to continue our research at Western Prasat Top to view the study from all its angles.

Acknowledgements
We would like to sincerely thank you to APSARA, H.E. Dr. Phouerng Sackona, H.E. Dr. Hang Pou, Prof. Ang Choulean Prof. Ashley Thompson, Junmei Sawada, Minoru Yoneda, Junko Furihata, H. E. Mr. Kim Sothin, Alison Carter, Im Sokrithy, Nicolas Revire, Dissapong Netlewong and all our invaluable staff of Prasat Top Project.

References

Nara National Research Institute for Cultural Properties (2012) *Western Prasat Top Site Survey Report on Joint Research for the Protection of the Angkor Historic Site*. Nara: Nara National Research Institute for Cultural Properties.

Nara National Research Institute for Cultural Properties (2018) Radiocarbon dating. In: *Annual Report on the Research and Restoration Work of the Western Prasat Top Interim Report 5 —Brick Structure of Northern Sanctuary,* 22-25.

Oga, K (2019) Examination of the production site of triangular-rimmed bronze mirrors by lead isotope ratios [in Japanese]. *Studies of Ancient Culture*, 11: 1-42.

Sato, Y (2015) New Elements of Theravada Buddhism Found at Western Prasat Top. In: *Annual Report on the Research and Restoration Work of the Western Prasat Top II—Dismantling Process of the Southern Sanctuary*.

Sawada, J (2018) Species Identification by Bone Histomorphology of Burnt Bone Fragments Unearthed from a Brick Structure at Western Prasat Top. In: *Annual Report on the Research and Restoration Work of the Western Prasat Top Interim Report 5 —Brick Structure of Northern Sanctuary*, 26-33.

Zhou, D (2007) *A record of Cambodia: the land and its people*, trans. P. Harris. Chiang Mai: Silkworm Books.

Zhou, D (1989) *Shinrou Fudoki Toyo Bunko 507*, trans. H. Wada. Tokyo: Heibonsha.

Table.1 Results of X-ray fluorescence analysis

No.	style	color/ transparency	wt%																			
			Na_2O	MgO	Al_2O_3	SiO_2	P_2O_3	SO_3	K_2O	CaO	TiO_2	Cr_2O_3	MnO	Fe_2O_3	CoO	Ni_2O_3	CuO	ZnO	As_2O_3	PbO	Rb_2O	SrO	ZrO_2
17	fragment	cobalt blue/ transparent	18.8	0.8	5.0	68.2	0.1	0.3	1.8	1.0	0.25	0.02	0.05	3.30	0.11		0.02		0.10		0.03	0.03	0.17
BW07-1	bead	white/ translucent	1.1	0.1	1.0	45.5	1.0		10.0	4.1	0.01	0.02	0.04	0.18	0.02	0.01	0.03	0.02		36.3	0.04	0.18	0.42
BW07-2	bead	white/ translucent	0.9	0.1	1.0	46.0	0.7		7.0	4.1	0.02	0.02	0.04	0.19	0.02	0.01	0.04	0.02		36.3	0.03	0.17	0.40

Table.2 Lead isotope ratios of potash lead glass

Sample name	$^{206}Pb/^{204}Pb$	$^{207}Pb/^{204}Pb$	$^{208}Pb/^{204}Pb$	$^{207}Pb/^{206}Pb$	$^{208}Pb/^{206}Pb$
NBS-SRM-981(standard lead)	16.890	15.429	36.504	0.9135	2.1613
Western Prasat Top BW07-1	**18.521**	**15.638**	**38.578**	**0.8444**	**2.0829**
Western Prasat Top BW07-2	**18.524**	**15.641**	**38.585**	**0.8444**	**2.0830**
Krang Kor bead No.12	**18.518**	**15.747**	**39.059**	**0.8504**	**2.1093**
Krang Kor bead	**18.633**	**15.759**	**39.322**	**0.8458**	**2.1104**
NBS-SRM-981(standard lead)	16.893	15.432	36.512	0.9135	2.1614
	±0.010	±0.010	±0.030	±0.0003	±0.0006