

NSC HIGHLIGHTS

#5

JUN - AUG 2017

FEATURES:

Excavations at the National Gallery Singapore

Ceramics, Trade & Angkor in Decline

*LiDAR Imaging and
Ancient Angkorian
Capitals: new research
goals for the hidden city
of Koh Ker*

*The Bomoh: Now
and Then*

EVENTS:

*Seeing Through the Forest:
Lost Cities, Remote Sensing
and LiDAR Applications in
Archaeology*

UPCOMING EVENTS:

- *2017 NSC Archaeological Field School*
- *Public Lectures*

*Bodhisattva figurine c.14th
century, recovered from
excavations at the National
Gallery Singapore.
(Photo: Lim Chen Sian)*



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NSC HIGHLIGHTS

is published by the Nalanda-Sriwijaya Centre (NSC) at ISEAS – Yusof Ishak Institute and available electronically at www.iseas.edu.sg.

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ISSN: 2424-9211

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The Nalanda-Sriwijaya Centre (NSC) at the ISEAS - Yusof Ishak Institute, Singapore, pursues research on historical interactions among Asian societies and civilisations. It serves as a forum for the comprehensive study of the ways in which Asian polities and societies have interacted over time through religious, cultural, and economic exchanges, and diasporic networks. The Centre also offers innovative strategies for examining the manifestations of hybridity, convergence and mutual learning in a globalising Asia.

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Left to Right: Aaron Kao with Spruha Gupta during a survey session at the 2016 NSC Archaeological Field School at Koh Ker. (Photo: Ea Darith)

EDITORIAL

While the Nalanda-Sriwijaya Centre (NSC) remains committed to showcasing the latest scholarship on premodern Southeast Asia, we also dedicate a substantial amount of our time and efforts to public outreach. We believe that public outreach is crucial to our work because knowledge should not be accrued for its own sake but for a deeper understanding of who we are and where we come from.

Thus, beyond its conventional scholarly output, NSC is always looking for opportunities and collaborations that would help us disseminate the findings and expertise of our researchers to a wider audience who may not necessarily start off with an interest in premodern history or archaeology. The tone and accessibility of our dissemination is crucial. Too much jargon or theory and we risk alienating casual readers. Too simplistic or one-dimensional and we risk patronizing them. We continue to strike a fine balance between the two.

The NSC Field School is our most significant contribution to regional public outreach. The Field School

began in 2012 and has since completed four stints in Cambodia. It is open to students from East Asia Summit (EAS) member countries and seeks to increase understanding of the ancient and intimate links that have connected Asian countries, and to emphasise the history of intra-Asian interactions over the past 2,000 years. All our Field Schools begin overseas and conclude in Singapore, and it is hoped that a community of EAS scholars will be nurtured over time. We will conduct our 5th Field School in July this year.

We also reach out to Singapore students. The Archaeology Programme for Students (APS) promotes archaeology to Junior Colleges under the Ministry of Education. The APS provides students with an understanding of the post-excavation process and inculcates an appreciation for archaeology as a discipline. These students are hosted at NSC and enjoy the hands-on experience of cleaning and documenting 14th century artefacts excavated at Empress Place. From January 2016 to January 2017, the APS hosted over 70 students from Anglo-Chinese School (Independent), St. Andrew's

Junior College, Yishun Junior College, Nanyang Junior College, and Temasek Junior College.

Finally, NSC's most recent public outreach effort is the printing of all Singapore-related reports under its Archaeology Report Series. Hard copy reports on our excavations at Empress Place, the National Gallery Singapore, Victoria Concert Hall and others over the years will be printed and disseminated to relevant stakeholders. The first of such reports is the Preliminary Report on the Archaeological Investigations at the National Gallery Singapore. We believe this will promote awareness of local archaeology and nurture appreciation of our nation's past.

It is in this spirit of public outreach that we present you the 5th issue of NSC Highlights.

Related Links

NSC Publications from the ISEAS Bookshop
<https://bookshop.iseas.edu.sg/publication-search#series=NSC>

The Archaeology Programme for Students
<https://www.iseas.edu.sg/centres/nalanda-sriwijaya-centre/public-outreach/the-archaeology-programme-for-students>



National Gallery Singapore rescue excavation (Photo: Ung Ruey Loon)

FEATURE:

Excavations at the National Gallery Singapore

By Lim Chen Sian

Associate Fellow, Nalanda-Sriwijaya Centre

Singapore prides itself as one of Southeast Asia's most modern cities. Visitors and residents alike are dazzled by the pace and unending changes to the urban environment around them. Steel and glass skyscrapers jostle for airspace with construction cranes erecting yet more buildings. Beneath the ground large-scale tunneling works for new subway lines meander throughout the island.

Yet, despite decades of rampant development, Singaporeans are still amazed that much of the island's past lies buried under the city's roadways and sidewalks. From battlefield remains, early fortifications and a 700-year-old ancient trading settlement, archaeology in Singapore seeks to uncover the layers under the present urban landscape.

Located in the heart of the downtown Civic District, the development of the National Gallery Singapore (NGS) entailed major retrofitting and demolition works at the former Municipal Building and the old Supreme Court. The new art gallery construction involved installing a two-storey basement complex, which would destroy any archaeological remains within the compound.

A small test excavation was conducted in 2009 to ascertain the archaeological potential of the site. 10 test trenches were dug in the car park between the two buildings. It revealed pockets of archaeological deposits from the colonial period (late-19th to early 20th century), World War II (1942-1945), and Temasek (c.14th century). This discovery therefore necessitated a month-long rescue excavation in

October 2010 to recover as much archaeological material as possible before NGS construction began. Notwithstanding the archaeological excavations was limited and covered only 12% of the construction impact zone, the site yielded 375kg of artefacts, revealing the richness of the site.

One of the most significant finds from the excavation was a porcelain torso of a Buddhist statuette (see *NSC Highlights* cover). Ornamented with rosary beads and flowing robes, the figurine was identified as a Bodhisattva, probably Avalokitesvara (or more popularly known as Guanyin). Stylistically, the Qingbai (bluish-white) porcelain dates to the Yuan Dynasty (c.1271-1368) and was manufactured at the Jingdezhen kiln complex in Jiangxi province, China. The figurine

is the first religious iconography uncovered from an archaeological context in Singapore, suggesting that Buddhism was one of the available belief systems in Temasek.

Although it has been seven years since the rescue excavations, the post-excavation processing of the artefacts is still ongoing. Presently, the cleaning, sorting and labeling of the artefacts have been completed. Should further resources be available, NSC's Archaeological Unit (AU) hopes to proceed to the final stage of cataloguing and archiving the 23,152 artefacts.

Aaron Kao, AU's Research Officer, explains, "We are still far from completing our objectives. Once we are able to finish the post-excavation tasks, the real start of our work to conduct research on the objects begins. Finding out what do all these different types of artefacts tell us, about trade networks, about preferences and taste of ancient Singaporeans."

Finds Manager and long-time volunteer Margaret Wong adds, "Unlike elsewhere in the world, where there are multiple teams of archaeologists for each stage of the process – a field team conducting the excavation; the laboratory



Volunteers at work (Photo: Lim Chen Sian)

processing team cleaning and sorting the artefacts; the finds specialists studying different materials; and the collections management team cataloguing, conserving and storing the materials, here in Singapore we do everything and more ourselves."

Nevertheless, the team has made great strides, and several research projects are underway. Kao has recently completed his first paper on

decorative motifs of the earthenware pottery from the site, while Wong is cleaning the heavily corroded Chinese coins and examining their chronology and manufacturing provenance. A larger study on the comparative intra-site distribution of finds and its inferences for site activities and functions is currently attempted by the Project Archaeologist as part of his PhD and longer term research.

Resources permitting, the AU has an ambitious programme to embark on and roll out its research findings from the NGS site over the next five years. As important as the first discovery of a religious icon in Singapore, more exciting times lay ahead.

Lim Chen Sian is an Associate Fellow at the NSC AU. He was the Project Archaeologist for the excavations at the NGS and is presently the Principal Investigator spearheading the post-excavation research. He is currently doing his PhD at the University College London.

NSC recently published the Preliminary Report on the Archaeological Investigations at the National Gallery Singapore. To download a copy as well as read other archaeology reports, visit <https://iseas.edu.sg/articles-commentaries/nsc-au-archaeology-report-series>

"One of the most significant finds from the excavation was a porcelain torso of a Buddhist statuette [...] The figurine is the first religious iconography uncovered from an archaeological context in Singapore, suggesting that Buddhism was one of the available belief systems in Temasek."



Post-Excavation processing of the finds (Photo: Lim Chen Sian)



Labeling of each artefact with a Unique Identification Number (Photo: Lim Chen Sian)

Ceramics, Trade & Angkor in Decline

By *David Brotherson*

PhD. Candidate, University of Sydney

At its apogee Angkor, the capital of the Khmer Empire (9th - 15th century CE), was one of the largest settlements in the pre-industrial world (> 1000 km²), and had a population of some 750,000. The account of a Chinese diplomat to Angkor in 1296/7 CE, describes the temples and royal palace of what must have been one of the wealthiest cities on earth.

Yet by the 19th century, Europeans visiting Cambodia were struck by the sparsely populated landscape and relative poverty. Clearly drastic social and political change had occurred in the interim. Research conducted by the Greater Angkor Project (GAP), a project of the University of Sydney in collaboration with the APSARA Authority, the EFEO and the University of Hawaii, demonstrates how the international

“Ceramics are a useful indicator of human life, being utilitarian and, unlike organic rubbish, can survive for thousands of years.”

trade of ceramics contributes to our understanding of this transitional period (14th – 19th century CE).

Traditionally, Angkor’s demise was attributed to an invasion of the rival state of Ayutthaya (in present day Thailand) in 1431 CE. However, archaeological and paleo-environmental research demonstrates that war was but one factor. Angkor, placed on the Tonle Sap floodplain to grow rice and harvest freshwater fish, was also subjected to the monsoon’s

seasonality. In response to these environmental constraints the Khmers developed a hydraulic network to mediate seasonal rainfall variability, functioning successfully for many years.

However the network, susceptible to sedimentation and erosion, over time became so elaborate that it eventually failed and was unable to support the large population. In addition, dendrochronology (the study of tree rings) has revealed severe climatic variability in the 14th and 15th centuries, with decade-scale droughts interspersed with immense monsoon downpours. Extreme

fluctuations in rainfall coupled with the ailing hydraulic network meant that large-scale settlement was untenable. What remains to be understood however is what, if any, residual population remained at Angkor after the royal court and entourage relocated.

Most studies of Angkor have focused on the durable components – the brick and sandstone temples. This presents a bias towards the religious activity of royalty and the elites. The inhabitants of Angkor lived in lightweight stilt houses made of wood and thatch, long since rotted away, but there are still durable remains of residential debris, primarily ceramics.

Ceramics are a useful indicator of human life, being utilitarian and, unlike organic rubbish, can survive for thousands of years. The Khmer Empire had its own thriving ceramic industry, but no kiln site is known to have functioned after the 14th century. While Cambodia is not known to have exported its ceramics, it was the recipient of many imports, primarily from China, starting in the 9th century CE. Glazed bowls and covered boxes (Figure 1), likely containing herbs and medicines, were imported during the Angkorian



Figure 1 – (Top left): High value Chinese porcelain and stoneware, 13th-14th century CE. Porcelain with qingbai glaze covered box lid featuring chrysanthemum-style lobes, from Dehua, Fujian province. (Photo: GAP/EFEO); (Bottom left): Stoneware celadon glaze bowl with moulded paired fish design in centre, from Longquan, Zhejiang province. (Photo: Bangkok University).



Figure 2 (above) – Mass produced utilitarian bowl fragments, from miscellaneous kilns in Guangdong and Fujian provinces, 18th-19th centuries CE. (Photo: GAP).

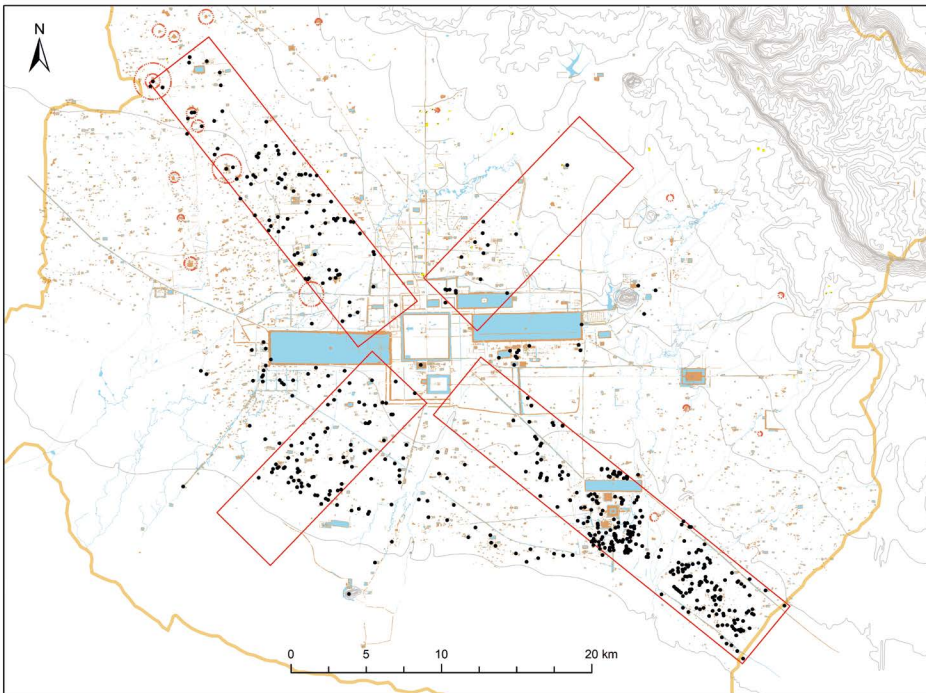


Figure 3 – GAP surface collection transects (red rectangles), sites which yielded material (black). Sites located outside the transects were surveyed by Pottier. (Image: David Brotherson)

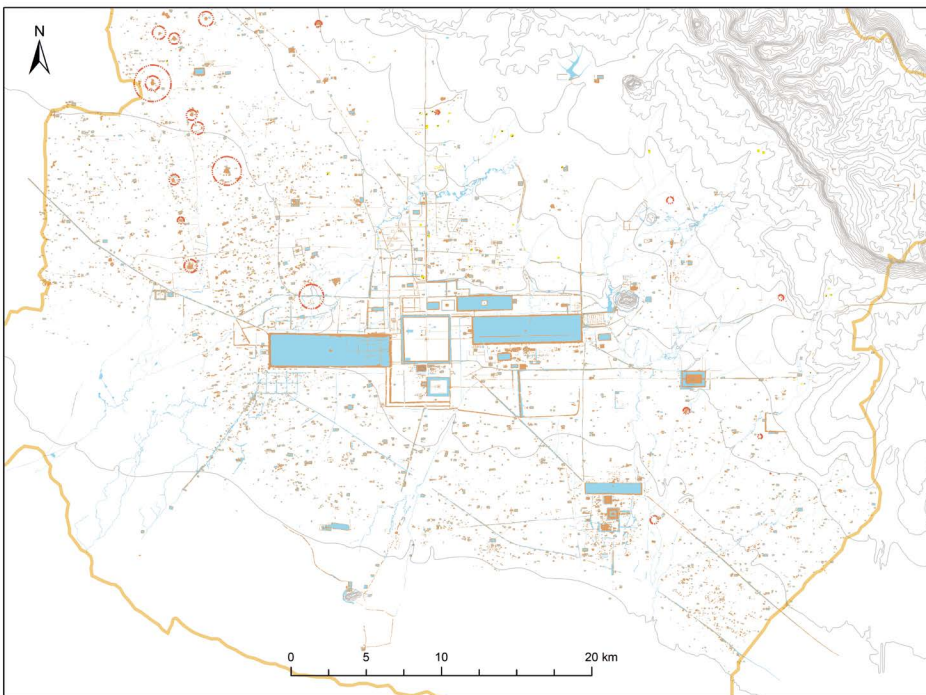


Figure 4 – Archaeological map of Angkor. Embankments/mounds (brown), reservoirs/waterways (blue), GAP study area (yellow), 10m contours (grey). (Image: Damian Evans & Christophe Pottier)

period and their abundance at the royal palace indicates they were a luxury item, perhaps even heirlooms. For archaeologists, Chinese ceramics function as a useful chronological marker as most types can be dated to within a century or two.

Between 2012 and 2014 GAP conducted a field survey and surface collection of ceramics at Angkor, sampling right across the settlement from the urban core to the periphery (Figure 3). Unlike excavation, a surface collection allows a relatively quick and cost-effective way to study a large area. Analysis of the material revealed trade ceramics dating from

the 11th to the 19th centuries, and by correlating the dated materials to their locations allows us to identify temporal and spatial patterning in the size of the settlement and its distribution.

Preliminary results indicate a distinct lull in imports during the 15th and 16th centuries CE, before a resurgence in the 17th-19th centuries. In fact, the majority of the imports date to the 18th and 19th centuries, but these are typically of lower quality than earlier examples found at the royal palace site. These later ceramics, produced on an industrial scale, would have been cheaper and thus their use

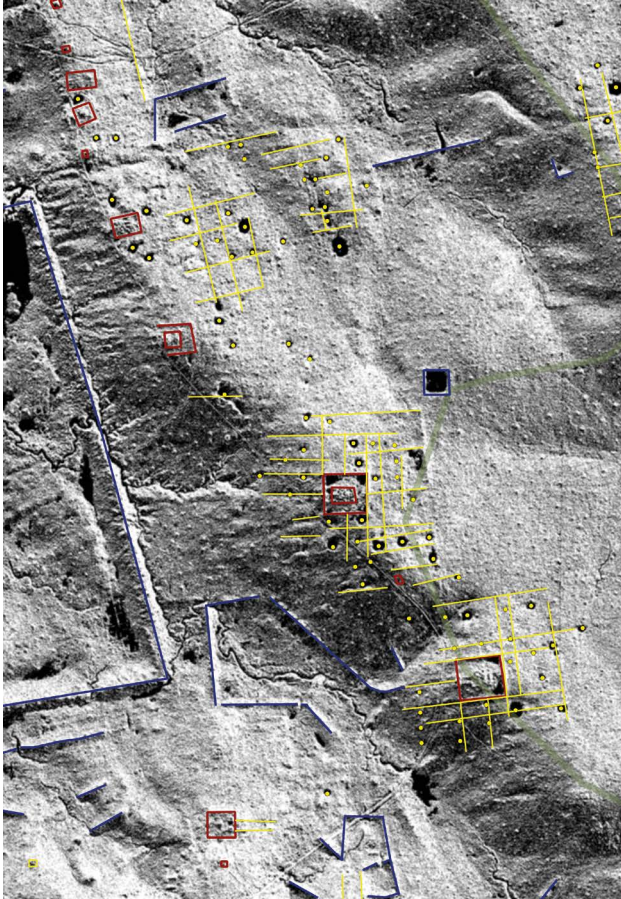
regime amongst the Khmers would have changed to an everyday affair, effectively moving from the mantelpiece to the kitchen cupboard. Trade ceramics show us that while social elites probably left Angkor in the 15th century, most parts of the settlement were occupied by a residual population afterwards.

David Brotherson is a PhD. Candidate at the University of Sydney. His dissertation is entitled "The Demise and Transformation of Angkor: A Study of Ceramics and the Urban Environment." This research was presented as a lecture during the 2016 NSC Archaeological Field School.

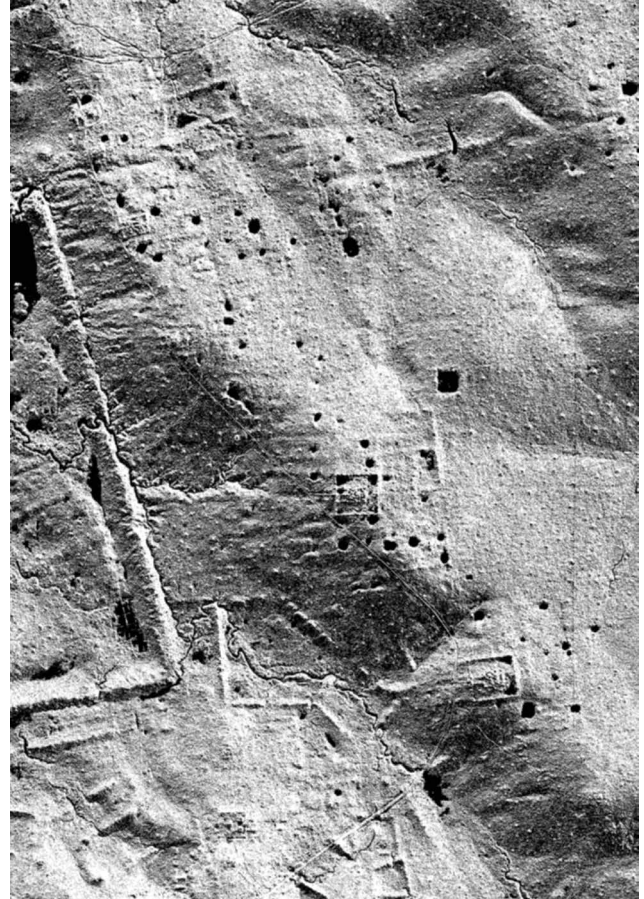
LiDAR Imaging and Ancient Angkorian Capitals: new research goals for the hidden city of Koh Ker

By Károly Belényesy

Archaeologist, Research Leader,
HISTORIARCH - HUNINCO, Hungary, Budapest



Inhabitation areas, small water reservoirs, and dikes on the east side of the Rahal. The different colors may indicate different periods of settlement. Analysed LiDAR image of Koh Ker (KALC) by Róbert Kuszinger (HUNINCO).



The east side of Rahal in the LiDAR image. Part of the analysed LiDAR image of Koh Ker (KALC) by Róbert Kuszinger (HUNINCO).

Koh Ker is an early 10th century Angkorian capital located 100 km northeast of Angkor. It is unusual in many ways. Koh Ker is well outside the normative political Angkorian homeland in Siem Reap. Its orientation is north-south rather than the typical east-west temple-city design. It was established by King Jayavarman IV (928-944 CE), who is often portrayed as a usurper king. It was thought to be a relatively short-lived city until recent discoveries indicate occupation from the 7th century onwards – over a 1000 years of settlement and activity.

LiDAR helps us unravel the layout of

ancient urban landscapes in tropical forest areas. It has been integral to our increased understanding of Angkorian settlement. LiDAR is short for Light Detection and Ranging. It uses millions of laser pulses emitted from a low altitude aerial apparatus - typically a drone, helicopter, or airplane. After the signals bounce off surfaces, many are re-captured by detectors from the same apparatus. It takes longer for signals hitting the forest floor to return than it does for signals reflected from vegetative cover. Precision lasers, clocks, detectors and GPS systems linked to LiDAR data capture are now sophisticated enough to provide

topographic details with incredible accuracy.

This reveals both modern and ancient landscape modifications, such as temple complexes, residential neighbourhoods, roads, canals, reservoirs, dikes, terraces, agricultural field systems and so forth.

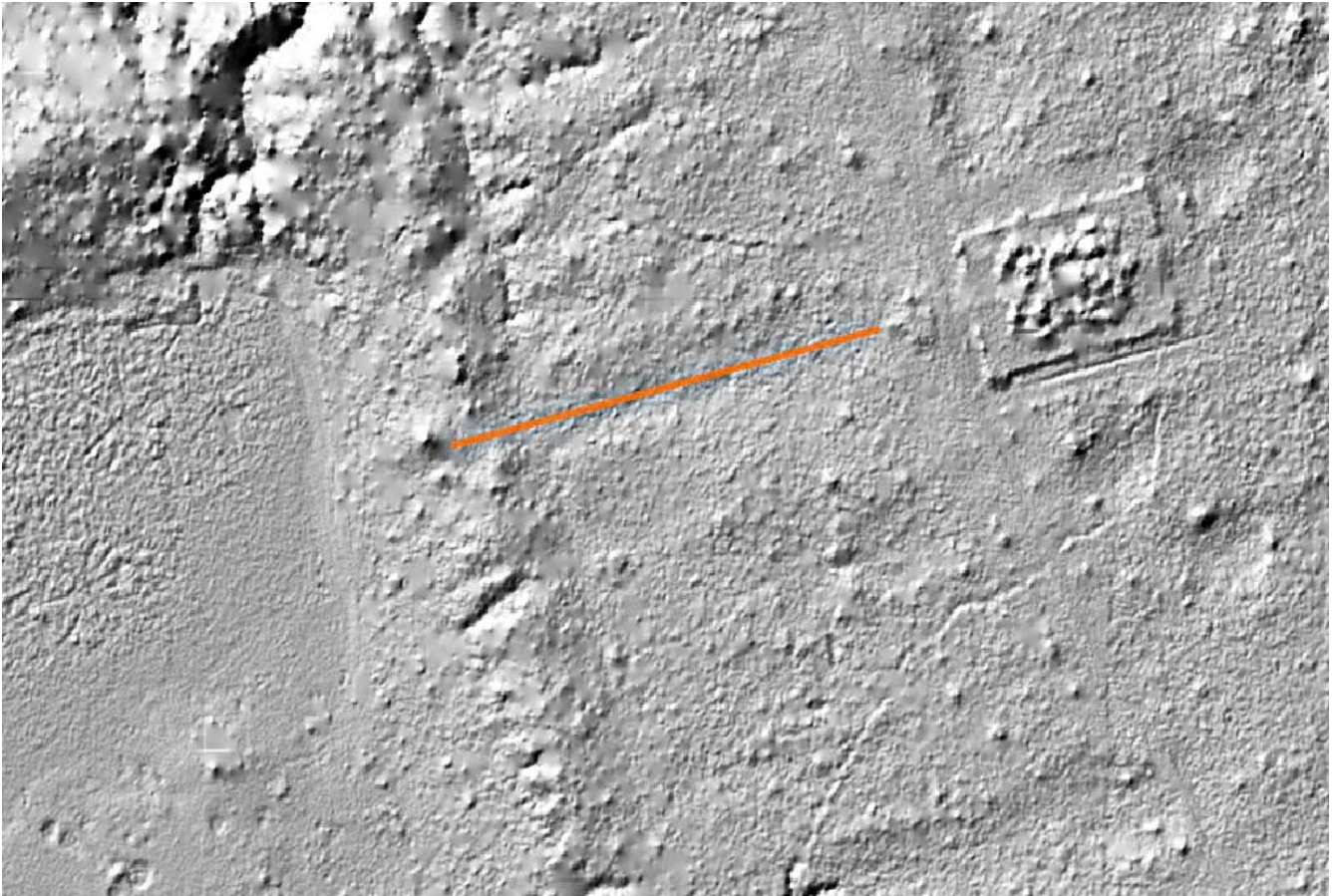
However, LiDAR itself can neither determine age nor tell us what lies beneath the ground. Archaeologists must survey and excavate to determine the antiquity of surface and sub-surface features. Coupled with ground surveys and

archaeological testing, LiDAR imaging can be integrated with pattern recognition algorithms to help us better understand Koh Ker's lengthy settlement history.

Koh Ker archaeological-historical survey had previously focused on visible architectural remains, such as temples, channels, dikes and the Rahal (a large artificial reservoir measuring 600-1200m). The Rahal is central to the city layout. Most of the larger stone architectural ruins at Koh Ker are located on higher ground around the Rahal's perimeter.

Field School to test residential sites between the palace and the primary state temple, Prasat Thom (a 36 m tall seven tiered pyramid structure made of sandstone and dedicated to Siva - Koh Ker's most iconic site). Aside from producing pioneering data from the early excavations and site mapping, the most important task for our team was to clarify the concepts connected to the settlement history of the sites. Fortunately, the teams had access to recently rendered LiDAR data made available through the Khmer Archaeology LiDAR Consortium (KALC).

(HELM) to enlarge the interpretative frameworks of the LiDAR images. An evaluation of data proves that new processing methods are needed to enhance the visibility of micro level changes in the terrain. For example, a number of unique built structures made of non-durable materials were mapped. These have been interpreted as the remains of earlier settlements partly aligned to the walls of the temples. The identification of these forms are central to current research. Pattern anomalies may refer to different chronological periods of use.



A road aligned with the east-west axis of Prasat Krachap temple (highlighted in orange) can be interpreted in the LiDAR image (courtesy of KALC). This temple is located close to the north-east corner of the Rahal, a large water reservoir at Koh Ker. (Image: Károly Belényesy)

We first began with listing, checking, and mapping sites and features. The starting point was the royal centre and main temples. The relations between the various features were an important consideration. Furthermore, the complex water management systems were surveyed to answer hydrology questions – a topic central to ancient Angkorian urban studies.

Since 2011, the Cambodian and Hungarian teams focused on Prasat Krachap - an important Koh Ker temple with numerous inscriptions. In 2015 the Hungarian-APSARA team partnered with the NSC-APSARA

Once several sacral buildings were identified, we could better understand their role in contemporaneous settlement networks. The LiDAR data brought a major breakthrough in the interpretation of the anthropogenic changes in the area. Many of the patterns were not previously recognisable on the ground. LiDAR completely altered our hypotheses about the settlement history and archaeology of the area. It marked a new period in the research of Koh Ker.

Our LiDAR analysis team (led by Róbert Kuszinger) is currently developing a special methodology

To simplify, a 7th/8th century pattern of settlement, construction, industry, agriculture, and water management may leave a certain signature on the landscape – that is, a definitive stamp, pattern, or shape. The 8th/9th century pattern may be different and leave a different kind of stamp. Meanwhile, the earlier stamp may have degraded or have been partially obliterated by more recent modifications. Likewise, 10th, 11th, 12th, and 13th century stamps may be varyingly different. An analogy would be different urban planners designing urban landscapes in different decades or centuries.



Once the road was interpreted by LiDAR, this hypothesis could be tested via ground-truthing (exposing the sub-surface structures). This picture shows the exposed terrace elements at the end of the road as well as the excavated steps from the terrace. (Photo: Károly Belényesy)

“LiDAR completely altered our hypotheses about the settlement history and archaeology of the area. It marked a new period in the research of Koh Ker. [...] It is clear that the focus of new research should be centred on specific networks of habitation areas to define the different periods.”

We can determine which patterns belong to which periods through rigorous archaeological sampling and testing. This data is integrated into pattern recognition programmes to help us unravel landscape histories through LiDAR imaging. Furthermore, different patterns may be attributed to different cultural influences; not just different time periods. For example, a Chinese or Cham settlement and water management system pattern may be quite distinct from the Khmer. We may also be able to determine different ethnic or socio-economic quarters of urban areas. Likewise, different functional areas can be discerned.

Our preliminary findings at Koh Ker around the Rahal indicate multiple periods of settlement and landscape modification. This is consistent with the radiocarbon dates and pottery analysis suggesting Koh Ker has a long occupation sequence that evolved over centuries. These results present a new discovery because typical historic narratives based on inscriptional evidence and art history suggested a short period of occupation.

The investigation from last year's LiDAR surveys substantially modified the picture of Koh Ker. LiDAR data provided an improved framework both for the interpretation of previous

results as well as for the planning of future research. Previous surveys focused on the distinctive elements of this system, such as individual temples and visible architectural structures. However, the areas between the main foci (including settlements and industry) remained unknown. Accordingly, the complex web of the communication channels (streets, hydraulic systems) and the habitation structures were not



A trench excavation of the road aligned with the east-west axis of Prasat Krachap. (Photo: Károly Belényesy)

explored. These aspects provide important information when interpreting the development and function of Koh Ker. It is possible that these details can fundamentally contribute to understanding the extent and character of human interventions to the natural environment, and delineate the development and occupation of the site. It is clear that the focus of new research should be centred on specific networks of habitation areas to define the different periods.

Through LiDAR, we are now able to see a more complete settlement history of Koh Ker. Nevertheless, the central problem remains: although the picture is near complete, chronological phases are represented in one layer. While the different image patterns show major turning points in the settlement history, the computer images must be accompanied by ground-truthing. LiDAR helps us, but there is no substitute for necessary ground work.

Károly Belényesy was a Senior Affiliate Advisor for the 2016 NSC Archaeological Field School in Koh Ker. The materials for this article will be elucidated during the conference panel on Koh Ker entitled “Settlement, Economics and Ecology at Koh Ker - A Regional Angkorian Center: Preliminary Results Of Recent Archaeological And Paleo-Environmental Investigations” at the 16th Conference of the European Association of Southeast Asian Archaeologists on 3-7 July 2017 in Poznan, Poland.



Two Coconuts. (Photo: HRajib (Wikimedia))

The Bomoh: Now and Then

By Teren Sevea

Visiting Fellow, Nalanda–Sriwijaya Centre
Assistant Professor, University of Pennsylvania

On March 8, 2014, Malaysian Airlines flight MH370 disappeared from the radar screens of air traffic controllers at 1:19 am in what has become the biggest mystery in aviation history. The Boeing 777-200R, with 227 passengers and 12 crew, had departed from the Kuala Lumpur International Airport (KLIA) at 12:41 am. It was en route northeast to Beijing when it veered westwards towards the Indian Ocean. Only a flaperon and wing flap believed to be from MH370 have ever been found. Even as the flaperon was discovered in August of 2015 on the remote French island of Reunion in the Indian Ocean 175 km south of Mauritius, Malaysian Prime Minister Najib Razak announced that the flight's 'disappearance remained a mystery'. It remains so today despite the most intensive search for an aircraft in history.

A miracle-worker, spirit medium and ritual specialist (*bomoh*), however, claimed in days that he knew the real cause of MH370's disappearance, bringing back to the public eye a class of savants who rarely come into modern view. The bomoh, Ibrahim Mat Zin, describes himself as the Raja Bomoh or chief of the profession, continuing to make headlines although he has also become an unintentional laughing-stock. Four days after the plane disappeared, the Raja

Bomoh visited KLIA to search for the flight, incanting Quranic verses and searching the skies with a pair of bamboo binoculars. He also used a rattan replica of the plane, coconuts, fish traps and hooks. He declared at KLIA that the flight had been hijacked by spirits and had entered the unseeable environment (*alam ghaib*).



A Kelantan Village Bomoh of the early 20th century. (Source - John D. Gimlette, *Malay Poisons and Charm Cures*, 1923)

The Raja Bomoh called on the 100,000 members of his cult to read the 36th chapter of the Quran and encouraged believers to pray as he continued his search for MH370 and its spirit-hijackers with his eyes and binoculars. Within days, he claimed that MH370 would be spotted on an island. When the flaperon turned up on Reunion 17 months later, he said he was disappointed that the Prime Minister had failed to recognize his efforts, adding that he was also disturbed by the unwarranted reaction of some muftis, or religious scholars, and certain representatives of Islamic departments in Malaysia. A number of muftis had condemned his "un-Islamic" methods of searching, and called upon the Islamic police to arrest him for deviance.

The Raja Bomoh, nevertheless, has continued to fight heat waves and the haze. More recently, after the assassination of Kim Jong-nam at the KLIA, he rose to the occasion to protect his fellow Malaysians. With bamboo cannons, coconuts, seawater and his binoculars, he shielded Malaysia from a possible nuclear attack from North Korea. He also reached out to North Korea's supreme leader, Kim Jong-un, to attempt to soften his heart. Videos of the Raja Bomoh are regularly uploaded on Suara TV. Believers can contact him through the phone and via Facebook.

For a number of Malaysians and Singaporeans, bomohs are viewed as black magicians and witch doctors. Their followers are often thought to be naïve, superstitious and premodern. As a scholar, I have had the pleasure of meeting and observing dozens of bomohs over the past few years. I have met them in houses, shrines, mosques, cemeteries and in coffee shops. In return for gifts, they pray for their clients. They are said to heal patients and help their clients overcome all kinds of problems. They communicate with spirits and dispense talismans for the needy. Indeed, all I met with were in their way helping their followers survive challenges in modern Malaysia and Singapore. Moreover, they are conscious of how they have been perceived. Unlike the Raja Bomoh, a number of bomohs in Perak and Perlis were much more clandestine and paranoid about being persecuted by religious authorities.

One such healer is a man named “Bearded Ali,” who used to reside at a Muslim cemetery in Singapore, which was established in the early 19th century. The cemetery was removed in 2010, and he now heals clients and followers from a coffee shop. In the words of this healer:

They [critics] call this black magic. How is whatever we do not in line with Islam? I begin with the name of Allah and His Prophet, PBUH. I have been blessed to heal people. People ask ‘Ali, how do you do these things?’, I say I don’t even know. If I have the power to heal, this is because of Allah.

Other bomohs are also healers, masters of Malay martial arts, known as *silat*, and even artists. The Islamic calligraphy and designs of one such bomoh, Mohammad Din Mohammad, have been displayed in art galleries across the region, and in Europe.

Bomohs have had a long history in the Malay Peninsula. While critics view them as charlatans and as relics of the “Days of Ignorance,” they are popularly celebrated as pivots of religion and as masters of an esoteric but practical science. A century or two ago on the Malay Peninsula, these miracle workers, ritual specialists and spirit mediums were known by different and interchangeable titles – bomohs and pawangs. Travellers found bomohs

to be ubiquitous – healers and physicians, and as Jawi manuscripts showed, they were almost always employed by Malay planters to vivify their rice-fields and to ensure good harvests. Pawangs and bomohs were in fact described in Malay law books of Perak, like the *Undang Undang ke-99 (99 Laws, of Perak)*, as rulers of rice-fields and as ‘entitled to maintenance from the faithful’.

More than a century ago, travellers often spotted bomohs in mines. Chinese miners in Malaya for example, relied upon them to search for tin ore. In the words of the British Resident of Perak, Chinese miners “always employed the pawang



Kelantan-based, ‘Spirit-raising’ Bomoh of the early 20th century (Source - John D. Gimlette, *Malay Poisons and Charm Cures*, 1923)

“Bomohs have had a long history in the Malay Peninsula [...] Chinese miners in Malaya for example, relied upon these Muslim bomohs to search for tin ore.”

[bomoh] and followed his advice with great confidence, often with the happiest results.” In a similar vein, an Inspector of Mines, Abraham Hale, observed that bomohs of Kinta, (as Perak was then known), could “squeeze a hundred or perhaps two hundred dollars out of the Chinese *towkay* who comes to mine for tin in Malaya” because they had “wonderful noses for tin.”

Like the Raja Bomoh, they scanned forests with special vision and smelled out ore for their clients. Even Europeans were attracted to their charms. In the autobiography of Munshi Abdullah, known as the father of Malay literature, he described how the British Resident of Melaka, William Farquhar, had paid a *pawang* (bomoh) to trap elephants.

On the whole, jungles, animals, ore, rice and even metals were thought to have spirits in them. Bomohs as such were indispensable. They spoke with spirits and conducted ceremonies to penetrate the *alam ghaib*. They were masters of an esoteric science (*ilmu*) of communicating with spirits, for all activities. Malaysia was, historically, replete with multifarious bomohs. Some more ‘violent’ bomohs were expert hunters, and masters of weapons and of using the *keris*. Bomohs, then and now, were required even for seducing partners and for sexual fulfilment.

Reformists and skeptics regularly attacked bomohs. It was from the late 19th century however, that religious doctrine was bureaucratized in Malaya and bomohs were increasingly policed. According to the Resident of Pahang, H. C. Clifford, some “magicians” (bomohs) were “dealt out mutilation or death, or the imprisonment in gaol-cages which is worse than death,” in accordance with the strictest spirit of Islamic law. In spite of sporadic persecution, bomohs continue to thrive amongst circles of Muslims and non-Muslims in Malaysia and Singapore.

The Raja Bomoh as such, is merely a feature of a long Malay history of bomohs. In April 2017, it was reported that the bomoh had been arrested for days and had apologised for all his rituals. In his words, “I slept at the Dang Wangi lockup for two days and in Jinjang for three days. I have repented, I promise that I will stop all these rituals.”

A version of this article first appeared in *Asia Sentinel* as “Malaysia’s Raja Bomoh: Throwback to an Earlier Age.”

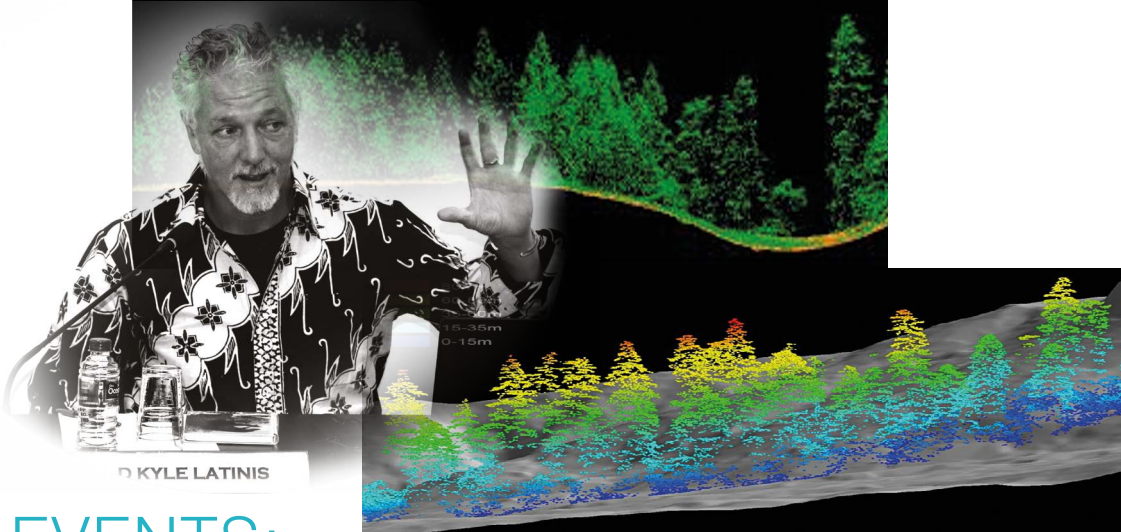


Photo (L-R): ISEAS - Yusof Ishak Institute, [MT LiDAR](#), and [Kodi Volkmann](#). Images disorted from original.

EVENTS:

Seeing Through the Forest: Lost Cities, Remote Sensing and LiDAR Applications in Archaeology

By Foo Shu Tieng

Research Officer, Nalanda-Sriwijaya Centre

Friday, 21 April 2017 – Dr. D. Kyle Latinis, Visiting Fellow at the Nalanda-Sriwijaya Centre (NSC), discussed the latest advances in remote sensing technology for archaeological research – LiDAR (Light Detection and Ranging). LiDAR is revolutionising the study of ancient urban landscapes in Southeast Asia. It has significant impacts on sampling and methodological approaches.

The lecture, entitled “Seeing through the Forest: Lost Cities, Remote Sensing and LiDAR Applications in Archaeology,” was held at the ISEAS – Yusof Ishak Institute. The lecture drew nearly 30 people, including diplomats, government officials, academics, museum curators, students, and members of the public. Those who attended the lecture were provided LiDAR image handouts which encouraged them to identify ancient structures.

LiDAR technology allows researchers to digitally peel away forest canopies from aerial scans. The initial scan produces a 3-D point cloud. Vegetative cover can be identified and removed. What remains is a detailed topographic map of the landscape features. The application is ideal for areas with heavy biomass.

Structures and landscape modifications such as ancient temples, roads, walls, water features and household mounds can be readily identified. Gridded patterns often reveal entire neighbourhoods, infrastructure, and agricultural

systems. Entire urban landscapes can be revealed with sub-meter accuracy.

However, LiDAR cannot determine the antiquity of features. Archaeological survey and testing are still required to determine the age of sites and features. Interestingly, certain patterns may be particular to a specific cultures and time periods. Once programmed into the analytical software, pattern recognition becomes a powerful tool to help unravel landscape and settlement histories.

Although currently expensive, Latinis argues that the technology is cost-effective in the long-term. What would normally take years and decades to achieve on foot with large teams, can now be done in hours and days by a small crew. LiDAR also increases accuracy and precision. Furthermore, the technology allows us to visualise large features in entirety that would be missed on foot; such as massive rock quarries, planned neighbourhoods, agricultural systems, and complex infrastructure. Knowing the larger picture also assists developers and planners to make better and more cost-effective decisions vis-à-vis heritage and environmental conservation concerns.

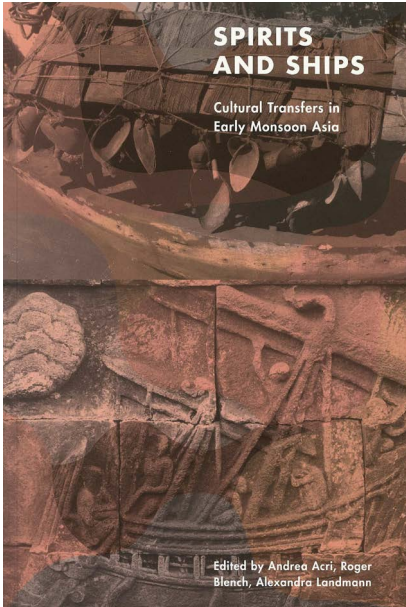
Latinis discussed two recent NSC projects in Cambodia as case studies: the 9th century Angkorian capital of Mahendraparvata at Phnom Kulen and the 10th century Angkorian capital at Koh Ker. At

Mahendraparvata, Latinis showcased how a simple LiDAR map enabled him to calculate the cubic meters of earth moved to build the ancient palace complex. The results provide proxy variables to estimate labor, time, capital, management levels and organisation. This helps us understand power, wealth, social complexity, and other factors. Metrics can be compared to other urban complexes in different places and times for a variety of analytical purposes. For the Koh Ker site, Latinis demonstrated how LiDAR data allowed the team to identify and investigate a potential residential neighbourhood in the urban core area. Test excavations were then conducted with astonishing discoveries. Furthermore, the neighbourhoods and complex patterns revealed by LiDAR at Koh Ker are being used to test pattern recognition capabilities.

LiDAR's potential role in heritage management was discussed during the Q&A. Latinis recommended that because LiDAR is likely to increase the number of new potential sites for a vast area in a short period of time, governments should consider investing in LiDAR, ground-truthing, and obtain local feedback as part of proactive zoning and heritage management initiatives. In terms of practical applications, LiDAR can also be used to periodically track changes (e.g. water system changes, deforestation, agricultural development, settlement and land use transformations, and tourist impacts).

RECENT PUBLICATIONS:

Spirits and Ships: Cultural Transfers in Early Monsoon Asia



Editors: Andrea Acri, Roger Blench, Alexandra Landmann

Publisher: ISEAS - Yusof Ishak Institute

Pages: 577

ISBN (Soft Cover): 978-981-47-6275-5

Price: US\$54.90

This volume seeks to foreground a borderless history and geography of South, Southeast, and East Asian littoral zones that would be maritime-focused, and thereby explore the ancient connections and dynamics of interaction that favoured the encounters among the cultures found throughout the region stretching from the Indian Ocean littorals to the Western Pacific, from the early historical period to the present. Transcending the artificial boundaries of macro-regions and nation-states, and trying to bridge the arbitrary divide between (inherently cosmopolitan) high cultures (e.g. Sanskrit, Sinitic, or Islamicate) and local or indigenous cultures, this multidisciplinary volume explores the metaphor of Monsoon Asia as a vast geo-environmental area inhabited by speakers of numerous language phyla, which for millennia has formed an integrated system of littorals where crops, goods, ideas, cosmologies, and ritual practices circulated on the sea-routes governed by the seasonal monsoon winds. The collective body of work presented in the volume describes Monsoon Asia as an ideal theatre for circulatory dynamics of cultural transfer, interaction, acceptance, selection, and avoidance, and argues that, despite the rich ethnic, linguistic and sociocultural diversity, a shared pattern of values, norms, and cultural models is discernible throughout the region.

For more information:

<https://bookshop.iseas.edu.sg/publication/2214>

NSC AU Archaeology Report Series

The Nalanda–Sriwijaya Centre Archaeology Unit (NSC AU) Archaeology Report Series was established to publish and disseminate archaeological and related research conducted or presented within the Centre. This also includes research conducted in partnership with the Centre as well as outside submissions from fields of enquiry relevant to the Centre's goals.

NSC AU Archaeology Report No. 6

Pinle (Maingmaw): Research at an Ancient Pyu City, Myanmar

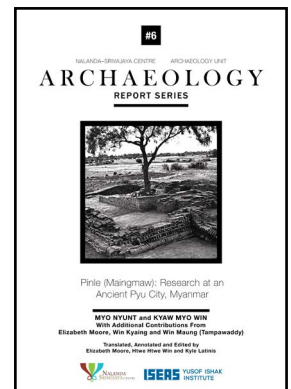
Authors: Myo Nyunt and Kyaw Myo Win, With Additional Contributions From Elizabeth Moore, Win Kyaing, and Win Maung (Tampawaddy)

Translated, Annotated, and Edited by Elizabeth Moore, Htwe Htwe Win, and Kyle Latinis

Abstract: Pinle occupies a strategic location bridging the Central Plain of Myanmar and trade routes to Yunnan. Two excavation campaigns and a wider area survey trip are highlighted in the following report. The excavation of a structure from Mound No. 15 revealed one of the finest examples of the complex brick architecture of the first millennium CE Pyu cultures. Various shapes of bricks were adeptly used to create a stepped profile for a stupa mounted on a rectilinear platform. The second excavation identified brick and wall features that were part of a rectilinear entry gate. This particular gate is distinct from those found at other Pyu cities such as Halin, Beikthano and Sri Ksetra. Other aspects, such as the presence of numerous extra-mural structures, parallel patterns found at the other Pyu cities.

The complete set of the NSC AU Archaeological Report Series can be accessed via:

<https://www.iseas.edu.sg/articles-commentaries/nsc-archaeological-reports>



UPCOMING EVENTS:

NSC Events

2017 NSC Archaeological Field School

Dates: 28 July-16 August 2017

The 2017 Field School will conduct intensive archaeological, heritage management, and cultural research at Tonle Snguot, a 13th century hospital/chapel complex associated with Jayavarman VII located near the northern gate at the famed Angkor Thom complex, in Siem Reap, Cambodia.

Applications are now closed. Please see the following website for further information: <https://www.iseas.edu.sg/centres/nalanda-sriwijaya-centre/archaeology-unit/the-nsc-archaeological-field-school>

NSC Lecture Series: Tantrism and State Formation in Southeast Asia

Speaker: Dr. Andrea Acri

Date: 14 August 2017

Time: 10:00-11:30am

Venue: ISEAS - Yusof Ishak Institute Seminar Room 2

The socio-religious phenomenon we now call "Tantrism" dominated the religious and ritual life in much of Asia from around 500 CE to 1500 CE and beyond. Yet, the impact of Śaiva and Buddhist Tantric traditions on the society and cultures of Southeast Asia remains insufficiently studied and appreciated. The talk will explore the indissoluble link between the State and Tantric ideologies, ritual systems, and actors, in Southeast Asia. It will first deal with state formation, evaluating the theories of "man of prowess" and "Śaiva bhakti" elaborated by Oliver Wolters, then turn to the role of Tantric magic and ritual in the medieval mandala polities of Sumatra, Java, and Cambodia, then offer some concluding reflections on the modern and contemporary periods.

2017 NSC Archaeological Field School Workshop

Date: 15 August 2017

Time: 2:00-5:30pm

Venue: ISEAS - Yusof Ishak Institute Seminar Room 2

Participants will be giving group presentations based on field school experiences, research, and new data derived from excavations.

The NSC-NU Internship Programme

Dates: 15 December 2017 - 15 January 2018

The NSC has invited applications from students at the Nalanda University (NU) for the NSC-NU Internship Programme. The programme is meant to strengthen institutional links between NSC and NU and to offer NU students an array of library and research resources in order to facilitate their academic development. Successful applicants will spend a month in Singapore at NSC where they will have access to the ISEAS Library and participate in NSC and ISEAS activities.

External Events

AAS-in-Asia

Dates: 24-27 June 2017

Location: Korea University, Seoul, South Korea

Info: <http://www.asian-studies.org/Conferences/AAS-in-ASIA-Conferences/Seoul-2017home>

16th Conference of the European Association of Southeast Asian Archaeologists (EurASEAA)

Dates: 3-7 July 2017

Location: Institute of Prehistory, Adam Mickiewicz University, in Poznań, Poland

Info: <http://euraseaa-poznan2017.pl>

7th South and Southeast Asian Association for Culture and Religion (SSEASR) Conference - ASEAN Region's Culture and Religion by the end of 21st Century: A Dialogue of Past with Present?

Dates: 9-12 July 2017

Location: Ho Chi Minh City, Vietnam

Info: <http://sseasr.org/>

Remapping the Arts, Heritage, and Cultural Production: Between Policies and Practices in East and Southeast Asian Cities

Dates: 16-17 August 2017

Location: Asia Research Institute, National University of Singapore

Info: <https://ari.nus.edu.sg>

Conference of the European Association for Southeast Asian Studies

Dates: 16-18 August 2017

Location: University of Oxford

Info: <http://www.euroseas.org/>

Conference of the European Association for Asian Art and Archaeology (EAAA)

Dates: 24-27 August 2017

Location: University of Zurich, Switzerland

Info: <http://www.ea-aaa.eu/>



NSC Highlights
is published by the Nalanda-Sriwijaya Centre
at ISEAS – Yusof Ishak Institute

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